PERMIT MODIFICATIONS (FORM Q) GRANTED TO AUTHORIZE ALTERNATIVES TO THE DESIGN REQUIREMENTS IN THE MUNICIPAL WASTE REGULATIONS.

NOTE: PLEASE CONTACT THE APPROPRIATE REGIONAL OFFICE FOR SITE-SPECIFIC ISSUES AND/OR SPECIAL CONDITIONS.

Southeast Regional Office (James Wentzel, Regional Solid Waste Manager): 2 East Main St., Norristown, PA 19401.

- Grading: 40-foot wide bench for every 40 foot rise in elevation. The 40-foot wide bench can be used for both bench and access road.

  (Note: Prior approvals for a 10-foot bench per 20 foot rise and a 20-foot bench per 40 foot rise implicit in above and not repeated separately).

- Sub-base:

  (a) Utilization of slopes exceeding 25% up to a maximum of 50%; limited to intermediate dike.

  (b) Utilization of slopes from 2% to 33%.

  (c) 2 geogrids below secondary liner to act as a sub-base when new landfill is being constructed on slope of an existing site.

- Leachate Detection Zone:

  (a) Utilization of a maximum particle size of 3/8 inches.

  (b) Use of geonet material, single or double layers, as detection zone material (includes side slopes).

- Protective Cover:

  (a) Utilization of a maximum particle size of 3/8 inches.

  (b) AASHTO #57 stone underlain by two 16 oz/sq yd layers of non-woven geotextiles.

- Leachate Collection Zone:

  (a) Utilization of a maximum particle size of ½-inch.

(b) Utilization of a maximum particle size of 1 ½ inches for a particular riverbed material used at the Tullytown landfill site.

- Monitoring Wells:

  (a) 2-inch diameter casing in place of 4-inch diameter.

  (b) Gold anodized aluminum casing set 3 feet below grade in place of 10 feet of steel casing.

- Alternate Daily Cover: Use of 6 inches of foam material (3M-Sanifoam).

- Alternate Daily and Intermediate Cover:

  (a) Soils from non-specific, off-site borrow areas.

  (b) Clay loam soil from non-specific, off-site borrow areas.

  (c) Municipal sewage sludge treated with lime kiln or cement kiln dust in accordance with the VFL Technology process.

  (d) Mixture of lime and dewatered sewage sludge cake in accordance with the RDP sludge stabilization process.

  (e) Pasteurized municipal sewage sludge using a lime additive in accordance with the Bio-Gro/Bio-Fix sludge process.

  (f) Water treatment plant sludge treated with lime kiln or cement kiln dust in accordance with the VFL Technology process.

  (g) Municipal sewage sludge stabilized with fly ash.

  (h) Fly ash conditioned with cement kiln dust.

  (i) Unscreened composted municipal sewage sludge from Philadelphia Water Department blended in a 1 to 1 ratio with soil containing coarse fragments no greater than 3 inches in diameter with no more than 60% retained on a #10 sieve.

  (j) Dredge material.

  (k) Municipal incinerator ash.

  (l) Cabot Corp. metal processing sludge.

  (m) Construction/demolition waste.

(n) Coal ash.

Northeast Regional Office: William Tomayko, Regional Solid Waste Manager; 2 Public Square, Wilkes-Barre, PA 18711-0790.

- Sub-base:

  (a) Side slopes greater than 25% (Empire).

  (b) Use of two perpendicular UX1600HT geogrid layers below the Pad 7 sub-base to address defined subsidence concerns and with limitations on waste interface friction angles, placement, etc. (Empire).

  (c) Use of geogrid reinforcement below the sub-base placed on a pre-1990 waste area's adjacent slope with conditions on placement, waste acceptance limits, etc. to deal with a defined subsidence/settlement potential (City of Bethlehem).

- Leachate Detection Zone: AASHTO #8 stone plus 16 oz. geotextile in lieu of sand (Empire).

- Leachate Collection Zone: AASHTO #8 stone plus 16 oz. geotextile with geonet required (if permeability is within the 1×10^{-3} to 1×10^{-2} cm/sec range) in lieu of sand (Empire).

- Leachate Collection/Leachate Detection Zone:

  (a) Use of AASHTO #8 stone (max 2% fines) in lieu of sand (Commonwealth).

  (b) AASHTO #8 stone with 16 oz. geofabric in lieu of sand (Pine Grove).

