HAKES C&D DISPOSAL

LANDFILL EXPANSION PROJECT
4376 MANNING RIDGE ROAD
TOWN OF CAMPBELL, STEUBEN COUNTY

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

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GLOSSARY

Common Acronyms

AAQS – Ambient Air Quality Standards
AST – Above ground storage tank
BDT – Best Demonstrated Technology
BTU – British thermal unit
C&D – Construction and Demolition
CFM – cubic feet per minute
CFR – Code of Federal Regulations
CO – Carbon Monoxide
CQA – Construction Quality Assurance
CQC – Construction Quality Control
dB – Decibel
dBA – A-Weighted Decibel (see definition section)
DEC – Department of Environmental Conservation (same as NYSDEC)
DEIS – Draft Environmental Impact Statement
DSEIS – Draft Supplemental Environmental Impact Statement
DOT – Department of Transportation
EMP – Environmental Monitoring Plan
EPA – Environmental Protection Agency
FEIS – Final Environmental Impact Statement
GCL – Geosynthetic Clay Liner
HDPE – High Density Polyethylene
LCSWM – Legislative Commission on Solid Waste Management
LDPE – Low Density Polyethylene
MGD – Million Gallons per Day
MLUP – Mined Land Use Plan
MRF – Materials Recovery Facility
MSL – Mean Sea Level
MSW – Municipal Solid Waste
NAAQS – National Ambient Air Quality Standards
NAD – North American Datum
NAVD – North American Vertical Datum
NGVD – National Geodetic Vertical Datum

NMOC – Non-Methane Organic Compounds
NRPDD – Non-Residential Planned Development District
NSPS – New Source Performance Standards
NYCRR – New York Codes, Rules and Regulations
NYSDEC – New York State Department of Environmental Conservation (same as DEC)
NOx – Oxides of Nitrogen
OSHA – Occupational Safety and Health Administration
ppm – Parts per Million
QA – Quality Assurance
QC – Quality Control
RACT – Reasonable Available Control Technology
SAP – Site Analytical Plan
SDWA – Safe Drinking Water Act
SEQR – State Environmental Quality Review
SEQRA – State Environmental Quality Review Act
SOx – Sulfur Oxides
SPDES – State Pollutant Discharge Elimination System
SWMF – Solid Waste Management Facility
SWMP – Solid Waste Management Plan
SWPPP (or SWP3) – Storm Water Pollution Prevention Plan
TOGS – Technical and Operational Guidance System
TPD – Tons per day
TPQ – Tons per quarter
TPY – Tons per year
USACOE – United States Army Corps of Engineers
USEPA – United States Environmental Protection Agency
USGS – United States Geological Survey
VOC – Volatile Organic Compound

Definitions

Active Landfill Gas Collection System – A gas collection system that uses gas-moving equipment. The gas-moving equipment would normally consist of a blower connected to the gas collection piping, which exerts a vacuum and provides for the collection of more gas than would be treated through a passive collection system.

Airspace – Finite amount of landfill volume allocated for waste containment.

Approved Design Capacity – The average daily tonnage to be received at the solid waste management facility during the quarter in which the most waste is anticipated to be received, as approved by the New York State Department of Environmental Conservation.

Aquifer – A consolidated or unconsolidated geologic formation, group of formations or part of a formation capable of yielding a significant amount of groundwater to wells or springs. Two types of highly productive aquifers in unconsolidated (non-bedrock) formations are defined below:

(i) Primary water supply aquifer or primary aquifer means a highly productive aquifer which is presently used as a source of public water supply by major municipal water supply systems.

(ii) Principal aquifer means a formation or formations known to be highly productive or deposits whose geology suggests abundant potential water supply, but which is not intensively used as a source of water supply by major municipal systems at the present time. Some water supply development has taken place in some of these areas but it is generally not as intensive as in the primary aquifer areas.

A-Weighted Decibel – Sound level measurement that corresponds to the portion of the sound frequency spectrum to which the human ear is most sensitive.

Barrier Layer – A component of the final cover system that is intended to limit the flow of infiltration into the landfill.

Barrier Protection Layer – A component of the final cover system that consists of 18 inches of soil material underlying the topsoil layer to provide protection for the barrier layer below.

Bedrock – Cemented or consolidated earth materials exposed on the earth's surface or underlying unconsolidated earth materials, including decomposed and weathered rock and saprolite. (Saprolite

is disintegrated and decomposed rock that lies in its original place.)

Borrow Area – Location where soil is excavated for use at another location.

Cell Areas – Areas of the site which are lined, and have leachate collection systems. All waste disposal at the site is within the cell areas.

cm/sec (centimeters per second) – A common unit of measure, used in hydrogeology to express the coefficient of permeability or hydraulic conductivity of soil or rock materials.

Coefficient of Permeability (also Hydraulic Conductivity) – The rate of flow of water through a unit cross-sectional area of a porous medium under a unit hydraulic gradient at a standard temperature. Clay and silty soils have low coefficients of permeability, often in the range of 10^{-6} to 10^{-7} cm/sec, while sand has a relatively high coefficient of permeability often in the range of 10^{-2} to 10^{-3} cm/sec. The difference between these ranges indicates that water can move through sand much more rapidly (approximately 10,000 times more rapidly) than through clay and silty soils. The negative exponents used in the coefficient of permeability values simply denote the inverse of the positive exponent. For example 10^{-7} means 1 divided by 10^{7} or 0.0000001.

Construction and Demolition (C&D) Debris – is defined in Part 360.2(b)(61) as waste resulting from construction, remodeling, repair and demolition of structures, buildings and roads. C&D debris includes fill material, demolition wastes, and construction wastes. Materials that are not C&D debris (even if generated from construction, remodeling, repair and demolition activities) include municipal solid waste, friable asbestos-containing waste, corrugated container board, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, furniture, appliances, tires, drums, fuel tanks, containers greater than 10 gallons in size, and any containers having more than 1 inch of residue remaining on the bottom.

Critical Stratigraphic Section – All stratigraphic units, both unconsolidated deposits and bedrock, including but not limited to the unsaturated zone, uppermost aquifer and first water-bearing unit into which contaminants that escape from a facility might reasonably be expected to enter and cause contamination.

Custodial Care Period – means the period after the post-closure care period when, as the department will determine, the landfill poses a significantly reduced threat to public health and the environment and environmental monitoring and maintenance can be reduced.

Drainage Swales – Constructed drainage trenches to direct run-off water that has not contacted solid waste, from areas around the landfill to the appropriate retention basin locations.

Expansion Cell Area – Area measured to the top of the perimeter slope for the landfill liner system in the proposed new permitted landfill cell area.

Final Cover System – means an engineered layer of materials approved by the department in accordance with Part 363 of this Title that is placed on any surface of a landfill where no additional waste will be deposited, and serves to restrict infiltration, prevent erosion, control landfill gas and promote surface drainage.

Geocomposite – means a laminated or composite material comprised of geotextiles, geogrids, geonets and/or geomembranes.

Geogrid – means a netlike polymeric material used with subgrade materials, soil, rock, earth or any other geotechnical engineering-related materials as an integral part of the structure or system to provide reinforcement to soil slopes

Geomembrane – An essentially impermeable membrane used with foundation, soil, rock, earth or any other geotechnical engineering-related material as an integral part of a structure or system designed to limit the movement of liquid or gas in the system.

Geonet – A type of a geosynthetic material that allows planar flow of liquids and serves as a drainage system.

Geosynthetics – The generic classification of all synthetic materials used in geotechnical engineering applications, including geotextiles, geogrids, geomembranes, geonets, geosynthetic clay liners and geocomposites.

Geotextile – Any permeable textile used with subgrade materials, soil, rock, earth or any other geotechnical engineering-related material as an integral part of a structure or system designed to act as a filter to prevent the flow of soil fines into drainage systems, to provide planar flow for drainage or to serve as a cushion to protect geomembranes or to provide structural support.

Geosynthetic Clay Liner – Factory manufactured layered construction material consisting of

bentonite placed between geotextiles or adhesively bonded to a geomembrane. This forms a barrier with an extremely low hydraulic conductivity.

Groundwater – Water below the land surface in a saturated zone of soil or rock. This includes perched water separated from the main body of groundwater by an unsaturated zone.

Groundwater Table – The surface of a body of unconfined groundwater between the zone of saturation and zone of aeration at which the pressure is equal to that of the atmosphere. Groundwater table does not include the potentiometric head level in a confined aquifer.

Hertz – A common unit of measure, used in noise evaluations to express the frequency of a sound (cycles per second).

High Density Polyethylene Geomembrane – An impermeable plastic membrane used in the landfill liner system to provide a barrier to leachate migration.

Hydraulic Gradient – Slope of the water table (or potentiometric head level) measured in the direction of the steepest rate of change. The hydraulic gradient is equal to the change in total head of the water table between two points divided by the horizontal distance between these points.

Impermeable – A material that does not allow water to flow through it. Soils with a hydraulic conductivity of 10^{-7} cm/sec or less are considered impermeable.

Industrial Waste – means waste generated by manufacturing or industrial processes.

Infiltration – Water ordinarily derived from precipitation that permeates a soil layer or solid waste.

Intermediate Cover – means a geomembrane or soil layer which will inhibit precipitation from entering the waste mass, contain leachate outbreaks, and inhibit migration of decomposition gases.

Landfill – means a facility where waste is intentionally placed and intended to remain and which is designed, constructed, operated and closed to minimize adverse environmental impacts.

Landfill Cell – means a discrete portion of a landfill which uses a liner and leachate collection and removal system to provide operational isolation from adjacent cells.

Leachate – Any solid waste in the form of a liquid, including any suspended components in the liquid, that results from contact with or passage through solid waste.

Leq – Equivalent steady-state sound level which contains the same acoustic energy as the time varying sound level during a selected time period.

Liner System – A continuous layer of natural and/or synthetic materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, that restricts the downward or lateral escape of solid waste, any constituents of such waste or leachate.

mil – Unit of length equal to .001 inch.

Municipal Solid Waste – means residential waste, commercial waste, or institutional waste, or a component or combination thereof, excluding construction and demolition debris and biosolids unless they are commingled.

Operating Cover – means a compacted layer of soil placed on all exposed waste.

Passive Gas Collection System – A gas collection system that uses positive pressure within the landfill to move the gas, rather than using gas-moving equipment which creates negative pressure to enhance gas removal (as with an "Active Gas Collection System").

Post-Closure Care Period – means the period after final closure of a landfill that continues until the owner or operator of the landfill can demonstrate to the department that the threat to public health or the environment has been reduced.

Sedimentation Basin – Containment reservoir designed to hold stormwater runoff for a sufficiently long time to allow suspended solids to settle out, and make the stormwater suitable for release to a stream or other natural water body.

Service Area – The geographical area from which the waste is received.

Site – The geographically contiguous property of a solid waste management facility and includes the land area of that facility and its access roads, appurtenances and land buffer areas.

Surface Water – Lakes, bays, sounds, ponds, impounding reservoirs, perennial streams and

springs, rivers, creeks, estuaries, marshes, inlets, canals, and all other perennial bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private. Surface impoundments at solid waste management facilities are not surface waters.

Vector – A carrier that is capable of transmitting a pathogen from one organism to another including, but not limited to, flies and other insects, rodents, birds and vermin.

Working Face – That portion of a landfill where solid waste is deposited and compacted before placement of operating cover material.

Companies Involved in the 6 NYCRR Part 360 Application & DSEIS Preparation

Project Sponsor:	Hakes C&D Disposal 4376 Manning Ridge Road Campbell, New York 14870
Parent Company of Hakes:	Casella Waste Systems, Inc. 25 Greens Hill Lane Rutland, Vermont 05701
Ecological Consultant:	Barton & Loguidice D.P.C. 443 Electronics Parkway Liverpool, New York 13088
Air Resource Consultant:	SCS Engineers 4 Executive Boulevard Suffern, New York 10901
Surface Water Consultant:	On-Site Technical Services 72 Railroad Avenue Wellsville, New York 14895
Geotechnical Drilling Consultant:	Earth Dimensions, Inc. 1091 Jamison Road Elma, New York 14059
Engineering, Hydrogeology and Permitting Consultant:	McMahon & Mann Consulting Engineers, P.C. 2495 Main Street, Suite 432 Buffalo, New York 14214

EXECUTIVE SUMMARY

Description of the Action and Setting

Hakes C&D Disposal (Hakes) is seeking a 6 NYCRR Part 360, Solid Waste Management Permit from the New York State Department of Environmental Conservation (NYSDEC) to construct and operate an expansion to an existing construction and demolition (C&D) debris landfill located at 4376 Manning Ridge Road, in the Town of Campbell, Steuben County, New York. The location of the Hakes Landfill is shown on Figure 1-1.

The proposed Hakes Landfill expansion will add 21.0 acres of permitted cell area to the existing 57.9 acres of permitted cell area. The approximate limits of the proposed 21.0 acre expansion are shown on Figure 1-2. The project also includes a 22.2 acre soil borrow area (see Figure 1-2) that will provide soil for construction and operation of the landfill expansion. The purpose of this permit modification application is to increase the permitted landfill cell area to 78.9 acres, thereby increasing the total available disposal capacity. The maximum permitted cell elevation of 1829 feet will not change.

The additional and existing cell areas will be used for the disposal of C&D debris waste. The maximum disposal rate (also referred to as the approved design capacity) will remain at the current level of 1494 tons per day (TPD), and the operating hours will continue to be from 7:00 a.m. to 5:30 p.m. for waste disposal operations. On-site construction activities can continue until 7 p.m., consistent with current permit.

The Hakes Landfill is approximately 3 miles north of the Village of Painted Post. Site access is from Interstate Route 86 (formerly Route 17), then east a short distance on NYS Route 415 to Erwin Hollow Road. After following Erwin Hollow Road north for approximately 1 mile, and Manning Ridge Road north for approximately 2 miles, the entrance to the Hakes site (located on the east side of Manning Ridge Road) is reached (see Figures 1-1 and 1-2).

The present landfill operation, including 57.9 acres of permitted landfill cells and ancillary facilities, occupies approximately 109 acres of land. The proposed additional cell area (21.0 acres) and ancillary facilities including soil borrow areas, will increase the impacted land area by approximately 41.5 acres (see Figure 1-3).

In addition to the NYSDEC permitting process described above, the Town of Campbell has a

procedure for permitting projects of this type under the "Non-Residential Planned Development District" (NRPDD) process administered by the Town Board. Hakes has applied for a designation of the Hakes site as a NRPDD from the Town of Campbell. Most, but not all, of the property owned by Hakes is within the proposed NRPDD, which, as proposed, consists of approximately 391 acres. The approval process includes an application for site plan approval of the final site plan for the project by the Town Planning Board, which will then make a recommendation to the Town Board. The Town Board will then make a determination on approval (or denial) of the designation. Additional detail concerning the Town approval processes, the land uses that are likely to be authorized by the Town approval processes, and conditions that are likely to be considered is set forth in Section 4.3 below.

Impacts of the Action and Mitigation

A major public concern regarding the construction or expansion of any solid waste facility is potential adverse impact on human health and the environment. This concern is understandable, but must be weighed against the beneficial effects of having properly designed and operated solid waste management facilities available for the safe handling of waste. The decision regarding the initial development or expansion of a facility is almost always based on a balance of the potential impacts on the local residents and the positive impacts to the community at large. The expansion of the Hakes Landfill is no exception. The significant beneficial impacts associated with this project include the safe disposal of C&D debris at a landfill designed in accordance with all applicable state and federal regulations, including the 6 NYCRR Part 360 regulations applicable to solid waste management facilities; and the economic benefits associated with additional local tax revenues, the jobs created during construction and operation of the landfill, and the use of local businesses and support services in the community. Additional benefits to the local community also occur in the form of revenue sharing, as specified in the "Host Agreement" between Hakes and the Town of Campbell.

Potential environmental impacts do exist for this project and are similar to those associated with C&D landfills in general, including impacts on surface and groundwater, land use, noise and aesthetics. Potential impacts have been minimized through operational controls, planning, facility design features and the original site selection. The project will result in a temporary loss of an additional 51.7 acres of open fields and forested areas, some of which presently function as habitat for wildlife. This loss will be mitigated by maintaining nearly 295 acres of the site as wildlife habitat during the operational period of the facility, following which closure plans call for

installation of final cover on the cell areas. The former cell areas will be maintained for a minimum of 30 years after closure, during which period a vegetative cover will be maintained, but periodic mowing will prevent the re-establishment of shrubs or trees. This type of grassland habitat will add diversity to the existing woodland habitat that dominates the surrounding area.

The project will also result in the continuation of landfill related traffic for an additional 5 to 10 years, although potential traffic impacts have been mitigated by considerable upgrade work that has already been done on both Erwin Hollow Road and Manning Ridge Road. There will also be an increase in the generation of landfill gasses, and although C&D waste generates a relatively small amount of landfill gas (compared to municipal waste), these impacts will be mitigated by the expansion of the existing active gas collection system.

All significant potential environmental impacts of the proposed facility, as identified during the scoping process by Hakes, its consultants, NYSDEC and interested public citizens, have been evaluated in the completion of this DSEIS. The scoping process included the distribution of a scoping document to all interested and involved agencies, by the NYSDEC on April 3, 2017. In response to this distribution, approximately 35 individuals took the opportunity to identify issues that in their view should be addressed in this DSEIS, by submitting written comments. On August 3, 2017, the NYSDEC issued a final Scope for the project. This DSEIS has been prepared to address all impacts identified in the final Scope.

In order to reduce the possibility of significant environmental impacts, all applicable provisions of 6 NYCRR Parts 360 through 366, which regulate construction and operation of solid waste management facilities, will be met. Impacts of the proposed expansion are minimized by the isolated location and natural topography. The low permeability of local soils will retard the transport of potential contaminant releases, and the site's location in the upper portion of the watershed reduces the quantity of surface runoff. In addition, the NYSDEC has monitors assigned to the facility who routinely visit the site to inspect operations.

Alternatives

The principal alternatives to this expansion project, which have been considered in this DSEIS, include alternative sites, alternative sizes, alternative design and operation, alternative land use (including post closure land use), and the "no action" alternative. In approaching the evaluation of alternatives, the applicant has been guided by the requirements of SEQR (6 NYCRR § 617.9),

which state that the DSEIS should contain "a description and evaluation of reasonable alternatives to the action that are feasible, considering the objectives and capabilities of the project sponsor," and further, that "Site alternatives may be limited to parcels owned by, or under option to, a private project sponsor." In addition, the alternatives analysis has been guided by the fact that this is an expansion of an existing solid waste landfill. As an expansion of an existing facility, the expansion will utilize the existing infrastructure at the landfill, all of which would have to be duplicated, with attendant environmental impacts, at a new site.

1.0 INTRODUCTION

Hakes C&D Disposal (Hakes) is seeking a Title 6 - New York Code of Rules and Regulations - Part 360 (6 NYCRR Part 360), Solid Waste Management Permit from the New York State Department of Environmental Conservation (NYSDEC) to construct and operate an expansion to an existing C&D debris landfill located at 4376 Manning Ridge Road, in the Town of Campbell, Steuben County, New York (see Figures 1-1 and 1-2). Hakes is a subsidiary of Casella Waste Systems, Inc., (Casella) headquartered at 25 Greens Hill Lane, Rutland, Vermont 05701. Casella is a waste collection and disposal firm that operates within the northeastern United States.

1.1 HISTORY OF THE HAKES LANDFILL

Engineering and environmental studies for the Hakes Facility began in the late 1980's. Hakes first received a permit for disposal of C&D debris in January 1989. A Draft Environmental Impact Statement (Reference 1), which will be referred to herein as the 1993 DEIS, was prepared in support of a permit modification application addressing the expansion of the landfill, and included an assessment of the environmental resources of the site and surrounding area, as well as an evaluation of potential impacts, and mitigation measures. The Final Environmental Impact Statement (FEIS) related to the 1993 DEIS was also issued in 1993 (Reference 2).

