Appendix I-5

Terrestrial & Aquatic Environment Detailed Impact Assessment Report

Terrestrial and Aquatic Environment Detailed Impact Assessment – Draft

Walker South Landfill Phase 2 Environmental Assessment

Walker Environmental

June 11, 2026

→ The Power of Commitment

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1. Introduction

This report documents the terrestrial and aquatic environment impact assessment of the Preferred Method for the Environmental Assessment (EA) to develop the next phase of the existing South Landfill (i.e., South Landfill Phase 2) located at the Walker Resource Management Campus (Campus). The proposed South Landfill Phase 2 will add approximately 19.8 million cubic metres (m^3) of landfill capacity over a 20-year period.

In the preceding Alternative Methods phase of the EA, net effects analyses as well as a comparative evaluation of three Alternative Landfill Configuration Options and two Leachate Management Options were carried out in order to identify a Preferred Landfill Footprint and a Preferred Leachate Management Option. The three Alternative Landfill Configuration Options and two Leachate Management Options presented in the Alternative Methods phase were developed to a conceptual level of design and documented in a Conceptual Design Report (CDR). The potential environmental effects, preliminary impact management measures to address the potential adverse environmental effects, and the remaining net effects following the application of the impact management measures were identified for all three Alternative Landfill Configuration Options and both Leachate Management Options. The Preferred Landfill Configuration Option was determined to be Option A (*Same Height and Slopes as Current South Landfill Phase 1*[1]) and the Preferred Leachate Management Option was determined to be Option A (*Continued and Expanded Use of the Municipal Wastewater Treatment System*), hereafter collectively referred to as the Preferred Method.

At the detailed impact assessment phase, additional details are developed for the Preferred Method from a design and operations perspective, as documented in a Facilities Characteristics Report (FCR; WSP 2026), so that potential environmental effects, preliminary impact management and compensation measures, and resultant net effects described at the Alternative Methods stage can be reviewed and more accurately defined, as required, along with enhancement opportunities and approval requirements. Specifically, the following can be accomplished:

– Potential environmental effects can be identified with more certainty.
– More site-specific impact management measures can be developed for application.
– Additional mitigation and impact management measures can be identified, as required.
– Net environmental effects can be identified with more certainty.
– Appropriate monitoring requirements can be clearly defined.
– Specific approval/permitting requirements for the proposed undertaking can be identified.

Climate change mitigation and adaptation measures are also reviewed as part of the detailed site design established for the Preferred Method. In addition, during the impact assessment stage of the South Landfill Phase 2 EA, Walker has committed to completing an assessment of the cumulative effects of the proposed undertaking and other non-Walker projects and activities that are existing, planned/approved or reasonably foreseeable within the Study Area.

The discipline-specific work plans developed during the Terms of Reference (ToR) outlined how impacts associated with the Preferred Method would be assessed. The results of these assessments are documented in 13 stand-alone Detailed Impact Assessment Reports:

– Geology and Hydrogeology
– Surface Water Resources
– Noise and Vibration
– Air Quality
– Terrestrial and Aquatic Environment

[1] Following consultation on the comparative evaluation of the alternative methods, the Preferred Landfill Configuration Option was refined based on public, stakeholder and Government Review Team (GRT) comments and feedback received. Specifically, the proposed maximum height was decreased to reduce visual impact, the proposed Limit of Fill was adjusted in several areas to avoid sensitive natural features and to accommodate necessary infrastructure within the buffer, and slopes were adjusted to maximize compatibility with an agricultural end use, all of which resulted in a slightly reduced waste capacity.

- Land Use
- Agriculture
- Transportation
- Social Environment
- Economic Environment
- Built Heritage and Cultural Heritage Landscapes
- Archaeology
- Visual

1.1 Description of the Preferred Landfill Configuration Option

Landfill Configuration Option A was originally selected as preferred due to its long-term benefits, including the largest waste capacity, longest operational lifespan, and associated economic and employment advantages. Following its selection, the design of Landfill Configuration Option A was refined in response to feedback received during consultation to reduce its visual impact and improve compatibility with a future agricultural end use. These refinements included a reduction in peak elevation to 211 metres above mean sea level (mAMSL) at the top of waste (TOW; 211.75 mAMSL at the top of cap), and adjustments to slope gradients, now designed to a maximum steepness of 3:1 (horizontal:vertical) for below-ground slopes and between 16:1 and 3.5:1 for above-ground slopes, improving the area compatibility with an agricultural end use. These changes bring Option A closer in form to the Options B and C while preserving its advantage of a higher overall waste capacity. The refined Option A design would provide approximately 19.8 million m^3 of expanded landfill capacity and include 44 hectares (ha) of land compatible with an agricultural end use.

Furthermore, the Limit of Fill boundaries were adjusted to minimize impact on natural features from necessary infrastructure within the buffer. From a natural environment perspective, the purpose of shifting the Limit of Fill boundaries in two locations (i.e., to extend south of the woodland that sits just north of the limit of extraction, and extending inwards from previously considered layouts at the northeastern edge) was specifically to minimize the amount of direct impact on the adjacent natural features (woodland and wetland) at these locations.

1.2 Description of the Preferred Leachate Management Option

Leachate Management Option A builds upon the pre-existing leachate management system and approach while including the necessary expansion of the system capacity as South Landfill Phase 2 is expected to generate approximately 131,000 m^3 of additional leachate per year at the time of closure (2050) and approximately 147,000 m^3 of additional leachate per year in 2070 when considering climate change. The expansion of the leachate management system would include a leachate sump, including a pump station equipped with the needed metering equipment and controls for monitoring and contingency purposes, a forcemain to transport the leachate from the pump station to the lagoon area, and lagoon upgrades consisting of 2 additional lagoons, if required (located adjacent the existing two lagoons), for pretreatment and eventual discharge.

Once pretreated at the on-site lagoons, leachate will be conveyed via an existing force/gravity main to the Niagara-on-the-Lake sanitary sewer system for final treatment at the Region of Niagara's Port Weller Wastewater Treatment Plant. The need to upgrade the private sewer that connects to the Niagara-on-the-Lake sanitary sewer system has been identified and will be considered in the assessment.

1.3 Facility Characteristic Report for the Preferred Method

The Facility Characteristics Report (FCR) presents preliminary design and operations information for the Preferred Method and provides information on all main aspects of landfill design and operations including:

– Site layout design, including existing and proposed site characteristics,
– Stormwater management,
– Leachate management,
– Landfill gas management, and
– Landfill development sequence and daily operations.

The FCR also provides estimates of parameters relevant to the detailed impact assessment, including estimates of leachate generation, landfill liner performance, landfill gas generation, and traffic levels associated with waste and construction materials haulage.

Specific components of the site layout of the Preferred Method include roads, stormwater management options, and leachate management, provided on **Figure 1**, and described by general location below.

Components within the landfill Buffer Area, which is the area between the Limit of Fill and the Waste Disposal Site Boundary Limits, include:

– A perimeter maintenance/monitoring road proposed to run just outside of the Limit of Fill along the north, east and south and adjoin the main haul road along the west;
– Stormwater management pond options, including one along the east of the buffer (referred to as the north pond), running in a northeast to southwest direction parallel with the Limit of Fill, and one to the south (referred to as the south pond);
– A stormwater management ditch, concurrent with the Limit of Fill, which would collect surface water from the capped landfill and route it to the stormwater management pond(s); and
– Temporary construction footprints to facilitate development of the facility.

Within the Local Study Area (LSA), at the northwest corner of the proposed landfill, a new tunnel will be constructed 75m south of the existing tunnel under Taylor Road, and a maintenance entrance will be constructed from Mountain Road.

A new proposed forcemain for leachate management will be constructed in the right of way between the western boundary of the Limit of Fill and Taylor road and will travel from the road right of way west to the existing leachate management lagoon area. Upgrades may also be required to the existing forcemain that connects the lagoons to the Municipal sewer.

Finally, also within the LSA, a screening berm is proposed to extend the existing berm in a northeast direction. The berm is predominantly situated within an existing agricultural field.

2. Study Area

From a terrestrial and aquatic environment perspective, the characterization of impacts within the following study areas are appropriate to this EA:

– **Site Study Area (SSA):** The SSA is consistent across all technical disciplines and encompasses a total of 81.30 ha of land owned and operated by Walker. The SSA includes the current quarry extraction limit and encompasses the proposed Limit of Fill and the Buffer Area and aligns with the proposed Waste Disposal Site Limit Boundary. As the quarry itself is operating under an existing Aggregate Resources Act (ARA) license and approvals, ecological studies were primarily confined to the buffer portion of the SSA and the LSA. While the SSA

captures the core area of the proposed landfill development, certain ancillary features related to the landfill are proposed to be located outside the SSA. These features will be addressed within the broader LSA.

– **Local Study Area (LSA):** Includes all lands within a 1 kilometre (km) radius of the SSA boundaries.
– **Regional Study Area (RSA):** The RSA is discipline-specific and may not be required by all disciplines. The RSA is generally based on administrative and/or natural boundaries applicable to each discipline and the parameters of their associated criteria. An RSA was not identified for the terrestrial and aquatic environment component.

The terrestrial and aquatic environment study areas are illustrated in **Figure 1**.

3. Methodology

3.1 Assessment Approach and Confirmation of Effects

The assessment of impacts associated with the Preferred Method was undertaken through a series of steps that were based, in part, on a number of previously prepared reports (Terrestrial and Aquatic Environment Existing Conditions Report [GHD 2026], Terrestrial and Aquatic Environment Comparative Evaluation Technical Memorandum [GHD 2025b]). The net effects associated with the three Alternative Landfill Configuration Options and two Alternative Leachate Management Options identified during the Alternative Methods phase of the EA were based on conceptual designs. These effects were reviewed within the context of the preliminary design plans developed for the Preferred Method, as identified in the FCR, to determine the type and extent of any additional investigations required to support a comprehensive assessment of net effects. Additional investigations were then carried out, where necessary, in order to augment the previous work undertaken. Feedback previously received from the EA consultation process was incorporated into the assessment approach, where appropriate. This included completing a second year of field studies, along with the addition of bat habitat and acoustic surveys and winter wildlife surveys and verifying wetland boundaries. Indigenous monitors from Haudenosaunee Development Institute (HDI) also attended numerous field surveys in 2025.

With a more detailed understanding of the potential impact from the preliminary landfill and leachate treatment designs on the terrestrial and aquatic environment, the previously identified potential effects and recommended mitigation or compensation measures associated with the Preferred Method (documented in the Terrestrial and Aquatic Environment Comparative Evaluation Technical Memorandum [GHD 2025b]) were reviewed to ensure their accuracy. Based on this review, the potential effects, mitigation or compensation measures, and net effects associated with the Preferred Method were confirmed and documented. In addition to identifying mitigation or compensation measures, potential enhancement opportunities associated with the preliminary design for the Preferred Method were also identified, where possible.