- Daily Cover:

  (a) 6-inch minimum Rusmar AC-645 foam with limitations on usage such as wind, precipitation, traffic, and overnight use only (Empire, Keystone, City of Bethlehem, Commonwealth, Grand Central).

  (b) 6-inch minimum Chubb Terra foam with limitations on usage such as wind, precipitation, traffic, overnight use only and use of protective gear (City of Bethlehem).

  (c) Rusmar AC-667-SE foam (Empire).

(d) 6-inch minimum Chubb Terra foam with usage limitations concerning weather, traffic, and only overnight usage (Grand Central).

(e) Cormier WP-1440FR and/or Integra 12FR geomembranes with various monitoring and reporting requirements, plus minimum application of soil cover and usage limitations (Chrin).

(f) Use of source-specific "iron rich material" (IRM) in a 9- to 10-inch layer with specific storage and placement requirements (Pine Grove).

(g) Use of soil (1 part) and construction and demolition waste fines (3 parts) (Chrin).

(h) Use of paper sludge (Chrin).

Southcentral Regional Office: Anthony Rathfon, Regional Solid Waste Manager; 909 Elmerton Avenue, Harrisburg, PA 17110-8200.

o Sub-base:

(a) Slope to a maximum of 33% (Modern, Mountain View Reclamation, York County Solid Waste, Dauphin Meadows, Chester County Solid Waste Authority).

(b) Use of GCL as equivalent to 6-inch sub-base layer (Greater Lebanon Refuse Authority, Mountain View Reclamation).

(c) Use of GCL and 12-inch subbase (Sandy Run).

(d) Increase sub-base slope on intermediate berms to maximum of 50% on intermediate berms with a maximum height of the berm of four feet.

o Monitoring Wells:

(a) Installation of 2-inch diameter well casing instead of 4-inch casing for monitoring wells (Modern).

(b) Installation of anodized aluminum well protective casing set 3 feet below the ground surface to be used to enclose monitoring wells instead of a steel casing set 10 feet below the ground surface (Modern, Mountain View Reclamation).

- Leachate Detection Zone:

  (a) Use of geonet in the leachate detection zone (Modern, Mountain View Reclamation, York County Solid Waste, Pioneer Crossing, Harrisburg Incinerator, Greater Lebanon Refuse Authority).

  (b) Leachate detection zone cross-section of geotextile, secondary liner, geotextile, geonet, 12 inches of ¾-inch maximum aggregate, geotextile, geonet, primary liner (Dauphin Meadows).

  (c) Leachate detection zone cross-section of secondary liner, 2 layers of geonet, GCL and primary liner on the non-sloped floor areas (Sandy Run).

  (d) Leachate detection zone cross-section of secondary liner, geocomposite, GCL and primary liner on the sloped berm areas (Sandy Run).

- Protective Cover:

  (a) Glass cullet as a component of the protective cover (Frey Farm).

  (b) Use of AASHTO #8 stone (Dauphin Meadows, Harrisburg Incinerator, Greater Lebanon Refuse Authority).

  (c) Maximum aggregate size of ¾-inch.

- Alternate Daily Cover

  (a) Rusmar AC-645 foam (Conestoga, Pioneer Crossing, Rolling Hills).

  (b) Chubb Terra foam (Mountain View Reclamation, Pioneer Crossing, Dauphin Meadows, Harrisburg Incinerator, Mifflin County).

  (c) Rolite aggregate (aggregate produced from an incinerator ash) (Rolling Hills, Conestoga).

  (d) 1:1 soil/compost mixture.

  (e) Geomembrane (Cormier WP-1440 and Integra 12) (Conestoga, Mifflin County, Modern).

  (f) Recycled paper de-inking sludge (Mountain View Reclamation, Pioneer Crossing).

  (g) Processed construction/demolition waste (Frey Farm, Conestoga).

  (h) Posi-Shell (Conestoga).

(i) Propat autofluff (Conestoga).

(j) Non-petroleum contaminated soil (Mountain View Reclamation, Frey Farm, Conestoga).

(k) Stabilized lead contaminated soil (Lanchester, Pioneer Crossing).

(l) Municipal incinerator ash (Cumberland County, Rolling Hills, Conestoga).

(m) Soil and composted municipal wastewater treatment plant sludge (Lanchester).

(n) Auto shredder fluff (Modern, Mountain View Reclamation, Western Berks).