A Draft Supplemental Environmental Impact Statement (Reference 3), which will be referred to herein as the 2006 DSEIS, was prepared in support of a permit modification application addressing an additional expansion of the landfill to its current size, and again included an assessment of the environmental resources of the site and surrounding area, as well as an evaluation of potential impacts, and mitigation measures. The Final Supplemental Environmental Impact Statement (FSEIS) related to the 2006 DSEIS was also issued in 2006 (Reference 4).

The currently permitted 57.9 acre disposal area consists of eight cells. Cells 1 through 8C were constructed between 1999 and 2016, and have been mostly filled. Construction of Cell 8D was completed in 2017 and should provide disposal capacity through 2019. Additional waste will be placed in currently permitted cells, between now and 2019, to achieve final grades.

The 2006 DSEIS (Reference 3) is being supplemented by this Draft Supplemental Environmental Impact Statement (DSEIS), which provides an evaluation of actions presently proposed to increase the disposal volume and, therefore, the remaining life of the Hakes facility. The focus of this

document will be on potential impacts of the proposed cell expansion and borrow area (see Figure 1-3).

1.2 SEQR STATUS AND ISSUES TO BE DECIDED

This proposed Solid Waste Management Facility permit modification project is being reviewed under the State Environmental Quality Review (SEQR) Act to identify potentially significant environmental impacts and to establish methods and procedures to prevent or mitigate these impacts. This review is being performed under the direction of the NYSDEC, which has been established as the lead agency for this process. A diagram showing the steps included in the SEQR process is included in Figure 1-4. A copy of the SEQR Positive Declaration for this project is included in Appendix A. As defined in the SEQR Regulations, "Positive Declaration" means a written statement prepared by the lead agency indicating that implementation of the action as proposed may have a significant adverse impact on the environment and that an Environmental Impact Statement (EIS) will be required.

The primary tool of the SEQR process is the EIS. Since it has been determined that this proposed action may have a significant effect on the environment, this Draft Supplemental EIS (DSEIS) has been prepared to explore ways to minimize adverse environmental effects or to identify potentially less damaging alternatives. This document has been labeled "Supplemental" to indicate that it is focused on incremental impacts not already addressed in the 2006 DSEIS and 2006 FSEIS prepared for the Hakes Facility, and in the 1993 DEIS and 1993 FEIS.

A very important aspect of SEQR is its public participation component. There are opportunities for public participation throughout SEQR's EIS process. This included distribution of a public scoping document to all interested and involved agencies, by the NYSDEC on April 3, 2017. In response to this distribution, approximately 35 individuals took the opportunity to identify issues that they thought should be addressed in this DSEIS, by submitting written comments. The process includes a SEQR public hearing. In addition, there is a mandated 30-day period to receive public comments on the DSEIS, after it has been accepted by the NYSDEC and made available to the public. These opportunities allow other agencies and the public to provide input to the SEQR and permitting processes. A copy of the approved DSEIS Scope for this project, which incorporates applicable comments received from the public during the scoping process, is included in Appendix B.

The proposed Hakes Landfill expansion will require the following permits or approvals:

AGENCY	PERMIT	TYPE
NYSDEC	Solid Waste Management Permit Modification (6 NYCRR Parts 360 and 363)	Discretionary
NYSDEC	Air Permit Modification (6 NYCRR Part 201)	Discretionary
NYSDEC	Section 401 Water Quality Certification (6 NYCRR Part 608.9) (Related to federal wetland fill permit noted below)	Discretionary
NYSDEC	Stormwater Discharge (GP-0-17-004) Multi-Sector Industrial SPDES General Permit	General Permit/Registration
Town of Campbell	Non-Residential Planned Development District	Discretionary
Town of Campbell Planning Board	Site Plan Review and Recommended Conditions	Discretionary
USACOE	Wetland Fill Permit (Section 404 Clean Water Act)	Discretionary
Town of Hornby	None – SEQR Interested Agency Due to Proximity	
Town of Erwin	None – SEQR Interested Agency Due to Proximity	

The Town of Campbell zoning ordinance designates the Hakes site as being within an "agricultural residential" zoning district. This designation permits such principal uses as agriculture, and low-density residential development without any specific review or approval. Other business and industrial uses are also permitted in an agricultural residential district, under the "Non-Residential Planned Development District" (NRPDD) process administered by the Town Board. Hakes has applied for a NRPDD from the Town Board.

Based on their level of involvement, the NYSDEC and the Town of Campbell are involved agencies, pursuant to SEQR. The United States Army Corps of Engineers (USACOE) is an interested agency. Due to its proximity to the project, the Town of Hornby is also being included as an interested agency.

1.3 ORGANIZATION OF THE DSEIS

This DSEIS is organized to allow a reader the option to focus on particular areas of interest, if desired. The document need not be read from cover to cover if the primary concern of a reader is, for example, terrestrial and aquatic ecology. After a description of the proposed expansion project (in Section 2.0), Sections 3.0 and 4.0 provide assessments of the various natural resource

and human resource issues, respectively. Within each sub-section, an individual issue or topic (e.g., air resources, terrestrial and aquatic ecology, noise, or land use) is assessed. The assessment of each issue begins with a description of the current environmental setting, followed by a description of potential environmental impacts, and then a discussion of factors or actions that will mitigate (or reduce) the potential impacts. These assessments are based, in some cases, on separate detailed studies, which are included as appendices, and summarized in this DSEIS.

Following these impact assessment sections, unavoidable adverse impacts are identified and discussed in Section 5.0. Section 6.0 contains an evaluation of various alternatives to the proposed action, including the justification for selecting the proposed action over the alternatives. The next three sections contain required evaluations of potential impacts on growth (Section 7.0), effects on energy use (Section 8.0), the status of the Local Solid Waste Management Plan (Section 9.0) and the permanent commitment of resources (Section 10.0). The last section of the DSEIS (Section 11.0) contains a list of references.

2.0 DESCRIPTION OF PROPOSED ACTION

Hakes will be seeking a 6 NYCRR Part 360, Solid Waste Management Facility Permit Modification (Application Number 8-4630-00010/00001) from the NYSDEC to construct and operate an expansion to an existing C&D debris landfill located at 4376 Manning Ridge Road, in the Town of Campbell, Steuben County, New York. Hakes' purposes in seeking a future permit modification application are to increase the permitted landfill cell area and disposal volume, thereby extending the life of the facility.

The proposed Hakes Landfill expansion will add 21.0 acres of landfill cell area to the existing 57.9 acres of permitted cell area. The approximate limits of the proposed 21.0 acre expansion are shown on Figures 1-2 and 1-3.

Hakes is not seeking an increase in the maximum permitted cell elevation, which is currently fixed at 1829 feet. The elevation datum used in all project related documents is "Site Datum" and differs from the standard North American Vertical Datum of 1988 (NAVD 88), by 11.66 feet. The existing maximum cell elevation of 1829 feet (Site Datum) would correspond to 1817.34 feet (NAVD 88).

The additional and existing cell volumes will be used for the disposal of C&D debris. The maximum waste disposal rate will remain at 1494 tons per day (TPD). This maximum disposal rate (or approved design capacity) establishes the average daily tonnage to be received at the facility during the calendar quarter in which the most waste is anticipated to be received.

The operating hours will continue to be from 7:00 a.m. to 5:30 p.m., and construction activities will continue to be allowed until 7 p.m., consistent with the current permit.

2.1 PROJECT PURPOSE AND NEED

In Steuben County, the Hakes landfill is the only dedicated C&D disposal facility, other than those permitted to accept only land clearing waste. Although landfills permitted to accept municipal solid waste (MSW) can often also accept C&D debris, the more stringent design, construction and operation requirements of MSW landfills tend to make their disposal costs higher than C&D landfills, and some MSW landfills have restrictions on the acceptance of C&D waste. The purpose of the Hakes Landfill expansion is to extend the life of the existing C&D waste disposal facility. This will ensure that safe, economical disposal capacity for C&D waste will continue to be available in Steuben County.

The Hakes facility has been economically beneficial to the local area. The benefits for the Town of Campbell and Steuben County include increased tax revenues and the Town receives additional money based on the amount of waste received, as provided for in the Host Agreement. In addition, there have been a number of short term (construction related) and long-term (operation related) jobs created. The permanent operating staff at Hakes presently totals approximately 10 full time employees. During construction periods, full time construction related employment averages from 10 to 12 employees, with increases during peak periods. Additional employment opportunities are provided for waste transport truck and leachate tanker-truck drivers. The duration of these economic benefits would be extended to 5 to 10 years by the proposed landfill expansion.

2.2 LOCATION AND CURRENT LAND USE

The Hakes Landfill site (the site) is located on approximately 447 acres of land in the Town of Campbell, Steuben County, New York, as shown on Figure 1-2. The existing landfill is approximately 3 miles north of the Village of Painted Post. Site access is from Interstate Route 86 (formerly Route 17), then east a short distance on NYS Route 415 to Erwin Hollow Road. After following Erwin Hollow Road north for approximately 1 mile, and Manning Ridge Road north for approximately 2 miles, the entrance to the Hakes site (located on the east side of Manning Ridge Road) is reached (see Figures 1-1 and 1-2). Internal roadways have been developed on-site to provide access to various parts of the facility.

The topography of the site and the surrounding area is shown on Figures 1-2 and 2-1. The landfill cell area is located east of Manning Ridge Road, where the land slopes to the southeast toward Tributary 4 to Erwin Hollow Creek, at natural grades of 10% to 15%. Elevations range from approximately 1780 feet at the northwest corner of the site, to approximately 1450 feet at the southern boundary where Erwin Hollow Creek exits the site.

The present landfill operation, including 57.9 acres of permitted landfill cells and ancillary facilities (including the maintenance building, office building, roads, soil borrow area, stockpile areas, leachate storage facilities, and sedimentation ponds), occupies approximately 109 acres of land. The proposed additional cell area (21.0 acres) and ancillary facilities will increase the impacted land area by approximately 41.5 acres (see Figure 1-3).

Four sedimentation ponds located east of the cell area, and one located south of the current cell area, control sediment from the current operations area (see Figure 2-1). Soil from the cell areas is excavated and processed for use as low permeability soil liner material in the landfill liner system (see Section 2.4.3) and for daily and intermediate cover. Sediment from the excavation area is

controlled by the northern sediment pond located east of the cell area (Figure 2-1).

Leachate from the existing disposal area is piped to two above ground leachate collection tanks in the tank containment area southeast of the cell area. The tank containment area is designed and constructed to contain any leaks that might occur from the tanks. Tanker trucks transport leachate from the tanks to an off-site wastewater treatment facility on a routine basis. On average, 1 to 2 truckloads of leachate are transported each day, although typically, when leachate is hauled there are 4 truckloads transported in a day, followed by 2 or 3 days with no leachate transport. After heavy rainstorms, the number of daily truckloads can increase to approximately 6 to 9.

The more than 295 acres of land owned by Hakes at this location, which are not currently impacted by landfilling operations, consist primarily of forested areas.

2.3 LAYOUT and CAPACITY

2.3.1 Layout Plan

The proposed final site plan is shown in Figure 2-2. This figure shows the existing 57.9 acre cell area (cells 1 through 8), as well as the contiguous 21.0 acre proposed expansion cell area (cell 9). The figure also shows the soil borrow area, the maintenance garage, office/scale house, the leachate storage facilities, and sediment ponds associated with the proposed facility development and operation. This figure has been included for general reference purposes to provide context for the various descriptions of facility design, construction and operation provided in Section 2.4. More detailed drawings of the proposed expansion area layout can be found in the engineering plans in Appendix C.

2.3.2 Capacity

The existing Hakes Landfill has an approved design capacity of 1494 TPD. At the current rate of disposal, the currently permitted cells will reach capacity (be filled with waste) in the year 2019.

The proposed 21.0 acre cell expansion will add approximately 2.5 million cubic yards of disposal capacity, which will extend the site life to approximately 5 to 10 years, depending on the rate of waste receipt. The proposed design capacity for the expanded facility will remain at 1494 TPD.

2.4 DESIGN, CONSTRUCTION AND OPERATION

2.4.1 Introduction

The design, construction, and operation of the Hakes Landfill Expansion will be performed in accordance with the provisions of the "Solid Waste Management Facilities" regulations contained in 6 NYCRR, Parts 360 through 366.

As required by these regulations, the Hakes C&D Disposal Permit Modification Application, includes the following documents:

- Engineering Drawings (Part 363-4.2) – These drawings show the proposed cell expansion location, property boundaries, adjacent land uses, and detailed construction plans, providing all details relative to the design and development of the cell expansion area and related facilities. These plans also indicate the sequential development and fill progression of the landfill, and describe the seeding and planting plan. In addition, these documents show the manner and methods used to close the landfill once full capacity is reached.
- Engineering Report (Part 363-4.3) – The Engineering Report provides a description and analysis of the proposed facility; including a landfill liner subbase settlement analysis, structural integrity and overall slope stability analysis, seismic stability analysis, a description and analysis of the leachate collection and removal system, design information for a stormwater conveyance system, a mined land use plan and a facility closure and post-closure design plan. Specifications for materials and equipment and quality assurance and control procedures are included as an appendix to the Engineering Report.
- Facility Manual (Part 363-4.6) – This manual describes the anticipated day-to-day facility operations throughout the active life of the landfill, addresses appropriate sequencing of all major landfilling activities and demonstrates how the landfill will meet the operating and reporting requirements. It includes a sustainability plan, post-construction care plan, fill progression and placement plan, waste control plan, cover management plan, environmental monitoring plan, site analytical plan, leachate management plan, odor control plan, gas monitoring and emissions control plan, winter and inclement weather operation plan, radioactive waste detection plan, emergency response plan, conceptual closure plan, post-closure care plan, custodial care plan, and end use plan.
- Hydrogeologic Report – This report describes the landfill site geology and hydrology in detail, and relates these factors to regional and local geology and hydrogeology.

Key components of these reports are included in appendices as supporting information to this DSEIS. The purpose of the DSEIS is to evaluate environmental impacts, and as such, the design, construction and operational details of the facility are only briefly described below. For additional information concerning any topics discussed in this section, the documents listed above can be referred to.

2.4.2 Excavation/Construction Schedule

The landfill cell area will be excavated to a depth of up to 25 feet from the current ground surface in certain areas. This excavated soil will be used for construction of the soil portion of the landfill liners, with any unused soil stockpiled for future use on-site for daily, intermediate, or final cover, construction of berms, or other landfill components.

An important concern with regard to excavation to the bottom of liner elevations is the depth remaining to bedrock and groundwater. The current depth to bedrock in the proposed expansion cell area ranges from approximately 0 to 25 feet. Regulatory requirements in 6 NYCRR Part 363-6.4 require that a minimum separation of 10 feet be maintained between the base of the liner system and the top of the underlying bedrock. However, a variance is being requested to allow a reduction to 5 feet of separation from bedrock, based on re-compacting this layer to provide a continuous layer of lower permeability soil.

In the expansion area, groundwater occurs in the lower zone of the glacial till and the upper zone of the bedrock. 6 NYCRR Part 363-6.3 requires a minimum 5-foot separation between the groundwater table and the base of the constructed liner system. The proposed liner system includes a groundwater collection system to prevent the groundwater table from coming in contact with the base of the liner. The groundwater collection system will be similar to the system used for the existing landfill cells. Hakes is requesting NYSDEC's approval to deviate from the groundwater separation criteria contained in 6 NYCRR Part 363-6.3 based on the inclusion of this groundwater collection system beneath the liner system. This deviation from criteria is presently covered by an approved variance, which can be extended to cover the proposed expansion.

The excavation time schedule for the expansion cells will correspond directly with the time schedule for cell construction, currently expected to begin in the spring of 2019. Initially, it is anticipated that only about 7 acres of the expansion cell area will be constructed. Additional sub-cells for the 21.0 acre expansion area will be constructed in a phased manner, as shown in Figure 2-2. The estimated construction period of the first sub-cell is about 1 year. The time frames for permitting, construction, and operation of the 21.0-acre expansion project are shown in the schedule

included in Figure 2-3. Completion of the first sub-cell is presently scheduled for the fall of 2019.

Construction activities will comply with applicable OSHA and Federal and State Labor Department regulations, and will also be consistent with the Engineering Report, Construction Quality Assurance Plan, and Operation and Maintenance documents.

2.4.3 Liner System

The composite liner required in New York State for C&D landfills, shown in Figure 2-4, will be constructed for the expansion cells. A composite liner has also been constructed under the existing cells at Hakes. Also, as mentioned above, a groundwater collection system will be constructed below the composite liner to ensure that separation between the bottom of the liner and groundwater is maintained. The proposed liner system for the expansion cells will be designed in accordance with the requirements of 6 NYCRR Part 363-6 of the Solid Waste Management Facilities Regulations. The composite liner system will include a composite liner, and a leachate collection system, as described below.

The 2-foot thick soil liner will be constructed over a drainage geocomposite above the till subgrade, and will consist of compacted low-permeability soil with a maximum permeability of 1×10^{-7} cm/sec. A 60-mil HDPE geomembrane will be installed directly above the soil liner.

The leachate collection layer will then be constructed above the geomembrane, and consists of a 2-foot granular soil drainage layer. The gravel used in construction of the drainage layer will have a minimum in-place hydraulic conductivity of 1.0 cm/sec. A cushion geotextile will be placed between the soil drainage layer and the underlying geomembrane for protection of the geomembrane.

Compacted low permeability soil portions of the liner system will be constructed primarily of soils excavated from the site, although off-site sources may be used occasionally to meet construction schedule requirements. In order to meet NYSDEC design requirements, as previously mentioned, the coefficient of permeability of the compacted soil will be 1×10^{-7} cm/sec or less for all 24 inches of the compacted clay liner.

2.4.4 Landfill Progression

The 21.0 acre landfill cell expansion area has been designed for development of one new cell, with three distinct sub-cells (see Figure 2-2). The first sub-cell (numbered 9A) will be constructed over

approximately 7 acres, and will be constructed over a period of about 1 year. The estimated remaining life of the site, including the capacity of the 21.0 acre expansion is 5 to 10 years, during which time the additional cells will be developed and operations initiated as the previous cells approach capacity. Plans that show the subgrade layout for the expansion area and the final cover contours are provided in Appendix C. Details of the planned liner system and the final cover are also provided in Appendix C.

During daily operation, waste will be unloaded within the open landfill cell area, spread by crawler/dozers and waste compactors, and compacted at the working face of the active cell. The working face will consist of a surface large enough for vehicular movement and to receive the daily waste load, but small enough to maintain control over at all times. Intermediate cover will be placed over all fill areas not being utilized as an active portion of the working area.

Operating equipment includes crawler/dozers and waste compactors for grading, spreading and compacting the waste. The crawler/dozers are also used for applying soil cover. A trailer tipper is also used for emptying waste trucks. Other equipment operating on site at various times include pickup trucks and utility vehicles, haul trucks, a grader, a front-end loader, excavators, a water truck and leachate tanker trucks. Mining and construction equipment needs will include the equipment listed above and, in addition, will include smooth drum and sheepsfoot rollers, screens, compactors, backhoes, cranes, compressors, generators, fork lifts and pneumatic tools. This is the same equipment in use at the landfill today.

2.4.5 Leachate Collection and Removal

Details of the design of the leachate collection system are provided in Section 2.4.3. The purpose of the leachate collection system is to collect all leachate flowing through the waste due to infiltration and percolation of precipitation, and to convey this leachate to the leachate collection pipes and then to the storage facilities. It should be noted that, after placement of final cover, the amount of leachate generated by landfills is dramatically reduced.

The leachate collection system includes a series of perforated drain pipes embedded in a layer of highly permeable granular materials. The drain pipes are located directly above the composite liner in order to avoid build-up of leachate above the liners. The pipes will be cleaned at least annually to avoid build-up due to sedimentation or encrustation. From the leachate collection system, the leachate is transferred to the leachate holding tanks through buried lines (to prevent freezing) for storage until it can be transported away for treatment (see Section 2.4.6).

