Memorandum: Analysis of 360 Regulations
Closing Loops City Program
Urban Resource Recovery (URR) Working Group in Town+Gown: NYC
New York City's Department of Design and Construction
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## Questions Presented

1. What is the State regulatory framework for construction and demolition waste (CDW) and other recovered resources that can be reused in construction either directly with CDW from one project re-used on another pursuant to New York State Department of Environmental Protection's Enforcement Discretion Letter, dated February 12, 2021, or indirectly by diverting CDW from landfills to facilities for interim processing and/or higher value manufacturing for new construction materials with a particular focus on re-use of these materials?
2. For each of the enumerated materials in the Closing Loops City Program Initiative (CLCPI), how do the state regulations support their reuse (e.g., BUDs)?

## Introduction

Construction and demolition waste (CDW) materials constitute a significant waste stream in the United States; however, the materials can be diverted from disposal and managed into new, productive uses. New York City's (City) solid waste management and long-term sustainability plans have few specific policies related to the recycling and reuse of CDW. The Closing Loops City Projects Initiative (CLCPI) intends to leverage the City's capital program to close some material loops and re-use CDW generated on City capital projects as materials for other projects.

The CLCPI Initiative will function as a pilot initiative that revises City agency construction practices and policies in order to leverage the City's capital program to close enumerated material loops by (1) direct reuse of CDW generated on City capital projects as materials for other City capital projects, pursuant to the New York State Department of Environmental Protection's Enforcement Discretion Letter, dated February 12, 2021 (Direct Reuse) and (2) by intentionally diverting CDW from project sites from landfills and sending them to facilities for interim processing and/or higher value manufacturing for new constitution materials (Indirect Reuse), both for the purpose of (1) conserving embodied carbon by recovering and reusing embedded carbon, (2) reducing Greenhouse Gas (GHG) emissions from virgin materials extraction and production and (3) generating capital budget savings over time.[1] All recovery and reuse options in the CLCPI, will comply with New York State Department of Environmental Conservation (DEC) regulations, taking advantage of existing beneficial use

[1] United Nations Sustainable Development Goals 3 (3.9) and 8 (8.3 and 8.4). *See also, Sources of Greenhouse Gas Emissions,* EPA (April 14, 2021)https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#:~:text=Carbon%20dioxide%20(CO2)%20makes,natural%20gas%2C%20to%20produce%20electricity.(GHGs are released during the combustion of fossil fuels, such as coal, oil, and natural gas, to produce electricity and from certain chemical reactions necessary to produce goods from raw materials).

designations (BUD) and related enforcement discretion letters and requesting BUD designations where none exist.

## Overall Framework

As the United States has continued to grow, so has our volume of waste. In 2018 alone, the United States generated 600 million tons of CDW. [2] Of the 600 million tons, just over 455 million tons of CDW were directed to reuse and just under 145 million tons were sent to landfills.[3] However, much of this debris is not being reused effectively, instead it is being stockpiled in landfills to be used as alternative daily cover (ADC).[4] ADC, supplements regular soil available at landfills to cover the putrescible waste in the landfills.[5] Not only does the re-use of CDW as ADC create environmental issues on its own, but also represents a lost opportunity to re-use CDW with significant embedded carbon and does nothing to reduce GHG emissions.[6]

Reducing the amount of CDW materials disposed of in landfills can (1) increase economic activity in existing and new areas, (2) reduce overall construction building expenses costs in certain categories, and (3) improve environmental impact.[7] First, reusing CDW materials can increase business opportunities within the local and regional constitution markets by creating new and additional employment and economic activities in recycling and related processing and manufacturing industries.[8] In 2012, the recycling of CDW materials created 175,000 jobs

[2] *Sustainable Management of Construction and Demolition Materials,* EPA (May 18, 2021), https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials.
[3] *Id.*
[4] New York City Department of Design and Construction (DDC), *Construction and Demolition Waste Manual* (2003), p. 2 (http://www1.nyc.gov/assets/ddc/downloads/Sustainable/construction-waste-manual.pdf accessed 09-20-17 @ 2:43 p.m.).
[5] *Id.* at 3.
[6] *Id.*
[7] *Sustainable Management of Construction, supra.*
[8] *Id.*

nationwide.[9] Second, direct and indirect reuse of CDW can reduce certain project costs through a combination of reductions in purchasing costs of new materials, disposal costs, and transportation costs for onsite reuse.[10] Businesses can also receive tax benefits for the donation of recovered materials to qualified 501(c)(3) charities.[11] Third, reusing CDW can reduce the environmental impact associated with the extraction and consumption of virgin resources and production of new materials as well as reusing embodied carbon in the initial production of CDW materials.[12] Reuse of CDW, as described above, is an example of a circular economy.

## I. Federal Framework

Amid growing public concern for the environment in the 1970s, former President Richard Nixon addressed Congress with plans for reform.[13] The plans included calls for more environmental legislation and the consolidation of the many environmental responsibilities of the federal government under one agency, the Environmental Protection Agency (EPA).[14] The EPA was established in December of 1970 with the goal of "protecting human health and the environment".[15] The EPA accomplishes this goal by enforcing and implementing Congress's environmental legislation through regulations.[16] These regulations set national standards that states and tribes enforce through their own laws.[17] Over the years the federal government has passed several different laws aimed at improving environmental quality across the nation.

[9] *Recycling Economic Information (REI) Report,* EPA (October 30, 2020), https://www.epa.gov/smm/recycling-economic-information-rei-report.
[10] *Sustainable Management of Construction and Demolition Materials*, *supra*.
[11] *Id.*
[12] *Id.*
[13] *The Origins of EPA*, EPA (Jan. 13th, 2021), https://www.epa.gov/history/origins-epa.
[14] *Id.*
[15] *Id.*
[16] *Our Mission and What We Do*, EPA (Sept. 23, 2020), https://www.epa.gov/aboutepa/our-mission-and-what-we-do.
[17] *Id.*

### a. Resource Conservation and Recovery Act (RCRA)

Congress passed the Resource Conservation and Recovery Act (RCRA) in 1976, to protect human health and the environment by reducing the amount of waste generated.[18] The RCRA allows the EPA to control hazardous and solid waste generation, transportation, treatment, storage, and disposal throughout its entire lifecycle.[19] The federal government had previously established the basic structure for regulating discharges of pollutants in the US waterways with the Clean Water Act (CWA) of 1972.[20] The CWA significantly reorganized and expanded the former Federal Water Pollution Control Act of 1948.[21] Following the RCRA and CWA, the federal government established Part 258 regulations in 1991.[22] Part 258 addresses Municipal Solid Waste Landfill (MSWLF) regulations, which set forth a minimum national criteria under both Acts for all MSWLFs.[23]

The EPA intends for states to take the lead in implementing the Part 258 regulations.[24] Municipal solid waste management regulatory oversight is more amenable to state and local governments, rather than federal.[25] Therefore, the EPA's goal is for states to receive approval of their MSWLF programs.[26] States with approved programs are given flexibility to consider site-specific conditions regarding MSWLF design and other requirements.[27] States are able to independently enforce the program and have the freedom to apply stricter standards than those

[18] *EPA History: Resource Conservation and Recovery Act,* EPA (June 8, 2020), https://www.epa.gov/ history/epa-history-resource-conservation-and-recovery-act.
[19] 42 U.S.C. §6901.
[20] 33 U.S.C. §1251.
[21] *Summary of the Clean Water Act*, EPA (Sep. 9, 2020), https://www.epa.gov/laws-regulations/summary-clean-water-act
[22] 40 CFR § 258.1.
[23] §258.1(a).
[24] *Introduction to Municipal Solid Waste Disposal Facility Criteria*, EPA (Sept. 2005), https://www.epa.gov/sites/production/files/2015-09/documents/mswlf05.pdf
[25] *Id.* at 6.
[26] *Id.*
[27] 42 U.S.C. §6926(b).

given in RCRA, as long as they maintain minimum federal standards.[28] The EPA promulgated the State Implementation Rule (SIR) to encourage states to receive program approval.[29] SIR, finalized in 1998, provides a "flexible framework for modifications of approved programs, establishes procedures for withdrawals of approvals, and confirms the process for future program approvals."[30]

### b. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

In 1980, the federal government passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).[31] Congress wanted to provide a basis for government intervention and for allocation of funds necessary for the cleanup of hazardous wastes.[32] CERCLA provides a federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment.[33] CERCLA also grants the EPA the right to find those responsible for the contamination and ensure they assist in the cleanup of these Superfund sites.[34] If the responsible party doesn't assist in the cleanup, the EPA can do short or long-term clean ups at a site and later recover cleanup costs.[35] Superfund site identification, monitoring, and response activities in states are coordinated through the state environmental protection or waste management agencies.[36]

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[28] 42 U.S.C. §6929.
[29] *Introduction to Municipal Solid Waste supra* at 7.
[30] 63 FR 57026.
[31] *Summary of the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)*, EPA, (July 27, 2020) https://www.epa.gov/laws-regulations/summary- comprehensive-environmental- response-compensation-and-liability-act.
[32] H.R. REP. No. 1016, 96th Cong., 2d Sess., pt. 1, at 22 (1980), reprinted in 1980 U.S.C.C.A.N. at 6125.
[33] 42 U.S.C. §9601.
[34] 42 U.S.C. §9606.
[35] 42 U.S.C. §9604.
[36] 42 U.S.C. §9620(F).

CERCLA was amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA).[37] Several specific amendments, definitions, clarifications, and technical requirements were added to SARA, including additional enforcement authorities.[38] SARA increased state involvement in every phase of the Superfund program, specifically with Title III.[39] Title III created the Emergency Planning & Community Right-to-Know Act (EPCRA), which Congress enacted to help local communities protect public health, safety, and the environment from chemical hazards.[40] The EPCRA requires each state to appoint a State Emergency Response Commission (SERC). [41] Each SERC must divide their state into Emergency Planning Districts and create a Local Emergency Planning Committee (LEPC) for each district.[42] LEPCs are required to draft and implement a comprehensive emergency response plan.[43] The EPCRA also requires emergency notification if an "extremely hazardous substance" is released to the LEPC.[44] When discussing the EPCRA former President Bill Clinton stated, "I am committed to the effective implementation of this law, because Community Right-to-Know protections provide a basic informational tool to encourage informed community-based environmental decision making and provide a strong incentive for businesses to find their own ways of preventing pollution."[45]

[37] 42 U.S.C. §9611.
[38] *Summary of the Comprehensive supra.*
[39] 42 U.S.C. §11001-11050.
[40] *Summary of the Emergency Planning & Community Right-to-Know Act*, EPA, (Feb. 2, 2021) https://www.epa.gov/laws-regulations/summary-emergency-planning-community-right-know-act.
[41] 42 U.S.C. §11001 (a).
[42] 42 U.S.C. §11001 (b)(c).
[43] 42 U.S.C. §11003.
[44] 42 U.S.C. §11004 (*see also,* §11002 (a) ("extremely hazardous substance" refers to chemicals that are listed by the Administrator).
[45] Expediting Community Right-to-Know Initiatives, 60 FR 4179.

## II. New York State Framework

The DEC was created on July 1, 1970, the same year the EPA was created, to consolidate all New York State (State) programs designed to protect the environment into a single agency.[46] The Environmental Conservation Law (ECL), found within the Consolidated Laws of New York, established the DEC which subsequently "implements and enforces" the ECL.[47] The mission statement of the DEC is to "conserve, improve and protect" the State's natural resources in order to "enhance the health, safety and welfare of the people … and their overall economic and social well-being." [48] The DEC is empowered to do so through Article 3 of the ECL.[49] The DEC defines the provisions of the ECL by "drafting, promulgating and enforcing" the environmental regulations of the DEC, which are found at Title 6 of the New York Codes, Rules and Regulations.[50] Proposed regulations are presented by the DEC for public comment and usually involve public hearings.[51] In order to achieve its goals, the DEC appoints a single commissioner who is assisted by executive managers.[52] The DEC has 24 divisions and offices and is further organized into bureaus to fulfill the Title 6 provisions.[53] Furthermore, some DEC programs are governed by federal law.[54]

In 1973, the State authorized the DEC to develop rules governing landfill operations.[55] The first State regulations were put on the books in 1977, following the federal RCRA in 1976.

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[46] *About DEC*, NYS Dept. of Environmental Conservation. https://www.dec.ny.gov/24.html.
[47] *Home - Regulations and Enforcement*, NYS Dept. of Environmental Conservation. https://www.dec.ny.gov/65.html.
[48] *Id*.
[49] Env't Conserv. Law §3-0101 (2021).
[50] *Id*.
[51] *Id*.
[52] *About DEC supra*.
[53] *Id*.
[54] *Id.*
[55] Brad Edmondson, *Environmental Affairs in New York State: An Historical Overview*, New York State Archives, Pub. 27, 44 (2001) http://www.archives.nysed.gov/common/archives/files/mr_pub72.pdf.

The first set of regulations were enacted around landfill regulations and security. The DEC landfill regulations required landfill operators to comply with individual site permits.[56] Approval of those permits requires operators to ensure landfill security, monitoring of water pollution, and the proper sealing of the contents of the landfill.[57] DEC's landfill regulations increased the cost of operating landfills. Many landfills shuttered operation as a result of the high cost of conforming to the regulations, thus decreasing the number of landfill's being operated in the state.[58] Since the 1970s, the State has enacted several regulations and revisions governing the disposal, reuse, and recycling of solid waste. The Bottle Bill of 1982, Solid Waste Management Act of 1988, DEC's 1993 revision of the Part 360 regulations, and the DEC's 2017 overhaul of the 360 regulations have each shaped the direction New York has taken to reduce the flow of solid municipal waste into landfills.

### a. New York State Returnable Container Act of 1982 (The Bottle Bill)

The increase of bottled beverages sales in the 1970s and 1980s created a new solid waste management problem for the State. Single-serve beverage containers made from plastic, glass, or metal made up a large amount of the State's landfill space and street litter.[59] With the closing of many of the State's landfills, and the increased burden of waste on the remaining landfills, State lawmakers passed the New York State Returnable Container Act, known as the "Bottle Bill," in 1982.[60] The Bottle Bill incentivizes consumers to properly dispose of used bottles and cans by placing a 5-cent deposit on certain kinds of containers.[61] Instead of disposing used containers in

[56] *Id.* at 45.
[57] *Id.*
[58] *Id.*
[59] ECL § 27-1001. The Bottle Bill was passed in 1982 and enacted in 1983 under Governor Mario Cuomo.
[60] *The History and Future of the NYS Bottle Bill*, NYS Association of Counties, (Spring 2019), https://www.wyomingco.net/DocumentCenter/View/2231/A-NYSAC-Bottle-Bill-White-Paper
[61] N.Y. Comp. Codes R. & Regs. tit. 6, § 367.1 (Lexis Advance through July 23, 2021).

the garbage, consumers could return them to stores or redemption centers to collect their 5-cent deposit.[62] The impact the Bottle Bill had on reducing waste was immediate.[63] The DEC estimates that 3.8 billion containers were removed from the solid waste stream within the first year of the Bottle Bill's enactment.[64] The Bottle Bill also provided economic opportunities: an estimated 4,317 to 5,079 jobs were created as a result of the bill.[65]

Since the enactment of the Bottle Bill, there have been several amendments expanding the kind of containers eligible for the deposit. Notably, in 2009, the State amended the bill to include bottled water as part of deposit-eligible containers.[66] This amendment, known as the "Bigger, Better Bottle Bill" also required beverage companies to return 80% of their unclaimed bottle and can deposits to the state, providing revenue of more than $115 million annually for the State's general fund.[67] In the 2019 executive budget, Governor Andrew Cuomo introduced legislation to further expand deposit-eligible containers to include sports drinks, energy drinks, ready-made teas, wine, liquor, spirits, and coffee, which was not adopted.[68] However, if similar legislation were passed, those containers would be eligible for the 5-cent deposit. [69]

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[62] *Id.*
[63] *The History and Future of the NYS Bottle Bill,* at 5.
[64] *Id.* (The 3.8 billion containers removed from the waste stream consisted of 155,000 tons of glass, 33,000 tons of aluminum, and 17,000 tons of plastic).
[65] *Id.*
[66] *The History and Future of the NYS Bottle Bill,* at 5-6.
[67] Press Release, New York Pub. Interest Research Grp., *Groups Cheer Passage of Bigger Better Bottle Bill* (April 3, 2009) https://www.bottlebill.org/news/articles/2009/NY-4-3-GroupsCheerPassage-pr.htm.
[68] Press Release, Office of Governor Andrew M. Cuomo, *Governor Cuomo Announces Bottle Bill Expansion and Plastic Bag Ban To Be Included in the 2019 Executive Budget* (January 13, 2019), https://www.governor.ny.gov/news/governor-cuomo-announces-bottle-bill-expansion-and-plastic-bag-ban-be-included-2019-executive.
[69] *Id.*

### b. The Solid Waste Management Act of 1988

In 1987, the DEC drafted the State's Solid Waste Management Plan (Plan) in response to growing environmental concerns surrounding municipal solid waste (MSW) across the State.[70] Throughout the State there was concern with groundwater contamination and operational deficiencies at many older, unlined landfills. [71] By 1986, only 47 of New York's 358 landfills were operating with valid permits.[72] Moreover, the disposal capacity for the State's landfills (excluding New York City) was estimated to be four years.[73] The Plan articulated an integrated waste management system to fix this impending landfill crisis. Additionally, the Plan implemented Part 360 regulations (Part 360 regulations), bringing the State into compliance with RCRA.[74] The most ambitious goal of the Plan was to reduce, reuse, or recycle 50 percent of New York's waste stream within ten years.[75]

Governor Mario Cuomo signed the Plan into law and enacted the Solid Waste Management Act (Act) in 1988. The Act prioritized a four-part hierarchy of solid waste management:

> (1) reduce the amount of solid waste generated;
> (2) reuse material for the purpose for which it was originally intended or to recycle material that cannot be reused;
> (3) to recover, in an environmentally acceptable manner, energy from solid waste that cannot be economically and technically reused or recycled; and
> (4) to dispose of solid waste that is not being reused, recycled or from which energy is not being recovered, by land burial or other methods approved by the DEC.[76]

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[70] *Beyond Waste: A Sustainable Materials Management Strategy for New York State*, NYS Dep't of Env. Conservation, https://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf (last visited: June 10, 2021).
[71] *Id.* at 17.
[72] *Id.*
[73] *Id.*
[74] *Id.*
[75] *Id.*
[76] ECL §27-0106.