Following this confirmatory exercise, the requirement for monitoring in relation to net effects was identified, where appropriate. Finally, any terrestrial and aquatic environment approvals required as part of the implementation of the Preferred Method were identified.

3.2 Additional Investigations

Upon completion of the preliminary design for the Preferred Method as documented in the FCR, the environmental characteristics of the Study Area were reviewed to verify the accuracy of the assessment of net effects from the Preferred Method. From this review, it was determined that no additional investigations are required at this time. However, targeted surveys and wildlife sweeps may be required when the exact areas of required vegetation clearing are determined, as discussed further in **Section 9**.

4. Description of the Environment Potentially Affected

This section provides a summary of the terrestrial and aquatic environments within the study areas, as displayed on **Figure 2** and **Figure 3**. The information presented is summarized from the Terrestrial and Aquatic Environment Existing Conditions Report (GHD 2026), which includes the full methodology and results from two years of field investigations (April – September 2023 and February – October 2025) focused on documentation and characterization of the flora and fauna of terrestrial and aquatic environments.

4.1 Existing Conditions

4.1.1 Terrestrial Environment

The existing terrestrial and aquatic environment within the SSA and LSA reflects a landscape shaped by long-term industrial activity, aggregate extraction, and surrounding agricultural land use, with natural features primarily concentrated within the LSA. The SSA is largely occupied by active quarry operations, with limited natural cover. As the quarry is operating under an existing Aggregate Resources Act (ARA) license and approvals, studies focused on the buffer portion of the SSA and the adjacent LSA where property access was possible. The buffer area of the SSA, outside the Southeast Quarry limits, contain portions of woodland, meadow, agricultural, and wetland communities contiguous with those within the LSA (**Figure 2**). Portions of the SSA have been subject to planting and naturalization activities as part of quarry operations and approvals and supports early regenerating vegetation communities and woody plant species. The LSA supports a matrix of agricultural fields, cultural meadows, woodlands, wetlands, and watercourses. Designated natural heritage features within the LSA include two non-provincially significant wetland complexes (Ten Mile Creek and Shriners Creek), mapped deer wintering Significant Wildlife Habitat (SWH), and, north of Mountain Road, lands subject to Niagara Escarpment Plan Designations including Escarpment Protection Area and Escarpment Natural Area.

Vegetation communities within the SSA and LSA were characterized using Ecological Land Classification (ELC) and include a range of upland and wetland ecosites such as agricultural lands, cultural meadows, cultural thickets, deciduous forests, conifer and mixed plantations, swamp communities, and meadow marshes (**Figure 2**). In total, 195 vascular plant species were recorded, with native species comprising the majority of the flora. Most species recorded exhibit moderate to high tolerance of disturbance. Several locally rare plant species were documented during botanical inventories, including bushy aster (*Symphyotrichum dumosum*), common hackberry (*Celtis occidentalis*), honey locust (*Gleditsia triacanthos*), balsam poplar (*Populus balsamifera*), Canada rush (*Juncus canadensis*), and yellow Indiangrass (*Sorghastrum nutans*). Of these, bushy aster, common hackberry, balsam poplar, and honey locust may be the likeliest to overlap with the potential footprint of the buffer infrastructure or construction footprint, with the others being recorded in the LSA.

The surrounding LSA to the north, east, and south contains a mix of agricultural and natural or regenerating vegetation communities and remnant woodlands and wetlands. The western portion of the LSA contains the South Landfill (Phase 1).

Wildlife communities within the study areas are typical of rural and peri-industrial landscapes, with species assemblages dominated by common and generalist taxa alongside some Species of Conservation Concern (SCC). Amphibian surveys documented multiple frog and toad species at all survey stations, with calling activity generally low to moderate and dominated by common species. Breeding bird surveys (BBS) recorded over 60 species across both survey periods, with evidence of possible or probable breeding for a range of grassland, forest, and edge-associated birds. Several bird SCC were observed, including eastern wood-pewee (*Contopus virens*; SC under the *Species at Risk Act* [SARA], not listed under the Species Conservation Act [SCA]), grasshopper sparrow (*Ammodramus savannarum*; SC under the SARA, not listed under the SCA), and olive-sided flycatcher (*Contopus cooperi*; SC under

the SARA, not listed under the SCA). Of these, only grasshopper sparrow and eastern wood-pewee were recorded in habitats that are typically used for breeding, and therefore, breeding evidence for these species within the SSA is weak. Reptile surveys detected eastern gartersnake (*Thamnophis sirtalis sirtalis*; non-SAR), with no snake SAR confirmed. Bat habitat assessments identified numerous trees along the boundary of the SSA with suitable maternity roost characteristics. Conditions (suitable roost trees/habitat) are similar in the LSA. Acoustic monitoring confirmed the presence of multiple bat species listed as Endangered (END) under the SCA, including eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*). Wildlife habitat and species of interest are provided in **Figure 3**.

4.1.2 Aquatic Environment

Aquatic habitat within the LSA is primarily represented by Ten Mile Creek, an intermittent warmwater watercourse that flows adjacent to the eastern boundary of the SSA and has been historically modified and realigned to accommodate quarry operations. Aquatic assessments identified three reaches characterized by low gradient conditions, fine-grained substrates (clay and silt), dominance of emergent macrophytes, and variable surface water presence influenced by seasonal precipitation and surrounding land use. Habitat features such as riffle-pool sequences and coarse substrate are limited; however, the watercourse provides direct and indirect fish habitat and is understood to support a tolerant, warmwater fish community, based on available secondary source data (Niagara Peninsula Conservation Authority [NPCA; 2025], Fisheries and Oceans Canada [DFO; 2025], NHIC [Ministry of Natural Resources 2023], MNR Aquatic Resources Area [ARA; 2023] and Niagara Region Open Data [Niagara Region 2025]).

Surface water quality measurements indicated spatial and temporal variability, with some parameters periodically exceeding applicable guideline values, likely reflecting influences from agricultural runoff, historical channel modification, and low flow conditions. No aquatic SAR or associated critical habitat were identified within the assessed reaches. Overall, Ten Mile Creek functions as a modified yet ecologically active system, with habitat value primarily associated with wetland features, riparian vegetation, and its role in maintaining connectivity within the broader watershed.

4.2 “Future” Existing Conditions (Do Nothing Option)

Under the “future” existing conditions (do nothing option), the SSA would present a net increase in agricultural lands within the landscape. Agricultural lands, which are typically heavily disturbed and regularly maintained, do not provide substantial natural vegetation cover or wildlife habitat, but they may be used for foraging and movement for mammals and birds that are common in rural areas. The lands could be more permeable to rural wildlife movement within the agricultural land use compared to the existing quarry operation.

Under the “future” existing conditions (do nothing option), the overall level of sensory disturbances (noise, artificial lighting) within the SSA would be similar to the disturbances resulting from current quarry operations.

5. Terrestrial and Aquatic Environment Net Effects

As described in **Section 1**, following the confirmation of the Preferred Landfill Configuration Option and the Preferred Leachate Management Option, these components, together with all other project elements that were consistent across the previously assessed alternative methods, collectively formed the “Preferred Method.” The potential effects and associated mitigation or compensation measures identified were re-evaluated to confirm their validity in the context of the preliminary design. This review incorporated the refined engineering design details described in the FCR.

The updated assessment of predicted potential effects, recommended impact management measures, and resulting net effects is provided in **Table 5.1**.

5.1 Potential Effects on Terrestrial and Aquatic Environment

5.1.1 Terrestrial Environment

Potential impacts to the terrestrial environment could arise from direct footprint related impacts for infrastructure components required during construction, operations, and closure, as well as indirect impacts that influence the surrounding natural features. In assessing the potential effects of the Preferred Method, a conservative assumption was made that full disturbance or removal of vegetation may be required between the SSA boundary and the Limit of Fill (i.e., in the buffer area) for construction purposes. However, based on the Conceptual Design as documented in the FCR, the infrastructure required during the operations phase is anticipated to occupy a more limited footprint and portions not used for infrastructure can be restored to a natural state early in the project lifecycle. Therefore, a smaller proportion of 'permanent' removal (i.e., for the duration of the landfill operations) of natural features within the SSA would be required. Some of these same infrastructure components such as access and maintenance roads may be decommissioned and rehabilitated at closure, which will be determined as the closure plan progresses, but would result in additional re-establishment of natural vegetation in the buffer area. These impact areas are shown on **Figure 4**.

5.1.1.1 Vegetation Communities

The buffer area, where potential impacts are concentrated, is generally small (for the most part extends 30 m beyond the existing approved extraction limit) and, where lands are not agricultural, consists in large part of edge vegetation or naturalization planting areas of young age. One of the key modifications during the project's evaluation process and based on feedback from consultation activities (e.g. Indigenous engagement and consultation) has been to modify the proposed Limit of Fill in select areas to reduce potential for impacts on adjacent natural features from construction and infrastructure that is required in the buffer area. This includes two locations, (1) the northern limit where mature forest and swamp/vernal pool habitat are present (FOD2-A, SWD1-3), in association with mapped deer yarding, and (2), along the eastern edge of the SSA where riparian wetland (MAM2) and the realigned Ten Mile Creek channel exists. These modifications allow for the protection of some of the more established and sensitive habitats within the SSA.

As stated previously, as construction footprints and detailed design are not fully known at this conceptual design stage, a conservative assumption that the entire buffer area would be disturbed/require removal during construction was made. The exception to this is the area of forest and swamp described above, and the Ten Mile Creek riparian area. In addition, the existing meadow alignment for the forcemain and the open cultural habitat near the existing tunnel will be disturbed. Based on these assumptions, the Preferred Method will require approximately 13.34 ha of vegetation removal or disturbance, as follows:

– MAM2-5: 0.19 ha
– FOD2-C: 0.45 ha
– Hedgerow: 1.08 ha
– CUT1: 1.18 ha
– CUM1-1: 10.44 ha

This removal includes the existing edge of mature, but relatively small and narrow remnant forest (FOD2-C), present along the northeastern edge of the SSA. The remainder of the removed vegetation communities are narrow strips of early successional cultural thicket or cultural meadow, along with hedgerow, much of which has been established/planted as part of quarry operations.

As shown through the Conceptual Design, the actual footprint of new infrastructure required is anticipated to be much smaller than the width of the buffer. Accordingly, portions of the buffer can be restored to natural conditions after construction is complete, or construction footprints may not actually require disturbance in the full buffer. The footprint of longer term (during operations) vegetation removal or disturbance will decrease to align to the required

infrastructure at the given location. This consists of the perimeter maintenance road, stormwater ditch, stormwater ponds, and screening berm.