Construction of the leachate collection system will follow the general fill progression pattern, with the northern expansion cells (numbered 9A through 9C on Figure 2-2) being completed first and additional stages (along with the liner) constructed as needed. Care is used in driving equipment over the leachate collection layer to avoid disturbing or crushing the pipes. "Select" waste is utilized for the bottom 5 feet of waste placed above the leachate collection system. Any large objects potentially damaging to the pipes or liner will be removed from the select waste in order to form a protective layer. The most common problem materials that could damage the pipes or liner are metal objects such as pipes, stakes, rebar, etc. On-site processing of select waste includes hand removal of unacceptable objects. Rejected material generated from on-site processing will be disposed of in areas which already have the required 5 feet of select waste above the liner.

2.4.6 Leachate Storage

Leachate collected from the leachate collection and removal system will be pumped to the two existing tanks. The tank system has a total capacity of approximately 318,000 gallons. The tanks, as well as the piping system have double-containment provisions to prevent potential release to the environment. The secondary containment system for the piping system (which will consist of a second, outer pipe) will be monitored for liquid. Should liquid be found, testing will determine if it is leachate or groundwater, thus determining which pipe is leaking, and the necessary corrective measures to be taken.

The leachate tanks contain high level liquid alarms to alert operators when the stored volume of leachate approaches capacity. The design of the leachate tanks includes a secondary containment system, consisting of a clay lined berm. Any potential leaks from the tanks would be contained by the secondary containment system, and would be detected before release of leachate to the environment could occur.

The leachate tanks are located for easy access by tanker trucks (see Figure 2-2), which will be used to transport the leachate off-site for treatment. The tanker trucks are filled in a containment area so that any spilled leachate is collected, flows to a sump, and is pumped back to a storage tank.

2.4.7 Drainage Control

Control of uncontaminated surface water runoff from undisturbed areas outside the cell area is accomplished through the use of diversion ditches or swales located where necessary to divert surface runoff away from the disposal and operations areas. Additional ditches within the disturbed areas collect sediment laden runoff and convey it to on-site sedimentation ponds. During

construction, internal berms, flaps, or tarps will be used to prevent stormwater in constructed, but not yet active, landfill areas from becoming leachate. These structures will reduce the amount of leachate produced by managing the flow of water within the cells. Runoff from areas within the cells that has not come in contact with waste will be directed to the sedimentation ponds, rather than to the leachate collection system. For the proposed expansion, the drainage area contributing runoff to the sedimentation ponds will be larger than the current drainage area managed by the existing sedimentation ponds. Therefore, larger sediment pond storage capacities will be required. Appendix D provides a map that shows the direction of stormwater runoff for the existing facility and from the expansion area and a description of the additional stormwater controls that will be implemented for the expansion project.

No more than 50% of the storage capacities of ponds will be allowed to be filled by sediment. Sediment will be removed as a routine maintenance activity (as described in the Facility Manual). Soil sediments potentially introduced into surface runoff by facility construction and/or operation activities will have an opportunity to settle out in these ponds, following which the water will be discharged to Tributary 4 to Erwin Hollow Creek, the existing intermittent stream to the east of the site. As shown in Appendix D, water quality testing from Tributary 4 demonstrates that the current stormwater controls are effective in controlling erosion and sediment transport into the stream.

The constructed ditches will be lined with stone or protected from erosion by the use of stone check dams, or other appropriate erosion protection measures. These measures will reduce the amount of sediment transported to the sedimentation ponds. The design and operation of all sedimentation and erosion control facilities will be consistent with the NYS Stormwater Management Design Manual (Reference 5).

2.4.8 Environmental Monitoring

All permitted Solid Waste Management Facilities (SWMF) in New York State must develop and implement an Environmental Monitoring Plan (EMP) in order to monitor and document the quality of groundwater and surface waters, which may be influenced by operations at the facility. The EMP describes sampling and analysis protocols for upgradient and downgradient monitoring wells, liquids in the leachate collection and groundwater collection systems, and surface waters.

The EMP for the existing facility includes upgradient and downgradient wells screened in the overburden, which screen the groundwater table. The EMP also includes surface water sampling locations at the discharge points from the sedimentation ponds, and at the outlets from the groundwater suppression system for the cell liner. Finally, the EMP includes surface water

sampling locations in Erwin Hollow Creek and Tributary 4 to Erwin Hollow Creek, at points upstream and downstream from any facility influence. The locations of existing monitoring points are shown on Figure 2-5. This groundwater and surface water monitoring program provides the capability of detecting potential impacts to water quality before they can have a significant adverse impact on the environment.

The existing wells have been monitored quarterly following the requirements outlined in the EMP and in the 6 NYCRR Part 360 Regulations. This has resulted in a comprehensive set of background water quality information for the site. In addition to the groundwater monitoring wells, a groundwater collection system underlies the facility and is monitored to detect potential leakage through the liner system. To date, no groundwater contamination has been detected related to the operation of the lined cells, which were constructed beginning in 1999, after the purchase of the Hakes Landfill by Casella.

Hakes plans to continue utilizing the existing downgradient wells and the background water quality data for these wells as part of the monitoring program for the expansion. New wells were installed downgradient (east) and upgradient (west and north) of expansion cells in accordance with the 6 NYCRR Part 360 requirements and the work plan developed in conjunction with the NYSDEC for the expansion area Hydrogeologic Report. The monitoring wells installed for the Hydrogeologic Study will be incorporated into the groundwater monitoring plan for the cells in the expansion area.

As with the existing facility, the groundwater collection systems beneath the expansion area cells will be monitored to provide an early indication of potential groundwater impacts. The EMP for the proposed landfill expansion will also include provisions for continued monitoring of surface water leaving the site. Additional monitoring points are located in Erwin Hollow Creek, at points upstream and downstream from its confluence with Tributary 4 to assess potential impacts on the trout reach in Erwin Hollow Creek by stormwater discharges from the site. Appendix E provides a map of the planned monitoring locations and a schedule of sampling and testing.

The Contingency Water Quality Monitoring Program (included in the EMP) is implemented in the event that any contamination is found outside of the lined landfill cell area. This program will be initiated should any monitoring well water analysis show a significant increase in analyte concentrations over existing water quality levels.

The results of all water quality and landfill gas monitoring are reported to the NYSDEC within 60 days after each quarterly sampling event unless more rapid reporting is required to address an imminent environmental or public health concern. The report provides the analyses and a

comparison with existing water quality and upgradient water quality. These data are presented using tables or graphical representations for better understanding. Landfill gas data collected includes quarterly monitoring of hydrogen sulfide, carbon monoxide, carbon dioxide, oxygen, and methane concentrations at the inlet and outlet of the gas treatment system, and at five locations in the waste.

The quarterly reports may include proposals for modifications to the sampling and analysis schedule to better monitor conditions observed at the site. An annual report is also prepared and submitted to the NYSDEC. Once reports have been submitted to the NYSDEC, they become a matter of public record and are available for public inspection.

In addition to the monitoring of groundwater and surface water, the NYSDEC has a site monitor who periodically inspects the facility for compliance with the applicable regulations and the operating permit. The frequency of these inspections varies, but the monitor is on-site at least weekly. Any documentation related to corrective actions arising out of these NYSDEC inspections becomes a matter of public record.

2.4.9 Acceptable Wastes, Including Drill Cuttings

The Hakes Landfill is a permitted, single composite liner, C&D debris solid waste landfill that is authorized to accept various types of non-hazardous solid waste, including drill cuttings. The current permit specifies that acceptable wastes include, but are not limited to, bricks, concrete and other masonry materials, soil, rock, wood (including painted, treated and coated wood and wood products), land clearing debris, wall coverings, plaster, drywall, plumbing fixtures, non-asbestos insulation, roofing shingles and other roof coverings, asphaltic pavement, glass, plastics that are not sealed in a manner that conceals other wastes, empty buckets 10 gallons or less in size and having no more than 1 inch of residue remaining on the bottom, electrical wiring and components containing no hazardous liquids, and pipe and metals that are incidental to any of the above.

The permit modifications that will be submitted to DEC for this project will seek approval of a new cell and a corresponding modification to the State Facility air permit for the landfill. These modifications will not propose any change in the type of waste streams that are authorized for acceptance at the landfill. Drill cuttings and other wastes from oil and gas extraction activities that are not prohibited have been accepted at the Hakes Landfill for many years and these wastes will continue to be accepted at the Hakes Landfill.

Drill cuttings are rock and soil residue from the boring of a well. The rock and soil residue can contain small amounts of naturally-occurring radioactive material (NORM). NORM wastes are not considered regulated radioactive waste and may be disposed of in regulated solid waste landfills such as the Hakes Landfill. The Hakes Landfill is required to operate radiation detection systems to ensure that regulated radioactive wastes are not improperly accepted for disposal. This system has been in place at the Hakes Landfill and other Casella owned or operated landfills across the Southern Tier since 2010.

Effective November 4, 2017, the NYSDEC formalized its established policy regarding drilling wastes through amendments to 6 NYCRR Parts 360 through 366. Specifically, pursuant to the new Section 363-4.6, the Facility Manual is required to include a radioactive waste detection plan. Pursuant to Section 363-7.1(a)(5), the following operating requirements apply:

> (i) Landfills which accept MSW or drilling and production wastes must install and operate a fixed radiation detection unit at a location appropriate for the monitoring of all incoming waste.
>
> (ii) The investigation alarm setpoint of the radiation detector must be set at least two times but no greater than five times site background radiation levels.
>
> (iii) Background radiation readings at the facility must be measured and recorded at least daily.
>
> (iv) Field checks of the radiation detector utilizing a known radiation source must be performed and recorded at least weekly.
>
> (v) The radiation detector must be calibrated at least annually or more often as recommended by the manufacturer, and documentation describing the calibration must be maintained at the facility.
>
> (vi) Each instance in which the radiation detector is triggered by a waste load must be documented and reported to the department within 24 hours. Recorded information must include the date the waste was received, transporter name, origin of the waste, truck number or other identifying marking, detector reading, disposition of the waste, and date of disposition.

At no time have any drill cuttings or other wastes from the oil and gas extraction industry set off the detector alarms at the Hakes Landfill. However, the alarms have proven to be effective in detecting several loads of solid waste that did not contain drill cuttings or other wastes from the oil and gas extraction industry, but potentially did contain radioactive wastes. This demonstrates

the efficacy of the detection equipment.

In addition to screening incoming waste for radioactivity, the Hakes Landfill screens outgoing loads of leachate for radioactivity. At no time have any outgoing loads triggered the radiation detectors. In addition, the Hakes Landfill regularly monitors its leachate and leachate sediment for radioactivity, with leachate being tested twice per year and leachate sediment being tested once per year. Again, at no time have any levels been detected that would indicate any radioactivity beyond those associated with background levels.

For additional discussion on the acceptance of drill cuttings at the Hakes Landfill, please see the response to comments contained in the Final Scoping Document contained in Appendix B of this DSEIS (see response V.a on pp. 34 and 35).

2.4.10 Operational Measures to Control Fires

The combustible nature of some of the waste received at the Hakes facility creates the possibility of fires, which could impact air resources by the release of smoke and other combustion products. Fires that occur within the waste disposal areas are reported to the NYSDEC–Region 8. The fires can be either surface fires with open flames, or subsurface fires sometimes caused by spontaneous combustion. Although combustion products are released due to the fires, the impacts are temporary, since the fires are extinguished. Hakes, on occasion, has experienced both surface and subsurface fires.

With respect to fires, the most effective mitigation is prevention. Measures taken to minimize air intrusion include placing soil cover on the waste and installing liner flaps at the cell perimeters to reduce air flow to the waste. Another important preventative measure is the operation of the gas collection system. Reducing the vacuum or shutting of gas collection points near the active area have been identified as effective measures by reducing the airflow into the area.

Leachate reintroduction has also been implemented to address active fires by reducing the temperatures in buried waste, which assists in controlling subsurface fires. When fires do occur, water is applied, and extra soil cover is placed over the active fire area.

2.5 CONCEPTUAL CLOSURE AND POST CLOSURE

2.5.1 Conceptual Closure Plans

A conceptual closure plan for construction of the final cover is included in the 6 NYCRR Part 360 Application Package. 6 NYCRR Part 363-9.3(a) requires that a final cover system be installed on any landfill cell that has achieved final grades within 5 years of attaining final grade, except as required by subdivision 363-9.3(b). 6 NYCRR Part 363-9.3(b) requires final closure of the landfill by completing installation of the final cover system within 365 days of final receipt of waste. A facility closure plan will be submitted at least 180 days before commencement of construction of final facility closure. In general terms, the final cover will consist of a gas-venting layer on top of the waste, under a low permeability layer designed to reduce infiltration of precipitation. Over these two layers, there will be an 18-inch barrier protection layer of unclassified soils, and a 6-inch layer of topsoil (see Figure 2-6 and Appendix C). A gas-venting layer will be installed as part of the final cover system.

The low permeability layer on the side slopes of the cover will be a 40-mil geomembrane. The low permeability layer on the portion of the final cover with slopes less than 25% (a minimum slope of 4% is proposed for the top portion of the landfill) will include a geosynthetic clay layer (GCL) under a 40-mil geomembrane. A geocomposite drainage layer will be placed between the 40-mil geomembrane and 18-inch barrier protection layer to facilitate drainage of water percolating through the upper soil layers.

The 18-inch barrier protection layer (over the geomembrane) and 6-inches of topsoil will help prevent damage to the geomembrane by separating it from penetrating roots, protecting it from extremes of weather, and protecting it from other surface activities, such as vehicle traffic. The final 6-inch layer of topsoil is provided to support vegetation growth.

Following placement of the topsoil layer for final cover, vegetative cover will be established and maintained to prevent erosion of the final cover. All slopes associated with the final cover, ditches and open areas have been designed to ensure access for periodic maintenance. Vegetative cover has been selected for compatibility with future landfill uses and seasonal limitations. Existing wooded areas that will not be disturbed by landfill construction or operation will be maintained. Post-closure landscape plans will be consistent with the future use of the site as wildlife habitat.

A Post Closure Monitoring and Maintenance Operation Manual (as described in 6 NYCRR Part 363-9.6) will describe proposed closure and post-closure plans and activities in greater detail.

2.5.2 Post Closure Care and Custodial Care

After final closure of the facility, the land will be reclaimed as an open space that will be available for wildlife habitat. Topsoil and subsoil stockpiled during landfill construction phases will be used for the restoration of disturbed areas. Seeding of the areas will be performed to prevent erosion as well as for aesthetic reasons, and will be performed in accordance with recommendations provided by the US Department of Agriculture – Natural Resources Conservation Service (see the Landscape Plan). Maintenance of vegetation on the cover will be described in the Post Closure Monitoring and Maintenance Operation Manual, and will include mowing, watering, rolling, and weed control, as required. Mowing of the final cover will occur periodically and will extend at least 100 feet beyond the cell boundaries, or to the fence line or the edge of the adjacent wooded areas, whichever is closer.

Post closure monitoring and maintenance activities will continue until it can be demonstrated to the department that the threat to public health and the environment has been reduced to a level where environmental monitoring and maintenance can be reduced. During the post-closure care period the operational requirements of 6 NYCRR Part 363-9.6(a)(1) will be followed.

Following post-closure care, the custodial care period will begin once it is demonstrated to the department's satisfaction that the facility poses a significantly reduced threat to public health and the environment and that environmental monitoring and maintenance can be reduced. During the custodial care period the operational requirements of 6 NYCRR Part 363-9.6(b)(1) will be followed.

Requirements for financial assurance for landfill closure, post-closure care and custodial care will be developed and amended in accordance with 6 NYCRR Part 360.22. Detailed written cost estimates are required, must be updated annually and approved by the NYSDEC. The current total estimated cost for landfill closure and post-closure care is approximately $5.6 million. If the estimated cost increases for any reason in the future, the financial assurance must be increased accordingly.

3.0 NATURAL RESOURCES ASSESSMENT

The soil, bedrock and groundwater conditions in the vicinity of the Hakes C&D Landfill have been studied since the late 1980's during permitting, design and monitoring of the existing facility. Additional subsurface explorations and testing were completed in the expansion area and in the proposed soil borrow area in accordance with the work plan for the Hydrogeologic Report. The explorations included drilling test borings, excavating test pits, installing groundwater monitoring wells and testing the soils and upper bedrock for their hydrogeologic characteristics. The results of these studies provide information that is used together with previously developed information to assess the soils, bedrock and groundwater for this project.

3.1 GEOLOGY/SOILS

The following sections summarize the assessment of geologic and soils resources in the expansion and borrow areas. Supporting information for this assessment is provided in Appendix F.

3.1.1 Environmental Setting – Geology/Soils

The region lies within the Appalachian Plateau physiographic province of New York State. The province is characterized by flat lying to gently dipping sedimentary strata with deep valleys that have been cut by glacial and fluvial erosion. Typically, the hillsides are covered with glacial till and the valleys are partially filled with sediments associated with glacial recession and subsequent fluvial and alluvial processes.

Bedrock beneath the hillside and the valleys in the vicinity of the site consists of sandstone, siltstone and shale of the West Falls Group. Beneath the site, the rock is sandstone and shale of the Nunda Formation of the West Falls Group.

The regional surficial geologic units are shown on Figure 3-1 and regional topography and surface water flow patterns are shown on Figure 3-2. The site is located near the ridge top and is underlain by glacial till. The stream and river valleys to the south and southwest of the site are filled with alluvial and outwash sediments. The sediment filled valleys are associated with the Corning Primary Aquifer, the approximate limits of which are shown on Figure 3-2.

The topography of the site and the surrounding area is shown on Figure 1-2. The landfill cell area is located east of Manning Ridge Road, where the land slopes to the southeast toward Tributary 4 to Erwin Hollow Creek, at natural grades of 10% to 15%. Elevations range from approximately 1780

feet at the northwest corner of the site, to approximately 1450 feet at the southern boundary where Erwin Hollow Creek exits the site.

Glacial till varying in thickness from 0 to 25 feet covers the bedrock at the site. Subsurface explorations throughout the site demonstrate that the overburden soils in the landfill cell area consist of glacial till containing clay, silt, sand and gravel components. The clay, silt, sand and gravel components of the till combined with its dense nature result in a soil with high strength and low permeability. The high strength provides a stable base for construction of the landfill and its low permeability makes it an aquitard, serving to limit downward migration.

The surficial soil types on the portion of the site to be impacted and surrounding on-site areas are shown on Figure 3-3. The New York State (NYS) Soil Group Number included on the table on Figure 3-3 describes the potential agricultural productivity of the soil. A NYS Soil Group Number 3 or 4 represents relatively fertile soils, while a NYS Soil Group Number of 1 or 2 represents an area of prime agricultural importance. None of the land within the project area is currently used for agriculture. There are approximately 5 acres of soil in the expansion area classified as soil type Mardin-B, which falls within NYS Soil Group 4. The remaining soil types identified on site have NYS Soil Group numbers ranging from 5 to 9, indicating relatively lower quality with respect to potential agricultural use.

Subsurface explorations and testing throughout the expansion area demonstrate that the soils in the expansion area are consistent with those tested from beneath the existing landfill and with soil excavated from the expansion area and used for construction of clay liners for the existing facility. Soils excavated from the on-site borrow area will also be utilized for the construction and operation of the landfill. Details of the planned borrow operation and reclamation plans are presented in the Borrow Area Use Plan (Appendix G). As shown on Figure 3-3, the soils in the borrow area have NYS Soil Group numbers 7 or 8.

3.1.2 Significant Environmental Impacts – Geology/Soils

Soils on the site will be impacted, since excavation will occur in the cell expansion area, the soil borrow area (which is in an area east of the existing cell area), and for construction of larger storm water retention ponds. Surface and subsurface soils in the landfill cell area will be excavated to a depth of up to 25 feet in the expansion area. The excavation in the borrow area will extend to approximately 60 feet deep. The cell subgrade elevations will not be less than 5 feet from bedrock, assuming the variance described below is approved by DEC.