The goal of the hierarchy of solid waste management was to decrease and redirect the amount of "recyclable and reusable solid waste away from the landfills."[77]

The Act outlined a set of guidelines to ensure that state and local governments worked cooperatively in establishing environmentally friendly solid waste management systems that incorporated the hierarchy.[78] The guidelines included the following: structure and expectations for regional solid waste management planning units; requirements and funding for local solid waste management plans in accordance with the hierarchy of waste management methods; a mandate that state-wide municipalities "adopt and implement source separation laws or ordinances for recyclables from all generating sectors by September 1, 1992 (less than five years from enactment);" and DEC's role in fulfilling these requirements.[79]

In the years since the Act's enactment, municipal recycling programs have developed across the state along with higher rates of recycling of solid waste.[80] Overall, the DEC reported that the State's municipal solid waste recycling rate increased from 3% in 1987 to 20% in 2008.[81] However, the State's municipal solid waste recycling rate is below both the EPA's national recycling rate of 33.4% and the Act's goal of reducing municipal solid waste by 50%.[82] The underperforming rate of MSW recycling likely stems from the inconsistency in enforcing the source separation requirement across municipalities.[83]

[77] *Beyond Waste: A Sustainable Materials Management Strategy for New York State*, at 18.
[78] *Id.*
[79] *Id.*
[80] *Beyond Waste: A Sustainable Materials Management Strategy for New York State*, at 19.
[81] *Id.* at 133.
[82] *Id.*
[83] *Id.* at 133.

### c. 1993 Update of the Part 360 Regulations

The DEC updated the Part 360 regulations in 1993, which govern solid waste, to comply with the federal government's new Part 258 regulations of 1991.[84] Part 258 established minimum national criteria under RCRA "for all municipal solid waste landfill (MSWLF) units and under the Clean Water Act, as amended, for municipal solid waste landfills that are used to dispose of sewage sludge."[85] These minimum criteria provide more stringent regulations surrounding existing landfills, design requirements for new landfill construction, and update the reporting requirements of landfill operators.[86] Part 258 addresses "seven major aspects of MSWLFs: location restrictions, composite liners requirements, leachate collection and removal systems, operating practices, groundwater monitoring requirements, closure and post-closure care requirements, corrective action provisions, and financial assurance."[87]

### d. 2017 Overhaul of the Part 360 Regulations

The next major change to the Part 360 regulations did not come until nearly 20 years later, when in 2017, the DEC provided a complete overhaul of the Part 360 regulations, which set design standards and operational criteria for all solid waste management facilities.[88] The Part 360 Regulations introduced the concept of Beneficial Use Determinations (BUDs). BUDs are a designation made by the DEC pursuant to 6 NYCRR Part 360.12. Once the DEC grants a BUD, the waste material ceases to be considered a solid waste (for the purposes of Parts 360-365) when

[84] *Solid Waste Program*, NYS Dept. of Environmental Conservation, https://www.dec.ny.gov /chemical/8498.html (last visited May 27, 2021).
[85] 40 CFR § 258(1)(a).
[86] 40 CFR § 258(40).
[87] *Municipal Solid Waste - Landfills*, EPA, https://www.epa.gov/landfills/municipal-solid-waste-landfills (last visited June 10, 2021).
[88] *Parts 360-366 and 369*, NYS Dept. of Environmental Conservation, https://www.dec .ny.gov/regulations/118777.html (last visited May 27, 2021).

used as described in the BUD.[89] The updated Part 360 regulations also address growing concerns for illegal dumping of CDW and fill material by increasing tracking of materials in New York City and expanding reuse opportunities for these materials.[90] When discussing the 2017 revision of the regulations, DEC Commissioner Basil Seggos stated that "... these final regulations incorporate public comments we received and will ensure New York State remains a leader in protecting our communities and natural resources through enhanced recycling and waste management."[91]

The 2017 update of the Part 360 regulations included the removal of some materials from the list of predetermined BUDs. Prior to the update, solid wastes, with prior approval from the DEC, were approved for use as daily cover material, landfill liner, or final cover system components pursuant to the provisions of subdivision 360-2.13(w) of Part 360.[92] Additionally, the DEC removed fuel as an alternative use for the use of case-specific BUDs. The 1999 update to the 360 regulations included that "material under review must be intended to function as an effective substitute for an analogous raw material or fuel."[93] The language of the updated 2017 360 regs states that the BUD petition must include a "justification that the waste functions as an effective substitute for the commercial product or raw material."[94]

[89] *Beneficial Use* Determinations, NYS Dept. of Environmental Conservation, https://www.dec.ny.gov/chemical/8821.html
[90] *Id.*
[91] *NY DEC strengthens state's solid waste regulations,* American Recycler News, Inc., (December 2017).https://americanrecycler.com/8568759/index.php /news/waste-news/2737- ny-dec- strengthens -state-s-solid-waste-regulations.
[92] 6 NYCRR §360-1.5(b)(10).
[93] §360-1.5(d)(2)(iii).
[94] §360.12(d)(2)(v).

## III. Environmental Conservation Law (ECL)

In addition to establishing the DEC, the ECL provides regulations relating to various types of environmental hazards faced by the State.[95] Article 27 of the ECL adjudicates the collection, treatment, and disposal of refuse and other solid waste, including C&D debris and brownfield cleanup programs.[96] The purpose of Article 27 is to (1) encourage the development of economical projects for the present and future collection, (2) assure treatment and management of solid and hazardous waste will have full consideration of all aspects of planning for proper and effective waste disposal, (3) coordinated with other related state, regional and local planning activities, and (4) protect the public health.[97] The New York legislature also intended to "effect maximum resource recovery from solid waste on a cost-effective basis, with minimum environmental debit, energy-efficient materials recovery, prudent land use, maximum economic benefits and maximum effective private sector participation."[98]

### a. Part 360 Regulations - Soil BUD regs

The Part 360 regulations set the requirements for solid waste management, including the disposal and reuse of soil.[99] In particular, these regulations grant certain forms of soil (among other things) BUDs to incentivize the reuse of said soil rather than it being landfilled.[100] The approved uses for the soil are dependent upon the quality of the soil and the location from which it originated, with clean soil being approved for more uses than that which has been contaminated.[101]

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[95] ECL §§ 1-0101 - 75-0119
[96] ECL §§ 27-0101 - 27-3101.
[97] ECL §27-0101(1).
[98] §27-0101(2).
[99] 6 NYCRR §360.1.
[100] *Id*.
[101] Construction Site Materials Reuse Under NYSDEC Part 360: Quick Reference Guide, https://www.dec.ny.gov/docs/materials_minerals_pdf/constmatreusequickref.pdf

### b. Part 361 Regulations - Biosolids BUD Regulations

Biosolids are the solid or semi-solid organic materials resulting from the treatment of wastewater carried through sewer lines from homes and businesses.[102] Reuse of Biosolids are regulated by Parts 361-2 and 361-3 of Title 6 of the NYCRR.[103] The BUDs primarily permit biosolids to be used as fertilizer or to be composted.[104] The Biosolids may be applied directly to soil, heat dried or pelletized, or chemically stabilized and used as a lime substitute in agriculture to neutralize soil acidity.[105] Over the last decade, beneficial use of biosolids has declined significantly from just under half of all biosolids being beneficially used in 2009 to approximately 16% in 2015.[106] Facilities that are going to be recycling biosolids are required to apply for a permit under part 361 prior to beginning construction, and file a report annually on their operations.[107]

### c. Part 375 Regulations - Brownfield Analysis

In 2003, the passage and signing of the State Superfund/Brownfields Act facilitated the DEC to establish a Brownfields Cleanup Program (BCP) with $120 million available annually to clean up "unused or abandoned industrial properties and return them to productive use".[108] A brownfield site is "any real property where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance adopted by DEC that are applicable based on the reasonably anticipated use of the property, in

[102] *Biosolids Management*, NYS Dept. of Environmental Conservation, https://www.dec.ny.gov/chemical/97463.html.
[103] 6 NYCRR §361.2.
[104] *Id.*
[105] §361.3.
[106] *Biosolids Management*, NYS Dept. of Environmental Conservation, https://www.dec.ny.gov/chemical/97463.html.
[107] *Id.*
[108] *DEC Timeline-Brownfields Cleanup Program*, NYS Dept. of Environmental Conservation, https://www.dec.ny.gov/about/118949.html (last visited June 8, 2021).

accordance with applicable regulations".[109] The goal of the BCP is "to encourage private-sector cleanups of brownfields and to promote their redevelopment as a means to revitalize economically blighted communities".[110] The BCP is intended to remove some of the barriers to, and provide tax incentives for, the redevelopment of urban brownfields.[111] Regulations of brownfield sites are determined by subpart 375-3.[112] This subpart is divided into 11 subsections, including eligibility, applications, and brownfield cleanup agreements.[113] Brownfields are also addressed in Title 14 of Article 27. Title 14 addresses more subsections than subpart 375-3, and includes subsections on permit waivers, liability limitation, and access to sites.[114] Remedies under subpart 375-3 are not subject to review pursuant to ECL Article 8 provided the remedy does not (1) commit the DEC or any other agency to specific future uses or actions; and (2) prevent evaluation of a reasonable range of alternative future uses of or actions on the remedial site.[115]

The BCP provides liability releases and tax credits for applicants.[116] Eligible participants must submit an application to the DEC, and must contain "sufficient information" to allow the DEC to determine the "intended and reasonably anticipated future land use of the site."[117] The tax credits are refundable to the extent the tax credit exceeds the applicant's tax liability.[118] There are three types of tax credits.[119] The first is the Site Preparation Cost (Site Prep), which covers costs necessarily incurred to make the property

[109] *Brownfield Cleanup Program*, NYS Dept. of Environmental Conservation, https://www.dec.ny.gov/chemical/8450.html (last visited June 9, 2021).
[110] *Id*.
[111] *Id.*
[112] 6 NYCRR §§375-3.1 - 375-3.11.
[113] *Id*.
[114] ECL §§27-1401 - 27-1437.
[115] 6 NYCRR §375-3.11.
[116] *New York Brownfield Cleanup Program*, Schnapf LLC (last visited June 10, 2021) https://www.environmental-law.net/ny-brownfield-program/.
[117] 6 NYCRR §375-3.4.
[118] *New York Brownfield Cleanup Program* supra.
[119] *Id*.

ready for development.[120] Second is a tax credit which covers groundwater monitoring costs after the development has been completed.[121] Last, is the Qualified Tangible Property (QTP) tax credit, which ranges from 10-24% of the value of the improvements on the brownfield site, subject to a cap of $35mm or 3 times the Site Prep costs (whichever is less).[122] Generally, the QTP provides the most value.[123] The benefit only extends to those listed on the Brownfield Cleanup Agreement (BCA).[124] Environmental law firms may assist interested parties from the pre-application phase to obtaining regulatory signoff.[125]

Unlike other soil generated from the City, soil generated from brownfield sites is adjudicated by subpart 375 rather than subpart 360.[126] Soil generated from brownfields are subject to remedial programs, which apply to brownfield cleanup sites.[127] While the purpose of the remedial programs is to return the soil to a safe contamination level (known as a soil cleanup objective (SCO)), the amount varies depending on the type of contaminant.[128] For example, the SCO for unrestricted arsenic is measured at 13 parts per million (PPM).[129] These differences are further compounded by whether the contaminant is unrestricted -- meaning the soil has no restrictions on it due to the amount of contaminants it contains -- and restricted -- meaning the soil has restrictions on it due to the amount of contaminants it contains.[130] For example, the SCO for unrestricted arsenic may be 13 PPM, but it is 16 ppm for restricted arsenic.[131]

[120] *Id*.
[121] *Id*.
[122] *Id*.
[123] *Id*.
[124] *Id*.
[125] *Id*.
[126] 6 NYCRR § 375-6.3. *See also* § 360.13(c) (for more on soil generated from City projects), *See also* Sections III (A) (2) and III (A) (3) (for more on soil reuse generally).
[127] § 375-6.1(a).
[128] § 375-6.8(a).
[129] *Id*.
[130] *Id*.
[131] *Id*.

### d. Not Considered Solid Waste

Solid waste refers to any garbage, refuse, or sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials including "solid, liquid, semi-solid, or contained gaseous material", resulting from industrial, commercial, mining and agricultural operations, and from community activities.[132] The DEC has determined that the following materials are not considered solid waste for the purpose of Parts 360-66:[133]

1. Materials that are intended for reuse for their original function without processing.[134]
2. Materials that are incorporated into food products for human consumption.[135]
3. Wood generated from sources other than construction and demolition, that is burned in campfires, ceremonial burns, cooking fires, wood stoves, or other similar uses.[136]
4. Any mixture of domestic sewage and other wastes that pass through a sewer system to a publicly or privately owned treatment works for treatment.[137]
5. Industrial wastewater discharges.[138]
6. Irrigation return flows.[139]
7. Materials subject to in-situ mining techniques which are not removed from the ground as part of the extraction process.[140]
8. Crumb rubber.[141]
9. Materials that are used for artificial reefs.[142]
10. Material removed from the waters of New York State and placed or disposed in compliance with a permit.[143]

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[132] 6 NYCRR § 360.2(a).
[133] § 360.2(a)(3).
[134] § 360.2(a)(3)(i) (such as materials at a garage sale, consignment shop, textile collection location or similar venue).
[135] § 360.2(a)(3)(ii).
[136] § 360.2(a)(3)(iii).
[137] § 360.2(a)(3)(iv).
[138] § 360.2(a)(3)(v) (that are point source discharges subject to permits under Environmental Conservation Law (ECL) article 17).
[139] § 360.2(a)(3)(vi).
[140] § 360.2(a)(3)(vii).
[141] § 360.2(a)(3)(viii).
[142] § 360.2(a)(3)(x) (must be in compliance with applicable water quality criteria).
[143] § 360.2(a)(3)(xi) (permit must be issued under ECL article 15, 24, 25, or 34 or a water quality certification issued under Section 401 of the Federal Water Pollution Control Act to the extent that disposal of the material is regulated by such permit or certification. However, any disposal not regulated by such permit remains subject to regulation under Parts 360, 361, 362, 363, and 365 of this Title. Dredged or excavated material generated by a

11. Waste samples received at a laboratory or educational institution for analysis of constituents.[144]

In addition to the specific materials determined not to be solid waste, the DEC has also determined several materials are not considered solid waste when used in a certain way.[145] The Part 360.12 regulations detail how solid waste materials can be reused in a way that they are no longer considered solid waste.[146]

## BUD Analysis

In 2017, the DEC updated their Part 360 regulations that govern the reuse, recycling, transportation, and disposal of solid waste.[147] The purpose of the statewide change was to create more beneficial use opportunities for the increasing amount of materials from New York City while also preventing the improper reuse of the same materials.[148]A Beneficial Use Determination (BUD) is used to decide if a material can cease to be considered a solid waste and therefore be beneficially used.[149] There are 28 predetermined BUDs.[150] If a BUD does not currently exist for a material then potential users can petition the DEC for a case-specific BUD.[151]

manufacturing or industrial process is industrial waste, and the treatment, storage, transfer, or disposal of the material is subject to regulation under Parts 360 to 365 of this Title).

[144] § 360.2(a)(3)(xii).

[145] § 360.2(a)(3)(ix).

[146] *Id.*

[147] *Parts 360-366 and 369, supra*.

[148] *Id.*

[149] 6 NYCRR § 360.12. *See also Safe Harbor*, The Wolters Kluwer Bouvier Law Dictionary (Dictionary Desk ed. 2012) (the regulatory sense of a safe-harbor provision in a statute or regulation, which provides individuals or entities that it governs a diminished or waived punishment in return for conduct that mitigates the harm the statute or regulation seeks to prevent).

[150] § 360.12(c).

[151] § 360.12(d)(e)(f).

## I. Applicability

New York's beneficial use guidelines apply to the use of certain wastes as "effective substitutes for commercial products" or "raw materials" as determined by the DEC.[152] It does not apply to waste "used in a manner that constitutes disposal" or to materials that are being sent to facilities subject to regulation under Part 361.[153] Materials cannot be stored for more than 365 days prior to its beneficial use unless otherwise indicated by registration, permit condition, or case-specific beneficial use designation.[154]

## II. Unacceptable Use

A BUD will not be granted for waste if it is used in any of the following ways: (1) as "flowable fill" for reclamation of mined land, (2) as encasement of "waste tires" in concrete, or (3) usage of "waste tires" as fences or screening.[155] Flowable fill is a "self-compacting, cementitious, low-strength mixture of soil, water, or coal combustion residuals", that is used to backfill excavations and is capable of being pumped.[156] Waste tires are waste which consists of whole tires (on or off the rims) or portions of tires from a vehicle or motor vehicle.[157] Waste tires and fill material can be granted a BUD if they are used in a manner consistent with the predetermined or case specific BUDs.

[152] § 360.12(a).
[153] § 360.12(a)(1).
[154] § 360.12(a)(2).
[155] § 360.12(b).
[156] § 360.2(b)(110)
[157] § 360.2(b)(308). *See also* ECL § 27-1901 ("Vehicle" or "Motor Vehicle" means any device which by virtue of its design could qualify for registration).

## III. Predetermined Beneficial Use (28)

### A. No Longer Considered Solid Waste When Used

The following materials are not considered solid waste when used in the ways described below:

#### 1. Certain Excluded Hazardous Wastes

Black liquor that is reclaimed in a pulping recovery furnace and then used in the process unless it is accumulated speculatively.[158] Accumulated speculatively means a material accumulated before it is recycled.[159] Spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively.[160] Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production, provided they meet four criteria.[161] First, the secondary materials must be stored in a tank, and the entire reclamation process is closed by being connected with pipes or other comparable enclosed means of transfer.[162] Second, the reclamation cannot involve controlled flame combustion (occurs in boilers, industrial furnaces or incinerators).[163] Third, the secondary materials cannot accumulate in tanks for a period longer than 12 month without being reclaimed.[164] Fourth, the reclaimed material cannot be used to produce fuel, or used in a manner constituting disposal.[165]

[158] § 371.1(e)(1)(vi).
[159] § 371.1(a)(1).
[160] § 371.1(e)(1)(vii).
[161] § 371.1(e)(1)(viii)(a).
[162] *Id*.
[163] § 371.1(e)(1)(viii)(b).
[164] § 371.1(e)(1)(viii)(c).
[165] § 371.1(e)(1)(viii)(d).