Based on the Conceptual Design, the permanent (i.e., during operations) amount of vegetation removal may decrease to the following approximate footprints (total of 5.72 ha):

– MAM2-5: 0.19 ha
– FOD2-C: 0.14 ha
– Hedgerow: 1.03 ha
– CUT1: 0.37 ha
– CUM1-1: 3.99 ha

The largest proportion of removals in both scenarios are cultural communities and hedgerow, which are common in the landscape and readily restored/compensated. Vegetation removal or disturbance could result in changes in plant community composition and structure resulting from an increase in edge effects, dust deposition interfering with photosynthesis, or the introduction and spread of invasive species. Edge effects are most relevant for the FOD2-C community but are anticipated to be low due to the existing edge and the fact this remnant woodlot is relatively narrow (approximately 130 m in width) and already impacted by invasive species such as common buckthorn.

Finally, there is potential release of sediment and deleterious substances or leachate to be inadvertently released to the environment during construction and operations, which can impact the growth and survival of plants and vegetation communities. This potential has been described in other studies and mitigative approaches will be used to reduce the risk of any inadvertent environmental impacts.

5.1.1.2 Wildlife Habitat

Direct habitat impacts are described above and represent potential removal of or disturbance to portions of foraging, movement, nesting and rearing habitats for the locally present wildlife. These would occur physically during construction and would remain during operations. In most cases, habitats to be removed are relatively small segments of early successional habitats that are common in the surrounding landscape. Removal of a narrow portion of the FOD2-C may remove some cavity roosting habitat and habitat for woodland associated wildlife (e.g., bats, forest birds, frogs, salamanders) but the removal is small in magnitude and confined to an existing edge.

There is also the potential for release of sediment or other deleterious substances and sensory disturbance (noise, odours, artificial lighting, dust) during construction and operational phases. Additionally, during operations there is the potential for leachate contamination and toxicity altering habitat structure and function. This potential has been described in other studies and mitigative approaches will be used to reduce the risk of any inadvertent environmental impacts.

5.1.1.3 Rare, Threatened, or Endangered Species

Potential effects on rare, threatened, or endangered species align with those for wildlife habitat above. Construction activities in the buffer may include removal of forest and associated cavity trees which are suitable for SAR bats, and which support confirmed eastern red bat, hoary bat, and silver-haired bat. Identified cavity trees are also likely to support little brown myotis, northern myotis, and tri-colored bat, though calls could not be confirmed.

There is the potential for loss or degradation of wildlife habitat supporting rare species: bushy aster, honey locust, field thistle, pileated woodpecker, rough-legged hawk, grasshopper sparrow, and monarch, which were all observed utilizing the habitats that overlap the potential footprint, including the cultural meadow habitat. However, all of the disturbance or removal is confined to a narrow strip and does not represent a complete removal of these habitats within the SSA. Furthermore, use of the habitats by the birds may be restricted to foraging given the abundance of foraging habitat and lack of clear breeding evidence.

There is also the potential for release of sediment or other deleterious substances and sensory disturbance (noise, odours, artificial lighting, dust) during construction and operational phases. Additionally, during operations there is the

potential for leachate contamination and toxicity to alter growth and survival for these species. This potential has been described in other studies and mitigative approaches will be used to reduce the risk of any inadvertent environmental impacts.

5.1.2 Aquatic Environment and Aquatic Biota

Potential effects to the aquatic environment and aquatic biota stem from modifications to drainage patterns resulting from construction activities, as well as operations (primarily through proposed stormwater management of the facility, or for the potential for leachate contamination). Two stormwater ponds are being considered along with two options for their outlets – either to Ten Mile Creek or the 1200mm pipe that outlets to the Old Welland canal, or a hybrid approach. Construction related impacts could include sedimentation and release of substances to waterbodies, accidental encroachment into riparian areas and damage to aquatic habitat, and resultant mortality or changes in composition and abundance of aquatic biota. Detailed potential effects include the following:

– Potential alteration of aquatic environment, including changes to flow patterns, channel form and overall habitat conditions.
– Potential for altered surface water runoff patters and flow regimes during and post-construction (e.g., increased peak flows, reduced infiltration, and changes in timing and duration of flows).
– Potential degradation of groundwater and surface water quality from sediment, nutrients and other contaminant inputs.
– Potential removal or disturbance of riparian vegetation, resulting in reduced shading and loss of bank stability, and increased erosion potential.
– Potential thermal impacts of receiving waters, particularly during warm periods due to heated pond discharge and reduced riparian shading.
– Potential contamination from a leachate leak or system failure, with effects on receiving waterbodies water quality and ecological function.
– Potential increase in sedimentation and turbidity, particularly during construction, affecting water quality and substrate conditions.
– Potential increase in erosion and channel instability at the outlet and downstream reach due to potential high flow velocities and volumes.
– Changes in aquatic biota (reduced abundance and composition changes due to the above potential habitat impacts).

5.1.3 Fish and Fish Habitat

Similar to the effects described for the aquatic environment, the Preferred Method has the potential to result in the following effects on fish and fish habitat:

– Potential alteration of downstream fish habitat conditions, particularly where the intermittent creek provides seasonal or episodic connectivity to fish-bearing waters.
– Potential changes in flow conditions affecting fish access and movement, including potential disruption of seasonal connectivity pathways (e.g., during freshet or large rainfall events).
– Potential alteration in fish community composition and abundance in downstream habitats, including potential reductions in sensitive species.
– Potential habitat degradation due to increase erosion and sedimentation, including smothering of substrates in downstream spawning or rearing areas.
– Potential degradation of water quality, reducing habitat suitability for fish and aquatic organisms.
– Potential toxicity to fish and aquatic biota from stormwater contaminants and/or leachate entering surface water or groundwater pathways.
– Potential thermal impacts that may reduce habitat suitability in downstream receiving waters.

– Potential disruption to benthic invertebrate communities, reducing food availability for fish.
– Potential reductions of dissolved oxygen levels within the receiving stream from water discharged from the holding pond (warmer temperatures and low-flow, decreasing oxygen), particularly during intermittent or low-flow conditions, affecting fish survival and productivity

5.1.4 Culturally Significant Species to Indigenous Peoples, and Rare (Vulnerable), Threatened, or Endangered Species of Flora or Fauna and Their Habitat

The Preferred Method, through removal or disturbance of habitats within the SSA, and operations related sensory disturbance, as described in previous sections, could similarly impact culturally significant species and their habitat. However, refinements to the Limit of Fill have been designed to eliminate direct removal of a portion of the deer wintering yard at the north end of the SSA. There may be potential removal of plant species of cultural significance or disturbance to and degradation of wildlife habitat for species of cultural significance within the buffer or ancillary infrastructure footprints.

5.1.5 Wetlands

The Preferred Method may result in the removal of a small (0.19 ha) edge portion of meadow marsh wetland (MAM2) to accommodate the screening berm. These wetland community types are often lower sensitivity than other wetland types as the vegetation readily and quickly regrows. Similar effects described in previous sections for terrestrial and aquatic environments are also possible on this and surrounding SSA wetlands and include:

– Potential introduction or proliferation of invasive non-native species during construction;
– Potential changes in hydrology and water quality that disrupts survival of wetland flora and fauna during construction and operations phases;
– Potential for leachate contamination affecting growth and survival of native species; and
– Potential dust deposition during construction, thereby interfering with photosynthesis.

5.1.6 Wildlife Habitat, Populations, Corridors, or Movement

Potential effects on wildlife habitat, populations, corridors or movement are similar to those described in previous sections. Removal of a narrow strip of vegetation adjacent to the eastern edge of the Limit of Fill would result in a very slight narrowing of the existing north-south habitat corridor along the northeast side of the proposed footprint. The resulting effect on wildlife movement is anticipated to be negligible given the width of the overall remaining corridor, as well as the adjacent open agricultural land uses. Negative population effects are not anticipated.

There is potential for a slight change to wildlife composition locally in the SSA and contiguous LSA features as a result of a potential increase in nuisance wildlife and a potential increase in predation on ground nesting birds during landfill operations. There is also the potential for release of sediment or other deleterious substances and sensory disturbance (noise, odours, artificial lighting, dust) during construction and operational phases. During operations there is the potential for leachate contamination and toxicity altering habitat structure and function.

5.1.7 Locally Important or Valued Ecosystems or Vegetation

Limited potential effects are anticipated on locally important or valued ecosystems or vegetation. There could be some degradation to or loss of the vegetation communities associated with the recreational trail through the south end of proposed waste disposal area, depending on ultimate infrastructure footprints. Refinements to the Limit of Fill avoid direct impacts to the larger woodland (significant woodland in Niagara Region) at the north end of the SSA and the Ten Mile Creek corridor to the east of the SSA. A small strip of woodland may be required to be removed from a

significant woodland at the northeast corner of the SSA (FOD2-C), but impact on the woodland is anticipated to be small. Similar indirect effects (noise, light, etc.) as presented in previous sections may also result.

5.2 Proposed Mitigation and Compensation Measures

5.2.1 Terrestrial Environment

5.2.1.1 Vegetation Communities

Measures to minimize potential impacts to vegetation communities include actions during detailed design, construction, operations, and closure phases. Design and construction phases should minimize the infrastructure and construction footprints to the extent possible to avoid and minimize required vegetation clearing.

To mitigate for woodland removal, create compensation habitat in a suitable location on-site (Walker owned lands) to offset the loss, ideally in areas adjacent to the existing habitat or in a location that otherwise replicates the loss or provides an enhancement. A large proportion of the buffer lands surrounding the proposed work areas are owned by Walker and can be utilized to create compensation habitat. An edge management plan to facilitate edge closure and minimize edge effects for the newly created woodland edge should be implemented as soon as possible after vegetation clearing has taken place.

Post-construction and decommissioning habitat-restoration should be undertaken within disturbed areas, including revegetation using locally native plant species, as advised by a qualified biologist. A qualified biologist should monitor the success of habitat restoration.

To manage potential direct and indirect impacts during construction such a spread of invasive species, develop and implement a Environmental Management Plan (EMP) which will be used throughout construction and operation which will address the approaches for works around sensitive ecosystems in consideration of the final design. The EMP may contain:

– Sediment and Erosion Control (ESC) Plan, to prevent erosion and discharge of sediment into adjacent ecosystems;
– Wildlife Management Plan, including specifications for and locations of wildlife exclusion fencing;
– Tree Protection Plan;
– Stockpile Management Plan;
– Spill Prevention and Response Plan;
– Environmental Monitoring Plan;
– Dust Management Plan, to prevent dust from impacting adjacent ecosystems and plant communities; and
– Invasive Species Management Plan, to monitor for the establishment of invasive plant species and develop and implement a treatment program and/or management plan, if required.

Additional measures to mitigate potential effects on vegetation communities include the following:

– All areas to be cleared of vegetation should be cross-referenced with known rare species locations to ensure sensitive species and habitats are not unknowingly removed or impacted. Conduct a survey for rare flora once footprint is confirmed. If rare flora will be removed, transplant/salvage, if feasible, prior to clearing, or re-seed/re-plant as part of restoration activities.
– Soil compaction will be minimised by limiting ground stabilisation activities to the areas of Project activities. Rig mats or other specifically approved materials will be used to prevent damage to wetlands or areas of moist substrates.
– Salvage clean soil and native vegetation that is removed during construction activities.