The current depth to bedrock in the proposed expansion cell area ranges from approximately 0 to 25 feet. Regulatory requirements in 6 NYCRR Part 363-6.4 require that a minimum separation of 10 feet be maintained between the base of the liner system and the top of the underlying bedrock. However, a variance is being requested to allow a reduction to 5 feet of separation from bedrock, based on replacing the variable in situ soils with a continuous layer of lower permeability soil.

Excavated soils will be segregated by type and placed in stockpiles. These soils will then be used during construction of the landfill liner, intermediate cover and final cover systems. After closure of the facility, the disturbed soil areas will be re-vegetated and reclaimed for wildlife habitat.

It is expected that on-site sources of low permeability soil will provide adequate quantities for construction purposes, although off-site sources may be used occasionally to meet construction schedule requirements. A soil balance calculation, provided in Appendix C, documents the quantities of soil required and available.

Large stone fragments will be removed prior to landfill liner and final cover construction, and will be used as necessary to line diversion ditches (for erosion control), for construction of roads and berms, or will be stored for later use. It is anticipated that the only soils that will be required to be transported to the site will be granular soils (gravel) for construction of the leachate collection and removal system, and on-site roadways.

Once the cells are filled and the final cover is in place, the elevation of the ground surface in the area of the landfill cells will be raised above the current elevation (the visual impacts of which are considered in Section 4.5). Other minor changes to the landscape and the topography of the site will occur due to the construction of diversion ditches, leachate storage tanks, access roadways, and related facility structures.

Overall, the soils that will be affected by facility development are not unique or limited in nature. They are relatively common soils found throughout the Steuben County area. The amount of impacted surface land associated with the proposed facility is insignificant when compared with the remaining lands and soils within the Town of Campbell and Steuben County. Accordingly, the surface geological impacts that will result are mostly associated with the overall irretrievable commitment of natural resources, rather than with the loss, or use of any particularly significant geological resource.

3.1.3 Environmental Impacts Mitigation – Geology/Soils

After the landfill cells have become full, they will be reclaimed using the same topsoil excavated prior to landfill liner construction. The final cover design is described in greater detail in Section 2.5.1. In this manner, although the final elevation has increased, surface soils on the site are returned generally to their original location as a part of the final restoration and landscaping. The schedule for final cover placement will be in accordance with 6 NYCRR Part 363-9.3(a), which requires that a final cover system be installed on any landfill cell that has achieved final grades within 5 years of attaining final grade, except as required by subdivision 363-9.3(b). 6 NYCRR Part 363-9.3(b) requires final closure of the landfill by completing installation of the final cover system within 365 days of final receipt of waste. A facility closure plan will be submitted at least 180 days before commencement of construction of final facility closure.

Note that the variance described in the previous section to allow a reduction to 5 feet of separation from bedrock rather than the 10 feet specified in 6 NYCRR Part 363-6.4, will, if approved by NYSDEC, reduce the amount of soils required to create the required subgrade elevations.

Seeding, construction of diversion ditches and other soil erosion prevention activities, both temporary and permanent, will help control erosion during the construction, operation, closure and post-closure phases of the facility.

3.2 WATER RESOURCES – GROUNDWATER

The groundwater monitoring wells installed in the expansion area provide information regarding the groundwater flow characteristics in the expansion area. The following sections include a summary of the assessment of groundwater resources based on the information collected from the expansion area wells and from previous hydrogeologic studies.

3.2.1 Environmental Setting – Groundwater

The project area is within the Chemung Subbasin of the northern portion of the Susquehanna River Basin. Surface water around the site drains into the Cohocton River and flows to the southeast and into the Chemung River, which joins the Susquehanna River at Sayre, Pennsylvania.

Groundwater sources in the Chemung Subbasin of the northern portion of the Susquehanna River Basin include the sand and gravel deposits of the Corning Aquifer. The valley aquifer is recharged

primarily by infiltration from rainfall on the alluvial and outwash deposits within the valleys and by surface runoff from the surrounding hillside. The site is not located over the Corning Aquifer (see Figure 3-2).

In general, groundwater flow occurs in the lower portion of the glacial till and the upper zone of the bedrock. Groundwater flow in the till and bedrock is limited by the low permeability of the till soils. Because of their low permeability, these soils have limited potential as a source of groundwater. Groundwater flow in the till and upper bedrock generally follows the topography from the higher valley elevations toward the valley center. Groundwater flow at the site is from the northwest to the southeast following the topography toward Tributary 4 to Erwin Hollow Creek. Appendix F includes a groundwater contour map for the expansion area created from the information collected from the monitoring wells.

3.2.2 Significant Environmental Impacts – Groundwater

Due to the excavation required to establish the liner subgrade elevations, it will be necessary to intercept or suppress the water table in the glacial till overburden. Throughout the proposed area of landfill cell development, a continuous groundwater collection layer will be provided beneath the liner to maintain separation between the base of the cell liner and the underlying water table. Any water removed (drained) from these zones will eventually be discharged to Tributary 4 to Erwin Hollow Creek, which flows to the south along the east side of the cell area. It should be noted that the engineered structures used to control groundwater in the vicinity of the proposed expansion cells will not change the general direction of flow. All groundwater flow on the Hakes site in the existing and expansion landfill cell areas will continue to flow in a generally easterly direction.

The largest concern regarding potential impact of the landfill on groundwater is the possibility of a leachate release entering groundwater and the subsequent transport and spread of contamination. Preventing this potential impact is the primary reason for the use of composite liners in C&D landfills, as described in Section 2.4 of this report. This and other mitigation measures are discussed in the Section 3.2.3.

- Chemical Characterization of Landfill Leachate

Leachate samples have been collected and analyzed on a semi-annual basis at the landfill since 1994. Leachate testing currently includes testing for radioactivity due to concerns related to disposal of drill cuttings. Leachate data is reported routinely to the NYSDEC.

3.2.3 Environmental Impacts Mitigation – Groundwater

The primary means of preventing the contamination of water resources is to prevent leachate from coming into contact with ground or surface waters. To protect water resources, all applicable requirements of 6 NYCRR Part 360 will be met, and many mitigation measures have been included in the facility design plans, and operating and monitoring procedures. These mitigation measures include the following:

- surface water diversion ditches, and sedimentation ponds,
- the groundwater collection system,
- the final cover system,
- the leachate collection and storage systems,
- the liner system,
- existing low permeability soils, and
- the environmental monitoring system.

These measures will all help to prevent the contamination of water resources, as further described below.

Diversion ditches and the groundwater collection system will channel the surface run-off and groundwater away from the landfill cell area, preventing potential contamination. The diversion ditches, which will surround the perimeter of the landfill cells, will be used to direct surface water away from the cells, discharging into the sedimentation ponds to the east of the landfill cells. Internal berms may be used within the cells to separate used and unused portions of the cells. These berms will serve to limit the quantity of leachate produced by managing water flow within the cells themselves. The permanent diversion ditches will be designed to handle water volumes equal to amounts generated by a storm with once in 25-year frequency (24-hour duration) to reduce the potential for flooding and overflow problems. Appendix D includes a site plan showing the surface runoff controls.

As described in Section 2.4.8, a groundwater collection system will be installed beneath the expansion area cells similar to the systems beneath the existing cells. The groundwater collection system will serve to channel groundwater away from the landfill cell area. In addition, environmental monitoring data from this system will provide an early indication of potential groundwater impacts.

Grading of the final cover will serve to prevent ponding and allow surface run-off to flow away from the cover, enhancing the effectiveness of the final cover.

The leachate collection and removal system is designed to collect any generated leachate at the bottom of the landfill cells. By placing the perforated piping system directly above the composite liner, leachate is not allowed to build-up a significant head on the liner. This leachate will drain by gravity to sumps within the landfill. From the sumps, the leachate will be pumped to the leachate tanks (via double-containment piping), from which the leachate will be periodically transported off-site for treatment. As the leachate flows out of the cell area, a double walled piping system will be used to prevent leakage problems. Monitoring of the interstitial space between the pipes will be performed to detect leakage from the inner pipe.

Overfill control equipment, which will be inspected weekly, will ensure that a minimum of 2.6 feet of freeboard is maintained in the leachate tanks. Specifically, the high level liquid alarm (when activated) automatically shuts down the pumps that transfer leachate to the tanks. This system will operate in fail-safe mode, which means that if the alarm system fails, the pumps are shut down. The secondary containment systems will be designed to contain any leakage from the tanks, and the landfill cells themselves provide a safety back-up to the secondary containment system. In an extreme emergency, the leachate transfer pumps could be shut off, confining the leachate to the cells.

The main source of protection against groundwater contamination is the composite liner system. The composite liner consists of a 24-inch low permeability soil layer topped by a 60-mil geomembrane. In addition to the protection provided by the liner system, the low permeability glacial till soils beneath the facility provide a significant natural barrier to leachate migration.

As mentioned in Section 3.1, regulatory requirements in 6 NYCRR Part 363-6.4 require that a minimum separation of 10 feet be maintained between the base of the liner system and the top of the underlying bedrock. However, a variance is being requested to allow a reduction to 5 feet of separation from bedrock, based on re-compacting this layer to provide a continuous layer of lower permeability soil. This re-compacted layer is intended to provide a superior barrier to leachate migration than 10 feet of native soils, assuming the variance is approved.

Finally, the environmental monitoring system would detect failure of the liner system and enable corrective actions to be implemented before significant environmental damage occurs. Sampling and analysis of environmental monitoring points will occur and reports will be filed with the NYSDEC on a quarterly basis (3-month intervals). The environmental monitoring points to be sampled are shown on the map in Appendix E. In order to determine the effect of the facility on local water resources, a database of existing water quality data has been collected. The

"Environmental Monitoring Plan", submitted with the 6 NYCRR Part 360 Permit application package, describes the entire monitoring process in greater detail, and summarizes data collected to date.

It should be noted that all of the mitigation measures described above apply to both the existing permitted landfill, and to the proposed expansion.

3.3 WATER RESOURCES – SURFACE WATER

3.3.1 Environmental Setting – Surface Water

Surface water on the site drains to a natural channel located east of the cell area, which has been designated Tributary 4 to Erwin Hollow Creek. This intermittent stream (stream of seasonal flow) flows to the south, where it joins Erwin Hollow Creek, approximately 400 feet south of the landfill cell area (see Figure 3-2). Erwin Hollow Creek then flows west for about 300 feet, where it exits the Hakes site, and then flows generally south for approximately 3 miles to where it discharges into the Cohocton River.

Because of a ditch along Manning Ridge Road, most precipitation falling on the west side of the road will drain away from the existing landfill cell area and the proposed expansion area, although two culverts under Manning Ridge Road convey surface water from the west side of the road to a drainage-way that crosses the southern portion of the site. North of the proposed landfill cell area, natural topography causes surface runoff to flow to the east, where it enters Tributary 4 to Erwin Hollow Creek (see Figure 3-2). Most of the surface water to be managed on site is from precipitation falling directly on the site.

Both Erwin Hollow Creek and Tributary 4 to Erwin Hollow Creek (identified as PA3-58-1 and PA3-58-1-4, respectively) have water quality classifications of C. The best usage of Class C waters is for fishing. The water quality should also be suitable for fish propagation, primary (e.g. swimming) and secondary (e.g. boating) contact recreation even though other factors (such as water depth or access) may limit its use for these purposes. Downstream of Tributary 4, Erwin Hollow Creek has an additional water quality designation of TS, which means that it is a protected trout stream where there is the potential for trout spawning. Additional information on the aquatic habitat in Erwin Hollow Creek is included below in Section 3.6.1.

A watershed divide, shown in Figure 3-2, delineates the area from which surface runoff flows toward the landfill cell area and to the streams mentioned above.

3.3.2 Significant Environmental Impacts – Surface Water

- Leachate

A major concern regarding potential impacts to surface water is the possibility of a leachate release and the subsequent transport and spread of contamination. The prevention of this impact is based on the application of the same mitigation measures developed for protection of groundwater, discussed above in Section 3.2.3, and a continuation of the existing measures in place at the landfill. A discussion of the chemical characteristics of leachate samples collected from the site is included in Section 3.2.2.

- Sediment and Stormwater

The use of ditches to divert stormwater surface runoff around the active landfill areas would tend to increase the peak discharge in the intermittent stream which drains the area. This is due to the more rapid flow in ditch channels, compared to overland (sheet) flow. However, the routing of the intercepted flow through the sedimentation ponds creates an opposite effect, detaining the flow resulting in a moderating effect on peak flow rates. During operation of the landfill, peak discharge into the sedimentation ponds from the impacted areas would increase to levels above predevelopment runoff flow rates. However, with the controlled discharge from the ponds, the peak flow out of the ponds is reduced to less than predevelopment runoff flow rates. Thus, the overall impact of the proposed development would be a reduction in the peak discharge to the intermittent stream draining the site, and a corresponding increase in the duration of the increased discharge related to the storm event.

A summary of surface water quality test results collected from Tributary 4 during operation of the existing facility is provided in Appendix D. Data from an additional study that was developed with the NYSDEC to evaluate conditions during and after rainfall events are also included in Appendix D. The results confirm that the system of stormwater controls at the site is effective in controlling erosion and sediment transport from the site. As shown in Appendix D, the system will be expanded to accommodate the additional runoff associated with the expansion.

Because of the TS designation of the portion of Erwin Hollow Creek downstream of Tributary 4, potential temperature effects of the discharges from the sedimentation ponds are of concern. Temperature data has been collected in Tributary 4 at locations upstream and downstream from the outlets from the existing sedimentation ponds, and from the pond discharges. The locations

monitored are denoted as SW-1 through SW-9 and are shown on Figure 2-5. The following table describes each of the locations.

Surface Water Designation Point	***Description / Location***
SW-1	Surface water sample collected from Tributary 4
SW-1A	Furthest upgradient point in Tributary 4
SW-2	Downgradient surface water sample collected from Tributary 4
SW-2A	Furthest downgradient point located in Erwin Hollow Creek
SW-3A	Surface water sample collected from Pond #5 discharge pipe
SW-4	Surface water sample collected from Pond #1 discharge pipe
SW-4A	Pond 1 secondary treatment discharge
SW-5A	Surface water sample collected from Pond #3 discharge pipe
SW-6	Surface water sample collected from Pond #4 discharge pipe
SW-7	Surface water sample collected from Erwin Hollow Creek upstream of Tributary 4
SW-8	Surface water sample collected from upstream diversion channel
SW-9	Surface water sample collected from East Pond discharge pipe

Alterations of surface water flow patterns involve on-site rerouting only; all water exiting the property will be along existing stream channels, and only water native to the property will be discharged through these channels.

Based on comments from the Lead Agency (NYSDEC - Region 8) regarding setback distances from the soil borrow area to Erwin Hollow Creek and its banks, the Existing Conditions Plan of the Soil Borrow Area Use Plan (Appendix G) is revised to show the distance from the stream and the streambank to the borrow area. The NYSDEC defines the banks of a stream as follows: *"that land area immediately adjacent to and which slopes toward the bed of a watercourse and which is necessary to maintain the integrity of the watercourse. A bank will not be considered to extend more than 50 feet horizontally from the mean high water line; with the following exception: Where a generally uniform slope of 45 degrees (100%) or greater adjoins the bed of a watercourse, the bank is extended to the crest of the slope or the first definable break in slope, either a natural or constructed (road, or railroad grade) feature lying generally parallel to the watercourse."* The area where the bank slope is 45 degrees or steeper is shown shaded on the Existing Conditions Plan in Appendix G. As shown on the plan, the borrow area limits are a minimum of 100 feet from the stream and 50 feet or more from the top of bank. Therefore, no work is proposed within the bed or banks at this time. Should any future work be proposed within the bed or banks of the C(TS) stream it will require an Art. 15 Part 608 permit from the DEC. That permit will include in-stream work restrictive dates to be protective of the coldwater fishery resource. In addition, should any work occur in the upstream section that is classified as C, the DEC will recommend adherence to the same restrictive dates to be protective of the designated trout spawning area immediately downstream.

- Petroleum Storage and Vehicle Refueling

A mobile, truck mounted petroleum tank is located in the landfill cell area or near the maintenance building for storage of diesel fuel. The tank has a storage capacity of approximately 2,800 gallons (diesel fuel). This tank does not have secondary containment, but is usually located within the active cell area when in use so that an accidental release would be contained by the leachate collection system. In the future, any petroleum storage tanks brought on site and located outside the active cell area will be provided with the required secondary containment system.

Delivery and transfer of diesel fuel at the facility occurs near the maintenance building (to the 2,800-gallon diesel truck mounted AST). Unloading of the diesel fuel from the tanker trucks poses the risk of a spill. Deliveries occur approximately once a week to the 2,800-gallon truck mounted AST. Refueling of trucks and construction equipment is a frequent occurrence. Therefore, refueling also poses a risk of a spill or release. Additional discussion of potential impacts on aquatic ecology is included in Section 3.6.

3.3.3 Environmental Impacts Mitigation – Surface Water

- Leachate

Mitigation measures protecting surface waters from leachate contamination are the same as those that will protect the groundwater, and are described in detail in Section 3.2.3. Leachate collected at the Hakes Landfill is hauled to a wastewater treatment plant for processing. Presently, Hakes has contracts with two separate wastewater treatment plants to ensure that leachate disposal capacity will always be available. These contracts are with the municipal wastewater treatment plant in Hornell, and the wastewater treatment at the Steuben County Landfill in Bath.

- Sediment and Stormwater

During the construction, operation and closure phases of the Hakes expansion, erosion and sediment control techniques and procedures will be employed to reduce and control erosion and the transport of sediments from excavated areas or stockpiles. The proposed landscaping, or interim earth contours, to be utilized will help reduce erosion, and where appropriate, sediment control devices, such as sedimentation ponds, silt fences, and rock dams in drainage channels, will be installed to control sediment transport. Temporary vegetation will be maintained by seeding disturbed areas to reduce exposed soil areas that would be subject to erosion. Proposed erosion prevention and

sedimentation control measures are described in more detail in Appendix D. Many of the techniques and procedures for erosion sedimentation control outlined in these documents are taken from the "New York Guidelines For Urban Erosion & Sediment Control" (Reference 6). Sizing of stormwater management facilities (channels, ponds, outlets and other structures) have been based on the worse case full build-out condition. During interim stages of facility development, these structures will therefore be somewhat oversized.

With respect to the on-site soil excavation operation, the same types of sediment control facilities discussed above, will be used to protect surface water quality. Perimeter ditches will be used to divert surface runoff around the excavation and stockpile area, long term stockpiles (such as topsoil) will be seeded to control erosion, and a sedimentation pond will be used to reduce the suspended solids load of runoff from the working area. Sedimentation controls will be in place before excavation activities are initiated.

The potential exists for soils to be carried away by surface runoff from disturbed areas, but the use of sedimentation ponds, silt fences, lined drainage ditches, rock check-dams in drainage ways, temporary seeding, and the other measures described above, will serve to substantially limit the potential for off-site sedimentation. The sedimentation ponds will also have sufficient volume to moderate peak outflow during storm events, so that the peak discharge to the streams draining the site will not exceed pre-development levels.

- Surface Water Environmental Monitoring System

To monitor potential impacts of the facility on the surface waters at the site, sampling and analysis of surface water at environmental monitoring points, both upgradient and downgradient of the landfill, will occur and reports will be filed with the NYSDEC on a quarterly basis (3-month interval). The surface water environmental monitoring points are described in Appendix E. In order to monitor the effect of the facility on local surface water resources, analytical testing results of samples collected from surface water locations downgradient of the facility will be compared to analytical testing results of samples collected from surface water locations upgradient of the facility and to historic site surface water analytical data dating back to 1999.

- Petroleum Storage and Vehicle Refueling

As discussed in the previous section, the mobile diesel tank truck is usually located within the active cell area when in use, so that an accidental release would be contained by the leachate collection system. In addition, should any petroleum storage tanks be brought on site and located outside the

active cell area, they will be provided with the required secondary containment system.