### 2. Untested Clean Soil

Fill material is soil and similar material excavated for the purpose of construction or maintenance but does not include overburden generated from mining operations regulated pursuant to Part 422 of this Title.[166] Fill material that is generated outside of New York City with no evidence of historical impacts such as reported spill events, or visual or other indications of chemical or physical contamination does not constitute solid waste.[167]

### 3. All Tested Soils

Fill material does not constitute solid waste so long as it is in accordance with the following: (1) restricted-use and limited use fill, once it is delivered to the site of reuse; (2) general fill generated outside of New York City, once a determination is made that the fill meets the requirements for the general fill designation; and (3) general fill generated within New York City, once it is delivered to the site of reuse.[168] Fill material used as backfill for the excavation from which the fill originated is exempted from regulation under Part 360.13.[169] If the fill exhibits historical, visual, or olfactory evidence of contamination and will be used in a public area, the relocated fill materials must be covered with a minimum of 12 inches of soil or fill material that meets the criteria for general fill, as defined above.[170] This provision does not apply to sites subject to a DEC-approved program pursuant to Part 375.[171]

Fill material not otherwise excluded or exempt from regulation under this section must be sampled and analyzed pursuant to subdivision (e) if:

1. the fill material originates from a location within New York City unless the quantity of fill material does not exceed 10 cubic yards from one site and the 10 cubic yards or less

[166] § 360.2(107).
[167] § 360.12(c)(1)(ii).
[168] § 360.12(c)(1)(iii).
[169] § 360.13(c).
[170] *Id.*
[171] *Id.*

of material does not contain historical evidence of impacts such as reported spill events, or visual or other indication (odors, etc.) of chemical or physical contamination;[172]

2. the fill material originates from a location outside the City of New York if:

    (i) there is historical evidence of impacts such as reported spill events, or visual or other indication (odors, etc.) of chemical or physical contamination;[173]

    (ii) the fill material originates from a site with industrial land use as defined in section 375-1.8(g)(2)(iv) of this Title;[174] or

    (iii) if, during excavation, visual indication of chemical or physical contamination is discovered.[175]

Samples must be representative of the fill material.[176] The sampling program must be designed and implemented by a qualified environmental professional (QEP).[177] The QEP's inspection must adhere to the parameters in the table below.[178] Written documentation of the sampling program, with a certification of compliance from the QEP, must be retained for three years and must be provided to the DEC upon request.[179]

**Table 1: Minimum Analysis Frequency for Fill Material**[180]

| **Fill Material Quantity (cubic yards)** | **Minimum Number of Analyses for Volatile Organic Compounds, if Required** | **Minimum Number of Analyses for all other parameters** |
|---|---|---|
| 0-300 | 2 | 1 |
| 301-1000 | 4 | 2 |
| 1001-10,000 | 6 | 3 |
| 10,001+ | Two for every additional 10,000 cubic yards or fraction thereof | One per every additional 10,000 cubic yards or fraction thereof |

[172] § 360.13(d)(1).
[173] § 360.13(d)(2)(i).
[174] § 360.13(d)(2)(ii).
[175] § 360.13(d)(2)(iii).
[176] *Id.*
[177] § 360.13(e)(1).
[178] *Id.*
[179] *Id.*
[180] *Id.*

The fill material samples must be analyzed for the following: (i) metals, PCBs/Pesticides, and Semivolatile organic compounds listed in section 375-6.8(b) of this Title; (ii) asbestos if demolition of structures has occurred on the site; (iii) volume of physical contaminants, if present, based on visual observation; and (iv) volatile organic compounds listed in section 375-6.8(b) of this Title, if their presence is possible based on site events such as an historic petroleum spill, odors, photoionization detector meter or other field instrument readings.[181] The fill material analysis must take place in a laboratory certified by the New York State Department of Health's Environmental Laboratory Approval Program.[182]

Fill material is made up of both soil and "similar material" taken from the ground for use in construction and maintenance projects.[183] "Similar material" is defined as any durable, granular material that contributes to the use of the material as a fill.[184] Specifically, "similar material" can include pieces or particles of sand, gravel, rock, ceramic tile, asphalt pavement, brick, glass, crushed concrete, or other durable human-made material that contributes to the function of the material as a fill."[185] Utilizing materials as a fill means that it can be "excavated, transported, placed, and compacted" for the purposes of construction.[186] There are restrictions on the kind of materials that can be used in fill, depending on whether the fill has been categorized as General, Restricted-use, or Limited-use.[187] General Fill can include materials like sand, gravel, and rock, as well as small amounts of glass, concrete, asphalt, ceramic tile, and brick.[188]

[181] §§ 360.13(e)(2)(i)-(iv).
[182] § 360.13(e)(3).
[183] *NYSDEC February 12, 2021 Enforcement Discretion Letter (EDL)* at ¶ IV, https://www.dec.ny.gov/docs/materials_minerals_pdf/edlfeb2021cdd.pdf
[184] *Id.* at ¶ IV.
[185] *Id.*
[186] *Id.*
[187] *Id.*
[188] *Id.*

Materials like ash, slag, or pieces of metal may not be included in General Fill.[189] Restricted-Use Fill and Limited Use Fill can include sand, gravel, rock, and particles of slag, ash, glass, ceramic tile, asphalt pavement, concrete, brick, or other granular, non-soil materials.[190] Additionally, materials such as plastic, gypsum wallboard, wood, paper, and other materials that are not readily degradable cannot be included in General, Restricted-Use, or Limited-Use Fills.[191]

Fill material can be used beneficially in the following approved ways:

**Table 2: Fill Material Beneficial Use[192]**

| Fill Material Type | Fill Material End Use | Physical Criteria | Maximum Concentration Levels |
|---|---|---|---|
| General Fill | Any setting where the fill material meets the engineering criteria, for use, except: 1. Undeveloped land; and 2. Agricultural crop land. General Fill may also be used in the same manner as Restricted-Use Fill and Limited-Use Fill. | Only soil, sand, gravel or rock; no non-soil constituents. | Lower of Protection of Public Health-Residential Land Use and Protection of Groundwater in section 375-6.8(b) of this Title. |
| Restricted-Use Fill[193] | Engineered use for embankments or subgrade in transportation corridors, or on sites where in-situ | Up to 40 percent by volume inert, non-putrescible non-soil constituents.[194] | General Fill criteria except that up to 3 mg/kg (dry weight) total benzo(a)pyrene (BAP) equivalent.[195] No |

[189] *Id.*
[190] *Id.*
[191] *Id.*
[192] 6 NYCRR § 360.13(f).
[193] Use of restricted or limited use fill material can only occur at a project in accordance with an approved local building permit or other municipal authorization that includes the need for the fill material. Fill material must be used within 30 days of arriving at the project site.
[194] Inert, non-putrescible materials excludes plastic, gypsum wallboard, wood, paper, or other material that may readily degrade or produce odors.
[195] Benzo(a)pyrene (BAP) equivalent is calculated using the following formula: BAPE= 1 x conc. Benzo(a)pyrene + 0.1 x [conc. Benz(a)anthracene + conc. Benzo(b)fluoranthene + conc. Benzo(k)fluoranthene + conc.

| | | | |
|---|---|---|---|
| | materials exceed Restricted-Use Fill or Limited-Use Fill criteria. Must be placed above the seasonal high water table. May also be used in the same manner as Limited-Use Fill. | | detectable asbestos. In Nassau or Suffolk County – BAP equivalent does not apply. Polycyclic aromatic hydrocarbons must not exceed Protection of Groundwater Soil Cleanup Objectives in section 375-6.8(b) of this Title. |
| Limited-Use Fill[196] | Engineered use under foundations and pavements above the seasonal high water table.[197] Placement in Nassau and Suffolk Counties is prohibited. | No volume limit for inert, non-putrescible non-soil constituents.[198] | General Fill criteria, except up to Protection of Public Health-Commercial SCOs for metals; up to 3 mg/kg (dry weight) benzo(a)pyrene equivalent is allowed.[199] No detectable asbestos. |

The following other criteria must be followed when utilizing fill material:

1. Payment: a person must not receive payment or other form of consideration for allowing beneficial use of restricted-use fill or limited-use fill material on land under that person's control.[200]
2. Notification in the City of New York: the DEC must be notified at least five days in advance of transfers of general fill, restricted-use fill and limited-use fill material generated in, imported to, or relocated within the City of New York in amounts greater than 10 cubic yards.[201] Notification of fill material placement: for

Dibenz(a,h)anthracene + conc. Indeno(1,2,3-c,d)pyrene] + 0.01 x conc. Chrysene (All concentrations in mg/kg or ppm, dry weight).

[196] *NYSDEC supra* note 158.

[197] If foundation or pavement is not installed within 365 days of fill material placement, its placement will constitute prohibited disposal.

[198] *NYSDEC supra* note 159.

[199] *NYSDEC supra* note 160.

[200] 6 NYCRR § 360.13(g)(1).

[201] § 360.13(g)(2) (Notifications must be made on forms or in a manner acceptable to the DEC and must include any analytical data required by this section. The DEC reserves the right to inspect any site of generation or placement of fill material).

restricted-use fill and limited-use fill material, the DEC must be notified at least 5 days before delivery of greater than 10 cubic yards of fill material.[202]

3. Recordkeeping: the generator, processor, and receiver of fill material subject to sampling under this section must retain records of fill material quantities, with analytical data, for a minimum of three years after the fill material is removed or received, as applicable.[203]
4. Transport. (i) Transport of fill material that originates in the City of New York is subject to the requirements of Part 364; (ii) Transport of limited-use fill and restricted-use fill generated outside of New York City, is subject to the requirements of Part 364; (iii) Limited-use fill and restricted-use fill generated outside of Nassau and Suffolk counties is prohibited from being transported to any destination within Nassau or Suffolk County.[204] All limited-use fill, restricted-use fill and contaminated fill require transport by a Part 364 waste transporter. However, these materials are defined as a subset of C&D debris, so shipments of 10 cubic yards or less are exempt from Part 364 waste transporter requirements.[205]
5. Fill material not used in accordance with this section is a solid waste and must be managed at a facility authorized to receive it, or used pursuant to a case-specific beneficial use determination in accordance with section 360.12(d).[206]

### 4. Dredged Sand and Gravel

Navigational dredge material (NDM) utilized outside of ecologically sensitive areas, as a commercial aggregate replacement for sand or gravel if the NDM contains at least 90% sand and gravel,[207] and less than 0.5% total organic carbon.[208] For NDM not meeting these conditions, generators or potential users may petition the DEC for a case-specific BUD.[209]

[202] § 360.13(g)(3) (Notification must be made on forms or in a manner acceptable to the DEC and must include any analytical data required by this section. The DEC reserves the right to inspect any site receiving fill material).
[203] § 360.13(g)(4) (These records must be made available to the DEC upon request).
[204] § 360.13(g)(5).
[205] § 364-3.1(d). *NYSDEC September 19, 2019 Enforcement Discretion Letter (EDL)* Paragraph II https://www.dec.ny.gov/docs/materials_minerals_pdf/prebudcertedlparaiishort.pdf.
[206] § 360.13(g)(6).
[207] Determined by a standard grain size analysis method approved by the department and performed by an independent laboratory.
[208] 6 NYCRR § 360.12(c)(1)(iv).
[209] § 360.12(e).

### B. No Longer Considered Solid Waste When Received at Location of Use

The following materials are no longer considered solid waste when they are received at the location of use:[210]

#### 1. Uncontaminated Newsprint

Uncontaminated newsprint that is being used as animal bedding is not considered solid waste once it is received at the location of use.[211] "Uncontaminated" is defined as not mixed or commingled with other solid waste at the point of generation, processing or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste or industrial waste.[212]

#### 2. Uncontaminated Used Wood Pallets

When uncontaminated used wood pallets that are used to produce reconditioned or remanufactured wood pallets are received at their location of use they are no longer considered solid waste.[213]

#### 3. Street Sweepings, Car Wash Grit, or Water System Catch Basin Material

Street sweepings, car wash grit, and water system catch basin materials that consist of sand and gravel and are "free from litter and objectionable odors" are not considered solid waste after they are received at the location of use when used in three different ways.[214] First, as a substitute for commercial aggregate for the construction of roads or parking areas.[215] Second, as backfill for utilities within transportation corridors other than potable water utility lines.[216] Third,

[210] § 360.12(c)(2).
[211] § 360.12(c)(2)(i).
[212] § 360.2(286).
[213] § 360.12(c)(2)(ii).
[214] § 360.12(c)(2)(iii).
[215] § 360.12(c)(2)(iii)(a).
[216] § 360.12(c)(2)(iii)(b).

in commercial or industrial land use locations. [217] "Commercial use" is land that is used for the primary purpose of "buying, selling or trading of merchandise or services".[218] "Industrial use" is land which is used for the primary purpose of "manufacturing, production, fabrication or assembly processes and ancillary services".[219]

### 4. Whole or Cut Waste Tires

A "waste tire" consists of whole or partial tires from motor vehicles and does not include crumb rubber derived from waste tires.[220] Waste tires required to "secure tarpaulins in common weather protection practices" such as agricultural storage covers and salt pile protection are not considered solid waste once received at their location of use.[221] The number of passenger tire equivalents used cannot exceed "0.25 passenger tire equivalents per square foot of cover or bunker area".[222] Whole tires must be cut in half or have a sufficient number of holes drilled in them to prevent retention of water.[223] Waste tires may also cease to be solid waste if they are used for purposes such as retaining walls, decoration, playground components, bumper guards, manufactured products feedstock, and similar purposes as long as there are 150 or fewer waste tires or tire equivalents at a single site.[224]

[217] § 360.12(c)(2)(iii)(c).
[218] § 375-1.8(g)(2)(iii) (Commercial use includes passive recreational uses, which are public uses with limited potential for soil contact).
[219] § 375-1.8(g)(2)(iv) (Industrial use does not include any recreational component).
[220] § 360.2 (b)(308).
[221] § 360.12(c)(2)(iv).
[222] *Id.*
[223] *Id.*
[224] § 360.12(c)(2)(v).

#### 5. Bread, Bakery Products, and Spent Brewery Grains

Bread and other similar grain products such as spent brewery grains or bakery products are not considered solid waste when received at the location of use and used for animal feed or pet food.[225] All packaging must be removed prior to reuse.[226]

#### 6. Unprocessed, Source-Separated Recyclables

Source-separated recyclables that are typically managed at a recyclables handling and recovery facility but instead are received directly by a manufacturing plant for use as an ingredient in the manufacturing of a product are not considered solid waste once received.[227]

### C. No Longer Considered Solid Waste When Meeting Requirements

The following materials cease to be considered solid waste when they meet the requirements outlined below:[228]

#### 1. Ground Granulated Blast-Furnace Slag

When ground granulated blast-furnace slag is used as raw feed in the manufacture of cement and in concrete that meets an industry-standard acceptable to the DEC it is no longer considered solid waste.[229]

#### 2. Unadulterated Wood Ash

Unadulterated wood combustion ash that is used as a soil amendment is no longer considered solid waste, provided the application rate is limited to the soil pH requirement of the crops being grown.[230]

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[225] § 360.12(c)(2)(vi).
[226] *Id.*
[227] § 360.12(c)(2)(vii).
[228] § 360.12(c)(3).
[229] § 360.12(c)(3)(i).
[230] § 360.12(c)(3)(ii).

### 3. Industrial Waste

Industrial waste is waste generated by manufacturing or industrial processes.[231] Industrial wastes that are historically used as ingredients in a manufacturing process are not considered solid waste.[232]

### 4. Fats, Oil, Grease, and Rendered Animal Parts

Fats, oil, grease, and rendered animal parts, except for use as or in production of fuels are not considered solid waste.[233][234]

### 5. Coal Combustion Fly Ash

Coal combustion fly ash that meets an industry-standard acceptable to the DEC, for use in concrete, concrete products, light-weight block, light-weight aggregate, and flowable fill shall not be considered solid waste.[235]

### 6. Flue-Gas Desulfurization or other Gas-Scrubbing byproducts

Flue gas desulfurization or other gas-scrubbing byproducts when used to replace manufactured gypsum or manufactured calcium chloride, except for land application, will not be considered solid waste.[236]

### 7. Coal Combustion Bottom Ash

When coal combustion bottom ash is used as an aggregate in portland cement, concrete, asphalt pavement, or roofing materials it is not considered solid waste.[237]

[231] § 360.2(144).
[232] § 360.12(c)(3)(iii).
[233] § 360.12(c)(3)(iv).
[234] As noted in section III A. 1, reclaimed material may not be used to produce fuels and qualify under the BUDs.
[235] § 360.12(c)(3)(v).
[236] § 360.12(c)(3)(vi).
[237] § 360.12(c)(3)(vii).