– Install permanent fencing, walls or railings around the areas of Project activities once the construction phase is complete to prevent access into the adjacent ecosystems during the operations phase. Signage should be installed to clearly identify sensitive habitats.
– Restore the edges of habitats that have been disturbed for construction with appropriate native plants.
– Adhere to O. Reg 232/98 regarding minimization of nuisances at operating landfills.

5.2.1.2 Wildlife Habitat

Implement the mitigation and compensation measures described for **Section 5.2.1.1**. The following additional measures are recommended during construction and operations:

– Use low impact lighting to minimize nighttime sensory disturbance in the vicinity of natural areas.
– Implement best management practices and standards to minimize nuisance wildlife during landfill operations. Adhere to O. Reg 232/98 regarding minimization of nuisances at operating landfills.

5.2.1.3 Rare, Threatened, or Endangered Species

Implement the mitigation and compensation measures for **Section 5.2.1.1** and **Section 5.2.1.2**. The following additional measures during construction and operations are also recommended to protect rare species:

– Install exclusion fencing around work areas prior to the herptile and amphibian breeding season (March 1 to November 30) to prevent herptiles (i.e., reptiles and amphibians) from gaining access. Inspect the areas of Project activities daily during Project pre-construction and construction phases for herptiles of all life stages; salvage and relocate following Ministry of Natural Resources (MNR) SAR Handling Manual (MNR 2018).
– Restrict vegetation clearing to outside the migratory bird nesting period (April 1 to August 31) and migratory bat roosting period (April 1 to September 30). If vegetation clearing must occur during these periods, compliance with the SCA, MBCA, or legislation in effect at the time shall be maintained.
– If a species is listed as Endangered (END) or Threatened (THR) under the SCA or SARA is encountered during Project activities, work will cease and a qualified biologist will be contacted for advice.
– Minimise vehicle idling time during all hours.
– Implement speed limits within the areas of Project activities during all Project phases.
– Immediately report any mortalities or injuries to the Environmental Monitor (EM) and the Contractor's supervisor. Contact a local wildlife rescue/rehabilitation facility for direction on how to proceed with wildlife injuries/mortalities.
– Register the tree removal under the Registrable Activities regulation of the SCA (O.Reg 75/26) and adhere to its requirements, or other legislative requirements in effect prior to and during the activity.
– Include locally rare plant species (plugs or seeds) in some of the areas to be restored.

5.2.2 Aquatic Environment

Potential effects to the aquatic environment and aquatic biota can be mitigated through construction and design measures that minimize impacts on water bodies, and ongoing monitoring of surface water during operations. Specific measures include the following:

– Any works conducted within or adjacent to a watercourse will comply with the applicable warmwater in-water timing window (July 2 to February 28), with no in-water works permitted between March 1 and July 1, unless otherwise authorized by the DFO.
– Develop and implement a EMP which will address the approaches for works around aquatic habitats as outlined in **Section 5.2.1.1.**
– Develop and implement a Restoration Plan for riparian and aquatic habitat at potential stormwater outlet points, where required, to return habitat to pre-existing condition.

- Install and maintain water diversion ditches to collect and convey construction contact water away from adjacent non-contact waterbodies. All contact water shall be isolated from adjacent waterbodies and treated according to best management practices prior to discharge.
- The discharge points (outfalls) to Ten Mile Creek need to be designed and located to dissipate flow and to prevent local erosion and sediment release at the outlets.
- The increase in flow to the watercourse from batch discharge from the stormwater management (SWM) pond should not exacerbate erosion in the watercourse.
- Batch discharge from the SWM pond will be designed such that maximum flow rates for both routine discharges and emergency spillway overflows comply with the approved discharge rates under the applicable *Ontario Water Resources Act* approval.
- The SWM pond will be designed to prevent overtopping under design storm conditions, thereby reducing the potential for the uncontrolled release of untreated or inadequately conditioned water to the receiving watercourse.
- SWM pond discharge approach will be designed to manage both the flow and temperature to minimize potential effects to the receiving warmwater fish habitat. Where elevated discharge temperatures are identified, adaptive management measures may be implemented, including:
    - Redirecting discharge through the 1,200 mm surface water conveyance system, which can result in increased cooling and dissipation prior to entering the receiving watercourse.
    - Increasing the frequency of controlled discharge events, where feasible, to reduce in-pond water retention time and limit solar heating of stored water.
    - Timing discharge during cooler periods of the day (e.g., early morning), where operationally feasible, to moderate temperature differences between pond outflow and the receiving environment.
    - Where the receiving watercourse is dry or exhibits intermittent flow conditions, discharge will be managed to avoid pooling and potential thermal impacts, including consideration of delayed release, diffused discharge, or alternative conveyance to promote cooling and infiltration prior to entering the channel.
- SWM pond to be designed to promote shading, where feasible, to support temperature control of the retained stormwater prior to discharge.
- Monitor water quality within non-contact waterbodies within the LSA for construction-related water quality impacts.
- Monitor water quality for surface water receiving sites during planned pond discharge events.
- Stormwater and runoff will be managed to ensure that sediment-laden water is not discharged into nearby watercourses.
- Existing roads and walkways will be used for the use of equipment, where possible.
- Scheduled earthworks will be conducted and completed during dry weather to avoid the risk of entrained sediments, where practical. When significant wet weather is encountered, additional erosion control measures will be implemented.
- All equipment, machinery and vehicles will be inspected for leaks prior to arriving on-site and will be staged away from riparian areas, with drip-trays placed beneath to collect any deleterious substances.
- Vehicle and equipment fuelling and fuel storage should be conducted safely and in designated areas, away from natural areas and surface water.
- All machinery, vehicles and staging areas will be equipped with spill kits. In the event of a spill or leakage, secure the area to prevent further contamination.
- Maintain long-term monitoring of groundwater and surface water for leachate contamination throughout the lifetime of the landfill.

5.2.3 Fish and Fish Habitat

Project activities will be designed and implemented to avoid impacts to fish and fish habitat, including the harmful alteration, disruption, or destruction (HADD) of fish habitat. Where feasible, works will be located outside of fish-bearing watercourses, and the integrity of riparian areas will be maintained through the retention of a vegetated buffer between construction activities and the high-water mark (HWM). This approach will reduce the potential for erosion, sedimentation, and disturbance to habitat functions.

5.2.4 Culturally Significant Species to Indigenous Peoples, and Rare (Vulnerable), Threatened, or Endangered Species of Flora or Fauna and Their Habitat

As these components of the environment overlap with other VECs, implementing all other mitigation described for terrestrial and aquatic environments will help to minimize effects on culturally significant species. Compensation habitat should consider species of cultural significance and rare species. Planting and restoration plans should be made in consultation with Indigenous participants, if possible. Surveys can also be carried out prior to construction by Indigenous representatives and species salvaged or denoted as candidates for seeding/planting in other locations.

5.2.5 Wetlands

To mitigate potential effects to wetlands, implement all mitigation measures for terrestrial and aquatic environments, as well as the following:

– If detailed design of the berm cannot avoid wetland impacts, onsite habitat compensation for loss of wetland should be provided. Specific additional requirements may be outlined in the NPCA permit.
– Maintain existing wetland hydrology during and post-construction.
– Machine work in any potential wetted areas will be limited to frozen or low saturation periods.

5.2.6 Wildlife Habitat, Populations, Corridors, or Movement

Implement all mitigation and compensation measures for terrestrial and aquatic environment. Compensation habitat should consider areas to enhance natural cover to encourage wildlife movement and connect habitat patches.

5.2.7 Locally Important or Valued Ecosystems or Vegetation

Implement all mitigation and compensation measures for terrestrial and aquatic environment. Provide for trail access in compensation habitat if existing trail area will be impacted, where suitable.

5.3 Net Effects

5.3.1 Terrestrial Environment

No significant net effects are anticipated to components of the terrestrial environment with the implementation of the mitigation measures described in **Section 5.2**.

5.3.2 Aquatic Environment

The Project is expected to result in a low net effect with respect to flow patterns in the receiving watercourse. Existing conditions are characterized by rapid (“flashy”) runoff responses, consistent with historical alterations to drainage and land use. The proposed stormwater strategy will use controlled discharge/attenuation, with releases timed and sized to reduce peak flows and erosive energy during frequent events and to better align post-development hydrologic

performance with pre-development targets, as supported by hydrologic/hydraulic modelling. With implementation of the mitigation measures described in **Section 5.2**, no significant adverse net effects are anticipated to the aquatic environment or fish and fish habitat.

Table 5.1 Terrestrial and Aquatic Environment Potential Environmental Effects, Proposed Impact Management Measures, and Net Effects

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
Effect on Terrestrial Ecosystems	Predicted impact on vegetation communities	– Removal or disturbance of approximately 5.72 - 13.34 ha of vegetation for construction and operations purposes. – Potential changes in plant community composition and structure resulting from: • An increase in edge effects (FOD2-C). • Dust deposition interfering with photosynthesis. • Introduction and spread of invasive species. • Potential release of sediment and deleterious substances which can impact the growth and survival of plants and vegetation communities. • Potential release of leachate which can impact the growth and survival of plants and vegetation communities.	– Minimize the infrastructure and construction footprints to the extent feasible. – Create compensation habitat in a suitable location on-site (Walker owned lands) to offset the loss, ideally in areas adjacent to the existing habitat or in a location that otherwise replicates the loss or provides an enhancement. – Create an edge management plan post-vegetation clearing to facilitate forest edge closure at the FOD2-C. – Post-construction and decommissioning habitat-restoration should be undertaken within disturbed areas, including revegetation using locally native plant species. – EMP which will address the approaches for works around sensitive ecosystems in consideration of the final design. The EMP may contain: • A Sediment and Erosion Control (ESC) Plan, to prevent erosion and discharge of sediment into adjacent ecosystems. • Wildlife Management Plan, including specifications for and locations of wildlife exclusion fencing. • Tree Protection Plan. • Stockpile Management Plan. • Spill Prevention and Response Plan. • Environmental Monitoring Plan. • Dust Management Plan, to prevent dust from impacting adjacent ecosystems and plant communities. • Invasive Species Management Plan: Monitor for the establishment of invasive plant species and develop and implement a treatment program and/or management plan, if required. – Additional measures to mitigate potential effects on vegetation communities include the following: • All areas to be cleared of vegetation should be cross-referenced with known rare species locations to ensure sensitive species and habitats are not unknowingly removed or impacted. Conduct a survey for rare flora once footprint is confirmed. If rare flora will be removed, transplant/salvage, if feasible, prior to clearing, or re-seed/re-plant as part of restoration activities. • Soil compaction will be minimised by limiting ground stabilisation activities to the areas of Project activities. Rig mats or other specifically approved materials will be used to prevent damage to wetlands or areas of moist substrates. • Salvage clean soil and native vegetation that is removed during construction activities. • Install permanent fencing around the woodland habitats at the north and northeast areas of the buffer once construction is complete to discourage operations staff from entering these areas. • An engineered double-composite clay liner system will be designed to contain and isolate leachate from the natural environment.	**LOW NET EFFECTS** – With implementation of all mitigation measures, including creation of compensation habitat, no significant adverse net effects are anticipated.