In the event of a spill from a delivery truck or the mobile diesel tank truck, the spill response team will be notified. Spill containment materials are available in the maintenance building, and on the truck carrying diesel AST, for use in the event of a small spill. Should an excessive spill occur, the spill response team would be notified as well as the appropriate NYSDEC, EPA and Local Fire Department.

In the event of a minor spill during vehicle refueling, the spill containment materials will be utilized and the response Team Coordinator will be notified. Should an excessive spill occur, i.e. greater than 5 gallons, the spill response team will be notified as well as the appropriate NYSDEC, EPA and Local Fire Department. Additional detailed information on dealing with petroleum spills is provided in the facility's "Spill Prevention Control and Countermeasures Plan" (SPCC Plan) and in the SWPPP.

One other potential source of surface water contamination is from road salt distributed during winter operations. This potential impact will be minimized by the restricted use of salt on on-site roads.

3.4 AIR RESOURCES

3.4.1 Environmental Setting – Air Resources

The general climatic data that follows was obtained from the National Climatic Data Center (part of the National Oceanic and Atmospheric Administration) for the weather station at Binghamton, NY. Prevailing winds in the project area come from the west, with a mean speed of approximately 9 MPH. Precipitation averages approximately 39 inches per year, with monthly averages ranging from approximately 2.3 inches per month in February to 4.3 inches per month in June. The maximum 25-year, 24-hour rainfall for the area is approximately 4.5 inches. Air temperatures range from a monthly average of 22 degrees Fahrenheit (degrees F) in January to 69 degrees F in July, with an annual average of approximately 46 degrees F.

Air quality in the area around the site is typical of rural areas in Steuben County. Smoke from wood stoves or trash burning, odors from manure fertilization and dust from agricultural plowing activities cause occasional degradation to the overall air quality, although, in general, the air quality is good. The Village of Painted Post central business district is the closest area where there is a concentration of sensitive receptors to the pollutants and/or air quality deterioration that might be generated by the

Hakes Landfill. This area is located about 3 miles south of the landfill cell area. There are, however, some residents located close enough to the facility to be potentially impacted by landfill operations. The closest residential properties (north of the facility) have been purchased by Hakes.

Air quality in the region meets the National Ambient Air Quality Standards (NAAQS) for all regulated pollutants. However, since New York is located within the ozone transport region (OTR), as defined by the USEPA, volatile organic compounds (VOCs) and nitrogen oxides (NO_x) are considered to be non-attainment parameters. This means that, although the project area is in compliance with air standards, air quality problems in generally downwind areas result in more stringent standards being applied.

3.4.2 Significant Environmental Impacts – Air Resources

The major potential impacts on air resources are landfill gas generation and dust generated by construction activities and waste transport vehicles. The local climate, including prevailing wind directions, rainfall, snowfall and sunshine, will not be affected by expansion of the facility. The only stationary combustion sources at the landfill are propane gas heaters used for space heating, and the flare, used for combusting landfill gas.

- Impacts of Landfill Gas

Impacts related to landfill gas are primarily occasional nuisance odors due to the relatively low rate of gas generation from C&D waste. Landfill gases are generated at C&D facilities (and in landfills in general) by the decomposition of waste, resulting in the generation of carbon dioxide and methane, as well as small concentrations of hydrogen sulfide and traces of other organic compounds. Hydrogen sulfide, specifically, is generated by the breakdown of sulfur-containing materials, such as drywall/gypsum board, in the waste stream. The disposal of larger total quantities of waste over the longer life of the facility would result in an increased total amount of landfill gas generation.

- Impacts of Dust

Construction activities, which have the potential to create dust would not be materially different from those currently occurring at the facility, although the total time period during which construction of cells would occur would be lengthened due to the increased life of the facility. The potential problems associated with dust will occur from the soil materials becoming too dry during construction of the new cells and/or the placement of cover material utilized during operations.

Dust may also be generated by vehicles moving along unpaved on-site roadways, during both construction and operation. The dust associated with construction will be a temporary impact that will last during those dry conditions only as long as construction occurs.

Dust generated during operational activities is significantly reduced from that generated during construction activity since the quantities of soil being moved or disturbed are reduced. However, there is the potential for dust to be generated by the transport, spreading and compaction of waste, although this impact should not increase significantly from current conditions, due to the proposed expansion.

- Impacts of Fine Particulate Matter (PM2.5)

In December 2003, the NYSDEC adopted Policy CP-33, entitled "Assessing and Mitigating Impacts of Fine Particulate Matter Emissions." This policy was developed to address significant emissions levels (defined as being greater than 15 TPY) of particulate matter with an aerodynamic diameter of 2.5 microns or less (PM2.5).

Policy CP-33 states that, "Certain projects regulated by the Department of Environmental Conservation have the potential to emit fine particulate matter, or PM2.5, in quantities that could have a potential for significant adverse health and/or environmental impacts. The methodology set forth in this policy is consistent with the State Environmental Quality Review Act, represents a correct interpretation of its mandates, and provides guidance on the project-specific assessment of fine particulate matter impacts and details when mitigation of such impacts may be necessary."

Particulate matter (PM) is a generic term for a broad class of chemically and physically diverse substances that exist as discrete particles (liquid droplets or solids) over a wide range of sizes. For regulatory purposes, particulate matter has been classified in terms of the particle's aerodynamic diameter. As mentioned above, PM2.5 is particulate matter with an aerodynamic diameter of 2.5 microns or less.

As described above in the discussion of "dust" impacts, construction activities, which have the potential to create fine particulate matter, would not be materially different from those currently occurring at the facility, although the total time period during which construction of cells would occur would be lengthened due to the increased life of the facility. The potential problems associated with fine particulate matter will occur from the soil materials becoming too dry during construction of the new cells and/or the cover material utilized during operations. The fine particulate matter associated with construction will be a temporary impact that will last during those

dry conditions only as long as construction occurs, and will not differ significantly from current levels. Fine particulate matter generated during operational activities is significantly reduced from that generated during construction activity since less material is being moved or disturbed, and as with construction, will not differ significantly from current levels. Since emissions of fine particulate material will not increase significantly as a result of the proposed expansion, no additional action is required to comply with this policy.

An inventory of particulate emission was produced by SCS Engineers and is provided in Appendix H. The potential PM10 emissions for roadways and construction activities are approximately 14.6 tons per year and potential PM2.5 emissions are approximately 2.1 tons per year. Since the annual potential primary PM10 emissions are less than 15 tons, modeling of PM2.5 air quality impacts is not needed for the landfill expansion.

- Impacts of Vehicle Emissions

Another potential impact on air resources will be that of vehicle emissions created by traffic accessing the facility. Considering the proximity of Interstate 86, a major expressway, and the relatively moderate amount of facility traffic (60 to 70 trucks plus 15 to 20 passenger vehicles per day) in comparison, air impacts from vehicle emissions will be minimal. In addition, since the approved design capacity of the facility is not proposed to change, the number of vehicles accessing the site will not change significantly.

Mitigation measures proposed in Section 3.4.3 will ensure that air emissions from the Hakes site are properly controlled.

- Impacts of Fires

The combustible nature of some of the waste received at the Hakes facility creates the possibility of fires, which could impact air resources by the release of smoke and other combustion products. In fact, fires within the waste disposal areas occur periodically, and are reported to the NYSDEC – Region 8. The fires can be either surface fires with open flames, or subsurface fires sometimes caused by spontaneous combustion. Although combustion products are released due to the fires, the impacts are temporary, since the fires are extinguished. Two subsurface fires have been dealt with in the past year. Mitigation of fires is discussed in the next section.

3.4.3 Environmental Impacts Mitigation – Air Resources

Landfill gas at C&D landfills is generated by the decomposition of waste within the landfill. Landfill gas consists predominantly of carbon dioxide and methane, with low concentrations of hydrogen sulfide generated by the breakdown of sulfur containing materials in the waste. The design and operation of the existing landfill and the proposed expansion has been developed to control migration of landfill gas, as described below.

Landfill gas is prevented from migrating laterally through the surrounding soil by the liner system. Without surface controls, landfill gas would migrate out of the waste to the atmosphere. Controls to limit surface emissions include application of intermediate cover, the eventual construction of the final cover system in areas filled to final grade, and active collection of landfill gas. The active gas collection system involves connecting the ten vertical landfill gas wells, the four horizontal collectors, and seven leachate cleanouts, to the blower and flare system. The blower creates a vacuum and provides for the collection and treatment of more gas than would be treated through a passive collection system. Within the flare, the landfill gasses are mixed with air and combusted.

An investigation of landfill gas (and other permitting issues) was performed for Hakes in 2017 by SCS Engineers (Appendix H), in support of this expansion project. Gas samples were taken at the inlet to the flare, and a landfill surface scan (just above the cover) was performed for hydrogen sulfide. Analysis of the flare inlet samples indicated hydrogen sulfide concentrations of about 3000 ppm, and methane concentration of approximately 31 percent. The surface scan revealed hydrogen sulfide concentrations of zero at all locations except for one location at a cleanout pipe penetration, where a concentration of 100 ppm was measured. The leak at the cleanout pipe was repaired, and a re-check showed a hydrogen sulfide concentration of zero. This testing indicates that the landfill cover system, combined with the active gas collection and combustion system is effective in controlling gas migration through the cover. Additional description of the gas collection system can be found in Appendix H, along with the Air State Facility Permit Modification Application Package.

Hakes plans to expand active gas collection system components as the expansion is developed. The design for the expansion will be similar to the current system, including collection of gas from leachate collection piping via the cleanouts, and from landfill gas wells and horizontal collectors. These extraction locations will be connected by piping to a header pipe through which the gas will be conveyed to the blower and flare.

Hakes will meet all applicable landfill gas control and air emissions permitting requirements established by the NYSDEC and the EPA.

With respect to the control of dust generation, application of water to disturbed soils and on-site roadways during dry periods, and prompt seeding of completed soil structures will be practiced during both construction and operation of the expanded facility. The potential dust dispersal problems, should they occur, would impact that area downwind of the site the greatest. This area, based upon prevailing wind conditions, lies to the east of the site. No permanent residences exist within 2,000 feet to the east of the disposal area.

Dusty waste loads will be controlled as described below to limit the potential of dust leaving the active landfill area. Waste trucks containing materials that are prone to creating dusty conditions should unload in areas where wind impacts will be minimal. This may mean unloading in a less windy portion of the landfill or between other waste trucks, which will serve as a block to the prevailing winds. Additionally, the waste may be unloaded in an open trench/pit and immediately covered with additional waste that is not as prone to creating dust. Operators of waste placement equipment may need to adjust the push distance and disposal speed in order to limit the creation of dust during waste placement operations. In instances where waste dust is leaving the active work face and creating a nuisance, a water truck is kept at the site and will be used to control dust when these conditions exist.

All trucks transporting waste to the facility are required by New York State regulations to be covered to prevent wind dispersal of waste during transport. With respect to waste transportation related dust, the length of Manning Ridge Road from the landfill entrance to Erwin Hollow Road is now paved. Upgrades to Manning Ridge Road and Erwin Hollow Road have been completed in stages over the past several years (funded by Hakes), to provide safer access to the landfill, and to reduce dust generation. The use of on-site water trucks for dust control on unpaved roadways will provide additional mitigation of dust problems.

With respect to fires, the most effective mitigation is prevention. Measures taken to mitigate fires include reducing air infiltration by placing soil cover on the waste and installing liner flaps at the cell perimeters to reduce air flow to the buried waste. Another important preventative measure is the operation of the gas collection system. Reducing the vacuum or shutting off gas collection points near the active area have been identified as preventative measures by reducing airflow into the area. Leachate reintroduction has also been implemented to reduce the temperatures in buried waste, which aids in the control of subsurface fires. When surface or subsurface fires do occur, water is applied, and extra soil cover is placed over the active fire area.

3.5 ODORS

3.5.1 Environmental Setting – Odors

As mentioned in the previous section, air quality in the area around the site is typical of rural areas in Steuben County. Smoke from wood stoves or trash burning, odors from manure fertilization and dust from agricultural plowing activities cause occasional degradation to the overall air quality, although, in general, the air quality is good. The Village of Painted Post central business district is the closest area where there is a concentration of sensitive receptors to the odors that might be generated by the Hakes Landfill. This area is located about 3 miles south of the landfill cell area. There are, however, some residents located close enough to the facility to be potentially impacted by landfill operations and related odors. The closest residential properties (north of the facility) have been purchased by Hakes. The closest residential property not owned by Hakes is about 1700 feet to the west, on Frog Hollow Road, although residences to the east may be more susceptible to odor impacts due to the prevailing wind direction from the west.

3.5.2 Significant Environmental Impact – Odors

Impacts related to odors are primarily occasional nuisance odors due to the relatively low rate of gas generation from C&D waste. Landfill gases (which are responsible for most objectionable odors generated by the landfill) are generated at C&D facilities by the decomposition of waste, resulting in the generation of carbon dioxide and methane, as well as small concentrations of hydrogen sulfide and traces of other organic compounds. Hydrogen sulfide, specifically, is generated by the breakdown of sulfur-containing materials, such as drywall/gypsum board, in the waste stream. The disposal of larger total quantities of waste over the longer life of the facility would result in an increased total amount of landfill gas generation, which could extend the period during which odor impacts could occur.

Complaints regarding odors have been received by Hakes, and are promptly investigated. Mitigation of these impacts is discussed below.

3.5.3 Environmental Impact Mitigation – Odors

As discussed above, odors are related to landfill gas which is generated by the decomposition of waste within the landfill. The design and operation of the existing landfill and the proposed expansion has been developed to control migration of landfill gas, as described below.

Landfill gas is prevented from migrating laterally through the surrounding soil by the liner system.

Without surface controls, landfill gas would migrate out of the waste to the atmosphere. Controls to limit surface emissions include application of intermediate cover, the eventual construction of the final cover system in areas filled to final grade, and active collection of landfill gas.

The active gas collection system involves connecting the ten vertical landfill gas wells, the four horizontal collectors, and seven leachate cleanouts to the blower and flare system. The blower creates a vacuum and provides for the collection and treatment of more gas than would be treated through a passive collection system. Within the flare, the landfill gasses are mixed with air and combusted. Recently (within the past year) operation of the flare has been intensified and additional gas collectors have been installed, resulting in a reduction in the frequency of odor complaints. The flare will continue to be more actively employed to mitigate future odor issues.

An investigation of landfill gas (and other permitting issues) was performed for Hakes in 2017 by SCS Engineers (Appendix H), in support of this expansion project, and is also described in Section 3.4.3.

Hakes plans to expand active gas collection system components as the expansion is developed. The design for the expansion will be similar to the current system, including collection of gas from leachate collection piping via the cleanouts and from landfill gas wells and horizontal collectors. These extraction locations will be connected by piping to a header pipe through which the gas will be conveyed to the blower and flare.

3.6 TERRESTRIAL AND AQUATIC ECOLOGY

An ecological survey of the expansion area was completed by Barton & Loguidice D.P.C. (B&L) (see Appendix I) in July 2017. The study evaluated the cell expansion area, approximately 22.0 acres in size, identified as Survey Area 1, and an on-site soil borrow area, approximately 24.0 acres in size, identified as Survey Area 2. The B&L study also reviewed and considered ecological information concluded by Drake Environmental Consultants (Drake) in their report prepared in 2004, which was prepared in support of the 2006 DSEIS prepared for the previous expansion of this facility. Drake's observations documented in 2004 are updated within the B&L report's conclusions.

3.6.1 Environmental Setting – Terrestrial and Aquatic Ecology

The B&L evaluation of the terrestrial and aquatic ecology of the proposed expansion of the Hakes solid waste disposal facility was performed in the fall of 2016 and spring of 2017.

The ecological survey completed by B&L identified several NY-NHP covertypes within Ecological Survey Areas 1 and 2. The observed covertypes included terrestrial, riverine, and cultural covertypes. The observed ecological communities were typical of the physiographic region. No state or federal protected plant species were encountered during B&L's ecological site visits.

Drake provided similar ecological information about the site in their 2004 Ecological Study. Drake completed their on-site surveys during fall 2003 and spring 2004. During these survey efforts, Drake surveyed the entire extent of Survey Area 1, plus additional area to the east and south of the landfill site. Drake did not complete an assessment of Survey Area 2.

For Survey Area 1, the covertypes identified in the Drake 2004 report are similar to the observations and conclusions of the 2016 and 2017 B&L surveys. B&L's Survey Area 1 constituted a small portion of the site area that was surveyed in 2004. In this area, Drake concluded that the area primarily consisted of forested upland cover to the west, with patches of successional field/shrub forest, dense shrub, shrub/sapling, shrub/pine, and cleared area covertypes to the east. B&L classified much of the eastern portion of Survey Area 1 as successional northern hardwood forest in 2016 and 2017, which appears to have changed compared to the 2004 data. The central portion of the southern edge of B&L's Survey Area 1 appears to be mapped as a "cleared area" in 2004. Part of this area was still observed to be devoid of vegetation in 2016 and 2017 (classified as landfill/dump), but other surrounding areas were classified as successional northern hardwood forest. Dominant vegetative species reported within the survey limits in the 2004 report included red maple, quaking aspen, eastern white pine, red pine, gray-stem dogwood, hawthorn, and a number of grasses and herbaceous species. Many of the same species were noted as common species within Survey Area 1 during B&L's 2016 and 2017 ecological surveys. The areas mapped by B&L as successional old field in 2016 and 2017 correspond with the successional field/shrub forested cover mapped in 2004. The shrub-pine covertype mapped in 2004 now appears to be a mowed lawn area.

Drake's 2004 report noted the presence of wetlands and streams on site. Wetlands were differentiated into seepage wetlands, emergent seepage wetlands, and emergent forested wetlands in the 2004 report. In B&L's 2017 report, wetlands were classified using the Cowardin classification system. This system allowed for more accurate classifications of the palustrine and riverine wetland resources noted within the Ecological Survey Areas. Streams were not differentiated by covertype in the 2004 report, but were classified as intermittent or rocky headwater streams in B&L's 2017 report.

A major difference noted between the two surveys is the change in covertype observed in the

eastern portion of Survey Area 1. In 2004, this area was identified as shrub-dominated communities and successional field/shrub-forested upland communities. In 2016 and 2017, the majority of the area was identified as a successional northern hardwood forest community. B&L's ecological study also included the addition of a Beech-Maple Mesic Forest covertype along mid-slope areas, which was not identified in 2004. American beech and maples dominated this covertype, which is assumed to have developed since the Drake survey and report were completed (2004).

B&L's Survey Area 2 was not surveyed by Drake in 2004. During B&L's 2016 and 2017 ecological surveys, this area largely consisted of beech-maple mesic forest cover, with hemlock-northern hardwood forest along the southern edge of the Survey Area and a mixture of cultural and successional covertypes to the west.

B&L's 2016 and 2017 ecological surveys did not result in the identification of unique or protected covertypes; no Significant Natural Communities are documented within the Ecological Survey Areas. These conclusions are consistent with those of the 2004 Drake Ecological Study, as none of the covertypes documented in 2004 constituted a unique or protected covertype or significant natural community.

3.6.2 Significant Environmental Impacts – Terrestrial and Aquatic Ecology

Approximately 41.5 acres of terrestrial covertype will be impacted by the proposed project expansion. None of the impacted ecotypes referenced in the B&L Survey are uncommon for the area, and there were no threatened or endangered species observed in the impacted areas.

3.6.3 Environmental Impacts Mitigation – Terrestrial and Aquatic Ecology

The temporary loss of approximately 41.5 acres of functional terrestrial habitat will be mitigated by the eventual restoration of the landfill cell and nearby borrow areas to grassland habitat. These grassland habitat areas are not as common in this area as the habitats being impacted. This type of habitat is important for birds and small mammals. Therefore, the landfill expansion will eventually result in improved diversity in area wildlife habitat.