### 8. Crushed Concrete, Brick, and/or Rock

Recycled aggregate or residue which meets a municipal or State specification or standard for use as a commercial aggregate is not considered solid waste.[238] It must be generated from uncontaminated, recognizable concrete and other masonry products, brick, or rock that is separated from other waste prior to processing and subsequently processed and stored in a separate area as a discrete material stream.[239]

### 9. Ground or Milled Asphalt Pavement

When recycled material or residue is generated from uncontaminated asphalt pavement and asphalt millings that meet a municipal or State specification or standard for use as an ingredient in asphalt pavement or other paved surface construction it is not solid waste.[240] It must maintain use if separated from other waste prior to processing and subsequently processed and stored in a separate area as a discrete material stream.[241]

### 10. Mixed Crushed Concrete, Brick, Rock, and Asphalt Pavement

Recycled aggregate from bricks, concrete pavement, and/or asphalt pavement, when used in or under asphalt pavement or other paved surfaces, will not be considered solid waste.[242] It has to be separated from other waste prior to processing and subsequently processed and stored in a separate area as a discrete material stream.[243]

[238] § 360.12(c)(3)(viii).
[239] *Id.*
[240] § 360.12(c)(3)(ix).
[241] *Id.*
[242] *NYSDEC September 19, 2019 Enforcement Discretion Letter (EDL)* Paragraph II https://www.dec.ny.gov/docs/materials_minerals_pdf/prebudcertedlparaiishort.pdf (Transportation of greater than one ton of this material per vehicle per shipment requires Part 364 Waste Transporter registration and tracking).
[243] *Id.*

#### 11. Asphalt Pavement Chunks or Millings

For asphalt pavement and asphalt millings to not be considered solid waste they must be received at an asphalt manufacturing plant for incorporation into an asphalt product.[244]

#### 12. Clay, Till, or Rock Excavated as part of Navigational Dredging

Once clay, till, or rock excavated as part of navigational dredging, is separated from overlying navigational dredged material and used as fill or aggregate it is not solid waste.[245]

### D. Materials Processed at Solid Waste Management Facilities

The following materials cease to be waste if they leave a facility subject to Part 361: Material Recovery Facilities or Part 362: Combustion, Thermal Treatment, Transfer, and Collection Facilities and are ultimately recycled or reused.[246] However, if these materials are transferred to another facility regulated under Part 360, 361, 362, 363, or 365, this provision no longer applies. Furthermore, if any individual distributes 10,000 tons or more of any predetermined beneficial use material, that individual must submit a report to the DEC identifying the type and quantity of material used in the previous calendar year.[247] Regardless, the materials pertaining to §360.12(c)(4) are as follows:

#### 1. Processed Recyclables, such as Crushed Glass

Materials produced by a recyclable handling and recovery facility for "use as an ingredient in a manufacturing process" or "other acceptable end-use" will cease to be waste if they leave a facility subject to Part 361 or 362 and are ultimately reused or recycled.[248] For crushed glass, there are additional provisions that must be met in order for the material to cease

[244] 6 NYCRR § 360.12(c)(3)(x).
[245] § 360.12(c)(3)(xi).
[246] § 360.12(c)(4). *See also* §362-4.4 (for additional requirements for a facility to be considered a Collection Facility).
[247] *Id*.
[248] § 360.12(c)(4)(i).

being waste.[249] For instance, the "glass-derived aggregate" must meet a "governmental or industrial organization specification acceptable to the DEC."[250] Furthermore, this aggregate must not be more than five percent non-glass material, and cannot be more than .05 percent by mass of paper and one percent by mass of other non-glass materials.[251]

### 2. Compost and other products from 361-3 facilities

Compost and other soil conditioning products that are produced from facilities regulated under Subpart 361-3, entitled "Composting and Other Organics Recycling Facilities."[252] These products will cease to be waste provided their use restrictions are followed and they are not transferred to another facility under Part 360, 361, 362, 363, 365.[253]

### 3. Ground Tree Debris, Wood Debris, Yard Trimmings

In addition to ground tree debris and wood debris, this subsection includes yard trimmings "used for mulch and other common uses." [254]

### 4. Tire-Derived Aggregate

Tire-derived aggregates have three uses that qualify them for reuse.[255]The first is residential on-site septic systems, subject to specifications found in 10 NYCRR Appendix 75-A.[256] These specifications include details such as the durability and size of septic tanks for residential homes.[257] The second use is a tire-derived aggregate used as mulch.[258] This type of mulch must have a "nominal size" of less than one inch in any direction, must be at least 99.9

[249] *Id*.
[250] *Id*.
[251] *Id*.
[252] § 361.3.
[253] § 360.12(c)(4)(ii).
[254] § 360.12(c)(4)(iii).
[255] § 360.12(c)(4)(iv).
[256] § 360.12(c)(4)(iv)(a).
[257] 10 NYCRR App'x 75-A.
[258] 6 NYCRR § 360.12(c)(4)(iv)(b).

percent wire-free and have no protruding wire.[259] Finally, the last type of tire-derived aggregate use is for playground surface and athletic field material.[260] This type of use must have a "nominal size" of less than ⅜ inches in any direction, and must be at least 99.9 percent wire-free and have no protruding wire.[261]

### 5. Scrap metal

Like the other materials listed, scrap metal ceases to be waste if it leaves a facility subject to Part 361 or 362 and is ultimately recycled or reused.[262]

### 6. Processed used cooking oil and yellow grease

Used cooking oil and yellow grease, which has been processed in accordance with subpart 361-8, must meet an applicable industry and/or government standard.[263] The statute cites animal feed or soap as examples of use for cooking oil or yellow grease processed in accordance with subpart 361-8.[264]

## IV. Case-Specific BUDS

When there is proposed reuse of a material that is not a part of the 28 predetermined BUDs, generators or potential reusers can petition the DEC for a case-specific BUD.[265] Generally, case-specific BUDs are for waste material used: (1) as a substitute for a component material in the manufacture of a product; or (2) as a substitute for a commercial product.[266] Some examples of case-specific BUDs that have been granted include: (1) The use of dried paper mill sludge as animal bedding; (2) The use of crushed countertop material as a construction

[259] Id.
[260] § 360.12(c)(4)(iv)(c).
[261] Id.
[262] § 360.12(c)(4)(v).
[263] § 360.12(c)(4)(vi).
[264] Id.
[265] § 360.12(d).
[266] § 360.12(d)(1).

aggregate; (3) The use of gypsum in the manufacture of wallboard or as a soil amendment; and (4) The use of a nitrate solution from silver processing as a fertilizer.[267] The Part 360 regulations lay out a plan for two case-specific materials, navigational dredge, and brine, as well as a process for unspecified materials.

### A. Navigational Dredge Materials

Navigational Dredge Materials (NDM) are materials such as sediment and silt which have been excavated or otherwise removed from the bottoms of the navigable waters of the United States to maintain channels and docks.[268] This subdivision does not apply to NDM found in surface water or the riparian zone; further, it only applies to upland management of NDM in the absence of an applicable dredging permit.[269] A BUD application for NDM requires submitting a written petition to the DEC.[270] This petition must contain the following:

1. The source of the NDM[271];
2. A sampling plan[272]
3. Analytical results of the untreated, unamended NDM and of the treated or amended NDM[273]
4. A description of known or probable markets for the intended use of the NDM or end product[274]
5. A material management plan[275]

[267] *Beneficial Use Determinations (BUDs)*, DEC, https://www.dec.ny.gov/chemical/8821.html (last visited June 22, 2021).
[268] *Ocean Disposal of Dredged Material*, EPA, https://www.epa.gov/ocean-dumping/ocean-disposal-dredged material (last visited June 24, 2021).
[269] 6 NYCRR § 360.12(e)(1).
[270] *Id*.
[271] § 360.12(e)(2)(i) (Must include the estimated quantity of use and the proposed schedule of use).
[272] § 360.12(e)(2)(ii) (The sampling plan must describe how representative samples will be obtained and the analytical methods used to assess the sample).
[273] § 360.12(e)(2)(iii) (These results must be in compliance with §360.12(d)).
[274] § 360.12(e)(2)(iv) (For example, the description could include a description of the placement site and of the end use of the NDM, a contract to purchase or use the NDM after processing, a demonstration that the NDM will comply with industry standards after processing, or any other documentation showing that a legitimate market for the NDM exists after processing. See also §360.12(e)(2)(iii)(a-d)).
[275] § 360.12(e)(2)(v) (The plan should provide a description of the waste resulting from the NDM processing, a description of the type of storage and maximum anticipated inventory of NDM before being used, procedures for run-on and run-off control at the storage areas for the NDM and end product after processing, a program and schedule of best management practices designed to minimize uncontrolled dispersion of the NDM during processing, transportation, and storage and during beneficial use, and a description of how the NDM project-specific fill specifications at the site of the placement. See also §360.12(e)(2)(v)(a-e)).

6. A detailed description of all amendments or treatments that will occur before NDM use.[276]

The DEC will evaluate the above criteria in addition to the criteria listed in 360.12(d)(3) in determining whether the proposal constitutes a beneficial use.[277] If the NDM will be used as general fill or cover, the requirements of 360.12(d)(3)(vi) must be met, unless the NDM will be used as Restricted-Use or Limited-Use Fill Material as described in 360.13.[278] If the NDM meets the requirements listed above within the 365 days, it will cease to be waste, unless otherwise stated by the DEC.[279]

The petitioner may include the results of tests that were performed for other purposes (such as to obtain a dredging permit).[280] Such a test is not required to conform to the procedures listed in 360.12(e)(4)(ii), but must abide by "DEC-approved analytical methods," unless otherwise approved by the DEC.[281] These tests must provide proof that the NDM has been analyzed for: "volatile organic compounds; semi-volatile organic compounds; pesticides; polychlorinated biphenyls; metals; sulfides; salt content; grain-size distribution; chlorinated dioxins/furans; carbazole; mirex; hexavalent chromium and cyanides."[282] Furthermore, the DEC may require submission of test results for Synthetic Precipitation Leaching Procedure or Toxicity Characteristic Leaching Procedure, and "other data needed to justify the proposed end-use."[283]

[276] § 360.12(e)(2)(vi) (The description must include the type and quantity of amendment or treatment procedures, and location of all processing operations.).
[277] § 360.12(e)(3)(i).
[278] *Id*.
[279] § 360.12(e)(3)(ii).
[280] § 360.12(e)(4).
[281] § 360.12(e)(4)(ii).
[282] § 360.12(e)(4)(i).
[283] *Id*.

The NDM tests must show a certain ratio of analyses performed to NDM cubic yardage unless otherwise approved by the DEC.[284] If the NDM source has a "history of significant contamination" or "highly variable contamination," additional sampling will be required.[285] A sampling plan must be approved by the DEC prior to any sampling of NDM.[286] The ratio of analyses performed to NDM cubic yardage is below:

| **TABLE 3: Analyses Required for NDM** | |
|---|---|
| Cubic Yards of NDM | Minimum Number of Analyses |
| Under 5,000 | 1 for each 1,000 Cubic Yards |
| 5,000-10,000 | 6 |
| 10,000-20,000 | 7 |
| 20,000-30,000 | 8 |
| Over 30,000 | The DEC will require a project-specific approved sampling frequency[287] |

All samples must be representative of the NDM that will be used, and a written report with pertinent details (including date, location, and protocol used to obtain the samples) must be submitted to the DEC.[288] An excess of contaminants may still be justifiable if the statistical analysis is performed in accordance with USEPA SW-846, as incorporated by reference in section 360.3 of this Part. If an analytical result is less than the required detection limit, the result will be "considered to comply with the pollutant limit."[289]

[284] § 360.12(e)(4)(ii).
[285] *Id*.
[286] *Id*.
[287] *Id*.
[288] § 360.12(e)(4)(iv).
[289] *Id*.

### B. Gas Storage Brine or Production Brine

Brine is a type of fluid produced from oil and gas well drilling or natural gas withdrawal from an underground storage reservoir.[290] Section F applies to the use of gas storage brine or production brine for use on roads to control dust, stabilize unpaved surfaces, reduce ice, or reduce snow. A BUD petition for a case-specific brine use must be submitted to the DEC in writing and contain the following information:

1. The name, address, and telephone number of the person or entity that is road spreading the brine;[291]
2. A map or listing or roads where brine will be applied;[292]
3. An original, signed, and dated brine spreading authorization letter from the government agency or other property owner of the road(s);[293]
4. The physical address of the brine storage location(s) or wells from which the brine is transported;[294]
5. A description of any system used at the well location(s) to separate brine and minimize any oil or gas in brine;[295]
6. An analysis of a representative sample of the brine, obtained at a proposed point of use, for the parameters found in 360.12(f)(3)(iii);[296]
7. A road spreading plan that includes a description of the procedures to prevent the brine from flowing or running off into streams, creeks, lakes, and other bodies of water.[297]

In addition to requirements for the case-specific brine BUD petition, the following conditions must also be followed:

1. Brine originating from wells producing from Marcellus Shale formations will not be approved for road spreading.[298]
2. Road spreading of drilling fluids and flowback water is prohibited.[299]

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[290] § 360.2(b)(88)(ii).
[291] § 360.12(f)(2)(i).
[292] § 360.12(f)(2)(ii).
[293] § 360.12(f)(2)(iii).
[294] § 360.12(f)(2)(iv).
[295] § 360.12(f)(2)(v).
[296] § 360.12(f)(2)(vi) (all analyses must be performed by a laboratory certified by the New York State Department of Health using methods specified in this subdivision or otherwise acceptable to the DEC).
[297] § 360.12(f)(2)(vii) (the plan should include, at minimum, the following: (a) the type of use: dust control, road stabilization, or ice and snow control; (b) a description of how the brine will be applied, including the equipment to be used and the method for controlling the rate of application; (c) the proposed rate and frequency of application; and (d) if the proposed use is ice or snow control, a description of how the operation complies with Department of Transportation guidelines for snow and ice control.)
[298] § 360.12(f)(3)(i).
[299] § 360.12(f)(3)(ii).

3. Brine for road use must comply with certain parameters outlined in 360.12(f)(3)(iii).[300]
4. Methods must be employed at the well site to minimize the number of hydrocarbons present in the brine.[301]
5. Brine application within 50 feet of a stream, creek, lake, or other body of water is prohibited.[302]
6. Brine application measurement methods must be used to make sure that brine application rates are within limits.[303]
7. The vehicle used for application must be dedicated to brine use or must be cleaned to remove any waste prior to being loaded with brine.[304]
8. Personnel applying brine must be properly trained on the equipment that will be used for brine application, the allowable application rates, and the use restrictions.[305]
9. One representative analysis of the brine prior to use for the parameters in subparagraph (iii) of this paragraph must be submitted annually to the DEC.[306]
10. In lieu of paragraph (d)(8) of this section, an annual report must be submitted to the DEC by March 31st of each year containing data for the previous calendar year.[307]
11. Brine approved for beneficial use under this section ceases to be a waste when it meets the technical requirements for the intended end use.[308]

If the case-specific brine BUD application is for use on unpaved roads for dust control and road stabilization, the following additional conditions must also be met:

1. brine application is prohibited between sundown and sunrise;[309]
2. brine application is prohibited on sections of road with a grade exceeding 10%;[310]
3. brine application is prohibited on wet or frozen roads, during rain, or when rain is imminent;[311]
4. brine application for dust control must occur only on unpaved roads;[312]

[300] § 360.12(f)(3)(iii).
[301] § 360.12(f)(3)(iv).
[302] § 360.12(f)(3)(v).
[303] § 360.12(f)(3)(vi).
[304] § 360.12(f)(3)(vii).
[305] § 360.12(f)(3)(viii).
[306] § 360.12(f)(3)(ix) (All analyses must be performed by a laboratory certified by the New York State Department of Health using methods acceptable by the DEC.)
[307] § 360.12(f)(3)(x) (The report must include: (a) the source of the brine; (b) analytical data; (c) total amount of brine applied; (d) dates of brine application; (e) name of roads where applied, distance applied, and gallons applied; and (f) effectiveness of brine application (excellent, good, fair, poor), etc.)
[308] § 360.12(f)(3)(xi).
[309] § 360.12(f)(4)(i).
[310] § 360.12(f)(4)(ii).
[311] § 360.12(f)(4)(iii).
[312] § 360.12(f)(4)(iv).

5. a spreader bar or similar device designed to deliver a uniform application of brine must be used;[313]
6. the application vehicle must have brine shut-off controls in the cab;[314]
7. brine cannot be applied directly to vegetation near the surface that is being treated;[315]
8. application of brine within 12 feet of structures crossing bodies of water or crossing drainage ditches is prohibited;[316]
9. when the application vehicle stops, the discharge of brine must stop;[317] and
10. the vehicle must be moving at least five miles per hour when brine is being applied.[318]

If the case-specific BUD application is for the use of brine on roads for ice and snow reduction, the application must not be used at a greater rate than needed for ice and snow control.[319]

### C. Process for Unspecified Materials

When a material is not specified for reuse in the 28 predetermined BUDs or by sections E and F then a case-specific BUD must be granted. A petition for a case-specific BUD of an unspecified material must be submitted in writing and must include all of the following information unless otherwise directed by the DEC:[320]

1. a detailed description of the waste and the proposed use of the waste[321]
2. a description of the annual quantity of the waste[322]
3. a detailed description of the source, process, or treatment systems from which the waste originated.[323]

[313] § 360.12(f)(4)(v).
[314] § 360.12(f)(4)(vi).
[315] § 360.12(f)(4)(vii).
[316] § 360.12(f)(4)(viii).
[317] § 360.12(f)(4)(ix).
[318] § 360.12(f)(4)(x).
[319] § 360.12(f)(5)(i).
[320] § 360.12(d)(2).
[321] § 360.12(d)(2) (i).
[322] § 360.12(d)(2) (ii) (quantity is by weight and volume).
[323] § 360.12(d)(2)(iii) (must include a list of all chemicals and the quantity of all chemicals added during these processes).