(o) Tarps (Mountain View Reclamation, Blue Ridge, Sandy Run, Frey Farm, Pioneer Crossing, Rolling Hills, Western Berks).

(p) Buddies Nursery compost (Pioneer Crossing).

(q) Composted municipal sewage sludge (Conestoga).

(r) Rusmar AC-667-SE foam (Pioneer Crossing, Rolling Hills).

(s) Sandblast media (Western Berks).

(t) Foundry sand (Western Berks).

(u) Screened shredder dirt (Western Berks).

(v) Water treatment sediment (Western Berks).

(w) Sludge-derived synthetic soil (Conestoga).

(x) Thermally processed contaminated soil (Conestoga).

(y) Dredge material (Conestoga).

(z) Cabot Corp. metal processing sludge (Conestoga).

(aa) Merk and Co.'s Westport soil (Conestoga).

(bb) Short paper fiber (Conestoga).

o Final Cover: Terraces minimum of 20 feet wide constructed at every 40 feet of vertical rise (Modern, Mountain View Reclamation).

Northcentral Regional Office: Regional Solid Waste Manager; 208 West Third Street, Suite 101, Williamsport, PA 17701.

o Leachate Detection Zone:

(a) Two layers of geonet drainage material between the primary and secondary liner. One layer may be used on side slopes if the interface friction angles of two layers are too low.

(b) Bottom ash with a permeability of >/= $1x10^{-2}$ cm/sec, </= 15% carbonate content by weight, maximum particle size of 3/8-inch and no greater than 7% passing the #200 sieve.

o Leachate Collection Zone/Protective Cover:

(a) Bottom ash with a permeability of >/= $1x10^{-2}$ cm/sec, <15% carbonate content by weight, maximum particle size of 3/8-inch and no greater than 7% passing the #200 sieve.

(b) Protective cover aggregate with maximum particle size of 3/8-inch and permeability of $1x10^{-3}$ cm/sec. Except on slopes of 25%, the protective cover must be underlain by a geonet drainage layer.

(c) Protective cover aggregate with a maximum particle size of 1 ½-inches. The protective cover is underlain by two layers geonet and a 10 oz/sq yd, non-woven geotextile.

(d) Modified AASHTO #7 and #8 with 99% by weight passing the 3/8-inch sieve and maximum particle size of ½-inch.

(e) Shredded tires: 15 inches of tire chip material overlying 12 inches of protective cover material.

o Alternate Daily/Intermediate Cover:

(a) Foam-Rusmar AC-645 and AC-667-SE Long Duration foam to be applied at a minimum of 6 inches thick. Foam may only be applied if waste placement is to be resumed the next morning and only under certain weather conditions.

(b) Tarps-Cormier WP-1440FR, Integra 12FR, and Airspace Saver TGNN-FR applied as daily cover. Certain operational and placement restrictions exist.

(c) Foundry sand/refractory material.

(c) Paper sludge.

(d) Foundry sand for the bottom six inches of the twelve-inch intermediate cover layer.

(f) Wood bottom ash.

(g) New Waste Concepts, Inc. products ProGuard® IIB+, ConCover® SW and ConCover® 180 insofar as the use meets the requirements of 25 Pa. Code § 273.232. Certain operational and placement restrictions exist.

(h) Gas drilling residuals insofar as the use meets the requirements of 25 Pa. Code § 273.232. Certain operational and placement restrictions exist.

(i) Fabcon, Inc. concrete wall production waste insofar as the use meets the requirements of 25 Pa. Code § 273.232.

o Treated leachate to be used in the formulation of Rusmar AC-645 foam product which is used as daily cover.

Southwest Regional Office: Michael Forbeck, Regional Solid Waste Manager; 400 Waterfront Drive, Pittsburgh, PA 15222-4745.

o Sub-base: 33% slope (Y & S, Arden, Valley, CBF, Southern Alleghenies)

o Detection Zone:

(a) Non-rounded crusher sand (RCC).

(b) Geonet (RCC, Brunner, Sanitary, Southern Alleghenies, Y & S, Valley, Laurel Highlands, Mostoller, CBF).

(c) Geonet with pipes on 300-foot centers (Monroeville).

(d) Geonet with pipes on maximum 630-foot centers (Arden).

(e) AASHTO #8 stone (Southern Alleghenies, Sanitary, BFI).

(f) Aggregate with 0.1 cm/sec (BFI).

(g) Pea gravel (BFI).