Aquatic evaluations indicated that the streams draining the site have not been significantly impacted during past operation of the landfill. The fact that both Tributary 4 and Erwin Hollow Creek are intermittent in the vicinity of the project, limits the value of any aquatic habitat they might otherwise provide. Continued implementation of construction and operation practices to prevent excessive release of sediment and other contaminants to the stream will mitigate

potential future impacts.

Impacts to the wetland areas may be significant, and therefore need not be mitigated, as described in the next section.

3.7 WETLANDS ECOLOGY

3.7.1 Environmental Setting – Wetlands Ecology

A wetland delineation was completed by B&L, (Appendix J-1) in the areas to be impacted by the expansion so that the U.S. Army Corps of Engineers (USACOE) and the NYSDEC could determine their jurisdiction over the Hakes expansion project pursuant to Section 404 of the Clean Water Act and Article 24 of the New York State Environmental Conservation Law. B&L performed a review of available information, including the United States Geological Survey (USGS), Natural Resources Conservation Service (NRCS), Web Soil Survey (WSS) and Soil Survey Geographic Database (SSURGO), National Wetland Inventory (NWI) mapping, and NYSDEC wetland and stream mapping, prior to conducting a field investigation. B&L concluded that this background information indicated the potential for federally-regulated wetlands and federally- and state-regulated streams to be located within the Survey Area. This determination was based on the presence of mapped potentially hydric soils and streams within various sections of the Survey Area.

The Routine Wetlands Determination Method with Onsite Inspection described in the Wetlands Delineation Manual (Environmental Laboratory, 1987) and the USACOE's Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0 (USACOE, 2012) were used during the August 18 and August 24, 2016 wetland delineation efforts. The locations of the federally regulated wetlands in, and in the vicinity of, the areas to be impacted were surveyed and plotted on a site map. In the cell expansion area, wetland areas totaling 1.48 acres were identified. In the borrow area, wetland areas, totaling 0.9 acres were identified. Figure 3-4 shows the locations of the wetlands identified.

3.7.2 Significant Environmental Impacts – Wetlands Ecology

Of the wetland areas identified in the cell area, a total of 0.672 acres will be disturbed by the proposed expansion. The wetland areas identified in the borrow area will not be disturbed. Adjustments to the layout of project facilities eliminated direct impacts on the other federally

regulated wetlands.

3.7.3 Environmental Impacts Mitigation – Wetlands Ecology

Since the direct impacts to the federally regulated wetlands consists of eliminating wetlands with a combined area of 0.672 acres, a USACOE Section 404 Permit will be required for these impacts, assuming it is determined that they meet federal jurisdictional standards. Wetlands that will be impacted in the Proposed Project Area are classified as emergent wetlands that typically require 1:1 acreage replacement to offset the lost wetland functions and values. This would entail providing 0.672 acres of mitigation. The method of mitigation proposed is "In-Lieu Fee" (or ILF) mitigation. ILF programs involve the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements. An ILF program for the Cohocton/Chemung service area is available which sells mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the ILF program sponsor. More details will be available as negotiations with USACOE proceed.

It should be noted that the siting restrictions in 6 NYCRR Part 360.8(c) are satisfied by the mitigation plan described above. These restrictions state that persons must not construct a new facility or laterally expand an existing one within the boundary of either state or federally regulated wetlands, unless the required permits are obtained from the USACOE and/or the NYSDEC, are satisfied.

A Section 401 Water Quality Certification from the NYSDEC may also be required depending on the requirements of the USACOE permit. A wetland mitigation plan (Appendix J-2) has been prepared and submitted to the USACOE.

3.8 ENDANGERED, THREATENED & PROTECTED SPECIES

A Threatened and Endangered Species Habitat Assessment was prepared by B&L, and is included in Appendix I-2. The key findings of this assessment are summarized below.

The federally threatened northern long-eared bat and the New York State threatened timber rattlesnake were reported in the B&L assessment to potentially be present in the Project Area. A survey of operations personnel at the Hakes facility, however, determined that no observations of rattlesnakes have been made on the Hakes site to date.

The most significant potential project-related impact to the northern long-eared bat is associated with direct impacts resulting from tree clearing activities, which will be minimized by the performance of tree clearing activities during the bat's hibernation period (November 1 to March 31). Adherence to these tree clearing dates results in the recommendation of a may affect, not likely to adversely affect determination for the northern long-eared bat, in association with the proposed expansion project.

The Project Area may provide occasional foraging habitat for the timber rattlesnake, but no specific project restrictions are required by the NYSDEC for the protection of the rattlesnake. A may affect, not likely to adversely affect determination is concluded for the timber rattlesnake for this project. A Timber Rattlesnake Management Plan (included in Appendix I-3) has been developed to provide recommendations on how to avoid and minimize potential effects to the timber rattlesnake during project activities. This plan will be implemented in the event that timber rattlesnakes are observed on the Hakes site.

A determination of may affect, not likely to adversely affect was concluded for the sharp-shinned hawk, a species of special concern in New York State that was observed in the general region during the Breeding Bird Atlas Survey. This determination was based on the availability of large amounts of suitable habitat adjacent to the Project Area and the removal of trees during the winter months when sharp-shinned hawks are not nesting.

The project was also reviewed to determine potential impacts to the bald eagle, a federal and state protected species. No records demonstrating use of the Project Area or adjacent lands by this species were uncovered and no suitable nesting or foraging habitat was identified on site. The proposed project is concluded to have no effect on bald eagles.

4.0 HUMAN RESOURCES ASSESSMENTS

4.1 ARCHEOLOGICAL AND HISTORIC RESOURCES

4.1.1 Environmental Setting – Archeological and Historic Resources

The Town of Campbell is a rural community with a population of 3,406, and is typical of many small, western New York rural communities.

The New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) reviewed the site and expressed the opinion that the "project will have No Impact upon cultural resources in or eligible for inclusion in the State and National Registers of Historic Places." Correspondence related to this review is included in Appendix K.

The newly impacted expansion areas consist of open fields, woodlands and contractor areas, and have no exceptional points of cultural value over and above the surrounding lands.

4.1.2 Significant Environmental Impacts – Archeological and Historic Resources

The review of the project site by OPRHP revealed no known significant prehistoric or historic cultural remains in the expansion area, and there was no indication that any existing historic site will be impacted by the project.

4.1.3 Environmental Impacts Mitigation – Archeological and Historic Resources

Since no significant historic or archaeological resources have been identified to date in the expansion area, there are no significant impacts to be mitigated.

4.2 TRANSPORTATION/TRAFFIC

4.2.1 Environmental Setting – Transportation/Traffic

Transportation routes in the immediate vicinity of the site are shown on Figures 1-1 and 1-2. Site access is from Interstate Route 86 (formerly Route 17), then east a short distance on NYS Route 415 to Erwin Hollow Road. After following Erwin Hollow Road north for approximately 1 mile, and Manning Ridge Road north for approximately 2 miles, the entrance to the Hakes site

(located on the east side of Manning Ridge Road) is reached (see Figure 1-2). Internal roadways have been developed on-site to provide access to various parts of the facility.

Traffic flow along Interstate 86 is occasionally heavy, although this is an expressway designed to handle high levels of traffic. Sight distances, road grades and pavement construction are all adequate for handling traffic by heavy trucks.

Considerable upgrade work has been done on Manning Ridge Road, funded by Hakes, to improve the condition and safety of this access road, including paving the length of Manning Ridge Road from the landfill entrance to Erwin Hollow Road. The Town of Campbell has reached an agreement with Hakes regarding improvements and future maintenance of Manning Ridge Road. An on-site truck staging area has been provided at Hakes, which provides space for approximately 15 tractor-trailers (see Figure 2-1). This reduces the likelihood of trucks waiting to unload from backing up onto Manning Ridge Road.

The remaining area of concern is Erwin Hollow Road, which is mostly in the Town of Erwin over the affected stretch from NYS Route 415 to Manning Ridge Road. Safety issues related to tractor-trailers negotiating curve(s) on the road have been studied by a consultant retained by Hakes, and several projects have been completed, including repaving portions of the road and increasing the radius of curvature and pavement width of a sharp curve near the southern end of the road. These improvements, paid for by Hakes, have addressed the specific safety conditions expressed by the Town of Erwin and local residents. The Town of Erwin has also reached an agreement with Hakes regarding improvements and future maintenance of Erwin Hollow Road.

The nearest municipal airport to the Hakes Landfill is the Corning / Painted Post Airport, located approximately 2.2 miles to the south. The nearest active rail line runs through Painted Post, approximately 2.5 miles to the south.

4.2.2 Significant Environmental Impacts – Transportation/Traffic

Traffic will not be significantly impacted by the proposed expansion of the permitted cell volume. A 21.0 acre expansion of the permitted cell area will increase the remaining active life of the facility to between 5 and 10 years. The average daily number of waste transport trucks passing through the facility will not change significantly, since the approved design capacity of 1494 tons per day will not increase. Truck traffic related to construction activities would not increase on a daily or hourly basis, although the total period of time during which cell construction would occur would be increased. Although the traffic situation will not charge significantly due to the proposed expansion,

under existing conditions there have been occasional accidents related to landfill generated traffic. Prevention of such accidents is discussed in the next section.

The Hakes Landfill is more than 5,000 feet from any airport runway end used by piston-powered fixed-wing aircraft, and more than 10,000 feet from any airport runway end used by turbine-powered fixed-wing aircraft. Therefore, the proposed expansion complies with siting restrictions contained in 6 NYCRR Part 363-5.1(e)(4).

4.2.3 Environmental Impacts Mitigation – Transportation/Traffic

The upgrade work that has been done on both Erwin Hollow Road and Manning Ridge Road, funded by Hakes, has improved the condition and safety of these access roads. Since the average daily number of waste transport trucks, and construction related traffic passing through the facility will not change significantly, there are no additional impacts to mitigate. The agreement with the Town of Campbell regarding road maintenance and repair is included in Host Agreement (Appendix N.)

Accidents on local roads due to landfill related traffic are not under the direct control of Hakes, but are never-the-less a concern. Hakes attempts to notify regular haulers of unusual shutdowns to prevent unnecessary traffic on the approach roads, and to avoid the need for loaded trucks to travel back down to access roads.

4.3 LAND USE AND ZONING

4.3.1 Environmental Setting – Land Use and Zoning

The Town of Campbell has a Comprehensive Plan in place dated, 2013. This plan outlines current land uses and zoning, as well as goals for the Town. The Town of Campbell also has a zoning law that includes the Hakes site within an "agricultural residential" zoning district. This designation permits such principal uses as agriculture, and low-density residential development without any specific review or approval. Other business and industrial uses may also be permitted in the agricultural residential district. A complete list of the uses allowed in the agricultural residential district is set forth in Section 4.0 of the Zoning Law of the Town of Campbell 2014. The dimensional requirements associated with the agricultural residential district are set forth in Section 5.1 of the Town of Campbell Density Control Schedule. Both Sections 4.0 and 5.1 of the Zoning Law are set forth in Appendix O. Other business and industrial uses may also be permitted in an agricultural residential district under the "Non-Residential Planned Development District"

(NRPDD) process administered by the Town Board pursuant to Article 9 the Town of Campbell Zoning Law. Article 9 of the Zoning Law is also included in Appendix O. In 2006, the Town Board approved the existing landfill at this location. Since that approval was issued, Hakes has acquired additional property.

Hakes has applied for final site plan approval from the Town of Campbell, which is the first step in the process for the designation of the Hakes site as a NRPDD. A copy of the application and a map defining the proposed NRPDD is included in Appendix P. Most, but not all, of the property owned by Hakes is within the proposed NRPDD, which, as proposed, consists of approximately 391 acres. The approval process includes final site plan review of the project by the Town Planning Board, which will then make a recommendation to the Town Board. The Town Board will then make a determination on approval (or denial) of the designation and include within any approval those conditions deemed appropriate to be applicable in the district that will be created through the approval process.

With the exception of the landfill itself, and related support facilities, most of the land area within 1 mile of the disposal area is forested, meadow, brushland, or rural residential. One other industrial operation within this perimeter is a log home manufacturing operation, located across Manning Ridge Road, about ¼ mile southwest of the expansion cell area.

There are no agricultural activities on the site. Prior to landfill activities, the land had not been used for any significant agricultural production.

Additional information on land use in the expansion area is presented in Appendix I, the "Ecological Study," which is summarized in Section 3.6.

Only three residences exist within 1/2 mile of the landfill expansion area and are situated north and west of the proposed new cell area. Two of these properties have been purchased recently by Hakes. Within a 1-mile radius of the project area there are a total of approximately four additional residences. The principal land uses within this 1-mile radius include rural residential use and forests.

4.3.2 Significant Environmental Impacts – Land Use and Zoning

As mentioned above, Hakes has applied for a NRPDD Approval from the Town of Campbell. The approval process includes final site plan review of the project by the Town Planning Board, which will then make a recommendation to the Town Board. The Town Board will then make a

determination on approval (or denial) of the proposed land use. Approval will lead to the creation of a NRPDD that will include conditions and standards governing the land use of the landfill property. Any approval will include those conditions deemed appropriate to mitigate issues of local concern that will be applicable in the district that will be created through the NRPDD approval process. The proposed uses within the NRPDD would include land disposal of solid waste, related soil borrow areas, and construction and operational activities necessary and appropriate for the construction and operation of a C&D debris landfill. The operation of the existing Hakes Landfill, including the existing soil borrow area, administrative offices, scale and scale house, fueling, leachate storage and management, and equipment maintenance are all part of the approval that was granted in 2006. All of these existing uses will continue under the new approvals. These proposed and existing uses will become uses of right authorized in the district established by the NRPDD process. The conditions and standards governing the land use have not been established by the Town yet, but are likely to include conditions limiting the size and nature of the waste disposal facility, the size of the borrow area, operational restrictions regarding the hours of operation, and other conditions mitigating issues of local concern. Many of these conditions will be similar or identical to conditions imposed by the NYSDEC regarding the operation of a solid waste management facility within the NRPDD. Although the establishment of the NRPDD will establish uses of right within the district, the uses cannot be modified from those shown on the final site plan without further review and approval by the Town. As such, substantial areas will remain unused open space.

The Planning Board is at the early stages of its consideration of the project, but it will not make any final determination concerning the proposed final site plan or issue recommendations to the Town Board until a final SEIS has been issued by the NYSDEC as Lead Agency. The Planning Board will hold a public hearing on the proposed final site plan as part of its consideration of the project. Following the issuance of a final SEIS, the Planning Board will issue findings pursuant to SEQR, its decision concerning the final site plan, and make its recommendations to the Town Board. The Town Board will then schedule a separate public hearing, issue its own findings pursuant to SEQR, and issue a final decision concerning the proposed NRPDD.

The proposed expansion area (including the areas of the proposed cell expansion, future storm water retention facilities, and new soil borrow area) is presently comprised of storage areas, maintenance facilities, scale and scale house/office trailer, an existing soil borrow area, open fields and forested land. An approximate breakdown of the affected acreage (outside the landfill areas previously developed) is provided below.

Table 4-1
Areas Impacted

Current Land Use in New Affected Area	Area Impacted (Acres)
Successional Old Fields	1.0
Successional Northern Hardwood Forest	10.3
Hemlock Northern Hardwood Forest	6.7
Beech-Maple Mesic Forest	20.0
Unpaved Road / Path	1.7
Total	41.5

Change in actual land use is limited to the loss of open fields and forested land within the expansion area. This land would be diverted to development of the new landfill cells and support facilities. Due to the isolated nature of the site, these activities will have no direct impact on the local off-site land use. However, the economic stimulus associated with the continued operation of the facility (which presently employs six people, not counting contractor personnel working on construction projects), and the revenues to the Town of Campbell under the Road Maintenance Permit, could impact land use and community character to a small extent. Impacts would include increased economic development, with associated increases in the local population. These impacts are not expected to be significant and would be construed by most to be beneficial.

After closure of the facility, the landfill area would revert to wildlife habitat, although the on-site maintenance building would probably remain to support post closure activities, and the capped cell area would be periodically mowed to prevent growth of shrubs and trees. Closure related reductions in jobs and local commerce might be expected to have similar, but opposite, impacts on land use and community character, to those generated by project operation.

4.3.3 Environmental Impacts Mitigation – Land Use and Zoning

As previously discussed, the only zoning impact is the approval of a final site plan and the creation of a NRPDD by the Town of Campbell, which will include appropriate conditions and standards governing uses within the district. The creation of a NRPDD will include conditions and standards governing the land use of the landfill property. Any approval will include those conditions deemed appropriate to mitigate issues of local concern and be applicable in the district that will be created

through the NRPDD approval process. The proposed uses within the NRPDD would include land disposal of solid waste, related soil borrow areas, and construction and operational activities necessary and appropriate for the construction and operation of a C&D debris landfill. The operation of the existing Hakes Landfill, including the existing soil borrow area, administrative offices, scale and scale house, fueling, leachate storage and management, and equipment maintenance are all part of the approval that was granted in 2006. All of these existing uses will continue under the new approvals. These proposed and existing uses will become uses of right authorized in the district established by the NRPDD process.

The conditions and standards governing the land use have not been established by the Town yet, but are likely to include conditions limiting the size and nature of the waste disposal facility, the size of the borrow area, operational restrictions regarding the hours of operation, and other conditions mitigating issues of local concern. Many of these conditions will be similar or identical to conditions imposed by the NYSDEC regarding the operation of a solid waste management facility within the NRPDD. Although the establishment of the NRPDD district will establish these uses as uses of right within the district, the uses cannot be modified from those shown on the final site plan without further review and approval by the Town. As such, substantial areas will remain unused open space.

The proposed uses within the NRPDD would include land disposal of solid waste, and related soil borrow and construction activities. The conditions and standards governing the land use have not been established by the Town yet, but could include limitations on disposal rate, noise and air impacts, and other impact areas to mitigate issues of local concern. Change in land use is limited to the loss of approximately 41.5 acres of open fields and forested land. These areas currently serve no significant purpose, other than providing limited wildlife habitat, a resource in ample supply in this area. Once the facility is closed, the expansion area will be re-vegetated to a state similar to the present open fields or meadows surrounding the site.

4.4 NOISE

4.4.1 Noise Fundamentals

The human ear is not equally sensitive to all frequencies of sound and responds differently to different sound levels, which makes it difficult to present the subjective evaluation of a noise by people. Of various single-number measurements that can be made using a sound level meter, the "A-weighted" or "A-scale" reading in decibels, abbreviated “dBA,” corresponds well with subjective responses, including annoyance, speech interference, interference with work and concentration, and judgment of loudness. These factors have made the A-weighted noise level

generally acceptable as a single-number indicator for most community noise measurements and impact assessments.

The A-weighted sound pressure level weights against, or reduces the influence of, noises below 500 Hz (Hertz - cycles per second), and to a lesser extent above 5000 Hz. The attenuation of the low-frequency noise corresponds quite well with the response of the human ear and, therefore, allows a good appraisal of the most annoying sounds. Typical A-weighted sound levels for common noise sources are shown in Figure 4-1. In the following sections, the A-weighted Leq sound levels will be the focus of impact evaluations. The Leq is the equivalent steady-state sound level that contains the same acoustic energy as the time varying sound level during a selected time period. NYSDEC guidance and regulations (discussed below) are both based on A-weighted Leq sound levels.

The procedures and criteria used in the noise evaluations for the Hakes facility include those provided in the Regulations for Solid Waste Management Facilities (6 NYCRR Part 360.19 (j)) as well as those found in the NYSDEC Program Policy document entitled, "Assessing and Mitigating Noise Impacts," dated October 2000 (the "Noise Policy"). The controlling noise criterion for operational noise impacts at the facility property line is specified in 6 NYCRR Part 360.19(j) as a 1-hour Leq of 57 dB(A) for rural daytime environments. The controlling noise criteria for operational and construction noise impacts at sensitive receptor locations is specified in the NYSDEC Program Policy as a 1-hour Leq increase of 6 dB(A) triggering the need to perform an impact evaluation, and a 1-hour Leq increase of 10 dB(A) triggering the need to consider mitigation. Note that the operational noise criterion of 57 dB(A) at the property line does not apply to construction noise impacts.