4. analytical data concerning the chemical and physical characteristics of the waste.[324]
5. justification that the waste functions as an effective substitute for the commercial product or raw material.[325]
6. demonstration that there is a known or reasonably probable market for the intended use of the quantity and type of waste and of all proposed products.[326]
7. demonstration that the management of the waste, when used in accordance with the beneficial use, will not adversely affect public health and the environment.[327]

Once a petition is received the DEC will work to determine that the use constitutes a beneficial use.[328] The petition must be filled out correctly to be considered and include all the necessary technical information required above.[329] The DEC will only grant BUDs to materials when: (1) the purpose is the use of the waste rather than disposal; (2) the intent of reuse is to be an effective substitute for an analogous commercial product or raw material; (3) at the point of beneficial use, the waste will not require decontamination or other processing; (4) a market exists; (5) pollutants present in the waste are present at acceptable concentrations; (6) reuse will not significantly adversely affect public health and the environment.[330]

When granting a case-specific BUD, the DEC will determine, on a case-by-case basis, the precise point in the proposed process and/or use at which the waste material ceases to be regulated as solid waste.[331] Unless otherwise determined by the DEC, that point occurs when it is

[324] § 360.12(d)(2)(iv) (data must be provided for each type of proposed product, and the chemical and physical characteristics of any analogous raw material or commercial product for which the waste is proposed to be an effective substitute).
[325] § 360.12(d)(2)(v) (the use must meet or exceed governmental or industry standards or specifications).
[326] § 360.12(d)(2)(vi) (must provide one or more of the following: (a) a contract or agreement to purchase the proposed product or to have the waste used in the manner proposed; or (b) other documentation that a market for the proposed product or use exists).
[327] § 360.12(d)(2)(vii) (must provide at a minimum: (a) a waste control plan; (b) a comparison of the chemical and physical characteristics of the waste to applicable or relevant and appropriate criteria for the proposed beneficial use; (c) other information as the department determines to be appropriate) *see also* § 360.12(d)(2)(vii) (a) (1-4) (waste control plan includes testing, storage, procedures for run-on, and a schedule).
[328] § 360.12(d)(3).
[329] § 360.12(d)(3)(i).
[330] §§ 360.12(d)(3)(ii-vi).
[331] § 360.12(d)(4).

received for use in a manufacturing process, or for use as an effective substitute for a commercial product or raw material.[332]

If a petition is granted for a case-specific BUD, the DEC may place additional conditions on the material if they find it necessary to prevent adverse environmental impacts.[333] The DEC has the power to modify, suspend, or revoke any case specific BUDs that fail to comply with these additional conditions, or that have an adverse impact on public health and the environment.[334] By March 1st following each calendar year of approval, the petitioners of an approved case-specific BUD must submit a report to the DEC, detailing the quantity of waste beneficially used during the previous calendar year and a signed statement that they complied with the terms and conditions of the BUD set by the DEC.[335] Approved case-specific BUDs are valid up to five years from the date of approval and may be renewed upon review and approval of the DEC.[336] Renewal requests must be in writing and include justification for review and approval by the DEC.[337]

## **Closing Loops City Program Initiative Analysis**

The CLCPI will function as a pilot initiative that revises City agency construction practices and policies in order to leverage the City's capital program to support the market to close CDW material loops, pursuant to and consistent with DEC's BUD regulations and the process to request case specific BUDs where none exist, in the context of NYS DEC Enforcement Discretion Letter, dated February 12, 2021 (2021 EDL), by (1) increasing overall direct re-use of recovered CDW materials generated on City capital projects without interim

[332] Id.
[333] § 360.12(d)(4).
[334] § 360.12(d)(5).
[335] § 360.12(d)(8) (any analytical data or other information required in the approved case-specific beneficial use determination must be included).
[336] § 360.12(d)(7).
[337] Beneficial Use Determinations (BUDs) supra.

processing as available materials on City capital projects or private construction projects (Direct Re-use) and (2) by intentionally redirecting recovered CDW generated on City capital projects away from landfills to transfer locations for Direct Re-use (either by the City or private users) or to interim processing facilities for use as feedstock for manufacturing facilities producing new construction materials (Intentional Indirect Re-use). Direct Re-use and Intentional Indirect Reuse will (1) conserve embodied carbon by recovering and re-using CDW elements, (2) eliminate Greenhouse Gas (GHG) emissions from no-longer-needed virgin materials extraction and production, (3) support the private development of resource recovery facilities and manufacturing facilities for construction materials using recovered resources, which is necessary for the circular economy, and (4) generate City capital budget savings over time.

The CLCPI will also support the City's furtherance of the United Nations Sustainable Development Goals 3 (3.9) and 8 (8.3 and 8.4). While the CLCPI is a City initiative that leverages its capital projects, the policies, practices and tools it develops would be replicable by private owners on their construction projects and private adoption of CLCPI policies, practices and tools over time would expand the reach and impact of the CLCPI.

### 1. Direct Project to Project Reuse

#### a. Non-renewable Building CDW

The City often demolishes buildings or parts of buildings for major renovations due to ADA non-compliance. This results in CDW materials being sent to landfills that could be recovered and reused elsewhere on other city projects or private owner projects.[338] These

[338] *Construction and Demolition Debris Processing Facilities*, NYS DEC, https://www.dec.ny.gov/chemical/23686.html. (The DEC considers CDW uncontaminated solid waste resulting from "construction, remodeling, repair and demolition of utilities, structures and roads; and uncontaminated solid waste resulting from land clearing.")

materials consist of non-renewable resource building components such as old-growth wood joists, old wood doors, and marble, that have reuse potential.[339]

There is a market for the reuse of non-renewable building CDW for new projects. The DEC has provided a way to reuse those materials in their Part 360 regulations. Salvaged reusable architectural items such as wood beams, flooring, marble mantelpieces, light fixtures, and more can be reused without additional solid waste regulations, as long as the materials are reused for their original function and do not need processing.[340] In addition, although there is no mention of CDW specifically, architectural reuse items have been considered to fall under another exemption to solid waste if a government or non-profit organization "takes back consumer goods for reuse or secondary marketing."[341] An example of secondary marketing or reuse under the architectural exemption would be a consumer repurposing materials such as wood joists into floor, wall or ceiling panels.

In New York City, as an example, organizations like The Big Reuse accept a wide variety of used architectural materials that are then resold to the public. The Big Reuse's mission is to reduce "the environmental burden of [New York City's] construction waste."[342] By creating a market for good quality used architectural materials, The Big Reuse is able to divert architectural and construction materials away from landfills. The Big Reuse accepts used architectural items in good condition like doors, hinges, complete cabinet sets, cabinet handles, doorknobs, wood

[339] *Id.* (The DEC identifies the following materials as uncontaminated solid waste: "bricks, concrete and other masonry materials; soil and rock; wood (including painted, treated and coated wood and wood products); land clearing debris; wall coverings, plaster, drywall, plumbing fixtures, non-asbestos insulation; roofing shingles and other roof coverings; asphaltic pavement; glass; plastics that are not sealed in a manner that conceals other wastes; empty buckets ten gallons or less in size and having no more than one inch of residue remaining on the bottom; electrical wiring and components containing no hazardous liquids, and pipe and metals that are incidental to any of the above").
[340] 6 NYCRR § 360.2(a)(3)(i).
[341] § 361-1.2(b).
[342] The Big Reuse, https://www.bigreuse.org/service/who-we-are/

and stone mantels, staircase railings, and staircases (straight sections only).[343] In addition to wood-based architectural materials, The Big Reuse also accepts thermo-pane and double-insulated windows as long as they are new and in their original packaging.[344] Donations accepted by The Big Reuse are tax-deductible.[345]

### b. Soil

Soil is a versatile material with many options for reuse on construction projects. Throughout the 20th century, soil produced during New York City construction projects was thought to be contaminated with heavy metals.[346] As a result, much of New York City's unearthed soil was trucked to offsite dumpsites and landfills in Long Island and New Jersey.[347] It was later discovered that the heavy metal contamination was confined only to the surface of the soil, not to the soil on subsurface levels.[348] New York City's Office of Environmental Remediation (OER) found that soil 5 to 10 feet below the surface is free of heavy metal contaminants.[349] Thus, the subsurface soil is safe for reuse. Today, New York City's soil is widely regarded by scientists as some of the "best soil on the continent."[350] The OER recommends several uses for fill material generated within onsite construction projects, such as landscaping and backfill. Major uses of soil are needed to build wetlands and levees and to raise land elevation where rising sea levels have eroded waterfront properties.[351]

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[343] *Id.*
[344] *Id.*
[345] *Id.*
[346] Richard Schiffman, *The City's Buried Treasure Isn't Under the Dirt. It is the Dirt.* NYTimes (July 25, 2018), https://www.nytimes.com/2018/07/25/nyregion/the-citys-buried-treasure-isnt-under-the-dirt-it-is-the-dirt.html.
[347] *Id.*
[348] *Id.*
[349] *Id.*
[350] *Surplus Anthropogenic Fill & Clean Native Sediment in NYC: Origin, Fate and Public Policy*, Daniel C. Walsh, NYC OER https://nyfederation.org/wp-content/uploads/2018/pdf2018/72%20WalshD.pdf
[351] *Revised Part 360 Series Beneficial Use Determinations and Fill Material*, NYS DEC (Dec. 5, 2018) https://nysba.org/NYSBA/Coursebooks/Fall%202018%20CLE%20Coursebooks/Brownfield%20Superfund%20Update%202018/III.B.%20Reichart%20-%20PowerPoint%20Revised%20Part%20360%20Series.pdf

The OER's Clean Soil Bank (CSB) recycles clean native soil from "deep excavations at construction sites to other NYC construction sites, both public and private."[352] The soil is free except for the cost of trucking it between sites. By reusing soil within New York City, the CSB has been successful in reducing the City's environmental and financial footprint.[353] The reduction of fuel, truck mileage, and greenhouse gases emitted from the soil transport trucks all contribute to lower carbon emissions and costs associated with transporting the soil to facilities and projects outside of the City.[354]

In New York City, before the soil can be reused in a different location than the soil's origin, that soil must be sampled and tested according to the Part 360 regulations.[355] The sampling requirement is to ensure that the soil or fill material is not contaminated with heavy metals and pesticides. Soil testing can be done by extracting pre-excavation or post-excavation samples. The Cornell Waste Management Institute recommends that contractors make a record of the exact location from where soil samples are extracted.[356] There are two main methods to collect soil samples: separate or composite samples.[357] If the objective is to measure the contaminant levels in a particular area, the contractor must collect separate samples of the top one to two inches of the soil.[358] If the objective is to measure the average levels of contaminants in surface soil, the contractor must collect several composite samples of the top one to two inches from across the site.[359] Those samples must then be packaged and delivered to a

[352] *Clean Soil Bank*, NYC OER https://www1.nyc.gov/site/oer/safe-land/clean-soil-bank.page
[353] *Id.*
[354] *Id.*
[355] 6 NYCRR § 360.12(c)(1)(ii), February 12, 2021 Enforcement Discretion Letter (EDL), ¶ IV.
[356] *Guide to Soil Testing and Interpreting Results*, Cornell Waste Management Institute, http://cwmi.css.cornell.edu/guidetosoil.pdf.
[357] *Id.* at 1.
[358] *Id.*
[359] *Id.*

laboratory certified by the NYS Department of Health Environmental Laboratory Program.[360] For those individual (separate) samples, each sample should be placed into a different container.[361] The packaging can be double plastic bags or a container provided by the laboratory.[362] Composite samples (individual samples mixed together) should be packaged in similar containers or plastic bags as individual samples.[363]

In New York City, one exception to the sampling requirement is soil located at the Forbell Stockpile in East New York, Brooklyn.[364] All soils accepted at, and generated from, the CSB Forbell Stockpile are clean and exempt from Part 360 regulations, despite the conflicting sampling regulation.[365]

For the City to implement the CLCPI as Direct Reuse for soil, the City must adhere to the Part 360 regulations as they apply to general, restricted-use, and limited-use fill. Part 360 has identified pre-approved reuses for the general, restricted-use, and limited-use fill. Tested and approved general fill can be reused in "Any setting where the fill material meets the engineering criteria, for use, except: Undeveloped land and Agricultural crop land. General Fill may also be used in the same manner as Restricted-Use Fill and Limited-Use Fill."[366] Additionally, if the soil "originates from a location within New York City unless the quantity of fill material does not exceed 10 cubic yards from one site and the 10 cubic yards or less of material does not contain historical evidence of impacts such as reported spill events, or visual or other indication (odors,

[360] *Id.* at 2.
[361] *Id.* at 2.
[362] *Id.*
[363] *Id.*
[364] *Clean Soil Bank* at 1.
[365] *Id.*
[366] § 360.13(f).

etc.) of chemical or physical contamination" then that soil does not need to tested before it is reused.[367]

The City may reuse any tested and approved restricted-use fill for the following purposes: "engineered use for embankments or subgrade in transportation corridors, or on sites where in-situ materials exceed Restricted-Use Fill or Limited-Use Fill criteria. Must be placed above the seasonal high-water table. May also be used in the same manner as Limited-Use Fill."[368] The City may reuse any tested and approved limited-use fill for the following purposes: "engineered use under foundations and pavements above the seasonal high water table."[369]

### c. Recycled Concrete Aggregate

Concrete production is an extremely carbon-intensive process, producing approximately 1 metric tonne of $CO_2$ per metric tonne of concrete and accounting for approximately 8% of global carbon emissions.[370] Thus, the reuse of concrete wherever possible is of the utmost importance in combating climate change. Recycled concrete aggregate (RCA) is used in the production of new concrete as a filler material, helping to minimize the amount of air trapped inside the structure being poured thereby increasing its strength and mitigating the risk of collapse.[371] In fact, at stress levels of 30 MPa (4351 PSI) or lower, concrete which uses RCA has been found to have a compressive strength of 7-22% higher than concrete containing virgin aggregate.[372] This comes at the cost of reduced workability, meaning that labor costs for end

[367] § 360.13(d)(1).
[368] § 360.13(f) (Use of restricted or limited use fill material can only occur at a project in accordance with an approved local building permit or other municipal authorization that includes the need for the fill material. Fill material must be used within 30 days of arriving at the project site").
[369] § 360.13(f).
[370]Paulo J. M. Monteiro, Sabbie A. Miller, and Arpad Horvath, "Towards Sustainable Concrete," Nature News (Nature Publishing Group, June 27, 2017), https://www.nature.com/articles/nmat4930. (A metric tonne is equivalent to ~1.102 short tons or 2204 lbs).
[371]"Using Recycled Concrete Aggregate," Specify Concrete, accessed July 8, 2021, https://www.specifyconcrete.org/blog/using-recycled-concrete-aggregate.
[372] *Id.*

users can sometimes be slightly higher.[373] Though it should be noted that these cost increases are minimal and are typically far outweighed by the reduced material and transportations costs, as well as available tax incentives.[374]

The use of crushed concrete as aggregate is nothing new, having first been used in the 1860s.[375] The practice did not become commonplace, however, until the 1970s when many landfills, unable to recycle concrete waste and being limited on available space, began refusing to accept it.[376] This, combined with increased environmental regulations has led to the more widespread adoption of the practice into the present day.

The BUD for RCA requires that it be produced from uncontaminated, recognizable concrete that has separated from other waste prior to processing and stored separately as a discrete material stream.[377] Currently, the DEC allows RCA to be managed as a commercial material or raw material not subject to Parts 360 or 361 so long as they are "destined for and/or managed prior to reuse at facilities subject to Subpart 361-5."[378][379] This gives the City, as well as private developers, more flexibility in their decision to use RCA, and therefore makes it easier for them to do so.

[373] "Quantification of Recycled Concrete Aggregate ... - Tac-Atc.ca," accessed July 8, 2021, http://conf.tac-atc.ca/english/annualconference/tac2011/docs/p3/butler.pdf.
[374] Eric A. Ohemeng and Stephen O. Ekolu, "Comparative Analysis on Costs and Benefits of Producing Natural and Recycled Concrete Aggregates: A South African Case Study," Case Studies in Construction Materials (Elsevier, October 27, 2020), https://www.sciencedirect.com/science/article/pii/S2214509520301224.
[375]"Using Recycled Concrete Aggregate," Specify Concrete, accessed July 11, 2021, https://www.specifyconcrete.org/blog/using-recycled-concrete-aggregate.
[376] *Id*.
[377] *Id*.
[378] "Parts 360-366 and 369, Solid Waste Management," Parts 360-366 and 369, Solid Waste Management - NYS Dept. of Environmental Conservation, accessed July 9, 2021, https://www.dec.ny.gov/regulations/118777.html.
[379] These facilities are those "that receive less than 500 tons per day based on a weekly average of the following recognizable, uncontaminated wastes: concrete and other masonry materials (including steel or fiberglass reinforcing embedded in concrete), brick, and rock."

### d. Grit from City WRRF Facilities

Grit recovered from the NYC Department of Environmental Protection's Wastewater Resource Recovery Facilities (WRRF) has the potential to be beneficially reused. Research at California State University-Bakersfield with Milwaukee Metropolitan Sewerage District is underway to determine how grit recovered from wastewater treatment plants can be used in pothole repair materials.[380] "We had an idea to divert wastewater grit from landfills and turn it into a marketable product," says Zhongzhe Liu, Ph.D., who is presenting the work. "We formulated it into a ceramic mortar that could be used as a patch for pothole repair."[381] The substance, known as grit assisted patch (GAP), is ultimately safer for the environment than hydrocarbon-based asphalt.[382]

The DEC currently has outlined a predetermined BUD process for car wash grit and water system catch basin material to be reused. These materials that consist of sand and gravel and are "free from litter and objectionable odors" are not considered solid waste after they are received at the location of use if they are used: (1) as a substitute for commercial aggregate for the construction of roads or parking areas; (2) as backfill; (3) in commercial or industrial land use locations.[383]

However, since the grit coming from WRRFs needs additional processing to become GAP for pothole fill, it will not fall under this predetermined BUD. In addition, grit would not fall under the process for biosolids, as biosolids do not include grit or screenings.[384] Therefore, for the City to implement the CLCPI as Direct Re-Use for WRRF-generated grit, it would need

[380] *Pothole repair made eco-friendly using grit from wastewater treatment,* American Chemical Society, (Aug. 18, 2020), https://www.acs.org/content/acs/en/pressroom/newsreleases /2020/august/pothole- repair-made- eco-friendly-using -grit-from-wastewater-treatment.html.
[381] *Id.*
[382] *Id.*
[383] 6 NYCRR § 360.12(c)(2)(iii).
[384] § 360.2(31).

to apply for a case-specific BUD. Generators and potential users of WRRF grit can fill out the case-specific BUD petition on the DEC's website. Generally, case-specific BUDs are granted for materials used in one of two ways: (1) as a substitute for a component material in the manufacture of a product; or (2) as a substitute for a commercial product.[385] Here, WRRF grit would be used as a substitute for commercial asphalt. The petition must include: (1) a detailed description of grit including annual quantity, a description of the treatment systems, analytical data; (2) justification that the proposed use for pothole repair is an effective substitute for the commercial product and (3) demonstration that there is a known or reasonably probable market for grit as a pothole substitute.[386] When evaluating the petition the DEC will consider whether reuse will significantly adversely affect public health and the environment.[387]

If the petition is granted for WRRF grit, the DEC will determine the precise point in the proposed process in which the waste material ceases to be regulated as solid waste.[388] Unless otherwise determined by the DEC, that point occurs when it is received for use in a manufacturing process, or for use as an effective substitute for a commercial product or raw material.[389] A granted case-specific BUD lasts for 5 years and the petitioner can apply to have it renewed. [390]

[385] § 360.12(d)(1).
[386] § 360.12(d).
[387] §§ 360.12(d)(3)(ii-vi).
[388] § 360.12(d)(4).
[389] *Id*.
[390] § 360.12(d)(7).