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
			• Restore the edges of habitats that have been disturbed for construction with appropriate native plants. – Monitor the functioning of the leachate collection system and groundwater and surface water controls through the life of the project.	
	Predicted impact on wildlife habitat	– Removal of approximately 5.72 to 13.34 ha of vegetation communities which provide foraging, rearing, and nesting habitats for wildlife to facilitate the preferred landfill configuration. A larger footprint may occur during construction and be reduced during operations. – In most cases, habitats to be removed are relatively small segments of early successional habitats that are common in the surrounding landscape. – Removal of an edge portion of the FOD2-C may remove some cavity roosting habitat and habitat for woodland associated wildlife (e.g., forest birds, frogs, salamanders), but the portion to be removed is small in magnitude and confined to an existing woodland edge. – Potential for release of sediment or other deleterious substances and sensory disturbance (noise, odours, artificial lighting, dust) during construction and operational phases. – During operations there is the potential for leachate contamination and toxicity altering habitat structure and function.	– Implement measures outlined for vegetation communities above. – Use low impact lighting to minimize nighttime sensory disturbance in the vicinity of natural areas. – Implement best management practices and standards to minimize nuisance wildlife during landfill operations.	**NO NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.
	Predicted impact on rare, threatened or endangered species	– Construction activities in the buffer may include removal of forest and associated cavity trees which are suitable for SAR bats, and which support confirmed eastern red bat, hoary bat, and silver-haired bat, and which likely also support little brown myotis, northern myotis, and tri-colored bat. – Locally rare species including bushy aster, common hackberry, honey locust, balsam poplar, Canada rush, and yellow Indiangrass were observed during botanical inventories and may be impacted by the proposed construction footprint.	– Implement measures outlined for vegetation communities and wildlife habitat above. – Install exclusion fencing around work areas prior to the herptile and amphibian breeding season (March 1 to November 30) to prevent herptiles (i.e., reptiles and amphibians) from gaining access. Inspect the areas of Project activities daily during Project pre-construction and construction phases for herptiles of all life stages; salvage and relocate following Ministry of Natural Resources (MNR) SAR Handling Manual (MNR 2018). – Restrict vegetation clearing to outside the migratory bird nesting period (April 1 to August 31) and migratory bat roosting period (April 1 to September 30). If vegetation clearing must occur during these periods, compliance with the SCA, MBCA, or legislation in effect at the time shall be maintained. – If a species is listed as Endangered (END) or Threatened (THR) under the SCA or SARA, work will cease and a qualified biologist will be contacted for advice. – Minimise vehicle idling time during all hours. – Implement speed limits within the areas of Project activities during all Project phases. – Immediately report any mortalities or injuries to the Environmental Monitor (EM) and the Contractor's supervisor. Contact a local wildlife rescue/rehabilitation facility for direction on how to proceed with wildlife injuries/mortalities. – Register the tree removal under the Registrable Activities regulation of the SCA (O.Reg 75/26) and adhere to its requirements, or other legislative requirements in effect prior to and during the activity. – Plant, or include in a seed mix, the locally rare species.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
Effect on Aquatic Ecosystems	Predicted impact on aquatic habitat	– Potential alteration of aquatic environment, including changes to flow patterns, channel form and overall habitat conditions. – Potential for altered surface water runoff patters and flow regimes during and post-construction (e.g., increased peak flows, reduced infiltration, and changes in timing and duration of flows). – Potential degradation of groundwater and surface water quality from sediment, nutrients and other contaminant inputs. – Potential removal or disturbance of riparian vegetation, resulting in reduced shading and loss of bank stability, and increased erosion potential. – Potential thermal impacts of receiving waters, particularly during warm periods due to heated pond discharge and reduced riparian shading. – Potential contamination from a leachate leak or system failure, with effects on receiving waterbodies water quality and ecological function. – Potential increase in sedimentation and turbidity, particularly during construction, affecting water quality and substrate conditions. – Potential increase in erosion and channel instability at the outlet and downstream reached due to potential high flow velocities and volumes.	– Any works conducted within or adjacent to a watercourse will comply with the applicable warmwater in-water timing window (July 2 to February 28), with no in-water works permitted between March 1 and July 1, unless otherwise authorized by the DFO. – Develop and implement a EMP which will address the approaches for works around aquatic habitats as outlined in **Section 5.2.1.1.** – Develop and implement a Restoration Plan for riparian and aquatic habitat at potential stormwater outlet points, where required, to return habitat to pre-existing condition. – Install and maintain water diversion ditches to collect and convey construction contact water away from adjacent non-contact waterbodies. All contact water shall be isolated from adjacent waterbodies and treated according to best management practices prior to discharge. – The discharge points (outfalls) to Ten Mile Creek need to be designed and located to dissipate flow and to prevent local erosion and sediment release at the outlets. – The increase in flow to the watercourse from batch discharge from the stormwater management (SWM) pond should not exacerbate erosion in the watercourse. – Batch discharge from the SWM pond will be designed such that maximum flow rates for both routine discharges and emergency spillway overflows comply with the approved discharge rates under the applicable *Ontario Water Resources Act* approval. – The SWM pond will be designed to prevent overtopping under design storm conditions, thereby reducing the potential for the uncontrolled release of untreated or inadequately conditioned water to the receiving watercourse. – SWM pond discharge approach will be designed to manage both the flow and temperature to minimize potential effects to the receiving warmwater fish habitat. Where elevated discharge temperatures are identified, adaptive management measures may be implemented, including: • Redirecting discharge through the 1,200 mm surface water conveyance system, where this result in increased cooling and dissipation prior to entering the receiving watercourse. • Increasing the frequency of controlled discharge events, where feasible, to reduce in-pond water retention time and limit solar heating of stored water. • Timing discharge during cooler period of the day (e.g., early morning), where operationally feasible, to moderate temperature differences between pond outflow and the receiving environment. • Where the receiving watercourse is dry or exhibits intermittent flow conditions, discharge will be managed to avoid pooling and potential thermal impacts, including consideration of delayed release, diffused discharge, or alternative conveyance to promote cooling and infiltration prior to entering the channel. – SWM pond to be designed to promote shading, where feasible, to support temperature control of the retained stormwater prior to discharge.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
			– Monitor water quality within non-contact waterbodies within the LSA for construction-related water quality impacts. – Monitor water quality for surface water receiving sites during planned pond discharge events. – Stormwater and runoff will be managed to ensure that sediment-laden water is not discharged into nearby watercourses. – Existing roads and walkways will be used for the use of equipment, where possible. – Scheduled earthworks will be conducted and completed during dry weather to avoid the risk of entrained sediments, where practical. When significant wet weather is encountered, additional erosion control measures will be implemented. – All equipment, machinery and vehicles will be inspected for leaks prior to arriving on-site and will be staged away from riparian areas, with drip-trays beneath to collect any deleterious substances. – Vehicle and equipment fuelling and fuel storage should be conducted safely and in designated areas, away from natural areas and surface water. – All machinery, vehicles and staging areas will be equipped with spill kits. In the event of a spill or leakage, secure the area to prevent further contamination. – An engineered double-composite clay liner system will be designed to contain and isolate leachate from the natural environment. – A system to treat leachate has been developed in conjunction with the preferred landfill footprint. – Maintain long-term monitoring of groundwater and surface water for leachate contamination throughout the lifetime of the landfill.	
	Predicted impact on aquatic biota	– Potential mortality and changes in composition or abundance of aquatic biota as a result of habitat degradation.	– Any works conducted within or adjacent to a watercourse will comply with the applicable warmwater in-water timing window (July 2 to February 28), with no in-water works permitted between March 1 and July 1, unless otherwise authorized by the DFO. – Develop and implement a EMP which will address the approaches for works around aquatic habitats as outlined in **Section 5.2.1.1.** – Develop and implement a Restoration Plan for riparian and aquatic habitat at potential stormwater outlet points, where required, to return habitat to pre-existing condition. – Install and maintain water diversion ditches to collect and convey construction contact water away from adjacent non-contact waterbodies. All contact water shall be isolated from adjacent waterbodies and treated according to best management practices prior to discharge. – The discharge points (outfalls) to Ten Mile Creek need to be designed and located to dissipate flow and to prevent local erosion and sediment release at the outlets. – The increase in flow to the watercourse from batch discharge from the stormwater management (SWM) pond should not exacerbate erosion in the watercourse. – Batch discharge from the SWM pond will be designed such that maximum flow rates for both routine discharges and emergency spillway overflows comply with the approved discharge rates under the applicable *Ontario Water Resources Act* approval.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
			– The SWM pond will be designed to prevent overtopping under design storm conditions, thereby reducing the potential for the uncontrolled release of untreated or inadequately conditioned water to the receiving watercourse. – SWM pond discharge approach will be designed to manage both the flow and temperature to minimize potential effects to the receiving warmwater fish habitat. Where elevated discharge temperatures are identified, adaptive management measures may be implemented, including: • Redirecting discharge through the 1,200 mm surface water conveyance system, where this result in increased cooling and dissipation prior to entering the receiving watercourse. • Increasing the frequency of controlled discharge events, where feasible, to reduce in-pond water retention time and limit solar heating of stored water. • Timing discharge during cooler period of the day (e.g., early morning), where operationally feasible, to moderate temperature differences between pond outflow and the receiving environment. • Where the receiving watercourse is dry or exhibits intermittent flow conditions, discharge will be managed to avoid pooling and potential thermal impacts, including consideration of delayed release, diffused discharge, or alternative conveyance to promote cooling and infiltration prior to entering the channel. – SWM pond to be designed to promote shading, where feasible, to support temperature control of the retained stormwater prior to discharge. – Monitor water quality within non-contact waterbodies within the LSA for construction-related water quality impacts. – Monitor water quality for surface water receiving sites during planned pond discharge events. – Stormwater and runoff will be managed to ensure that sediment-laden water is not discharged into nearby watercourses. – Existing roads and walkways will be used for the use of equipment, where possible. – Scheduled earthworks will be conducted and completed during dry weather to avoid the risk of entrained sediments, where practical. When significant wet weather is encountered, additional erosion control measures will be implemented. – All equipment, machinery and vehicles will be inspected for leaks prior to arriving on-site and will be staged away from riparian areas, with drip-trays beneath to collect any deleterious substances. – Vehicle and equipment fuelling and fuel storage should be conducted safely and in designated areas, away from natural areas and surface water. – All machinery, vehicles and staging areas will be equipped with spill kits. In the event of a spill or leakage, secure the area to prevent further contamination. – An engineered double-composite clay liner system will be designed to contain and isolate leachate from the natural environment.	