The assessment of potential property line noise impacts is included in the Part 360 Noise Assessment included in Appendix L-2. The assessment of potential sensitive receptor noise impacts is included in a SEQR Noise Assessment included in Appendix L-1, and noise easement agreements are documented in Appendix L-3

4.4.2 Environmental Setting – Noise

As an initial matter and as is more fully explained in Section 4.3 regarding Land Use and Zoning, it is anticipated that the Town will establish a NRPDD for the project area and the existing landfill. This will mean that the operation of a C&D debris landfill at this location will be a "right of use" within the NRPDD, once the NRPDD is established. In accordance with Section B (2) of the Noise Policy, where a use exists as a matter of right, the use is not subject to

a requirement to conduct a noise evaluation under SEQR. Beyond that, it is anticipated that the future NRPDD created by the Town will establish requirements relating to noise that mimic the regulatory requirements established by the NYSDEC applicable to landfills. Hakes has evaluated potential noise from the facility under both the Noise Policy and the applicable regulatory standards in order to provide a comprehensive discussion of potential noise impacts from the project. The SEQR evaluation also provides support to the Town in their consideration of the creation of a NRPDD.

In order to provide a basis for the assessment of potential sensitive receptor impacts, aerial photographs were reviewed and site walkovers were completed to assess the locations of the nearest sensitive receptors to the planned expansion area. As described in Appendix L-1, this assessment revealed that the nearest sensitive receptor to the expansion project is the residence located at 9719 Frog Hollow Road, approximately 1700 feet northwest of the expansion area.

The Noise Policy recognizes that an appropriate receptor location may be the property line (such as would be the case for determining compliance with Part 360), but it likewise recognizes that, where (as here) there is no property usage in an area beyond the property line, an appropriate receptor for determining adverse impact and mitigation (i.e., relative to SEQRA compliance) is location of the use or inhabitance of the adjoining property. As such, consistent with the Noise Policy, the occupied residential portions of those properties were identified as sensitive receptors.

To provide information for the sensitive receptor evaluation, background noise levels were made in the vicinity of the nearest noise receptor location to the north, at 4480 Manning Ridge Road, during the period from 10 AM through 11AM, on October 14, 2016, and at the nearest residence to the west, at 9719 Frog Hollow Road, during the period from 11 AM through Noon, on December 6, 2016 (see Figure 4-2 for residence locations).

During the measurement period at 4480 Manning Ridge Road, most background noise was from natural sounds from the surrounding area, such as a light breeze and animal noise, and from very light traffic on Manning Ridge Road. Noise from the operating landfill (approximately 1000 feet to the south) was barely audible. Background measurements were actually made at a location about 300 feet south of the residence, on property owned by Casella, because the owners had not given prior permission to access the property. The 60-minute Leq measurement made at this location was 45 dBA.

During the measurement period at 9719 Frog Hollow Road, most background noise was from natural sounds from the surrounding area, such as a light breeze and animal noise, and from very light traffic on Manning Ridge Road, about 1500 feet to the east. There was essentially no traffic on Frog Hollow Road. Noise from the active areas of the currently operating landfill (approximately 2000 feet to the south-east) was barely audible. Background measurements were made at a location about 150 feet south of the residence, on property owned by Casella, because the owners of 9719 Frog Hollow Road had not given prior permission to access the property. The 60-minute Leq measurement made at this location was 46.5 dBA.

Noise at these relatively low levels is characteristic of rural environments where man-made noise impacts are minimal to non-existent. Under the current zoning of the Hakes site as being in an agricultural residential zoning district, there are no specific Town of Campbell noise standards that apply.

4.4.3 Significant Environmental Impacts – Noise

- Operation Noise Impacts at Property Lines

The Part 360 Noise Assessment (Appendix L-2) provides an assessment of operational noise impacts at the facility property lines. The approach taken in the Part 360 Noise Assessment is to provide a realistic (not conservative) analysis of noise impacts, as well as an assessment of some of the techniques that can be used to mitigate noise impacts at the property line. This approach is justified based on the applicant's commitment to employ a real time noise monitoring system to ensure compliance with applicable noise criteria, and to use whatever mitigation techniques are necessary to maintain compliance.

The assessment uses noise measurements collected from actual disposal operations at the Hakes facility. Mitigation measures, including noise attenuation berms and restrictions on equipment use, are modeled to demonstrate that facility operations can be controlled to comply with the Part 360 noise requirements. As described in Appendix L-2, the plan includes real time noise monitoring as a control on operations to ensure that noise levels are not exceeded at the property line. Noise mitigation measures other than those described in Appendix L-2 may also be implemented, but would also be subject to the real time noise monitoring.

The computer-generated simulations described in Appendix L-2 focus on sound levels along or near the key east, west and north property lines closest to the expansion area. Property lines

further to the south (near the existing landfill) will have greater buffer distances and, therefore, will experience lower noise levels. Noise level predictions at the Hakes Landfill were conducted to determine the potential for impacts caused by the future north cell (number 9) operations due to noise emitted from the various pieces of equipment used on the site. The key criteria for this portion of the noise analysis is the 1 hour Leq limit of 57 dBA (NYCRR Subpart 360.19(j)) at or beyond the present Hakes boundary property line for noise generated by operations.

The investigation focused on north cell operations during the points in time when the disposal activities are closest to the boundaries of the cell. Noise levels produced under these periods will have the greatest potential for adverse impact due to the minimal buffer distances. Source levels were measured on October 14, 2016, with a full set of waste transport and disposal equipment in operation in the area designated on Figure 4-2. Simulated noise levels indicated that it would be difficult to meet the criteria of 57 dBA at the adjacent property lines without imposing some restrictions on the operations.

Although various strategies could be implemented to achieve compliance with the Part 360 noise criteria, Appendix L-2 describes an approach that demonstrates that the noise criteria can be met at the property lines. It includes the following controls for disposal operations approaching the north and northwest expansion boundaries:

- Provide a setback of at least 300 feet from the property to the edge of disposal operations;
- Leave a strip of undisturbed woodlands a minimum of 130 feet wide inside the property lines to the north and east of the expansion area;
- Build an initial perimeter berm along the boundaries of the expansion cell area. This berm would be built of soil, construction of which would be considered a "construction activity" that would, therefore, not be subject to the 57 dBA property line limit. Note that this perimeter soil berm is part of the facility design, and is not an optional component of any compliance strategy; and
- When the disposal operations reach an elevation where they would soon become visible at locations beyond the property line, the perimeter berm would be extended vertically using a combination of waste material and intermediate cover. During this phase of berm construction, disposal activities should proceed with equipment limitations implemented to reduce source levels by at least 3 dBA, as described in more detail in Appendix L-2.

For disposal operations approaching the east expansion boundary, the approach described above would be less effective due to the local topography, which affects both the disposal area and potential receptor elevations. An alternative approach for this area would be as follows:

- Provide a setback of at least 300 feet from the property to the edge of disposal operations;
- Leave a strip of undisturbed woodlands a minimum of 130 feet wide inside the property lines to the north and east of the expansion area;
- Waste placed within 400 feet of the eastern property line would be placed with minimal equipment, including one transport truck at a time and a single compactor;
- Waste placed from 400 to 650 feet of the eastern property line would be placed with reduced equipment, including two transport trucks at a time, one bulldozer, one compactor and a tipper; and
- Beyond 650 feet from the eastern property line, a normal contingent of disposal equipment could be used (subject to the limitations described above for operations approaching the north property line).

Other mitigation plans could be employed to achieve compliance with the Part 360 noise requirements, but, for any plan, a real time monitoring system will be used to verify that compliance is achieved, as described in more detail in Appendix L-2 and below in the mitigation section.

With respect to on-road truck traffic, noise is regulated by state motor vehicle laws that preempt other laws related to noise. In addition, the maximum traffic noise levels for residences on Manning Ridge Road and Erwin Hollow Road will not change due to the proposed expansion.

The change in noise impact related to the proposed increase in total volume of disposal capacity would be largely due to the increased remaining life of the facility. The noise level of ongoing operations and waste transportation would not increase significantly, except for locations close to the north property line, but would continue for 5 to 10 years.

- Construction and Operation Noise Impacts

The SEQR Noise Assessment, included in Appendix L-1, provides computer generated simulations of construction and operation related sound levels at the nearest receptor locations to the cell expansion and borrow areas at 9719 Frog Hollow Road, 9938 Woodcock Road, and 10134 Thompson Road. Two other residences just north of the expansion area on Manning Ridge Road have been purchased by Hakes and will have noise agreements included in any existing or future lease agreements. Sample agreements are included in Appendix L-3.

Noise level predictions at the Hakes Landfill were conducted to determine the potential for impacts caused by the future north cell (cell number 9) and future borrow area construction and operation activities, due to noise emitted from the various pieces of equipment that will be used on the site. Criteria considered included a 6 dBA limit in increased noise level above background at any sensitive receptor location (NYDEC Program Policy).

For construction and operation activities in Cell 9 and the borrow area, it was found that noise levels at the three nearest receptor locations would not be significantly impacted. Due to the significant separation distances from the edge of the landfill and borrow areas, the estimated noise impact at all locations would be less than 1 dBA above background.

As documented in Appendix L-1, these noise simulations were very conservative. For the assessment of all locations it was assumed that construction activities would be occurring at locations along the boundaries of the landfill expansion, and that waste disposal activities (unloading, cutting and compacting), and borrow area operations would be occurring simultaneously. This means that, during the majority of the time, combined construction and operation noise level impacts will be considerably less. Since the simulated noise levels are conservative, the NYDEC Program Policy criterion level is met and additional evaluation of impacts is not warranted.

- Supplemental SEQR Evaluation for the NRPDD

At the request of the Lead Agency, a supplemental evaluation of hypothetical impacts related to creation of an NRPDD was performed and is documented in the SEQR Noise Assessment, included in Appendix L-1. This supplemental assessment was performed to support the Town's review of Hakes' application for the NRPDD. The analysis estimated impacts on the nearest residences to the boundary of the NRPDD based on hypothetical noise sources located within the boundaries of the NRPDD. It was found that for a hypothetical source creating a noise impact of 57 dBA at the boundary of the NRPDD (consistent with the NYSDEC Part 360 property line noise limitation) impacts at the nearest residences would satisfy the SEQR criterion limiting impacts at sensitive receptors to 6 dBA above background levels. Additional details on this analysis can be found in Appendix L-1. As is noted in Section 4.3 above, the circumstances are considered hypothetical, because no uses that are not shown on the final site plan will be allowed without further review by the Town.

4.4.4 Environmental Impacts Mitigation – Noise

To reduce noise impacts, mufflers are utilized on all facility equipment and are required on all waste delivery trucks. In addition, Hakes has purchased several residences located close to the cell area, and noise easements have been obtained for other nearby properties. The closest sensitive receptor remaining, the residence at 9719 Frog Hollow Road, is approximately 1700 feet west of the western boundary of the northern cell (Cell 6) and will experience minimal increase in noise levels. Properties that have been purchased, or for which noise impact easements have been purchased, are listed below and shown on Figure 4-3:

- 4416 Manning Ridge Road – purchased
- 4376 Manning Ridge Road – purchased
- 4470 Manning Ridge Road – purchased with easement requirement in lease
- 4480 Manning Ridge Road – purchased with easement requirement in lease
- Azley Lowe Property – purchased
- George Hakes Property – purchased
- William Steele Property – noise easement (see Appendix L-3)
- Furney Property – purchased
- Gary Grinnell Property south of borrow area – purchased
- West Hill Road, Gary and Melissa Grinnell Properties – noise easements (see Appendix L-3)

In order to ensure compliance with 6 NYCRR Part 360 noise criteria during project operation, operational restrictions and a real time noise monitoring system is proposed. These operational restrictions and the monitoring system are described in detail in Appendix L-2. A summary description of the monitoring system is provided below since it is considered a key in ensuring compliance with the Part 360 noise criteria.

The system will consist of two noise monitoring terminals, which continuously monitor noise at specified locations along the north and east key compliance locations of the expansion area. Although the applicant will consult with NYSDEC personnel in Region 8 to determine where terminals should be located, it can be expected that the monitoring locations will change over time as sub-cells are constructed in the expansion area. For example, if a sub-cell directly north of the existing permitted fill area in the south-east portion of the expansion area is being used as the active fill area, a monitoring point due east of that area, at or near the property line, would be the critical point to monitor noise. When, on the other hand, a sub-cell in the north-west portion of the expansion area is being used as the active fill area, a monitoring point north of that area, at the northern property line, would be the critical point to monitor noise.

Alerts would be triggered from noise levels that are approaching or may imminently exceed the regulatory criteria applicable to operations. Should an alert occur, a response plan would be implemented immediately. Alerts may include a system of warning lights, text messages, or both, to promptly inform operators of the level of the noise compliance issue. A warning alert would indicate that the criteria will be breached if noise continues at the current levels. This warning will be communicated to operators and predefined reductions in waste disposal operations will be implemented. An urgent alert would indicate that noise levels are about to exceed the criteria (for example if the Leq level for the immediately previous 60 minutes reaches 56.9 dBA). This alert would be communicated to operators and waste disposal operations would be suspended immediately. After one-hour Leq levels have dropped to an acceptable level, disposal operations would continue at reduced levels or at alternative locations farther from the key compliance locations.

A similar system was put in place at the Chemung County Landfill in February 2012 and, over a 3 year period of operation, no violations of the Part 360 noise criteria were recorded.

At some point in time, as the landfill is developed to sufficiently high elevations, the separation distance to the closest key compliance locations will increase to a point where the real time monitoring system will no longer be required. Upon a demonstration that operations are not creating an exceedance of the noise criteria, an application will be made to the NYSDEC to allow termination of the real time monitoring system.

4.5 VISUAL

A "Visual Resource Assessment" was prepared for this project, and is included as Appendix M of this document. A summary of the findings of this assessment is provided in the following sections.

4.5.1 Environmental Setting – Visual

The land use in the area of the proposed Hakes Landfill expansion is primarily rural residential, agricultural, and forest, with the Village of Painted Post approximately 3 miles to the south. Painted Post has a commercial district, residential areas, and several churches. The Town of Campbell is a rural community with a population of 3,406, and is typical of many small, western New York rural communities. A general location map showing the area surrounding the Hakes Landfill is provided on Figure 1-1.

The topography of the site and the surrounding area is shown on Figures 1-2 and 4-4. Topographic features in the area within 5 miles of the site (see Figure 4-4) include rolling hills and valleys, with elevations ranging from approximately 950 feet (NAVD 88) along the Tioga River, south of the project site, to more than 1900 feet at the crests of the hills to the north of the site.

Vegetated areas in the region consist of woodlands with deciduous and evergreen trees and shrubs, and agricultural fields consisting of pastures and row crops, and meadows.

4.5.2 Significant Environmental Impacts – Visual

The ultimate increase in the lateral extent of the cell area to the north (by about 1000 feet) will be the primary reason for increased visibility of the expanded landfill.

The viewshed analysis revealed that visibility of new project features would be limited to views of the expanded landfill cell area from viewpoints along Manning Ridge Road, Thompson Road and other (more distant) rural roads on hillsides facing the project site. Residents and travelers along these roads will have a potential view of the project site. It was determined that there are five visually significant locations within the study area, which are shown on Figure 4-5, and listed below:

- District School No. 5
- Delaware , Lackawanna &Western Railroad Station
- US Post Office, Painted Post
- First Baptist Church of Painted Post
- Jenning's Tavern

There are also numerous churches in the Village of Painted Post and surrounding area. None of the visually significant locations or churches will have views of the existing or the expanded facility.
Within the potential viewpoint areas described above, three representative foreground viewpoints (0 to ½ mile from visible project features) were evaluated, including residences along Manning Ridge Road, and travelers on Frog Hollow Road. In addition, ten representative middleground viewpoints (½ to 3 miles from the site), and two background viewpoints (more than 3 mile viewing distance), were evaluated.

There are no viewpoints in the more developed (and potentially visually sensitive) areas in the valley bottoms along the Cohocton and Tioga Rivers, and along Meads Creek, that will not be screened by topography or vegetation such that the expanded facility will not be visible from these

locations. The corridors along Interstate Route 86 (formerly Route 17), NYS Route 415, and most of U.S Highway 15 are also screened by topography or vegetation.

The severity of the visual impact at the foreground viewpoints is expected to be somewhat significant. The two residences on Manning Ridge Road (viewpoints numbered 2 and 3 on Figures 4-4 and 4-5) will have a clear view of the site. Note that two types of the viewshed maps (one based on topographic mapping and the other on aerial photographs) have been prepared. Existing vegetative screening will provide some degree of compatibility with the existing landscape, with the exception of the higher elevations of the expansion cell area.

The severity of the visual impact at the middleground and background viewpoints is expected to be relatively small.

4.5.3 Environmental Impacts Mitigation – Visual

The following practices and factors will mitigate the visual impact of the project:

- Existing vegetative screens between operations and potential viewers will reduce the visual impact of the expanded landfill cell area and will be left in place to the extent they are under the control of the applicant.
- Additional vegetative screens will be established by planting more trees between the landfill and Manning Ridge Road.
- Hakes has purchased nearby residential properties (including the closest property on Manning Ridge Road). Properties that have been purchased are shown on Figure 4-3.
- After closure of the project, and establishment of the vegetated final cover, the appearance of the reclaimed site will be somewhat similar to the surrounding hills, although the closed landfill cell will be more uniform and geometric, and will be re-vegetated with grasses (not trees), which will contrast with most of the surrounding forested hills.

Considering the cumulative effects of these mitigation factors, the visual impact of the proposed landfill expansion will not be significant.

4.6 SOCIOECONOMIC IMPACTS

4.6.1 Environmental Setting – Socioeconomics

The Hakes Landfill site is located in a lightly populated area in the Town of Campbell, Steuben County, New York. The landfill is located approximately 3 miles north of Interstate 86.

To characterize the existing community demographically, data was obtained from the U.S. Census Bureau web site (http://factfinder.census.gov). Table 4-2 presents data for the Town of Campbell. The Town of Campbell has a relatively small population (3,406) predominantly white by race (97.4%) that can generally be categorized as in the low to middle income brackets.

TABLE 4-2
TOWN OF CAMPBELL DEMOGRAPHIC STATISTICS
2011 – 2015 American Community Survey

INCOME PROFILE
% Distribution of Households by Income

Less than $10,000	3.8%
$10,000 to $14,999	6.1%
$15,000 to $24,999	8.7%
$25,000 to $34,999	16.4%
$35,000 to $49,999	20.7%
$50,000 to $74,999	16.6%
$75,000 to $99,999	11.4%
$100,000 to $149,999	13.2%
$150,000 to $199,999	1.4%
$200,000 or More	1.6%
Median Household Income:	$46,250
Per Capita Income:	$25,858

EMPLOYMENT AND POPULATION

Unemployment Rate:	4.0%
Estimated Population:	3,406

DEMOGRAPHIC PROFILE

Race:	White	97.4 %
	Black or African American	0.4 %
	Other	2.2 %

The NYSDEC Environmental Justice Policy (CP-29) requires that areas with high concentrations of minority or poor residences be given special consideration in the review of potential projects under SEQRA. The proposed Hakes expansion is more than 3 miles northeast of the closest Environmental Justice Area, so this policy does not apply.

4.6.2 Significant Environmental Impacts – Socioeconomics

There will be no significant socioeconomic impacts resulting from this proposed expansion project. Direct job creation will not change significantly from current levels, although these jobs will be maintained for a longer period of time. Demands on local public services range from minimal (e.g., fire protection, police, emergency services) to non-existent (e.g., schools, water).

The major impact of the proposed facility on area socioeconomics will be due to the continued employment related to facility operation. An estimated 10 to 11 people will continue to be employed full-time to support facility operation, while an additional 10 to 12 people will be employed during the construction phases of the project. Construction phases are temporary, however, and associated demographic impact is not expected to be significant.