### e. Near Shore Dredge

While dredging the City's waterways are essential to the continued well-being of many businesses (some of which have had to close entirely due to their dredging needs), disposing of the contaminated dredged material remains the most expensive part of the dredging process.[391] The dredged material poses many risks to the environment which means the material must meet many requirements in order to be disposed of properly which leads to the increased costs.[392] However, reusing the dredged material instead of disposing of it can "greatly reduce" the negative impacts of dredging.[393] Furthermore, the amount of material dredged from the City harbors is likely to increase over the next 60 years, heightening the need to find beneficial uses for this material.[394]

Dredged materials must be treated in order to be beneficially used.[395] Due to the wide variety of contaminants potentially within dredged materials, there is no single, unified process of treating dredged materials.[396] Dredged materials may be processed to "reduce, separate, immobilize, or detoxify contaminants."[397] In evaluating whether a dredged material may have a beneficial use, the physical, engineering, and chemical composition of the material may be taken into account.[398] For example, the principal physical characteristic used to test dredged material is the measurement of the material's grain size.[399] If the dredged material is found to have small

[391] *Chapter 3: Vision 2020 Citywide Strategies*, New York City Department of City Planning, (March 14 2011) https://www1.nyc.gov/assets/planning/download/pdf/plans-studies/vision-2020-cwp/vision2020/chapter3.pdf.
[392] *Id*.
[393] *Id*.
[394] *Id*. at 55.
[395] *Id*.
[396] *Id*.
[397] *Id*.
[398] *Dredging and Dredged Material Management*, US Army Corps of Engineers, (July 31, 2015). https://www.publications.usace.army.mil/portals/76/publications/engineermanuals/em_1110-2-5025.pdf (last visited July 8, 2021).
[399] *Id*. Grain size is one of many tests used to evaluate dredged material's suitability for a BUD. Other tests include bulk density, plasticity, specific gravity, water retention, and volatile solids. See

grain size (such as sand or coarse-grained materials), the material is unlikely to contain contaminants and is more likely to receive a beneficial use designation.[400]

The Part 360 regulations provide for two predetermined beneficial uses. The first is Section 360.12(c)(1)(iv) for NDM used outside ecologically sensitive areas, as commercial aggregate in place of sand or gravel if the NDM contains at least 90 percent sand and gravel (as determined by a standard grain size analysis method approved by the DEC and performed by an independent laboratory), and if the NDM contains less than 0.5 percent total organic carbon.[401] The second is Section 360.12(c)(3)(ix) for clay, till, or rock excavated as part of navigational dredging, which is separated from overlying navigational dredged material and used as fill or aggregate.[402]

Near shore dredge could be used for either direct or indirect reuse. For the City to implement the CLCPI for direct reuse of NDM for concrete on projects to repair or build seawall, the former of the predetermined beneficial uses would apply (provided the dredged material meets the additional requirements of 360.12(c)(1)(iv)). This would constitute direct reuse since the pneumatic tube technology would not require keeping the NDM at an interim processing facility; instead, the technology would mix the NDM with concrete to build or repair a seawall. Since there would be no use for an interim processing facility, direct reuse of NDM on a seawall would save the City money and be better for the environment. Therefore, if the Parks Department is looking for an environmentally friendly and lower-cost method of building or

https://www.publications.usace.army.mil/portals/76/publications/engineermanuals/em_1110-2-5025.pdf at 5-2 for a comprehensive list.

[400] *Id*.

[401] 6 NYCRR §360.12(c)(1)(iv).

[402] § 360.12(c)(3)(iv).

repairing seawall, the Parks Department should apply for a BUD for NDM pursuant to 360.12(c)(1)(iv).

If testing shows the dredged material is suitable for a BUD, the dredged material may be reused on-site via pneumatic flow tube technology. Pneumatic flow tube technology, developed in Japan in the early 2000s, involves breaking the soft soil on-site into "plugs" via compressed air.[403] These plugs reduce pipe surface friction, allowing cement and clay to be mixed together within the "plug."[404] This mixture can subsequently be used for a number of beneficial purposes, such as the previously mentioned scenario where the Parks Department would use NDM to build or repair a seawall.[405]

Dredged material may have beneficial uses once treated properly; however, there must be sufficient funding by the potential dredged material placing site. Funding, and restraints on available funding, remain "the most significant impediment[s] to beneficial use projects."[406] However, there are numerous avenues for interested parties to raise funds, including cost-sharing arrangements and federal or state loans.[407] For example, recreational uses of dredged material, such as an initiative by the City's Parks and Recreation Department to create a riverside picnic area, tend to be heavily dependent on acquiring local funding.[408] Furthermore, alternative financing strategies have been made available by Congress through the Clean Water State

[403] Maher, A., Miskewitz, R., Janbaz, M. and Douglas, S., n.d. *Pneumatic Flow Tube Demonstration Project.* Rutgers Center for Advanced Infrastructure and Transportation.
[404] *Id*.
[405] Dredged material that is generated by a manufacturing or industrial process is considered industrial waste rather than solid waste, pursuant to § 360.2(a)(3)(xi). In such cases, the city would have to receive a case-specific BUD by submitting a written petition to the DEC.
[406] *Beneficial Use Planning Manual: Identifying, Planning, and Financing Beneficial Use Projects Using Dredged Material*, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, October 2007, https://www.epa.gov/sites/default/files/2015-08/documents/identifying_planning_and_financing_beneficial_use_projects.pdf (last visited July 22, 2021), 54.
[407] *Id.* at 54-55.
[408] *Id.* at 29.

Revolving Fund (CW-SRF).[409] Therefore, for the City to implement the CLCPI to re-use dredge on seawall repair projects, the City would be advised to secure funding from either a traditional (federal or state funding) or an alternative source (CW-SRF funding). The City could further improve the cost efficiency of the project by employing pneumatic flow tube technology, which would prevent the need for transportation of NDM. Improving the cost efficiency would lessen the need for funding and therefore make the project more feasible.

### f. Window Glass

Glass is one of the most commonly used materials on the facades of buildings, and has an incredibly long service life, and yet it does not see significant levels of reuse. In buildings with relatively new, high-efficiency windows that are being demolished or renovated, it may be beneficial for those windows to be preserved and reused in new construction.

There could be greater levels of incentivization for developers to completely, or mostly reuse the existing windows wherever feasible. If the glass on a facade is still in good condition, it may be worthwhile to either reuse it in the facade of the building that will be built on the site. Because the careful and deliberate removal and storage of the windows would require additional time and labor as compared to simply demolishing the building, there would have to be other factors involved to mitigate the costs associated with this practice. One possible way to facilitate this method of reuse would be to create a marketplace for developers or contractors to resell the used but intact materials at a reduced price, thereby stimulating business while also promoting higher-level reuse.

[409] *Id.* at 63.

### 2. Indirect

#### a. Curtain wall and window glass

With the boom in commercial development over the last 10-15 years, many older buildings are being torn down and replaced with new ones. As a result, many building facades that incorporate glass curtain walls are being removed and disposed of. Much of the glass that is a part of these curtain walls can be repurposed for other uses. The BUDs permit crushed glass to be used as an aggregate, mulch, drainage medium, or as an ingredient in manufacturing.[410] This includes the use of glass pozzolan in concrete, which can not only drastically reduce the amount of cement needed, therefore reducing greenhouse gas emissions, but also increases the compressive strength and durability of the concrete as well.[411]

Under the BUDs, glass ceases to be considered waste after leaving a "recyclables handling and recovery facility for use as an ingredient in a manufacturing process or other acceptable end use."[412] This refers only to "uncontaminated glass-derived aggregate that meets a governmental or industrial organization specification acceptable to the [DEC]."[413] It must not exceed 5% non-glass content by volume, 0.05% paper content by mass, or 1% other non-glass content by mass.[414]

Unfortunately, given the additional time and expense of removing glass from a curtain wall compared to simply demolishing it all and sending it to a landfill, it is a very uncommon

[410]Beneficial Use Determinations (BUDs) - NYS Dept. of Environmental Conservation, accessed July 11, 2021, https://www.dec.ny.gov/chemical/8821.html.
[411] "Glass in Concrete – COLLABORATIVE," Building Product Ecosystems LLC, accessed July 22, 2021, https://www.buildingproductecosystems.org/glass-in-concrete.
[412] 6 NYCRR §360.12(4)(i).
[413] *Id.*
[414] *Id.*

practice.[415] This is not helped by the fact that glass, being an inert material, is quite easy and cheap to send to a landfill.[416] Though it is relatively easy to recycle glass when replacing just a few windows, when an entire facade is replaced, recycling is much more difficult as the fastest and cheapest method for demolition would result in a mixing of other debris in with the glass.[417] This could result in the glass being intermixed with other materials to the point where it would no longer meet the standard under the Part 360 regulations for glass. This would require the glass to either be separated at additional cost or simply be placed in a landfill as the cost of separation may make recycling no longer financially viable.[418]

In order to facilitate the reuse of curtain wall glass, it may be beneficial to amend the BUD to allow higher levels of certain non-glass materials depending on what the glass waste will be used for. For example, if the glass was going to be used as an aggregate, then the BUD could be amended to allow other materials that may also be used for the same purpose at a higher level, so long as this would not have a detrimental effect on the structural integrity of the end-project. If an amendment to the existing BUD is found to be infeasible, it may also be worthwhile to create a case-specific BUD to allow this.

### b. Gypsum

For the City to be able to implement the CLCPI as indirect reuse for gypsum a great amount of focus will need to be placed on making it commercially viable. Despite the high level of recyclability of gypsum, nearly all drywall in the United States, including New York, is still

[415] Rebecca Hartwell, "Unlocking the Re-Use Potential of Glass Façade Systems," glassonweb.com (glassonweb.com, August 27, 2020), https://www.glassonweb.com/article/unlocking-re-use-potential-glass-facade-systems.
[416] *Id.*
[417] Suzanne LaBarre, "The Most Common Way to Demolish a Building Is Also the Most Wasteful," Fast Company (Fast Company, January 21, 2020), https://www.fastcompany.com/90453869/the-most-common-way-to-demolish-a-building-is-also-the-most-wasteful.
[418] 6 NYCRR 360.12(c)

disposed of in landfills. Only 0.06% of all drywall waste in NYC ends up being recycled compared to about 70% of overall construction and demolition waste.[419] One of the biggest challenges facing gypsum recycling is cost. Drywall prices remain low, ranging from about $12-20 depending on thickness and quality.[420] This, combined with the low fees at landfills, and relatively high cost of recycling makes it a difficult sell to private contractors, who are primarily focused on turning a profit rather than sustainability, as well as drywall manufacturers, since the commercial viability of recycled gypsum is somewhat tenuous.[421] As a result, if there is to be any large-scale adoption of gypsum recycling, there must be certain mechanisms put into place to facilitate its reuse.

Gypsum is one of the most common materials in the construction industry, being the main component of drywall, the primary choice for building interior walls.[422] It is a necessary component of all new construction and, like glass, is removed in abundance from nearly every building that is demolished, or even just remodeled.[423] This presents a great opportunity for potential indirect reuse under the BUDs.

While it has not been designated a predetermined BUD, case specific BUDs for gypsum have historically been granted for use in the manufacture of drywall and as a soil amendment.[424] This sets a precedent for developers to be able to be more easily granted a BUD for the reuse of gypsum in future projects as well. Since Gypsum makes up approximately 90% of the weight of

[419] Bauer, Caroline. "Gypsum Recycling in PlaNYC 2030: Spaces for Government Intervention." New York: Town & Gown, May 2012.
[420] New Drywall - Construction & Demolition Recycling Association, accessed July 14, 2021, https://cdrecycling.org/materials/gypsum-drywall/markets/new-drywall/.
[421] *Id.*
[422] Bauer, Caroline. "Gypsum Recycling in PlaNYC 2030: Spaces for Government Intervention." New York: Town & Gown, May 2012.
[423] *Id.*
[424] *Beneficial Use Determinations (BUDs) supra*.

drywall, nearly all of the material can be reused in the manufacture of new drywall.[425] Recycled gypsum can also be utilized as an ingredient in the production of cement or as an additive in composting operations.[426] These additional uses could open up new opportunities for future case specific BUDs to be granted.

Unfortunately, research has found that because of the low cost of virgin gypsum, recycling gypsum at all may never become commercially viable or even worthwhile for the environmental benefits. Because reuse requires that gypsum be stored separately, it will also increase the number of truck trips that must be taken.[427] "Additionally, legislating the use of recycled content drywall may not impact the gypsum recycling rates due to the many benefits synthetic gypsum has over recycled scrap for manufacturers. Moreover, stringent purity standards essentially stipulate that clean scrap is the only viable candidate for recycling."[428] As a result, despite the best efforts of the DEC and contractors, some amount of drywall will inevitably end up being landfilled. This is increasingly becoming a large problem as landfills begin to reach capacity. There are also environmental issues associated with gypsum disposal, as its decomposure can result in the formation of harmful gases, as well as sulfate seepage into groundwater supplies.[429]

Still, the most straightforward way to ease the process of recycling gypsum would be for the DEC to designate gypsum a predetermined BUD for the manufacture of new drywall, cement, and as a soil additive. This would preclude developers from needing to file the required paperwork to request a case-specific BUD, thereby reducing their administrative costs, as well as

[425]Gypsum Drywall | Construction & Demolition Recycling Association, accessed July 13, 2021, https://cdrecycling.org/materials/gypsum-drywall/.
[426] *Id.*
[427] "Gypsum Recycling in PlaNYC 2030: Spaces for Government Intervention." New York: Town & Gown, May 2012.
[428] *Id.*
[429] https://www.scu.edu/media/ethics-center/environmental-ethics/Drywall.pdf

advertising the possibility of recycling gypsum to developers who might be unaware of the practice. Another potential solution would be the facilitation of communication between manufacturers and developers to eliminate the "middle-man" of the recycling companies, thereby reducing costs and making the reuse of gypsum more financially viable for manufacturers.

### c. Wood Pallets

New York City is always growing and expanding its infrastructure which results in excessive wood as CDW. The reuse of wood saves money and benefits the environment. Creating new wood materials involves cutting down trees, and other additional expenses, whereas reuse involves reusing the old wood that already exists.

The wooden pallet recycling industry in the United States has become very efficient in diverting pallets away from landfills. The amount of wooden pallets that have been diverted from landfills has increased from 51 million pallets in 1992 to 474 million pallets in 2011.[430] However, millions of old pallets still end up in landfills every year and the CLCPI can help to reduce that number.[431] In order for the City to implement the CLCPI as reuse for wood pallets the City would need to follow the Part 360 regulations.

Wooden pallets can be easily reused if they meet the qualifications for a predetermined BUD. To meet the standards for reuse, the used wooden pallets must be "uncontaminated."[432] This means not mixed with other solid waste or contaminated with spills of a petroleum product, hazardous waste, or industrial waste.[433] When used wood pallets are used to produce reconditioned or remanufactured wood pallets and are received at their location of use, they are

[430] Philip Araman, Robert Bush, Bradley Hager, *U.S. Wood Pallet Material Use Trends,* U.S. Forest Service (October 18, 2011), https://www.srs.fs.usda.gov/pubs/39429.
[431] *Id.*
[432] 6 NYCRR § 360.12(c)(2)(ii).
[433] § 360.2(286).

no longer considered solid waste.[434] The DEC has created forms for anyone who is transporting or using any material under one of the predetermined BUDs, to show that they are using the material pursuant to DEC regulation.[435] The forms for uncontaminated wooden pallets are found on the DEC's website and once completed can be provided to contractors, transporters, or local and state officials when needed to document the reuse of material.[436] If the amount of uncontaminated wooden pallets distributed in any calendar year is equal to or exceeds 10,000 tons the distributor must fill out a Pre-Determined BUD Large Quantity Annual Report.[437]

However, there is the problem of storage and separate agencies/contractor relations. The storage of idle combustible pallets presents a significant fire hazard, both in indoor and outdoor storage.[438] A fire involving even a modest number of idle pallets inside a building can rapidly overtax a fire sprinkler system.[439] There are however several companies experienced with the storage requirements for pallets located in the City and New Jersey. Wooden pallets from city projects could be sold and transported to these companies and then resold to consumers for different projects. Companies like Greenway will pay top dollar in the industry for the City's pallets.[440] In addition, their wooden pallet disposal service is much cheaper than having excess pallets carried away in a dumpster, and it's better for the environment.[441] Companies like Greenway also store pallets at their New Jersey and New York facilities until they are needed and then transport them to different City projects.[442]

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[434] § 360.12(c)(2)(ii).
[435] *Beneficial Use Determinations (BUDS) supra.*
[436] *Id.*
[437] 6 NYCRR §360.12(c)(4).
[438] *Uniform Fire Code.* NFPA 1. Quincy, MA: NFPA, 2018.
[439] *Standard for the Installation of Sprinkler Systems.* NFPA 13. Quincy, MA: NFPA, 2016.
[440] *Pallet Disposal In NJ, NY, PA, MD & DE*, Greenway Product and Services LLC, https://greenwaypsllc.com/pallet-storage-disposal/ (last visited 8-16-2021).
[441] *Id.*
[442] *Pallet Storage In NJ, NY, PA, MD & DE*, Greenway Product and Services LLC, https://greenwaypsllc.com/pallet-storage-disposal/ (last visited 8-16-2021).

### d. Recycled Concrete Aggregate (RCA)

For the City to be able to implement the CLCPI as indirect reuse for RCA, it must ensure that it be produced from uncontaminated, recognizable concrete that has separated from other waste prior to processing and stored separately as a discrete material stream.[443] Currently, the DEC allows RCA to be managed as a commercial material or raw material not subject to Parts 360 or 361 so long as they are "destined for and/or managed prior to reuse at facilities subject to Subpart 361-5."[444] This gives developers, as well as city projects, more flexibility in their decision to use RCA, and therefore makes it easier for them to do so.

To incentivize the beneficial use of RCA, it is important to facilitate the storage of waste concrete so as to prevent them from being put off by the potential difficulty of doing so, as separating concrete waste will take up additional space. This is especially vital in NYC given how valuable a commodity space is. This could be done through an expedited permitting process for street storage of waste materials when the materials being stored will be beneficially used. Such a solution, if it were to result in the reduction of usable driving lanes, could also have the added environmental benefit of reducing overall car traffic, and therefore emissions, through the phenomenon known as reduced demand.[445] Currently, the Department of Sanitation requires that any temporary stockpiling site be approved by a licensed engineer.[446] By giving priority to sites that would be used at least in part for the storage of materials to be reused under the BUDs, it would help in persuading private developers to place greater importance on reuse. The City should also put out clear and easily accessible guidance on how to most effectively separate the

[443] 6 NYCRR § 360.12(c)(3)(viii).
[444]*Parts 360-366 and 369, Solid Waste Management, supra*. (These facilities are those "that receive less than 500 tons per day based on a weekly average of the following recognizable, uncontaminated wastes: concrete and other masonry materials (including steel or fiberglass reinforcing embedded in concrete), brick, and rock").
[445]Robert Steuteville, "Reduced Demand Is Just as Important as Induced Demand," CNU, March 22, 2021, https://www.cnu.org/publicsquare/2021/03/19/reduced-demand-just-important-induced-demand.
[446] 6 NYCRR § 40.13.3

concrete to be reused from rebar and other potential contaminants. This would also help to allow contractors who may not be familiar with the process of concrete reuse to adopt the practice.

