

(A) Detail engineering plans, specifications, and information included within an application for a permit to install to establish or modify an industrial facility shall be shown by means of drawings and narrative descriptions where appropriate, which shall be prepared in accordance with this rule and in the manner specified by rule 3745-525-400 of the Administrative Code. Minimum dimensions of the plan sheets shall be twenty-four inches by thirty-six inches.

(B) Cover sheet. The detail engineering plan cover sheet, to be numbered sheet 1, which shall contain the following information:

- (1) The name of the industrial facility.
- (2) The precise geographic location and boundaries of the industrial facility and the area within a five-mile radius shown on a road map with a scale of one inch equals no greater than one mile shall be used.
- (3) The name and address of the permit to install applicant and for the industrial facility.
- (4) The name and address of the industrial facility operator, if different from the applicant.
- (5) The name and address of each owner of the land to be used for the industrial facility.
- (6) The name and address of the person who prepared the plans.
- (7) An index of plan sheets.

(C) Plan drawings of the facility environs. Items specified in paragraphs (C)(2) to (C)(4) of this rule shall be shown on a series of plan sheets which shall be numbered consecutively: 2A, 2B, 2C, etc. All items specified in an individual subparagraph shall be shown on the same plan sheet or a note shall be on the plan sheet stating the item does not exist within the specified distance from the limits of waste placement. An individual plan drawing may contain information specified in more than one individual subparagraph. A scale of one inch equals no greater than two hundred feet shall be used. Plan drawings of the facility environs shall show items located within the boundary of the industrial facility or within one thousand feet of the limits of waste placement, whichever is greater, or as otherwise specified in this paragraph, which shall include the following:

- (1) All plan drawings required by paragraph (C) of this rule shall contain the following:
 - (a) The property lines of land owned or leased for the industrial facility as surveyed by a professional surveyor.

- (b) The limits of waste placement.
- (c) The location of any leachate conveyance apparatus outside of the limits of waste placement, and the location of any leachate storage structures.
- (d) The location of any sediment and storm water management basins.
- (e) All occupied structures.
- (f) Existing topography showing streams, lakes, springs, wetlands, and other surface waters, with a contour interval no greater than five feet.
- (g) The north arrow.
- (h) The location of all permanent survey marks.
- (i) The boundary of the industrial facility.

(2) The location and information for the following, based on publicly available information:

- (a) All zoning classifications, property owners, and political subdivisions.
- (b) All national parks or national recreation areas, candidate areas for potential inclusion into the national park system, and any state parks or established state park purchase areas.
- (c) The limits of any unconsolidated aquifer system that is capable of sustaining a yield of one hundred gallons per minute for a twenty-four-hour period. If the site investigation report amends the publicly available information, make a note on the plan sheet and include the amended limits.
- (d) The limits of any aquifer declared by the federal government to be a sole source aquifer under the “Safe Drinking Water Act” as described in rule 3745-500-03 of the Administrative Code.
- (e) The limits delineated or endorsed by Ohio EPA of all drinking water source protection areas for public water systems using ground water.
- (f) All public and private water supply wells located within two thousand feet of the limits of waste placement and any naturally occurring hydrogeologic barriers. Use a scale insert if necessary.

(g) All oil and gas wells and surface mining of coal and noncoal minerals located within two thousand feet of the limits of waste placement. Use a scale insert if necessary.

(h) All underground mining of coal and noncoal minerals located within two thousand feet of the limits of waste placement. Show the limits of the angle of draw where it intercepts the ground surface. Use a scale insert if necessary.

(i) All state nature preserves, state wildlife areas, national or state wild, scenic, or recreational rivers, nature preserves designated, owned and managed by the Ohio historical society, national wildlife refuges, special interest areas or research natural areas in the Wayne national forest, state resource waters, coldwater habitats, and exceptional warmwater habitats defined in Chapter 3745-1 of the Administrative Code.

(j) The location of all existing or proposed pipes and culverts, electric lines, phone lines, other utility lines, french drains, roads, and railroads, and any easements and rights of way bordering or within the proposed facility boundaries. Utilities not owned by the owner or operator shall be noted on the plan drawing.

(k) The limits of all regulatory flood plains and calculated one-hundred-year flood plains.

(l) The delineation of all streamway widths.

(m) All potential explosive gas migration pathways made by humans, including underground utilities such as sewers, water lines, and electric cables, field tiles, french drains, and pipelines; and all other potential sources of explosive gas including oil wells, gas wells, and other landfills. This paragraph applies only to industrial facilities accepting for disposal putrescible waste, as determined by rule 3745-525-602 of the Administrative Code.

(3) The limits of disturbance and the boundary of the industrial waste facility.

(4) For industrial lagoons, the industrial liquid waste pipe system from the point of generation or pump station to the industrial lagoon. Use a scale insert if necessary.