(h) Shot gravel (Sanitary).

o Protective Cover/Collection Zone:

(a) AASHTO #8 modified stone; 0-2% <#200 (Valley, Mostoller, Southern Alleghenies, Brunner).

(b) AASHTO #8 stone (CBF, Brunner, Sanitary, Southern Alleghenies, Pellegrene).

(c) Non-rounded crusher stone (RCC).

(d) Geonet with 0.1 cm/sec aggregate or with pea gravel (BFI).

(e) ASTM #2 stone (Greenridge).

(f) Modified Protective Cover (Arden, Monroeville):

Size	**% Fines**
3/4”	100
1/2”	85-100
3/8”	0-100
#4	0-60
#8	0-50
#16	0-40
#200	0-2

(g) Modified Protective Cover (Arnoni):

Size	**% Fines**
1/2”	100
3/8”	<=3-5
#200	0-2

(h) Modified Protective Cover (Kelly Run, Pellegrene):

Size	**% Fines**
1/2”	100
3/8”	85-100
#200	0-2

(i) Modified Protective Cover (Y & S):

Size	**% Fines**
1/2”	100
3/8”	85-100
#4	10-55

(j) Composite protective cover system incorporating a stone layer and a tire chip layer (Arden, J&J, Kelly Run, Greenridge, Shade).

(k) Composite protective cover system incorporating a stone layer and a geotextile cushion layer between the stone and primary liner (Sanitary).

o Pipe Bedding (CZ and DZ):

(a) AASHTO #57 stone (Monroeville, Pellegrene, Southern Alleghenies).

(b) AASHTO #57 or modified stone; (90-100 percent passing in a 1-inch sieve, <2 percent passing #200) (Mostoller).

(c) AASHTO #67 stone (Sanitary).

o Daily Cover:

(a) Cormier WP-1440FR (Brunner, Monroeville, Shade, Southern Alleghenies, Valley, Sanitary, Arden, CBF, Imperial, Evergreen, Mostoller, Kelly Run, Greenridge, Laurel Highlands).

(b) Integra 12FR (Brunner, Sanitary, Laurel Highlands, Imperial, Arden, Evergreen, Kelly Run, South Hills, Greenridge).

(c) AC-645 Long Duration foam (Valley, Shade, Monroeville, Imperial, Greenridge).

(d) Chubb Terra foam (Monroeville).

(e) RECMIX Slag (Imperial, Arden, Sanitary).

(f) Thermally processed contaminated soil (Imperial).

(g) Steel slag (South Hills, Kelly Run, Greenridge, Imperial).

(h) Paper sludge (Laurel Highlands, Imperial, Greenridge).

(i) Foundry sand (Southern Alleghenies, Greenridge, Sanitary, Brunner, Mostoller, Arden, Laurel Highlands).

(j) USDA soil classification of clay loam (Greenridge).

(k) Construction/demolition waste (Greenridge, Imperial).

(l) Virgin fuel contaminated soil (with AQ Approval) (Greenridge, Valley, Imperial).

(m) Steel plant residual wastes (Arden, Monroeville, Valley, South Hills, Kelly Run, Greenridge).

(n) Industrial wastewater sludge (Greenridge).

(o) Municipal incinerator ash (Shade, Southern Alleghenies, Laurel Highlands, Imperial, Arden, Valley).

(p) Auto shredder fluff (Shade, South Hills, Monroeville, Southern Alleghenies, Greenridge, Laurel Highlands, Imperial, Mostoller, Evergreen, Valley).

(q) SaniCover WI-12FR (Mostoller).

(r) Fabrene Fabrics Type L257 (Mostoller).

(s) Posi-Shell (Imperial, Greenridge, Mostoller).

(t) Dredge material (Greenridge, Imperial, South Hills, Mostoller, Valley, Monroeville).

(u) Coal ash (Greenridge, Imperial).

(v) Non-petroleum contaminated soil (Kelly Run, Mostoller).

(w) Sludge-derived synthetic soil (Imperial, Greenridge)

(x) Soil-like residual waste (Imperial).

(y) Short paper fiber (Imperial).

(z) Composted municipal sewage sludge (Imperial, Mostoller).

(aa) Water treatment plant sludge (Imperial, Mostoller, Greenridge).

(bb) ConCover® (New Waste Concepts) (Greenridge)

o Intermediate Cover:

(a) USDA soil classification of clay loam (Greenridge).

o Final Cover/Grading:

(a) 10-foot wide terraces at every 20-foot rise and terrace cross-slope = 7.5% (RCC).