### 3. Other

#### a. Decommissioned Wind Turbine Blades

The decommissioning and need to find alternatives to disposal of decommissioned wind turbine blades figures to be increasingly important in coming years as alternative energy from wind farms has rapidly expanded across the world, recently in New York State.[447] While many components of a wind turbine are easily recycled, the blades contain a very high proportion of glass fiber reinforced polymer (GFRP) or carbon fiber reinforced polymer (CFRP), making it more difficult to recycle.[448] Globally, it is expected that there will be 100,000 tons of blade waste produced annually in 2025 and 200,000 tons by 2033.[449] Currently, there are two dominant forms of blade waste disposal: landfill or incineration.[450]

Although landfill and incineration are the primary modes of reusing blades, alternatives exist. Blades have been repurposed as furniture such as doors, windows, or roofs.[451] Furthermore, GFRP and CFRP can be repurposed efficiently as sound insulation material.[452] Recently, a proposal to make an affordable housing community out of salvaged blade parts has emerged.[453]

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[447] Peter Deeney, Angela J. Nagle, Fergal Gough, Heloisa Lemmertz, Emma L. Delaney, Jennifer M. McKinley, Conor Graham, Paul G. Leahy, Niall P. Dunphy, Gerard Mullally, "End-of-Life alternatives for wind turbine blades: Sustainability Indices based on the UN sustainable development goals," Resources, Conservation and Recycling, Volume 171, 2021, https://doi.org/10.1016/j.resconrec.2021.105642
[448] *Id*.
[449] *Id*.
[450] *Id*. at 2.
[451] *Id*.
[452] *Id*.
[453] *Concepts for Reusing Composite Materials from Decommissioned Wind Turbine Blades in Affordable Housing*, Lawrence C. Bank, Franco R. Arias, Ardavan Yazdankbakhsh, T. Russell Gentry, Tristan Al-Haddad, Jian-Fei Chen, and Ruth Morrow. January 17, 2018. https://www.mdpi.com/2313-4321/3/1/3

For the City to implement the CLCPI with respect to turbine blade reuse, interested parties (such as blade manufacturers or the City itself) should apply for a case-specific BUD. As previously mentioned, if there is proposed reuse of a material that is not one of the 28 predetermined BUDS, the City can petition the DEC for a case-specific BUD.[454] Case-specific BUDS are generally used when the waste material is used (1) as a substitute for a component material in the manufacture of a product, or (2) as a substitute for a commercial product.[455] The potential reuse of blades is diverse enough that either general case-specific BUD may apply. For example, the blades can be used as a substitute for a component material since they can be used in the production of sound insulation material.

### b. Rubber Crumb from Old Playground/Athletic Fields

Crumb rubber refers to rubber granules produced from waste tires that are less than or equal to one-quarter inch or six millimeters in size and are 99.9 percent free of wire and fiber.[456] Furthermore, crumb rubber is not considered to be solid waste for the purposes of Parts 360, 361, 362, 363, 364, 365 and 366.[457] Waste tires can be reused as rubber crumbs for playgrounds. When this is done, the new rubber crumb is not considered solid waste and can be reused for new projects in different parks.

Waste tires receive a BUD when used to secure tarpaulins in "common weather protection practices," including agricultural storage covers and salt pile protection.[458] This BUD further requires the number of tires used in the waste tires to not exceed 0.25 passenger tires per

[454] 6 NYCRR § 360.12(d).
[455] § 360.12(d)(1).
[456] § 360.2(b)(67).
[457] § 360.2(a)(3)(viii).
[458] § 360.12(c)(2)(iv).

square foot of coverage area.[459] Furthermore, whole tires must be cut in half or have a "sufficient number" of holes drilled in them to prevent retention of water.[460]

Additionally, waste tires may cease to be a solid waste when used for purposes such as retaining walls, decoration, playground components, bumper guards, manufactured products feedstock, and similar purposes.[461] If this BUD is sought, a maximum of 150 waste tires or tire equivalents may be used at the site.[462]

For the city to implement the CLCPI with respect to rubber crumb recovered from the replacement of parks, school playgrounds, and athletic fields with new materials, the City would need to apply for a case-specific BUD.[463] The city must show the crumb rubber would be used either in a manufacturing process to make a product, or as an effective substitute for a commercial product or raw material.[464]

### 4. Interim Processing Facilities and Transfer Stations

During the pilot period for the CLCPI, expansion of the Intentional Indirect Reuse elements, supported by the CLCPI Cost Savings Sharing specification, over time will generate a reliable supply of recoverable resources and imply a market need for additional interim processing facilities and transfer stations to handle these items. The CUSP project demonstrates the presence of transfer stations taking CDW from the construction projects within the City to be stored for purposes of reuse. As supply of CDW elements grows, there will be a need for additional interim processing and transfer facilities. The following discusses DEC's requirements for these types of facilities.

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[459] *Id*.
[460] *Id*.
[461] § 360.12(c)(2)(v).
[462] *Id*.
[463] § 360.12(d)(1).
[464] *Id*.

Interim processing facilities and transfer facilities are intermediary facilities that process CDW materials for reuse in "new construction materials to be consumed by City and private construction projects."[465] CDW materials received at interim processing facilities are considered raw materials for the purposes of "manufacturing new construction materials."[466] New York City's Department of Sanitation (DSNY) has designated rules for facilities taking CDW located within the City boundaries that determine the elements of CDW recyclable and "require that CDW be 'source-separated from other waste streams.'"[467] Under DSNY rules, the disposal of "commercial waste," defined as waste generated from large construction projects, is the responsibility of the private contractor, not the City's Sanitation Department.[468] Contractors are responsible for taking the CDW to one of two kinds of processing centers: one that takes "source-separated materials, such as metals," and the other that "extracts recyclables before sending the balance to a transfer station."[469]

There are generally two ownership models for transfer facilities: those under municipal ownership and those under private ownership. The CLCPI is focused on the ways in which privately owned intermediary processing facilities can implement the CDW reuse framework to facilitate the market for reusable CDW materials. Private, non-municipality owned, intermediary processing centers can operate to "process and/or store construction and demolition debris in order to extract recyclable or reusable materials."[470] Operators of a CDW intermediary facility are required to obtain a permit from the DEC in order to be in compliance with Part 362.[471]

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[465] Leveraging the City's Capital Program to Expand Re-Use of Recovered CDW and Biosolid Materials to Close Materials Loops at 9.
[466] Id.
[467] Pushing the Recycling Envelope: Construction and Demolition Waste, NYC DDC, https://www1.nyc.gov/assets/ddc/downloads/town-and-gown/08-01-19-Precis.FINAL.pdf
[468] Id.
[469] Id.
[470] 6 NYCRR § 361-5.1.
[471] § 361-5.4.

Additionally, the design, construction, maintenance, and operation of the facility must be in compliance with the following:

1. All receiving, processing, and sorting activities must be conducted in an enclosed building unless otherwise specified in this Subpart or in the transition provisions of section 360.4(b)(4) of this Title. An enclosed building is not required for concrete and other masonry material (including steel or fiberglass reinforcing embedded in concrete), asphalt pavement or asphalt millings, brick, rock, fill material, roofing shingles or unadulterated wood.[472]
2. All waste and recovered material delivered to and leaving the facility must be weighed or otherwise measured and recorded in cubic yards and tons.[473]
3. Friable asbestos-containing waste must not be accepted at the facility. Non-friable asbestos-containing waste, if received at the facility, must not be handled or processed in any way that would cause the material to become crumbled, pulverized, or reduced to powder.[474]
4. The facility must not accept C&D debris, fill material, or similar material from a site being remediated pursuant to a program administered by the department or EPA unless accompanied by written approval from the department or EPA.[475]
5. For permitted facilities and facilities authorized under section 361-5.2(a)(6) and (7) of this Subpart, any fill material or residue leaving the facility for reuse must be analyzed in accordance with the sampling and analysis requirements in section 360.13(e) of this Title, except a minimum of one analysis is required for every 1000 cubic yards of fill material, and must follow the criteria outlined in section 360.13(f) of this Title.[476]
6. Storage requirements. (1) Storage of processed and unprocessed C&D debris is limited as follows: *infra*, note 464.[477] (2) Processed and unprocessed C&D debris

[472] § 361-5.4(a).
[473] § 361-5.4(b).
[474] § 361-5.4(c).
[475] § 361-5.4(d).
[476] § 361-5.4(e).
[477] ((i) Unprocessed asphalt pavement, asphalt millings, concrete and other masonry materials (including steel or fiberglass reinforcing embedded in concrete), brick, fill material, rock, or wood can be stored uncovered, but in all cases storage is limited to 365 calendar days unless the following criteria are satisfied to justify a longer storage period.# (ii) Storage of any other unprocessed C&D debris must be in an enclosed or covered storage area for a period not to exceed 30 calendar days unless written approval from the department is obtained. (iii) Storage of material at the site must not exceed the declared volume identified in the application or registration documents. (iv) Source-separated or processed and separated material that meets a beneficial use determination as specified in section 360.12 or 360.13 of this Title can be stored without time restriction so long as the storage volume conforms with the declared storage volume identified in the application or registration documents.(a) "There is a demonstrated need to store for a longer period, such as a market agreement with terms of receipt based on greater than 365-day intervals or volumes that may take longer than 365 days to acquire. (b) The facility has sufficient storage area to prevent a negative impact to public health or the environment. (c) The facility implements an inventory control system, including daily logs, to ensure that the processed recyclables do not remain at the facility for longer than the period approved. (d) Prior to storing unprocessed and processed recyclable for longer than 365 calendar days, the facility must notify the department of its intent and include justification based on the requirements of this subdivision.")

must not be stored in excavations or below normal grade level of the facility. (3) With the exception of concrete, asphalt pavement or cuttings, brick, or rock, a minimum separation distance of 10 feet must be maintained between adjacent storage piles unless the piles are stored in bins or other structures which separate piles. Storage piles must not extend over property boundaries. (4) Storage area floors must be constructed of concrete or asphalt paving material and must be equipped with adequate drainage and retention structures. However, concrete or asphalt storage area floors are not required for the separate storage of processed or unprocessed uncontaminated concrete, other masonry waste, asphalt pavement, asphalt millings, unadulterated wood, brick, fill material or rock.[478]

7. (g) A permitted facility must maintain financial assurance in an amount sufficient to cover the cost of closure of the facility as specified by sections 360.21 and 360.22 of this Title.[479]

## Conclusion

Implementing the CLCPI has the ability to create a significant environmental and financial impact on New York City. It is within the City's capacity to act and is an efficient way to achieve the City's broader environmental sustainability initiatives. CLCPI has the ability to leverage the City's capital program to close some enumerated material loops and reuse CDW generated on City capital projects as materials for other projects via interim processing facilities. All recovery and reuse options in the CLCPI will comply with DEC regulations, taking advantage of existing BUDs and related enforcement discretion letters, and requesting BUD designations where none exist. Closed loop reuse is essential to expanding and sustaining the recycling infrastructure; when architects and contractors demand recycled content products, that increases demand for recyclable raw materials, which expands markets, brings down recycling costs, and ultimately cuts carbon emissions.

[478] § 361-5.4(f).
[479] § 361-5.4(g).

## Appendix A- Definitions

1. **Amendment**: For the purposes of section 360.12 of this Part means the thorough mixing into navigational dredged material (NDM) of any material that physically or chemically alters the NDM to improve its engineering, environmental, or other characteristics.[480]
2. **Applicant**: The person applying for a permit or registration under NYCRR Part 360.[481]
3. **Ash Residue**: All the residue and any entrained liquids resulting from the combustion of waste, fossil fuel or waste in combination with fossil fuel at a combustor, including bottom ash, boiler ash, fly ash and the residue of any air pollution control device.[482]
4. **Biosolids**: The accumulated semi-solids or solids resulting from treatment of wastewaters from publicly or privately owned or operated sewage treatment plants.[483] Biosolids do not include grit or screenings, or ash generated from the incineration of biosolids.[484]
5. **Bottom Ash**: The ash residue remaining after combustion of waste that is discharged through and from grates of a combustor.[485]
6. **By or on Behalf of a Municipality**: In the context of a permit or registration means:

   (i) a municipality is the owner or operator, individually or with one or more other owners or operators;

   (ii) the owner or operator is not a municipality but the owner or operator's facility is partially funded by the 1972 Environmental Quality Bond Act, the Solid Waste Management Act of 1988, the Environmental Protection Act of 1993, or the 1996 Clean Water/Clean Air Bond Act or constructed pursuant to and in compliance with a

[480] 6 NYCRR § 360.2(b)(9).
[481] § 360.2(b)(13).
[482] § 360.2(b)(17).
[483] § 360.2(b)(31).
[484] *Id*.
[485] § 360.2(b)(33).

construction contract with a municipality pursuant to Town, Village, County or General Municipal Law;

(iii) in the case of a facility with a proposed service area that only includes municipalities within a single planning unit, the owner or operator is not a municipality but has a contractual or other relationship with one or more municipalities within the planning unit, such that the capacity of the facility will be designed, used, or designated primarily (more than two-thirds) for waste received from those municipalities; or

(iv) in the case of a facility with a proposed service area that includes municipalities from two or more planning units, the owner or operator is not a municipality but has a contractual or other relationship with one or more municipalities in such planning units, and the capacity of the facility will be designed, used, or designated primarily (more than two-thirds) for waste received from those municipalities;

(v) for purposes of subparagraphs (iii) and (iv) of this paragraph, examples of contractual or other relationships include, but are not limited to, put-or-pay contracts, waste supply guarantees, long-term contracts for the delivery of waste, waste-processing guarantees, long-term leases, and flow control ordinances.[486]

7. **Certification**: A written statement of professional opinion based upon investigation, analysis, knowledge and belief that is stated to be true and accurate.[487]
8. **City:** New York City.
9. **CLCPI**: Closing Loops City Project Initiative.

[486] § 360.2(b)(38).
[487] § 360.2(b)(42).

10. **Combustion**: The thermal destruction of waste in a device which uses elevated temperatures with oxygen as the primary means to change the chemical, physical, or biological character or composition of the waste.[488]
11. **Combustion Facility**: A facility that uses combustion to treat solid waste. These facilities include, but are not limited to: mass burn, modular, and fluidized bed combustors; and facilities that combust refuse-derived fuel.[489]
12. **Combustor**: An enclosed device using controlled flame combustion to thermally break down waste to an ash residue that contains little or no combustible materials.[490]
13. **Commercial Aggregate**: Sand, gravel, crushed stone, bank or crusher run, or other similar engineered or recycled material used as a marketable commodity in concrete manufacturing, asphalt manufacturing, production of concrete products, or the construction of foundations, bases and subbases, drainage layers, subsurface drains, roads, or other engineered applications according to a standard aggregate specification, or an area-specific or location-specific aggregate specification prepared by a professional engineer.[491]
14. **Commercial Waste**: Waste that is not residential waste, institutional waste or industrial waste and is discarded from stores, offices, restaurants, warehouses and other nonmanufacturing activities.[492]
15. **Composting**: Aerobic, thermophilic decomposition of organic waste to produce a stable, humus-like material.[493]

[488] § 360.2(b)(45).
[489] § 360.2(b)(46).
[490] § 360.2(b)(47).
[491] § 360.2(b)(48).
[492] § 360.2(b)(49).
[493] § 360.2(b)(54).

16. **Construction**: Any physical modification to the area or location of a facility, including, but not limited to, site preparation (*e.g.*, clearing, grading, and excavation, etc.) and building of structures.[494]
17. **Construction and Demolition debris (C&D debris)**: waste resulting from construction, remodeling, repair, and demolition of structures, buildings, and roads. C&D debris includes fill material, demolition wastes, and construction wastes.[495] Materials that are not C&D debris (even if generated from the construction, remodeling, repair, and demolition activities) include municipal solid waste, friable asbestos-containing waste, corrugated containerboard, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, fluorescent lights, furniture, appliances, tires, drums, fuel tanks, containers greater than 10 gallons in size, and any containers having more than one inch of residue remaining on the bottom. [496]
18. **Construction Waste**: Any material generated during the construction of structures and roads.[497]
19. **Container**: A portable piece of equipment in which waste is stored, transported, treated, disposed of, or otherwise handled.[498]
20. **Crumb Rubber**: Rubber granules that are produced from waste tires and that are less than or equal to, one-quarter inch or six millimeters in size, 99.9 percent free of wire and fiber.[499]

[494] § 360.2(b)(60).
[495] § 360.2(b)(61).
[496] *Id.*
[497] § 360.2(b)(63).
[498] § 360.2(b)(64).
[499] § 360.2(b)(67).

21. **Demolition Wastes**: Any material generated during the demolition of structures and roads.[500]
22. **DEC**: New York State Department of Environmental Conservation.[501]
23. **DOT**: New York State Department of Transportation.[502]
24. **Discharge**: The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying or dumping of any material, including waste or leachate, into or on any air, land or water.[503]
25. **Disposal Facility**: A facility where waste is intentionally placed and where the waste is intended to remain.[504]
26. **ECL**: Chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.[505]
27. **Ecologically Sensitive Area**: Any land designated as habitat for threatened or endangered species; or area intended to encourage natural habitat development by Federal, State or local government.[506]
28. **Excluded Waste**: That portion of a waste stream which cannot be treated through combustion and/or gasification of alternative fuel due to legal, technical or environmental limitations.[507] Excluded wastes include but are not limited to: untreatable waste, prohibited radioactive materials, electronic waste, batteries, mercury-added consumer

[500] § 360.2(b)(77).
[501] § 360.2(b)(78).
[502] § 360.2(b)(79).
[503] § 360.2(b)(82).
[504] § 360.2(b)(85).
[505] § 360.2(b)(90).
[506] § 360.2(b)(91).
[507] § 360.2(b)(97).

products, mercury-containing devices, mercury-added thermostats, source-separated yard trimmings, source-separated recyclables; and source-separated food scraps.[508]

29. **Facility**: A location and associated devices employed in the management of solid waste beyond the initial collection process.[509] The term includes all structures, appurtenances or improvements on the land used for the management or disposal of solid waste.[510] For the purpose of Part 365 of this Title, the facility also includes the location and associated devices where initial collection occurs.[511]
30. **Farm**: An area or location actively used for the raising or harvesting of any agricultural or horticultural commodity through the cultivation of soil, hydroponics, or the raising, shearing, feeding, caring for, training, or management of livestock, bees, poultry, furbearing animals, fish, domestic animals or wildlife.[512]
31. **Fill Material**: Soil and similar material excavated for the purpose of construction or maintenance, but does not include overburden generated from mining operations regulated pursuant to Part 422 of this Title.[513]
32. **Final Cover System**: An engineered layer of materials approved by the department in accordance with Part 363 of this Title that is placed on any surface of a landfill where no additional waste will be deposited, and serves to restrict infiltration, prevent erosion, control landfill gas and promote surface drainage.[514]

[508] Id.
[509] § 360.2(b)(101).
[510] Id.
[511] Id.
[512] § 360.2(b)(102).
[513] § 360.2(b)(107).
[514] § 360.2(b)(108).