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
			– A system to treat leachate has been developed in conjunction with the preferred landfill footprint. – Maintain long-term monitoring of groundwater and surface water for leachate contamination throughout the lifetime of the landfill.	
Effect on fish or their habitat, spawning, movement or environmental conditions (e.g., water temperature, turbidity, etc.)	Predicted impact on fish or their habitat, spawning, movement or environmental conditions (e.g., water temperature, turbidity, etc.)	– Potential alteration of downstream fish habitat conditions, particularly where the intermittent creek provides seasonal or episodic connectivity to fish-bearing waters. – Potential changes in flow conditions affecting fish access and movement, including potential disruption of seasonal connectivity pathways (e.g., during freshet or large rainfall events) – Potential alteration in fish community composition and abundance in downstream habitats, including potential reductions in sensitive species. – Potential habitat degradation due to increased erosion and sedimentation, including smothering of substrates in downstream spawning or rearing areas. – Potential degradation of water quality, reducing habitat suitability for fish and aquatic organisms. – Potential toxicity to fish and aquatic biota from stormwater contaminants and/or leachate entering surface water or groundwater pathways. – Potential thermal impacts that may reduce habitat suitability in downstream receiving waters. – Potential disruption to benthic invertebrate communities, reducing food availability for fish. – Potential reductions of dissolved oxygen levels, particularly during intermittent or low-flow conditions, affecting fish survival and productivity.	– Implement mitigation measures described for aquatic ecosystems. – Where feasible, works will be located outside of fish-bearing watercourses, and the integrity of riparian areas will be maintained through the retention of a vegetated buffer between construction activities and the high water mark. This approach will reduce the potential for erosion, sedimentation, and disturbance to habitat functions.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.
Effect on culturally significant species to Indigenous peoples, and rare (vulnerable), threatened, or endangered species of flora or fauna or their habitat	Predicted impact on culturally significant, rare, threatened, or endangered flora and fauna species and their habitat	– Removal of vegetation communities may result in loss of habitat for rare, threatened, or endangered species or species and habitats of significance to Indigenous Peoples. – Removal of vegetation communities may result in removal of plant species, or alteration and loss of habitat for species of cultural significance. – With implementation of all mitigation measures, including creation of compensation habitat, no significant adverse net effects are anticipated. – Impacts, if any, anticipated to be short duration and low magnitude.	As these components of the environment overlap with other VECs, implementing all other mitigation described for terrestrial and aquatic environments will help to minimize effects on culturally significant species. In addition: – Compensation habitat should consider species of cultural significance and rare species. Planting and restoration plans should be made in consultation with Indigenous participants, if possible. – Surveys can also be carried out prior to construction by Indigenous representatives and species salvaged or denoted as candidates for seeding/planting in other locations.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.
Effect on wetlands	Predicted impact on wetlands	– Approximately 0.19 ha of meadow marsh wetland may be removed to install the screening berm. – Potential introduction proliferation of invasive non-native species during construction. – Potential changes in hydrology and water quality that disrupts survival of wetland flora and fauna, during construction and operations phases. – Potential for leachate contamination affecting growth and survival of native species. – Potential dust deposition during construction interfering with photosynthesis.	To mitigate potential effects to wetlands, implement all mitigation measures for terrestrial and aquatic environments, as well as the following: – If detailed design of the berm cannot avoid wetland impacts, onsite habitat compensation for loss of wetland should be provided. Specific additional requirements may be outlined in the NPCA permit. – Maintain existing wetland hydrology during and post-construction. – Machine work in any potential wetted areas will be limited to frozen or low saturation periods.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.

Criteria	Indicator	Potential Effects	Impact Management Measures	Net Effects
Effect on wildlife habitat, populations, corridors, or movement	Predicted impact on wildlife habitat, populations, corridors, or movement	– Potential effects on wildlife habitat, populations, corridors or movement are similar to those described in previous sections. – Removal of a narrow strip of vegetation adjacent to the eastern edge of the Limit of Fill would result in a very slight narrowing of the existing north-south habitat corridor along the northeast side of proposed footprint but a resulting effect on wildlife movement is anticipated to be negligible given the width of the overall remaining corridor and adjacent open agricultural land uses. Negative population effects are not anticipated. – There is potential for a slight change to wildlife composition locally in the SSA and contiguous LSA features as a result of a potential increase in nuisance wildlife and a potential increase in predation on ground nesting birds during landfill operations. – There is also the potential for release of sediment or other deleterious substances and sensory disturbance (noise, odours, artificial lighting, dust) during construction and operational phases, and during operations there is the potential for leachate contamination and toxicity altering habitat structure and function.	Implement all mitigation and compensation measures for terrestrial and aquatic environment. Compensation habitat should consider areas to enhance natural cover to encourage wildlife movement and connect habitat patches.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.
Effect on locally important or valued ecosystems or vegetation	Predicted impact on locally important or valued ecosystems or vegetation	– No significant adverse net effects to locally important or valued ecosystems or vegetation. – Impacts, if any, anticipated to be short duration and low magnitude.	Implement all mitigation and compensation measures for terrestrial and aquatic environment. Provide for trail access in compensation habitat if existing trail area will be impacted, where suitable.	**LOW NET EFFECTS** – No significant adverse net effects are anticipated with the implementation of the recommended mitigation measures.

6. Cumulative Impact Analysis

As part of the approved ToR, Walker committed to undertaking an assessment of the cumulative effects of the landfill and other Campus components/facilities and other non-Walker projects that are existing, planned, approved or reasonably foreseeable. The following were considered in the assessment of cumulative impacts:

– Walker Activities/Projects on Campus
  - Ongoing quarry operations
  - New residential drop off (RDO) area
  - RNG 2 – expansion of existing renewable natural gas facilities
– Walker Projects off Campus
  - Uppers Quarry
– Non-Walker Projects
  - Garden City Bridge Twinning
  - Glendale Secondary Plan Area development
  - Development at Niagara College's Niagara-on-the-Lake Campus
  - Northwest Secondary Plan Area development
  - Golf course/agro-tourism development to east of the Walker Campus
  - Garner West Secondary Plan Area development
  - Welland Thorold Power Line Project

Additional existing, planned, approved or reasonably foreseeable projects are unlikely to cause cumulative significant adverse impacts to the terrestrial and aquatic environment within and surrounding the areas of Project activities (i.e., within the SSA and LSA). Impacts resulting from ongoing quarry operations are generally confined to existing boundaries and limits of extraction away from natural heritage features. The proposed RDO area within the southern extent of the SSA will result in the removal of dry-moist old field meadow (CUM1-1) and mineral cultural thicket (CUT1). These vegetation communities are commonly occurring in Ontario; however, contribute to the availability of habitat which may support SWH for rare species and SCC within the SSA. Impacts to these communities could result in the removal of rare species and SCC flora, and a reduction in the availability of habitat within the SSA. Overall, impacts resulting from this and other Walker activities on Campus are likely to result in low net effects provided that management, mitigation, and compensation measures outlined in **Section 5.2** are implemented.

Cumulative impacts resulting from projects off-Campus and other non-Walker projects are not anticipated to cause significant adverse impacts due to their distance from the SSA and LSA. Additionally, natural heritage features within the SSA and surrounding landscape provide foraging, rearing, and nesting habitats for wildlife and serve as refuge for wildlife that may be impacted. Overall, a significant loss of habitat within the greater landscape is not anticipated.

7. Climate Change Considerations

In accordance with the Minister-approved ToR, the detailed impact assessment is to include consideration of climate change. In support of the province of Ontario's Climate Change Action Plan, the Ministry of the Environment, Conservation and Parks (MECP) developed a guide entitled "Consideration of Climate Change in Environmental Assessment in Ontario" (the Guide; MECP 2016) to aid proponents in considering climate change as part of EAs for infrastructure and facilities.

The Guide outlines the Ministry's expectations for considering climate change throughout the EA process. As stated in Section 3 of the Guide, consideration is to include:

– Greenhouse gas (GHG) emissions.
– Effects of a project on climate change.
– Effects of climate change on a project.
– How the project will minimize identified negative effects on climate change.

The preceding was considered as part of the South Landfill Phase 2 EA in addressing the potential climate risks to the Alternative Methods. During the impact assessment, the climate change adaptation and mitigation analysis undertaken for the Alternative Methods stage was used and augmented, as needed, to develop climate change mitigation and adaptation measures for the Preferred Method. Climate change considerations relevant to terrestrial and aquatic environment are documented in the following subsections.

7.1 Potential effects of the Undertaking on Climate Change

From a terrestrial and aquatic perspective, the project is not expected to contribute to climate change.

7.1.1 Mitigation

No additional mitigation measures associated with terrestrial and aquatic environments to address effects of the undertaking on climate change are recommended.

7.2 Potential effects of Climate Change on the Undertaking

Climate change can cause extreme precipitation events in Ontario. Increased precipitation events could increase the inputs into the ponds and ultimately increase discharges to Ten Mile Creek or the 1200mm pipe that outlets to the Old Welland Canal. Pond designs should account for and mitigate climate change flow scenarios.

Additional indirect impacts of climate change on landfills can include increases in vermin and small animals within the LSA; however, given regulatory requirements to monitor for and minimize landfill nuisances, it is not anticipated that increases in these populations would have a significant adverse impact on wildlife within the SSA and LSA. Wildlife competition for habitat and resources within the terrestrial environment of the LSA is not anticipated to significantly increase.

Climate change may lead to increased leachate generation, however, climate change scenarios have been accounted for in the design (WSP 2026).

7.2.1 Adaptation

Implement the management, mitigation, and compensation measures as described in **Section 5.2**. No additional adaptations are recommended.

8. Environmental Monitoring

To ensure that the mitigation measures identified in **Section 5.2** are implemented as envisioned, a strategy and schedule was developed for monitoring environmental effects. With these mitigation measures and monitoring

requirements in mind, commitments have also been proposed for ensuring that they are carried out as part of the construction, operation, and maintenance of the landfill.

8.1 Environmental Effects Monitoring

A monitoring strategy and schedule was developed based on the Terrestrial and Aquatic Environment Impact Assessment carried out for the Preferred Method to ensure that 1) predicted net negative effects are not exceeded, and 2) unexpected negative effects are addressed. **Table 8.1** lists the proposed monitoring requirements for each potential effect identified in the Terrestrial and Aquatic Environment Impact Assessment.