The impacts on area socioeconomics, due to the continued employment opportunities, and continued payment of taxes and Host Fees to the Town of Campbell, will be beneficial.

4.6.3 Environmental Impacts Mitigation – Socioeconomics

Since impacts on the population and economic characteristics of the local area will be marginal at most and generally beneficial, mitigation is not required. However, as mentioned above, a Host Benefit agreement has been negotiated with the Town of Campbell (Appendix N), which, along with property taxes, will offset road maintenance and other public services associated with the landfill.

4.7 HEALTH IMPACTS

No specific health studies were included in the Consolidated Scope (Appendix B) prepared for this DSEIS, so none were performed. However, in response to interest expressed by members of the public in potential health impacts of the project, the following general discussion of health issues has been prepared.

4.7.1 Environmental Setting – Health

The absence of specific health studies for the Town of Campbell or the landfill area makes it difficult to assess existing health conditions in the vicinity of the Hakes facility. The project is located in Steuben County. However, the "Chemung County Community Health Assessment 2016-2018," does provide some insight into health issues of importance on a county-wide basis. The three top issues identified in this assessment are listed below:

- "Priority Area 1: Prevent Chronic Diseases
    - Focus Area: Prevent chronic disease by reducing illness, disability, and death related to hypertension, tobacco use and second hand smoke, and obesity in adults and children.
- Priority Area 2: Promote Mental Health and Prevent Substance Abuse
    - Focus Area: Prevent non-medical prescription opioid use and overdose.
- Chemung County also chose to address the following disparity:
    - Under the Prevent Chronic Disease priority area, Chemung County will work on decreasing the percentage of low income individuals who use tobacco."

There are several common causes of health problems identified above that are in play not only in Chemung County, but in New York State, and the country as well. These are tobacco use, obesity, and opioid abuse. The opioid crisis has been recognized by the National Institute of Health (Ref 7,) and according to data from the Center for Disease Control, more than one in three American adults is obese (Ref 8.) The Center for Disease Control has also reported that tobacco use remains the single largest preventable cause of death and disease in the United States (Ref 9.) Based on the proximity of the Town of Campbell to Chemung County, it's reasonable to expect that the health issues and related causes identified in the Chemung County assessment exist to some extent in the Town of Campbell as well. None of the priority issues listed in the county assessment relate to landfill-related activities and they are not likely to be impacted by this project.

4.7.2 Significant Environmental Impacts – Health

The potential impacts associated with this project that could affect health are most likely to be air emissions and contaminant releases that could affect the quality of surface water or ground water. Air resources are addressed in Section 3.4 and water resources are addressed in Section 3.3.

Although C&D waste is considered non-putrescible (it doesn't contain large amounts of organic waste subject to decomposition), there is some production of methane and hydrogen sulfide that could be released to the air and requires control. There is also the potential of impacts to air resources due to dust generation from construction activities and traffic on the gravel on-site road

system. Dust impacts also require mitigation.

With respect to water resources, the main potential impacts are sediments released to surface water during construction and operation activities, and accidental releases of leachate or petroleum products that could impact both surface water and groundwater. These potential releases must be controlled.

4.7.3 Environmental Impact Mitigation – Health

The mitigation of potential air impacts due to emissions of methane and hydrogen sulfide will be accomplished by collecting most of the gasses prior to release, and combusting the gasses in a flare. Details on the gas collection system and flare are provided in Section 3.4. In the report entitled "Air and Particulate Items" in Appendix H the efficiency of the gas collection is estimated to be about 80 percent.

The mitigation of potential air impacts due to generation of dust will be accomplished by application of water during dry periods, using an on-site water truck. Details regarding dust control are also provided in Section 3.4.

Air emission from the facility will be managed by complying with all applicable sections of 6 NYCRR Parts 200 and 201, as described by SCS Engineers in Appendix H. The stringent regulatory standards in effect and applicable to the facility are established to be protective of human health.

Control of sediment contamination in surface water runoff has been a focus at the Hakes facility for many years. There are now five sedimentation ponds on site that receive runoff from the site, collected by a system of stone lined ditches. These ponds will be expanded to accommodate new landfill cell area and associated discharges of stormwater. Releases from the ponds generally flow through a sand filter that further reduces the concentration of hard to settle fine particulates. Details on the stormwater management system is provided in Section 3.3.

Systems for the collection and storage of leachate are described in Section 2.4. Mitigation of potential releases of leachate, that could impact both surface water and groundwater are addressed in Sections 3.2 and 3.3, and include the leachate collection and storage system, site drainage systems, and the environmental monitoring system.

Mitigation of potential releases of petroleum products, that could impact both surface water and groundwater, are addressed in the facility's "Spill Prevention Control and Countermeasure Plan" (SPCC Plan), which identifies measures to prevent spills, as well as response actions to take if a spill occurs. Additional information on mitigation of potential petroleum spills is provided in Section 3.3.

5.0 UNAVOIDABLE ADVERSE IMPACTS

The most significant unavoidable adverse impact area is related to geological resources. After closure of the facility, the overall lateral extent of the landfill cell area will increase. The appearance of the landfill area will also be altered in that roadways, buildings, and other structures constructed for the facility will remain after the facility has closed. Land use in the project area will continue as a solid waste management facility for approximately 5 to 10 years with the 21.0 acre expansion, after which the area will be returned to wildlife habitat area. Future land use in the landfill cell area following final closure will be limited to wildlife habitat in order to ensure the integrity of the final closure system.

6.0 ALTERNATIVES

The principal alternatives to this project, which are addressed in the following sections, include alternative sites, alternative sizes, soil borrow source alternatives, alternative design and layout, alternative land use (including post closure land use), and the "no action" alternative. In approaching the evaluation of alternatives, we have been guided by the requirements of SEQR (6 NYCRR Part 617 Section 9), which state that the DEIS should contain "a description and evaluation of reasonable alternatives to the action that are feasible, considering the objectives and capabilities of the project sponsor," and further, that "Site alternatives may be limited to parcels owned by, or under option to, a private project sponsor".

6.1 ALTERNATIVE SITES

Since this DSEIS addresses the proposed expansion of an existing facility, evaluation of alternative sites is somewhat limited.

Casella Waste Systems, Inc. (Casella) does own and/or operate other landfills, which could potentially be expanded instead of the Hakes facility, although it has no other dedicated C&D facilities located in western New York. Potential alternative landfill sites in the western New York area include the Casella owned Hyland Landfill in Allegany County, and the Chemung County and Ontario County Landfills which are operated by Casella. It must be pointed out, however, that remaining expansion areas at all of these landfills are limited, and the elimination of the expansion option at Hakes would cause other area landfills to reach capacity at earlier dates. In addition, the environmental impacts of expanding any alternative site would be similar to expanding the Hakes facility, and transportation impacts would likely worsen, since local haulers would need to travel greater distances. Finally, the reality is that it is not an either/or choice, since the operators of landfills in New York will all seek expansions, if possible, as the permitted capacity of each facility is approached. There is no indication that landfill disposal of wastes will be eliminated in the foreseeable future.

Casella could also attempt to develop an entirely new site to obtain additional disposal capacity, although the challenges of siting new waste disposal facilities in New York have increased in recent years. The Hakes Landfill, however, has been found to have a number of attributes, which make it a good candidate for continued operation. These include good soils for construction of cell liners, a relatively isolated location, and a location within 4 miles of an interstate highway. In addition, since Casella is a continuing operation, expansion of other landfills, as well as development of new sites, would not be precluded by this proposed expansion. In general, it is easier, less time consuming,

and more cost effective, to expand an existing landfill, than to locate a new site and go through all the steps necessary to permit and develop that site. Environmental impacts are less with an expansion facility than a new facility since much of the infrastructure associated with the existing facility can be used to support the new cell area. In contrast, a new facility would require the development of that infrastructure and the associated environmental impacts.

6.2 ALTERNATIVE SIZE

The proposed 21.0-acre expansion of the Hakes Landfill described in this document has been designed to provide landfill capacity at this location for an additional 5 to 10 years. Although the total land area owned by the project sponsor at this location exceeds 447 acres, and expansion beyond the proposed footprint is possible, issues related to bedrock separation and waste truck movement around the site have limited the proposed expansion to the size and location proposed herein. Further expansion of this facility would, however, be technically possible.

A smaller expansion at Hakes would also be technically feasible, although economics would be adversely impacted, since permitting and design costs do not vary greatly with the size of the facility, and environmental impacts would only be marginally reduced.

6.3 ALTERNATIVE SOIL BORROW SOURCES

As part of the planning process for this proposed project, engineering evaluations were conducted of various on-site locations for the soil borrow area that would be needed to supply the 730,000 cubic yards of soil for construction and operation of the landfill expansion. Of the two feasible options, the selected area east of Tributary 4 to Erwin Hollow Creek is more compact than the other potential area west of Manning Ridge Road, due to deeper soils, and would not require transport of materials across Manning Ridge Road. Also, the visual impact of the selected borrow area would be much less than that of a large excavation west of the road.

As far as off-site borrow areas, the large quantity of needed soils would strain the capacity of most local suppliers, but assuming supplies were available, the cost of operating an off-site borrow pit would likely be similar to the cost of operating the on-site pit, or about $2.50 per cubic yard. Added to the pit costs, would be the extra transportation costs of getting the soils to the Hakes site, or about $0.25 per ton per mile (about $0.35 per cubic yard per mile). An additional haul distance of only 10 miles would more than double the cost of the soil. Finally, all of the soils would be hauled on local roads, resulting in about 50,000 truck trips to and from the site, assuming a typical on-road dump truck capacity of 15 cubic yards. These cost and traffic impacts are the reasons most landfill

projects use on-site soils to the extent possible and the reason why the on-site borrow area is considered a mitigation measure.

6.4 ALTERNATIVE DESIGN

The design of the proposed Hakes Landfill expansion is based on regulatory criteria established in 6 NYCRR Part 360. The regulations dictate the various alternatives available for landfill design. Typically, proposing a design outside that specified in the regulations would require a variance from the regulations.

The composite liner design proposed for the landfill expansion meets the criteria established in the 6 NYCRR Part 360 Regulations. However, alternative designs are feasible for the subgrade preparation and groundwater collection system.

The design alternatives that were considered included the following:

- subgrade preparation; and
- groundwater collection layer.

6.4.1 Subgrade Preparation – Groundwater Collection

6 NYCRR Part 363-6.4 requires that a minimum separation of 10 feet be maintained between the base of the liner system and the top of the underlying bedrock. For C&D landfills, there is no permeability requirement for the 10 feet of soil between the base of the liner and rock. A variance will be applied for to allow a reduction to 5 feet of separation from bedrock, based on placing and compacting soils for the subgrade to a required permeability of $1x10^{-6}$ cm/sec. This alternative approach to subgrade preparation results in: (i) a lower permeability zone beneath the landfill providing additional environmental protection, (ii) the conservation of site soils, (iii) ease of construction, and (iv) additional disposal volume.

In the expansion area, groundwater occurs in the lower zone of the glacial till and the upper zone of the bedrock. 6 NYCRR Part 363-6.3 requires a minimum 5-foot separation between the groundwater table and the base of the constructed liner system. The proposed liner system includes a groundwater collection system to prevent the groundwater table from coming in contact with the base of the liner. The groundwater collection system will be similar to the system used for the existing landfill cells. This deviation from criteria is presently covered by an approved variance, which can be extended to cover the proposed expansion.

Disapproval of this variance would require that the soil borrow area be expanded to account for the additional soils that would be required to meet the 10-foot separation requirement. It is expected that an additional 5 feet over the entire footprint area (21.0 acres) and the exterior grades would have to be raised to achieve the 10-foot separation. This equates to approximately 227,000 cubic yards of additional borrow soils that would be required. The economic impact associated with this variance, specific to subgrade construction, is approximately $1,418,000. This estimate is based on requiring an additional 227,000 cubic yards (cy) to construct the subgrade. The 227,000 cy includes the necessary revisions to the perimeter berm which will have to be raised to provide the necessary containment. The cost estimate is based on expanding the borrow area by approximately 5.6 acres ($10,000/acre) and the additional 227,000 cy that will require excavation, ($3.00/cy), hauling and placement ($3.00/cy). Note that the borrow area proposed as part of the Hakes expansion is large enough to provide the soils required for the subgrade in the event the requested variance is denied. Approval of the variance will result in a somewhat smaller borrow area.

In addition, the economic impact would include a loss of revenue to the Town of Campbell by approximately $87,800. If the variance is not approved the total available airspace would be reduced by approximately 228,000 cy. The host agreement tipping fee is $0.55 per ton and potentially more depending on the waste acceptance rate (see Host Agreement).

6.5 ALTERNATIVE LAND USE

The 295 acres (approximate) of the more than 447 total acres of land on the Hakes site not currently used for landfill cell area or support facilities has limited value as viable farmland due to soil types and slopes. Its present use, wildlife habitat, is also the planned use for the property after closure of the facility. During operation, the majority of the site will remain undeveloped and will continue to be viable wildlife habitat.

Alternative uses for the unutilized portions of the site are somewhat limited by the monitoring and security requirements of the facility. Hakes and Casella are companies involved almost exclusively in waste management. Appropriate alternative land uses might, therefore, include development of facilities for waste recycling, a landfill gas to energy plant, or the manufacture of products from recyclable materials. Although Casella does operate recycling facilities at other locations, Hakes and Casella have no plans to develop facilities of this type at the Hakes site at this time due to the lack of regional demand. Any facilities that are proposed to be added to the district created by the NRPDD process would require further review under SEQR and further approvals from the Town, the State and potentially other agencies.

As mentioned above, the proposed post-closure use of the Hakes site is as a wildlife habitat. It is difficult to project the state of the local economy 15 years into the future or the demand for industrial, residential or recreational facilities. However, since approximately 200 acres of land will be available outside the area of the closed cells and adjacent monitoring and support facilities, some use of portions of the property for industrial, residential, or recreational purposes could occur in the distant future.

6.6 NO ACTION

Failure to proceed with the proposed project would mean that the project would not be able to contribute to the current solid waste management needs in the region or provide the economic benefits to the local area discussed previously. As landfills are filled to capacity and closed, they must be replaced, or other means must be developed to manage the waste stream. There is presently 2 to 3 years of disposal capacity remaining at Hakes. Absent the proposed expansion, the Hakes Landfill would be closed at the exhaustion of the currently permitted capacity, and the site would be restored to wildlife habitat. No future development (other than waste disposal) is currently planned for the site.

In addition, the "no action" alternative would not be consistent with the goals and business objectives of the applicant.

7.0 IMPACTS ON GROWTH

It is not expected that expansion of the Hakes Landfill will have a significant impact, positive or negative, on growth in the local area. Positive factors, which might provide local economic stimulus, would include maintaining jobs at the facility for a longer period of time due to the extension of the remaining life of the facility, increased purchases of supplies and equipment, and continued payments to the Town of Campbell under the Host Community Agreement. In addition, the continued availability of reasonably priced waste disposal services could provide some stimulus to the local economy.

8.0 EFFECTS ON THE USE AND CONSERVATION OF ENERGY

Energy (mainly in the form of diesel fuel) will be consumed in the construction of additional landfill cells and in the transportation of a larger total quantity of waste to the facility. In addition, electricity will be consumed in the maintenance and office buildings, leachate control systems, and for outdoor lighting.

Over the next 2 years, these construction and transportation activities would be performed even if the proposed modifications described in this DSEIS were not implemented, since the presently permitted Hakes facility would continue in operation under the current permit. However, if the expansion proceeds, the remaining life of the landfill will be extended, so total energy consumption related to operation of the Hakes Landfill will increase. It should be noted, however, that total regional waste generation will probably not be affected by the expansion of the Hakes Landfill and there will be a need for landfill capacity in the region throughout the life of the expanded facility. Therefore, if the Hakes facility is not expanded, landfill capacity will need to be developed elsewhere, resulting in similar construction, operation, and transportation related energy consumption at another location.

Gasoline will also be consumed, primarily in vehicles used by project employees to commute to and from work, and to travel around the site.

The owners and operators of this project will have an economic incentive to conserve energy use, to the extent consistent with operation of a safe, secure facility.

9.0 SOLID WASTE MANAGEMENT PLAN

Steuben County does not currently have an approved Local Solid Waste Management Plan (LSWMP). The revised NYSDEC Parts 360 - 366 Solid Waste Management regulations, have been promulgated, and contain revised requirements for preparation of LSWMPs. Hakes has been advised that a draft plan has been prepared by Steuben County, and that the Hakes Landfill is recognized as a merchant facility that operates within the planning unit that is relied upon to take waste in the event that the Steuben County Landfill cannot take construction and demolition debris waste for some reason.

The New York State Solid Waste Management Plan, entitled "Beyond Waste," continues to advocate a hierarchy of waste management which prioritizes reduction, reuse, recycling, composting, and energy recovery before landfilling. However, the most recent version of the plan (dated December 27, 2010) acknowledges that landfilling still handles the largest proportion of waste disposed. Strong demand at Hakes for waste disposal services indicates the continued need for such services. The NYS Plan also acknowledges that landfill expansions are more efficient than new landfill construction, which is one of the key motivating factors for expansion of the Hakes facility.

In furtherance of 6 NYCRR § 360.16(c)(5), the Hakes Landfill has long been recognized by Steuben County, the local solid waste management planning unit, as a private facility that handles construction and demolition debris waste from a variety of locations, mostly outside of Steuben County. It is our understanding that Steuben County will recognize the Hakes Landfill in this capacity as part of its solid waste management plan that is currently undergoing development and review by the Department.

In accordance with 6 NYCRR § 360.19(c)(2), Hakes will comply with the regulatory requirement to accept waste from planning units that have comprehensive recycling analyses and will submit that information to the DEC prior to when the NYSDEC permit application package is deemed complete by the DEC.

10.0 IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES

The proposed expansion of the Hakes Landfill will result in the permanent use of approximately 21.0 acres of additional land area for development of landfill cells, eliminating this area from potential alternative future uses. Topographic features of the site will be permanently altered, including increased elevations in the cell area, and lowered elevations in the soil mining areas. These changes will significantly restrict the future use of the property. Once the post closure plan is implemented, the area will function as a wildlife habitat. Construction materials consumed by the proposed expansion are expected to include approximately 68,000 cubic yards of granular soils (gravel), 105,000 square yards of geomembrane liner material, and varying quantities of plastic piping, pumps, tanks, blowers and other materials. In addition, approximately 730,000 cubic yards of on-site soils will be used in construction of the liner, berms, final cover systems, and in disposal operations.

Adverse impacts will include slightly increased visual impact at some locations. Truck traffic on Interstate 86, Erwin Hollow Road, and Manning Ridge Road resulting from project operations will continue for an additional 5 to 10 years.

The public benefits of the proposed expanded Hakes facility will include the following:

- maintaining jobs at the facility for a longer period of time due to the extension of the remaining life of the facility;
- payments to the Town under the Host Agreement; and
- the continued availability of an environmentally sound waste disposal facility.

These benefits will offset the use of resources.

11.0 REFERENCES

1. Fagen Engineers, "Hakes C&D Disposal, Inc. - Draft Environmental Impact Statement - Construction and Demolition Debris Landfill", prepared in association with Three Rivers Development Foundation, Revised March 1993.
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3. McMahon & Mann Consulting Engineers, P.C., "Hakes C&D Disposal – Landfill Expansion Project - Draft Supplemental Environmental Impact Statement", February 2006.
4. McMahon & Mann Consulting Engineers, P.C., "Hakes C&D Disposal – Landfill Expansion Project - Final Supplemental Environmental Impact Statement", May 2006.
5. Center for Watershed Protection, "New York State Stormwater Management Design Manual", prepared for New York State Department of Environmental Conservation, June 2010.
6. Empire Chapter – Soil & Water Conservation Society, "New York – Guidelines For Urban Erosion & Sediment Control", April 1997.
7. Web Link: https://www.drugabuse.gov/drugs-abuse/opioids/opioid-crisis
8. Web Link: https://www.cdc.gov/obesity/data/adult.html
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