33. **Flowable fill**: a self-compacting, cementitious, low-strength mixture of soil, water, or coal combustion residuals, used to backfill excavations and capable of being pumped. Used to fill in land from reclaimed mines.[515]
34. **Fly Ash**: The ash residue from combustion that is entrained in the gas stream of a combustor and removed by air pollution control equipment.[516]
35. **Friable Asbestos-Containing Waste**: Any waste containing greater than one percent asbestos that can be crumbled, pulverized, or reduced to powder by hand pressure when dry; and any asbestos-containing waste that is collected in a pollution control device designed to remove asbestos.[517] This definition does not include friable asbestos-containing wastes that are discarded by a household.[518]
36. **Gas Storage Brine**: The fluid used to facilitate the underground storage and withdrawal of liquefied petroleum gas from a salt cavern or other underground reservoir.[519]
37. **Gasification**: The thermal conversion of organic material in waste by direct or indirect heating in the presence of air into syngas products.[520]
38. **Generator**: Any person whose act or process produces a waste or whose act first causes waste to be subject to regulation under Title 6 NYCRR.[521]
39. **Geotextile**: Any permeable textile used with subgrade materials, soil, rock, earth or any other geotechnical engineering-related material as an integral part of a structure or system designed to act as a filter to prevent the flow of soil fines into drainage systems, to

[515] § 360.2(b)(110).
[516] § 360.2(b)(111).
[517] § 360.2(b)(117).
[518] *Id.*
[519] § 360.2(b)(119).
[520] § 360.2(b)(120).
[521] § 360.2(b)(122).

provide planar flow for drainage, to serve as a cushion to protect geomembranes, or to provide structural support.[522]

40. **Groundwater**: Water below the land surface in a saturated zone of soil or rock. This includes perched water separated from the main body of groundwater by an unsaturated zone.[523]
41. **Humus**: Stable, degraded organic matter.[524]
42. **Industrial Waste**: Waste generated by manufacturing or industrial processes.[525]
43. **Inert Material**: Material that is non-putrescible and, when analyzed using the EPA SW-846 synthetic precipitation leaching procedure (SPLP) method, does not exceed groundwater quality standards found in Part 703 of this Title.[526]
44. **Institutional Waste**: Waste that is generated by hospitals, long-term care facilities, schools, prisons, government agencies, or other similar type facilities.[527]
45. **Landfill**: A facility where waste is intentionally placed and intended to remain and which is designed, constructed, operated and closed to minimize adverse environmental impacts.[528]
46. **Leachate**: Any solid waste in the form of a liquid, including any suspended components, that results from contact with waste.[529]
47. **Leachate Collection and Removal System**: A system or device that is designed, constructed, maintained, and operated to collect and remove leachate from a facility.[530]

[522] § 360.2(b)(130).
[523] § 360.2(b)(134).
[524] § 360.2(b)(141).
[525] § 360.2(b)(144).
[526] § 360.2(b)(145).
[527] § 360.2(b)(147).
[528] § 360.2(b)(152).
[529] § 360.2(b)(157).
[530] § 360.2(b)(158).

48. **Leak-proof**: Designed and maintained to prevent the escape of contained liquids or other materials from sides or bottom, when appropriately closed regardless of container orientation (*e.g.*, upright, tipped over, etc.).[531]
49. **Mercury-added Consumer Product**: Any device or material into which elemental mercury or mercury compounds are intentionally added during such device's or material's formulation or manufacture, and in which the continued presence of mercury is required to provide a specific characteristic, appearance or quality, or to perform a specific function.[532] Such term includes, but is not limited to mercury-containing: thermostats; thermometers; switches, whether individually or as part of another product; medical or scientific instruments; electrical relays and other electrical devices; lamps; and batteries sold to consumers, but does not include button batteries.[533]
50. **Mulch**: The materials produced from tree debris, yard trimmings or other suitable materials and intended for use on soil surfaces to prevent the growth of weeds and erosion.[534]
51. **Municipal Solid Waste (MSW)**: Residential waste, commercial waste, or institutional waste, or any component or combination thereof, excluding construction and demolition debris and biosolids unless they are commingled.[535]
52. **Municipality**: A county, city, town, village, a local public authority or public benefit corporation, or Native American tribe or nation residing within New York State, or a school district or supervisory district or any combination thereof.[536] For municipal

[531] § 360.2(b)(159).
[532] § 360.2(b)(169).
[533] *Id.*
[534] § 360.2(b)(172).
[535] § 360.2(b)(176).
[536] § 360.2(b)(180).

landfill closure and municipal landfill gas management projects, *Municipality* also means a State agency, State public authority or State public benefit corporation except for purposes of expenditures of the Clean Water/Clean Air Bond Act of 1996, where a municipality does not include a State agency, State public authority or State public benefit corporation.[537]

53. **Navigational Dredge Material (NDM)**: Material, other than material dredged primarily to remove contamination, which is dredged or excavated from the waters of the State, including sediment, soil, mud, sand, shells, gravel or other aggregate, for the direct or indirect purpose of establishing, maintaining, or increasing water depth, or increasing the surface or cross-sectional area of the water body.[538]
54. **On-Site**: The same or geographically contiguous property under the control or ownership of the same person.[539] It may be divided by public or private rights-of-way, provided the entrance and exit between the properties is at a crossroads intersection, and access is gained by crossing, as opposed to going along, the right-of-way.[540] Noncontiguous properties owned by the same person, but connected by a right-of-way which that person controls and to which the public does not have access, are also considered on-site property.[541]
55. **Operator**: The person responsible for the overall operation of a facility or collection event, with the authority to make and implement decisions, whose actions or failure to act

[537] *Id*.
[538] § 360.2(b)(181).
[539] § 360.2(b)(183).
[540] *Id*.
[541] *Id*.

may result in noncompliance with any requirement of this Title or of any department-approved operating condition pertaining to that facility or collection event.[542]

56. **Organic**: Derived from living matter or living organisms and is readily biodegradable.[543]
57. **Organics Recycling Facility**: A facility that processes the organic components in waste to produce a mature product for use as a source of nutrients, animal feed, organic matter, liming value, or other essential constituent for a soil to help sustain plant growth.[544] The processes include, but are not limited to, composting, vermiculture, anaerobic digestion, fermentation, and class A processes.[545] An organics waste processing facility also includes processes to convert biodegradable organic components in waste to produce animal feed.[546] The product no longer has the visual appearance of the waste from which it was produced.[547]
58. **Owner**: A person who owns a solid waste management facility or part of a facility.[548]
59. **Passenger Tire Equivalents**: A conversion measurement that is used to estimate waste tire weights and volume amounts and in which one passenger car tire with a rim diameter of 17 inches or less is equal to 20 pounds.[549] One cubic yard of volume shall contain 15 passenger tire equivalents.[550] Tires larger than a passenger car tire shall be evaluated for volume using this conversion measurement.[551]

[542] § 360.2(b)(186).
[543] § 360.2(b)(187).
[544] § 360.2(b)(189).
[545] *Id*.
[546] *Id*.
[547] *Id*.
[548] § 360.2(b)(190).
[549] § 360.2(b)(194).
[550] *Id*.
[551] *Id*.

60. **Person**: Any individual, public or private corporation, political subdivision, government agency, school, institution, university, authority, department or bureau of the State, municipality, industry, partnership, association, firm, trust, estate, or any other legal entity.[552]
61. **Planning Unit**: For locations within New York State, a county; two or more counties acting jointly; a local government agency or authority established pursuant to State Law for the purposes of managing solid waste; any city in the county of Nassau; any of the above in combination with one or more neighboring cities, towns, or villages; or two or more cities, towns, or villages, or any combination of them, that the department determines to be capable of implementing a regional waste management program. In order for a county to be a planning unit, it must include all cities, towns, and villages within its borders.[553]
62. **Post-closure Care Period**: The period after final closure of a landfill that continues until the owner or operator of the landfill can demonstrate to the department that the threat to public health or the environment has been reduced.[554]
63. **Pulverized**: Processed by mechanical means, including, but not limited to, crushing, grinding, chipping, or shredding, by mobile or fixed equipment that breaks and intermixes the components of waste into small fragments so that the basic constituents of these fragments are not recognizable.[555]

[552] § 360.2(b)(198).
[553] § 360.2(b)(200).
[554] § 360.2(b)(201).
[555] § 360.2(b)(211).

64. **Putrescible**: The tendency of organic matter to decompose with the formation of malodorous byproducts.[556] For the purposes of Subparts 361-1 and 361-5 of this Title, uncontaminated wood and paper products are not considered putrescible.[557]
65. **Qualified Environmental Professional**: A person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Title. Such a person must:

    (i) hold a current professional engineer's or a professional geologist's license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience; or

    (ii) be a site remediation professional licensed or certified by the Federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with department guidance, and have the equivalent of three years of full-time relevant experience.[558]
66. **Recognizable**: The individual components of waste can be readily identified by unaided visual observation.[559]
67. **Recyclable**: A component of waste which exhibits the potential to be recycled.[560]

[556] § 360.2(b)(212).
[557] *Id*.
[558] § 360.2(b)(213).
[559] § 360.2(b)(218).
[560] § 360.2(b)(220).

68. **Recyclables Handling and Recovery Facility**: A facility that processes source-separated non-putrescible recyclables.[561]
69. **Recycle**: The series of activities by which recyclables are collected, sorted, processed, and converted into raw materials or used in the production of new products, or, in the case of organic recyclables, used productively for soil improvement.[562] This term excludes thermal treatment (other than anaerobic digestion) or the use of waste as a fuel substitute or for energy production, alternate operating cover, or within the footprint of a landfill.[563]
70. **Refuse-derived Fuel**: Waste that is processed at a municipal solid waste processing facility and used as a feedstock in a thermal treatment facility.[564]
71. **Representative Sample**: A sample that exhibits the average or typical properties of the larger population.[565]
72. **Residential Waste**: Waste generated from a household.[566]
73. **Residue**: Waste remaining after processing or treatment at a facility.[567]
74. **Riparian**: The special flood hazard area and any adjacent wetland integral to the surface water.[568]

[561] § 360.2(b)(221).
[562] § 360.2(b)(224).
[563] *Id.*
[564] § 360.2(b)(226).
[565] § 360.2(b)(231).
[566] § 360.2(b)(234).
[567] § 360.2(b)(235).
[568] § 360.2(b)(238).

75. **Saturated Zone**: The zone in which the voids in the rock or soil are filled with water at a pressure equal to or greater than atmospheric.[569] The water table is the top of the saturated zone in an unconfined aquifer.[570]
76. **Service Area**: The geographical area from which waste is received.[571]
77. **Sludge**: Solid, semi-solid or liquid waste generated by a process that separates the liquid and solid fractions of the waste from a wastewater treatment plant, water supply treatment plant, industrial process, or wet air pollution control technology but does not include the treated effluent from a wastewater treatment plant.[572]
78. **State:** New York State.[573]
79. **Soil**: Naturally occurring granular material consisting of variable proportions of rock fragments, sand, silt, clay and organic matter, the latter derived from plants and animals living within or upon the soil.[574]
80. **Solid Waste**: Any garbage, refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials including solid, liquid, semi-solid, or contained gaseous material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities.[575]

[569] § 360.2(b)(240)
[570] *Id*.
[571] § 360.2(b)(246)
[572] § 360.2(b)(249).
[573] § 360.2(b).
[574] § 360.2(b)(250).
[575] § 360.2(a).

81. **Source Separation**: The segregation of recyclables from the waste stream at the point of generation for separate collection, transportation, sale, recycling or other lawful management.[576]
82. **Source-Separated Organics**: Organic material that has been separated at the point of generation including, but not limited to, food scraps, food processing waste, soiled or unrecyclable paper, and parts, and yard trimmings.[577] Source-separated organics do not include animal mortalities, biosolids, sludge, or septage.[578]
83. **Source-Separated Recyclables**: Recyclables that have been separated from the waste stream at the point of generation pursuant to State or local law or ordinance or a voluntary program where the transporter manages the materials in a source-separated manner.[579]
84. **Special Flood Hazard Area**: The 100-year floodplain as designated on a map acceptable to the department.[580]
85. **Storage**: The temporary holding or containment of waste in a manner which does not constitute disposal.[581] However, any waste retained on-site for a period in excess of 12 months constitutes disposal, unless otherwise specified.[582]
86. **Surface Water**: Lakes, bays, sounds, ponds, impounding reservoirs, perennial streams and springs, rivers, creeks, estuaries, marshes, inlets, canals, the Atlantic Ocean within

[576] § 360.2(b)(252).
[577] § 360.2(b)(254).
[578] *Id*.
[579] § 360.2(b)(255).
[580] § 360.2(b)(256).
[581] § 360.2(b)(262).
[582] *Id*.

the territorial limits of New York State, and all other perennial bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private.[583]

87. **Tank**: A non-earthen structure designed to contain waste in semi-solid or liquid form.[584]
88. **Thermal Treatment**: The exposure of waste to elevated temperatures or chemicals for the purpose of changing the chemical, physical or biological character or composition of the waste, and includes combustion, pyrolysis, gasification, hydrolysis or other similar processes, but does not include composting or anaerobic digestion.[585]
89. **Title**: Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, unless otherwise indicated.[586]
90. **Transfer Facility**: A facility that receives solid waste for the purpose of subsequent transfer to another facility for further processing, treatment, transfer, or disposal.[587]
91. **Transportation Corridor**: The area surrounding a public road where public access is limited by institutional or physical means so as to prevent direct contact with soils.[588]
92. **Transporter**: A person engaged in the off-site transportation of waste by means of air, rail, highway, or water conveyance.[589]
93. **Tree Debris**: Waste consisting of tree and shrub parts, including branches, stumps, and trunks, as well as other similar woody vegetation.[590] Tree debris does not include pallets or dimensional lumber and other similar wood material used in construction.[591]

[583] § 360.2(b)(266).
[584] § 360.2(b)(268).
[585] § 360.2(b)(269).
[586] § 360.2(b)(271).
[587] § 360.2(b)(276).
[588] § 360.2(b)(278).
[589] § 360.2(b)(279).
[590] § 360.2(b)(283).
[591] *Id*.

94. **Unadulterated Wood**: Wood products that are not painted, chemically treated (e.g., pressure-treated wood or treated railroad ties), or manufactured with chemicals such as glues or adhesives (e.g., plywood or particleboard).[592]
95. **Uncontaminated**: not commingled with, and not containing:

    (i) other waste;

    (ii) petroleum and petroleum products, except those present solely as a result of normal use of vehicles on roadways or parking areas;

    (iii) pesticides except those present solely as a result of the proper application in normal agricultural or horticultural practices; and

    (iv) hazardous waste.[593]
96. **Under the Control**: Subject to the full or partial power to manage or cause a change in the policies of a facility, directly or indirectly, whether through the ownership of voting securities, by contract or lease, or otherwise.[594]
97. **Undeveloped Land**: Land with no structures, no infrastructure, and no grading or site improvement.[595]
98. **Unsaturated Zone**: The zone between the land surface and the water table in which the voids in the rock or soil are partially or intermittently filled with water.[596] Saturated bodies, such as perched groundwater, may exist in the unsaturated zone.[597]
99. **Urban**: An area in the State with a population density of more than 5,000 people per square mile.[598]

[592] § 360.2(b)(285).
[593] § 360.2(b)(286).
[594] § 360.2(b)(287).
[595] § 360.2(b)(289).
[596] § 360.2(b)(291).
[597] *Id*.
[598] § 360.2(b)(296).

100. **Used Cooking Oil**: A vegetable or animal-based oil that is generated from cooking or frying foods and is a liquid at room temperature (68 degrees Fahrenheit).[599] Used cooking oil may contain food particles and water. Used cooking oil does not include brown grease.[600]

101. **Vehicle**: Any motor vehicle, trailer, water vessel, railroad car, airplane, or other device used for transporting waste.[601]

102. **Volatile Solids**: The amount of the total solids lost when waste is combusted at 550 degrees Celsius in the presence of excess air.[602]

103. **Waste tires**: Waste which consists of whole tires (on or off the rims) or portions of tires from a vehicle or motor vehicle as defined in ECL section 27-1901, including tire casings separated for retreading and tires with sufficient tread suitable for resale. "Waste tire" does not include crumb rubber derived from waste tires.[603]

104. **Waste Transporter**: A person engaged in the transport of regulated waste originating or terminating at a location in New York State.[604]

105. **Water Table**: The surface of a body of unconfined groundwater between the saturated zone and the unsaturated zone at which the pressure is equal to that of the atmosphere.[605] The groundwater table does not include the potentiometric head level in a confined aquifer.[606]

[599] § 360.2(b)(297).
[600] *Id*.
[601] § 360.2(b)(303).
[602] § 360.2(b)(305).
[603] § 360.2(b)(308).
[604] § 360.2(b)(310).
[605] § 360.2(b)(311).
[606] *Id*.

106. **Wood Debris**: Unadulterated wood pallets and unadulterated wood that originates from wood product manufacturing or other similar sources and does not include construction and demolition debris wood.[607]

107. **Yard Trimmings**: Leaves, grass clippings, garden and other plant debris, small tree branches and limbs (less than 4 inches in diameter), aquatic weeds and other similar materials.[608]

108. **Yellow Grease**: Vegetable or animal-based oil that is generated from cooking or frying foods and is a solid at room temperature (68 degrees Fahrenheit).[609] It may contain food particles and water. Yellow grease does not include grease trap waste.[610]

[607] § 360.2(b)(312).
[608] § 360.2(b)(314).
[609] § 360.2(b)(315).
[610] *Id*.