Table 8.1 Terrestrial and Aquatic Environment Proposed Monitoring Requirements

Potential Effect	Proposed Monitoring Requirement	Associated Licences, Permits or Authorizations
Effects on Vegetation Communities	– The vegetation monitoring program will include the following components: verification of seed mix/plant species to be planted, plant survivorship monitoring, and invasive species management. – Vegetation monitoring programs will be developed in greater detail during subsequent design phases, and in consultation with NPCA if wetland compensation is required. – Maintain long-term monitoring of groundwater and surface water for leachate contamination throughout the lifetime of the landfill. – Other components of the EMP including dust management plan, tree protection plan, etc., and their associated monitoring requirements to be developed during subsequent project phases.	Permit from NPCA for work in their regulation limit around watercourses or wetlands.
Wildlife habitat and rare, threatened, or endangered species	– Rare plants: Pre-construction flora survey to identify the locations of rare plants and mark for avoidance, if feasible, transplantation, or seeding/planting within compensation areas. – Species at Risk – Bats: Monitoring will be carried out as required by the SCA Registrable Activities regulation (O. Reg 75/26) and the associated Conservation Plan required under that legislation, or the requirements of the applicable legislation for species protection that is in effect at the time of the activity (tree clearing). – Monitoring required for vegetation communities and will also work to monitor potential effects on wildlife habitat. The Wildlife Management Plan, as part of the EMP, will provide detailed monitoring requirements. Components will include locations of exclusion fencing and inspection requirements, and wildlife encounter and handling protocols.	Register activity with MECP under the SCA for removal of bat habitat. Wildlife Scientific Collectors Authorization and Animal Care approval from the MNR will be required to handle wildlife.

Potential Effect	Proposed Monitoring Requirement	Associated Licences, Permits or Authorizations
Effect on Aquatic Environment and Aquatic Biota	– Water monitoring as specified in the EMP. – ESC inspections as specified in the EMP for works around water. – Maintain long-term monitoring of groundwater and surface water for leachate contamination throughout the lifetime of the landfill. – Restoration survival monitoring within riparian areas, as required.	
Fish and Fish Habitat	– Water monitoring as specified in the EMP. – ESC inspections as specified in the EMP for works around water. – Maintain long-term monitoring of groundwater and surface water for leachate contamination throughout the lifetime of the landfill. – Restoration survival monitoring within riparian areas, as required.	DFO Request for Review may be required for the stormwater pond outfall(s) or the Old Welland Canal pipe outfall.
Culturally Significant Species	– Pre-construction survey for plants in the potential footprint and mark for avoidance, if feasible, transplantation, or seeding/planting within compensation areas. – Restoration/compensation vegetation survival monitoring. – Inspections of ESC and/or wildlife exclusion fencing.	
Wetlands	– If wetland will be removed, wetland compensation effectiveness monitoring, including vegetation survival, composition, and hydroperiod will be carried out.	Permit from NPCA for work in their regulation limit around watercourses or wetlands.
Wildlife Habitat, Populations, or Movement	– Monitoring during construction for this component is addressed through the recommended vegetation, wildlife, rare species, culturally significant species, and wetland monitoring specified above. – Landfill best management practices including landfill wildlife-related operations monitoring and management will address nuisance wildlife.	
Locally Important or Valued Ecosystems or Vegetation	– Effects monitoring for this component is addressed through the recommended vegetation, wildlife, rare species, culturally significant species, aquatic environment and biota, fish and fish habitat, and wildlife habitat, populations, movement monitoring specified above.	

8.2 Development of an Environmental Management Plan

An EMP will be prepared following approval of the undertaking by the Minister of the Environment, Conservation and Parks (MECP) and prior to construction. The EMP will include a description of the proposed mitigation measures, commitments, and monitoring.

9. Commitments

The following commitments have been proposed for ensuring that the identified mitigation or compensation measures and monitoring requirements are carried out as part of the construction, operation, and maintenance of the undertaking:

– When the exact areas of required vegetation clearing are determined, targeted surveys for rare vegetation or culturally significant species are recommended.
– Creation of a restoration and compensation plan which covers compensation for woodland removal, re-establishment of native vegetation in areas disturbed for construction and, if required, wetland compensation. A component of this plan will be an edge management plan for targeted restoration of the FOD2-C edge to facilitate edge closure. The plan should also incorporate the findings of the pre-construction flora and species of cultural significance surveys. The plan will identify monitoring requirements and success criteria.
– Registration of the activity under the SCA Registrable Activities regulation (O. Reg 75/26) and creation of a Conservation Plan for impacts to SAR bat habitat, as required by the SCA.
– Water quality monitoring for discharge into Ten Mile Creek or the Old Welland Canal.

10. Terrestrial and Aquatic Environment Approvals Required for the Undertaking

The following approvals are required for terrestrial and aquatic environment related components for the proposed undertaking:

– Registration of the activity with MECP under the SCA, Registrable Activities regulation (O. Reg 75/26);
– Potential DFO Request for Review, for works affecting Ten Mile Creek or the Old Welland Canal; and
– Permit from NPCA under the Conservation Authorities Act (CAA) for work in the regulation limit.

11. References

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Figures

LEGEND

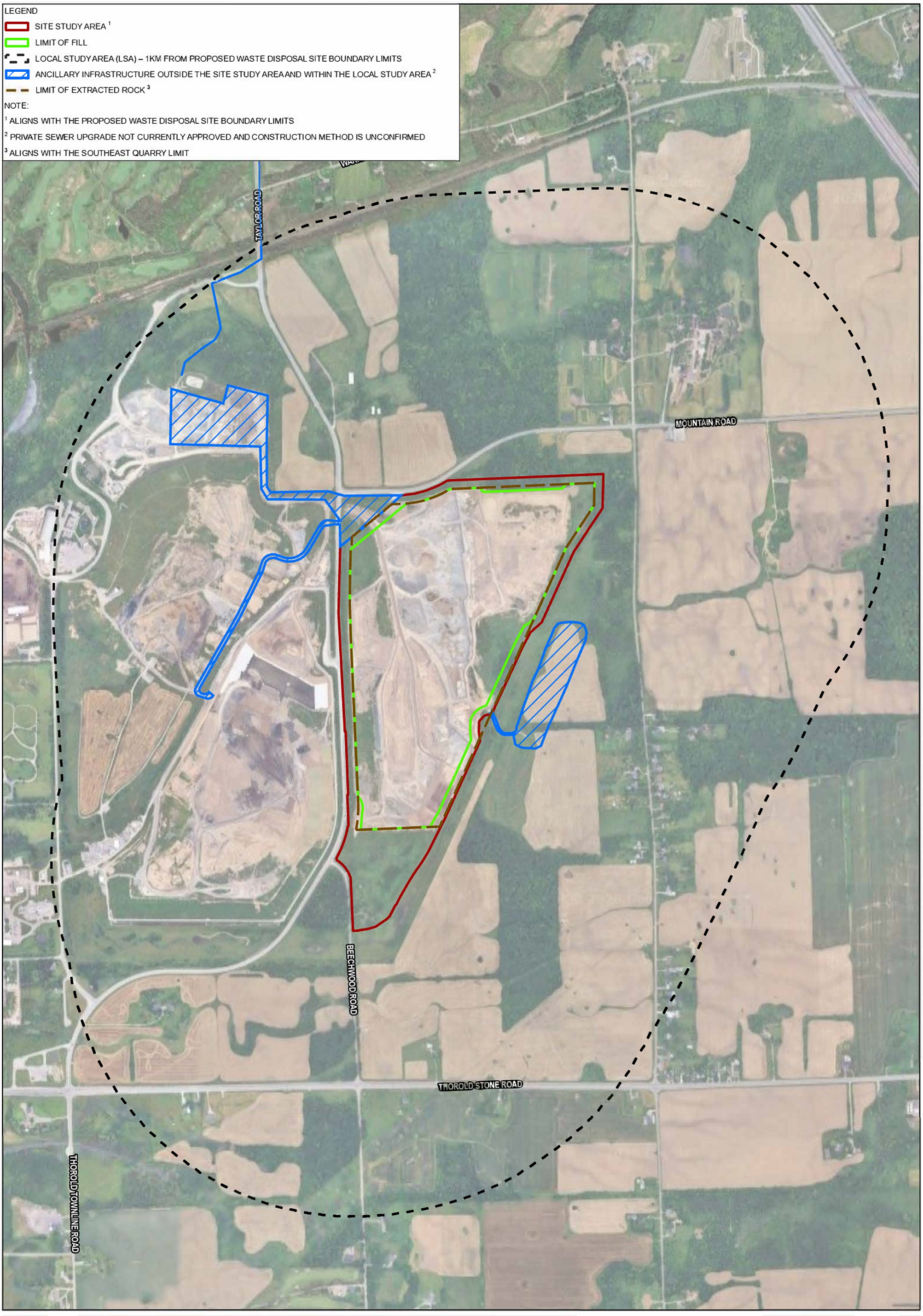
- SITE STUDY AREA [1]
- LIMIT OF FILL
- LOCAL STUDY AREA (LSA) – 1KM FROM PROPOSED WASTE DISPOSAL SITE BOUNDARY LIMITS
- ANCILLARY INFRASTRUCTURE OUTSIDE THE SITE STUDY AREA AND WITHIN THE LOCAL STUDY AREA [2]
- LIMIT OF EXTRACTED ROCK [3]

NOTE:

[1] ALIGNS WITH THE PROPOSED WASTE DISPOSAL SITE BOUNDARY LIMITS

[2] PRIVATE SEWER UPGRADE NOT CURRENTLY APPROVED AND CONSTRUCTION METHOD IS UNCONFIRMED

[3] ALIGNS WITH THE SOUTHEAST QUARRY LIMIT



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WALKER INDUSTRIES
TERRESTRIAL AND AQUATIC ENVIRONMENT
IMPACT ASSESSMENT REPORT

TERRESTRIAL AND AQUATIC STUDY AREAS

Project No. **12567140**
Revision No. **-**
Date **Mar 27, 2026**

FIGURE 1

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Data source: Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: yxiong2

ELC Types - 1st Approximation

Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998.