(b) 40-foot wide terraces at every 40-foot rise (Mostoller).

(c) 20-foot wide terraces at every 40-foot rise (Pellegrene).

o Leachate Impoundment:

(a) 6-inch fabri-form, sand and mortar cement revetment for protective cover (Laurel Highlands, Southern Alleghenies).

(b) Pepco-Mat P125 for protective cover (Brunner)

o Highwall Barrier:

(a) 1×10^{-8} cm/sec for 2-foot bentonite amended soil (Y & S).

(b) >/= 18 percent clay content (Arnoni).

Northwest Regional Office: Todd Carlson, Regional Solid Waste Manager; 230 Chestnut Street, Meadville, PA 16335-3481.

o Exterior Slopes: 50-foot maximum rise in elevation with slopes between benches 33% (Lake View, Seneca).

o Sub-base:

(a) Slope to a maximum of 50% for interior berms with a maximum height of 6 feet; used to separate waste cells (Lake View, Northwest).

(b) Slope to a maximum of 33% for interior berms (McKean County, County, Seneca, Greentree).

o Monitoring wells:

(a) Installation of 2-inch diameter well casing instead of 4-inch casing (Lake View).

(b) Installation of anodized aluminum well protective casing instead of a steel casing for upper 10 feet of monitoring wells (Lake View).

o Leachate Detection Zone:

(a) Use of geonet above the secondary liner (Lake View, Northwest, McKean County, County, Greentree).

(b) Use of geonet stack trench system (County, Seneca).

- Leachate Collection Zone/Protective Cover/Leachate Detection Zone: Use of a 3/8-inch maximum diameter stone (Lake View, Northwest, McKean County, County, Greentree, Seneca).

- Protective Cover:

  (a) Use of a minimum 12-inch thick layer of protective cover with a 16 oz/sq yd geotextile cushion. Leachate collection pipes and sump areas shall have a minimum 18-inch thick layer of protective cover material (Seneca).

  (b) ASSHTO #57 material with rounded to subangular classification (Seneca, Greentree).

  (c) 1.5-inch maximum particle size (subangular to angular classification), underlain by two 16 oz/sq yd geotextile cushions (Greentree).

  (d) 15-inch layer of tire chip material placed on a minimum 12-inch layer of granular soil material (Seneca, McKean County, County, Greentree).

- Daily Cover:

  (a) USDA soil classification of clay loam (Lake View, Northwest, Greentree).

  (b) Sludge derived synthetic soils (SDSS). SDSS is comprised of municipal sewage treatment system sludges which have been stabilized by a method approved by the Department which meets EPA "Process to Further Reduce Pathogens" (Lake View, Northwest, Seneca, Greentree).

  (c) Foam products - Rusmar, 3ML-9791, Sani-Foam. Foams may only be applied in areas which will receive additional waste within 24 hours (Lake View, Northwest, Seneca, County, Greentree).

  (d) Coal ash - May only be applied in areas which will receive additional waste within 24 hours (Lake View, Seneca, County, Greentree).

  (e) Construction/demolition waste - soil cover must be placed at end of each week (Lake View, County).

  (f) Foundry sand and refractory materials (Northwest, Seneca, County, Greentree).

  (g) Steel mill scale (Northwest, Seneca).

(h) Slag (Seneca, Greentree).
(i) Recmix Final Aggregate, processed slag (Northwest).

(j) Lake Erie dredge material (Lake View).

(k) Auto shredder fluff (Lake View).

(l) De-inking sludge

(m) Water treatment plant sludge (Greentree).

(n) Geosynthetic tarps (County, Seneca, Greentree, Northwest, McKean County).

(o) Broken and commingled glass waste; limited to working face slopes where waste hauling vehicles do not travel and to glass that can be easily recycled. (Seneca)

o Intermediate Cover:

(a) Sludge derived synthetic soils (SDSS). SDSS is comprised of municipal sewage treatment system sludges which have been stabilized by a method approved by the Department which meets EPA "Process to Further Reduce Pathogens" (Lake View, Greentree, Seneca).

(b) USDA soil classification of clay loam for the bottom six inches of the intermediate cover (Lake View, Northwest).

(c) Coal ash - may be used as the bottom six inches of the intermediate cover (Lake View).

(d) Dredge material (Greentree).