ELC Code	Ecosite Vegetation Type Description
AG	Agricultural
CUM1-1	Dry - Moist Old Field Meadow
FOD	Deciduous Forest
FOD2	Dry – Fresh Oak – Maple – Hickory Deciduous Forest
FOD2-A	Dry – Fresh Oak – Maple – Hickory Deciduous Forest
FOD2-B	Dry – Fresh Oak – Maple – Hickory Deciduous Forest
FOD2-C	Dry – Fresh Oak – Maple – Hickory Deciduous Forest
FOD9	Fresh – Moist Oak - Maple - Hickory Deciduous Forest
MAM2	Mineral Meadow Marsh
MAM2-5	Narrow-leaved Sedge Mineral Meadow Marsh
CUT1	Mineral Cultural Thicket
RES	Residential
SWD	Deciduous Swamp
SWD1-3	Pin Oak Mineral Deciduous Swamp
SWT2-9	Grey Dogwood Mineral Thicket Swamp
SWD3-1	Red Maple Mineral Deciduous Swamp
CUP	Mixed Plantation
CUP2-1	Black Walnut – White Pine Mixed Plantation Type
CUP3-8	White Spruce - European Larch Coniferous Plantation
Hedgerow	Hedgerow

LEGEND

- SITE STUDY AREA [1]
- LIMIT OF FILL
- LOCAL STUDY AREA (LSA) – 1KM FROM PROPOSED WASTE DISPOSAL SITE BOUNDARY LIMITS
- ANCILLARY INFRASTRUCTURE OUTSIDE THE SITE STUDY AREA AND WITHIN THE LOCAL STUDY AREA [2]
- LIMIT OF EXTRACTED ROCK [3]
- ECOLOGICAL LAND CLASSIFICATION
- OHN WATERCOURSE

NOTE:

[1] ALIGNS WITH THE PROPOSED WASTE DISPOSAL SITE BOUNDARY LIMITS

[2] PRIVATE SEWER UPGRADE NOT CURRENTLY APPROVED AND CONSTRUCTION METHOD IS UNCONFIRMED

[3] ALIGNS WITH THE SOUTHEAST QUARRY LIMIT

Eight Mile Creek
Ten Mile Creek
Ten Mile Creek Wetland Complex
Shriner's Creek Wetland Complex
Shriner's Creek Wetland Complex
MOUNTAIN ROAD
BEECHWOOD ROAD
THOROLD STONE ROAD

Paper Size ANSI B

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Meters

Map Projection: Transverse Mercator
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Grid: NAD 1983 UTM Zone 17N

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WALKER INDUSTRIES
TERRESTRIAL AND AQUATIC ENVIRONMENT
IMPACT ASSESSMENT REPORT

ECOLOGICAL LAND CLASSIFICATION

Project No. 12567140
Revision No. -
Date Jun 2, 2026

FIGURE 2

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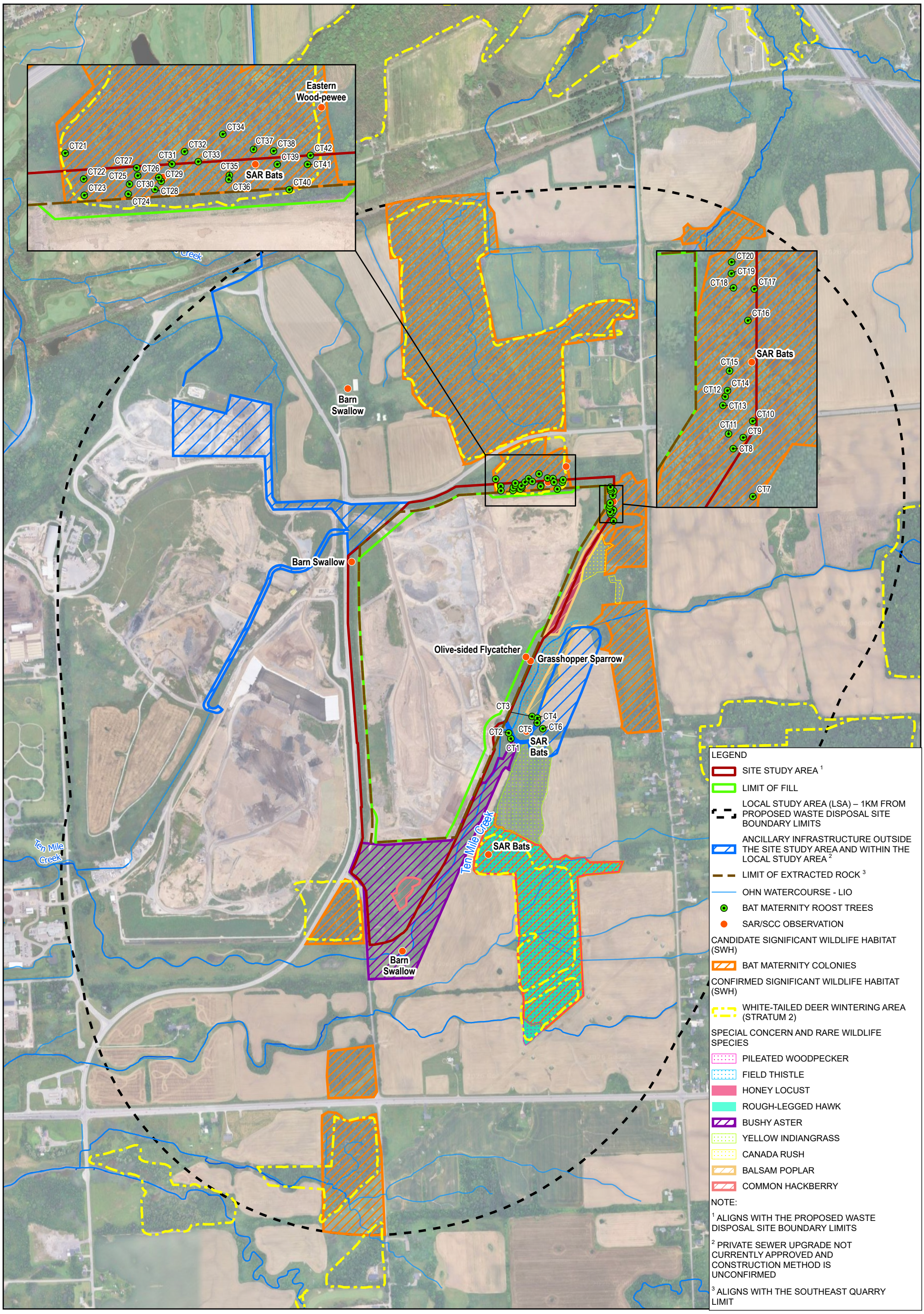

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WALKER INDUSTRIES
TERRESTRIAL AND AQUATIC ENVIRONMENT IMPACT ASSESSMENT REPORT

NATURAL HERITAGE FINDINGS

Project No. **12567140**
Revision No. **-**
Date **Jun 4, 2026**

FIGURE 3

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Data source: NES Perm Int Watercourses; Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: yxiong2

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Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998.

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LEGEND

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- LIMIT OF FILL
- LOCAL STUDY AREA (LSA) – 1KM FROM PROPOSED WASTE DISPOSAL SITE BOUNDARY LIMITS
- ANCILLARY INFRASTRUCTURE OUTSIDE THE SITE STUDY AREA AND ROAD NETWORK[2]
- LIMIT OF EXTRACTED ROCK [3]
- ECOLOGICAL LAND CLASSIFICATION
- TEMPORARY VEGETATION REMOVAL DURING CONSTRUCTION
- VEGETATION REMOVAL FOR OPERATIONS
- BUILDING
- POND
- TUNNEL
- OHN WATERCOURSE

NOTE:

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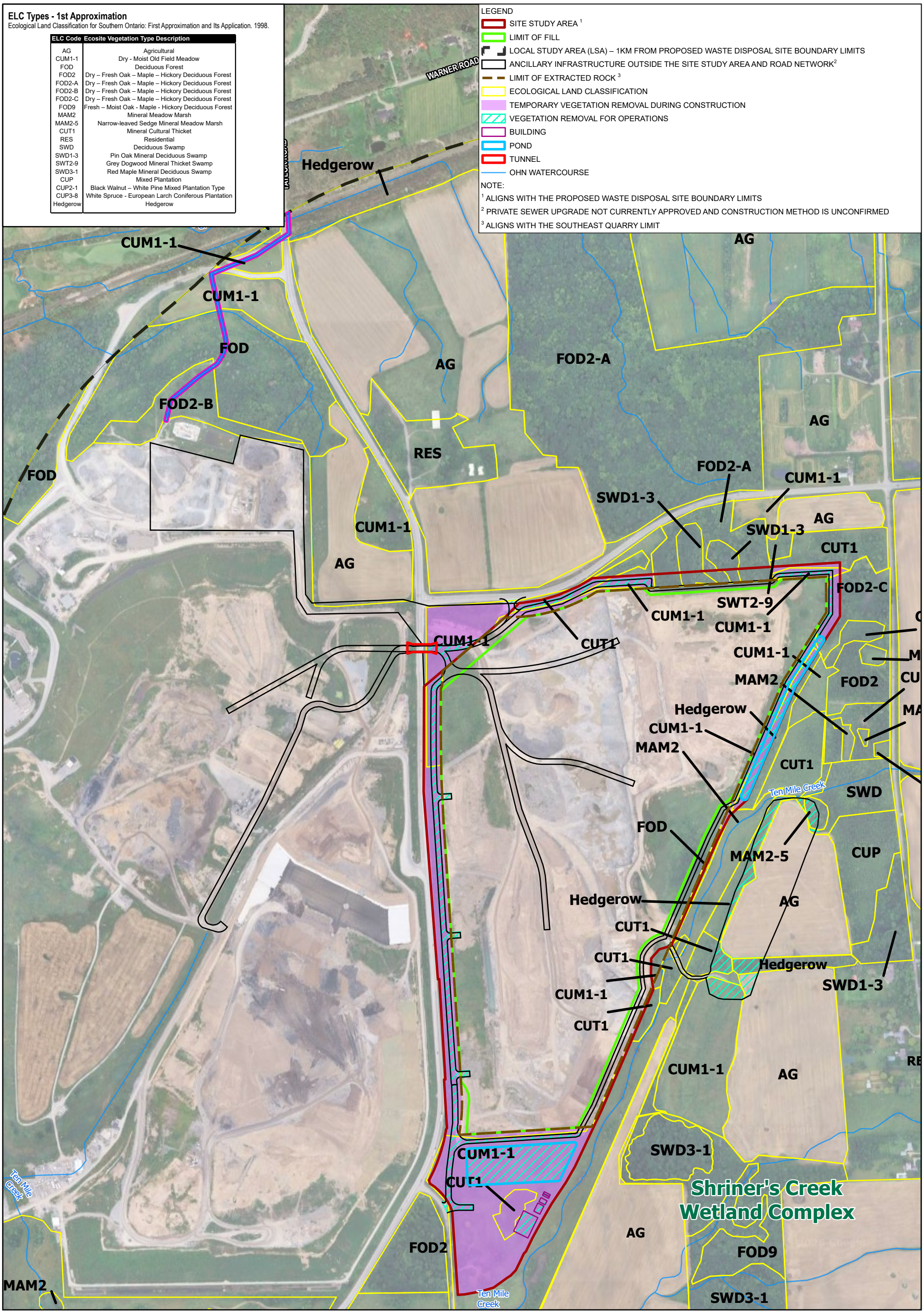

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WALKER INDUSTRIES
TERRESTRIAL AND AQUATIC ENVIRONMENT
IMPACT ASSESSMENT REPORT

IMPACT ASSESSMENT

Project No. 12567140
Revision No. -
Date Jun 3, 2026

FIGURE 4

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