(D) Plan drawings of the facility. Items specified in paragraphs (D)(2) to (D)(7) of this rule shall be shown on a series of plan sheets which shall be numbered consecutively: 3A, 3B, 3C, etc. All items specified in an individual subparagraph shall be shown on the same plan sheet unless specified below. An individual plan drawing may contain information specified in more than one individual subparagraph. A scale of one inch equals no greater

than two hundred feet shall be used. The plan drawings shall be prepared and sealed by a professional engineer, with the exception of any plan drawings that show only the information specified in paragraph (D)(3) of this rule which shall be prepared by a qualified ground water scientist. The plan drawings of the facility shall show items located within three hundred feet of the limits of waste placement, which shall include the following:

(1) For all plan drawings required by paragraph (D) of this rule, the items specified in paragraph (C)(1) of this rule shall be shown on the plan drawings.

(2) The location of the following:

(a) All subsurface investigation sites, which consist of any location where subsurface conditions are investigated by data collection or evaluation, including but not limited to borings, test pits, monitoring wells, piezometers, tensiometers, dutch cone penetrometers, geophysical survey stations, and soil gas survey stations.

(b) The proposed ground water monitoring locations. The extent of a ground water monitoring location shall not exceed eight thousand square feet. If a ground water monitoring well already exists in the location, show and identify the monitoring point.

(3) Potentiometric maps of the uppermost aquifer system and all significant zones of saturation above the uppermost aquifer system. More than one plan sheet may be used.

(4) The location of any permanent or temporary ground water control structures.

(5) The location of any existing or proposed explosive gas extraction systems.

(6) For an industrial landfill, a diagram delineating the phases of the industrial facility.

(7) For an industrial landfill, the land available for installing leachate treatment works as required in paragraph (K) of rule 3745-525-610 of the Administrative Code or paragraph (N)(2) of rule 3745-525-620 of the Administrative Code, as appropriate, or any proposed on-site treatment works.

(E) Plan drawings showing boundaries and elevations. Items specified in paragraphs (E)(1) to (E)(11) of this rule shall be shown on plan sheets numbered consecutively 4A, 4B, 4C, etc. The scale on these drawings shall be one inch equals no greater than two hundred feet and contour intervals shall be no greater than five feet for slopes less than or equal to twenty-five per cent and ten feet for slopes greater than twenty-five per cent. The plan drawings shall be prepared and sealed by a professional engineer. Plan drawings for the entire industrial facility shall include the boundaries and elevations of the following:

- (1) The horizontal and vertical limits of excavation proposed in the permit to install application, showing any areas where added geologic material is to be placed, and any temporary ground water control structures.
- (2) The top of the uppermost aquifer system, the basal elevations of the liner system, or if no liner system is proposed, the basal elevations of the leachate collection system, and an isopach depicting the intervening distance.
- (3) For an industrial lagoon with a leak detection system, the proposed horizontal limits and top elevations of the underlying flexible membrane liner, the proposed layout of leachate collection pipes and sumps, and elevations of pipe inverts.
- (4) If a recompacted soil liner is required, the proposed horizontal limits and top and basal elevations of the recompacted soil liner. If a recompacted soil liner is not required, the proposed horizontal limits and top and basal elevations of any embankments.
- (5) The proposed top elevation of the leachate collection layer, pipe inverts, layout of the leachate conveyance system, any leachate storage structures, and any structural berms.
- (6) The horizontal limits and top and basal elevations of any existing industrial waste and proposed waste placement.
- (7) If a separatory leachate barrier and collection system is required, the proposed horizontal limits and top and basal elevations of the separatory leachate barrier and collection system.
- (8) The proposed horizontal limits and top and basal elevations of the cap system, if waste will remain at closure; proposed surface water control structures including permanent ditches to control run-on and runoff; any sediment and storm water management basins including the proposed inlet and outlet; any waste dewatering structures; and any permanent ground water control structures.
- (9) A grid system with northings and eastings not more than five hundred feet apart.
- (10) For an industrial lagoon, the proposed location and elevations of any pipe systems used to convey industrial waste to and from the industrial lagoon.
- (11) The access roads.

(F) Cross sections. Items specified in paragraphs (F)(1) to (F)(4) of this rule shall be shown on plan sheets numbered consecutively 5A, 5B, 5C, etc. and shall clearly show the horizontal and vertical scale used. The plan drawings shall be prepared and sealed by a

professional engineer with the exception of the plan drawings specified by paragraph (F)(1) of this rule which shall be prepared by a qualified ground water scientist. Cross sections shall include the following:

- (1) The hydrogeology of the industrial facility intercepted by borings or other subsurface investigation methods showing the following:
 - (a) Existing topography.
 - (b) The horizontal and vertical limits of excavation proposed in the permit to install application.
 - (c) The horizontal limits and top and basal elevations of any added geologic material.
 - (d) The horizontal limits and basal elevations of the recompacted soil liner, if one is required.
 - (e) Geologic stratigraphy and significant zones of saturation corresponding to information from the subsurface investigation.
 - (f) The uppermost aquifer system and all saturated stratigraphic units above the uppermost aquifer system.
 - (g) All subsurface investigation logs, and monitoring well and piezometer construction diagrams, intercepted by the cross section.
 - (h) Any permanent or temporary ground water control structures.
 - (i) Any leachate conveyance apparatus outside the limits of waste placement and any leachate storage structures.
- (2) The perimeter of the property showing the naturally occurring potential explosive gas migration pathways. This requirement applies only to facilities accepting putrescible waste, as determined by rule 3745-525-602 of the Administrative Code, for disposal.
- (3) Three equally spaced cross sections across the length and three equally spaced cross sections across the width of the industrial facility showing the following:
 - (a) Existing topography.
 - (b) The proposed horizontal and vertical limits of excavation.
 - (c) The horizontal limits and top and basal elevations of all existing waste and all proposed areas of waste placement. For an industrial lagoon, the high water and low water marks.

(d) The horizontal limits and top and basal elevations of the proposed cap system, if waste will remain at closure.

(4) If the permit to install application is for a vertical expansion to extend the upper limits of waste placement, the following at an interval not greater than every three hundred feet of length and width of the vertical expansion:

- (a) Limits of existing waste with the date of the survey.
- (b) Approved and proposed limits of waste placement.
- (c) Separatory leachate barrier and collection systems, if required.
- (d) Limits of existing liner under existing waste, if any.

(G) Phase drawings. Items specified in paragraphs (G)(1) and (G)(2) of this rule shall be shown on plan sheets numbered consecutively 6A, 6B, 6C, etc. The plan drawings shall be prepared and sealed by a professional engineer. Plan drawings showing the systematic development of each phase of the industrial facility shall show the phase, all previously operated phases, the grid system established in accordance with paragraph (E)(9) of this rule, and include the following:

(1) For an industrial landfill, the phase drawings shall include the following:

- (a) The location of any ground water monitoring wells, piezometers, explosive gas permanent monitors and punch bar stations and alarms, the leachate management system, and surface water control structures to be installed prior to accepting waste in the depicted phase.
- (b) The extent of waste placement for that phase.
- (c) The contours of any previously filled phases.
- (d) The limits of cap system, transitional cover, and intermediate cover on the previously filled phases.
- (e) The contours of the basal limits of waste placement for the depicted phase.
- (f) The tie-in area, if any.
- (g) The location of access roads for the depicted phase.
- (h) The permanent and temporary measures to be utilized to control surface water run-on and runoff, and erosion, any waste dewatering

structures, and any temporary or permanent ground water control structures.

(2) For an industrial lagoon, the phase drawing shall include the following:

(a) The location of the ground water monitoring wells, piezometers, explosive gas permanent monitors and punch bar stations and alarms, the leachate management system, and surface water control structures.

(b) The location of access roads.

(c) The permanent and temporary measures to be utilized to control surface water run-on and runoff, and erosion, and any temporary or permanent ground water control structures.

(d) Piping, level and flow control structures, and any industrial waste dewatering structures.

(H) Detail drawings. Items specified in paragraphs (H)(1) to (H)(14) shall be shown on plan sheets numbered consecutively 7A, 7B, 7C, etc. The plan drawings shall be prepared and sealed by a professional engineer, except as noted. Detail drawings shall include the following:

(1) If existing or proposed, the leak detection system, recompacted soil liner, flexible membrane liner, geosynthetic clay liner, liner cushion layer, leachate collection layer, and filter layer, including any engineered components that are constructed through the liner system or liner protection layer, and the run-out of each component in the tie-in area between phases.

(2) Structural berms and embankments, if any.

(3) Cap system, if waste will be left in place at closure, including if existing or proposed, the following:

(a) The gas collection layer, soil barrier layer, flexible membrane liner, cushion layer, drainage layer including piping and outlets, cap protection layer.

(b) Any engineered components that are constructed through the cap system.

(c) Surface water control structures.

(d) The interface between the cap system and the leachate management system and the liner system.

(4) For the leachate management system and leak detection system, if required, show all system elements, including but not limited to the following:

(a) Leachate collection layer.

(b) Cushion layer

(c) Permeable material layer.

(d) Collection pipes, including bedding media and boots.

(e) Filter layer.

(f) Sumps and pumps, including the high level alarm.

(g) Conveyance apparatus.

(h) Leachate holding tanks, including leachate load-out facilities.

(5) Permanent or temporary ground water control structures, if any.

(6) Industrial waste dewatering structures, if any, including any interfaces with other engineered components.

(7) Ground water monitoring well and piezometer construction, if any. This detail shall be prepared by a qualified ground water scientist.

(8) Explosive gas extraction system elements, if any.

(9) Separatory leachate barrier and collection system, if required, including the interface between the separatory leachate barrier and collection system with the leachate management system, if appropriate.

(10) For a contiguous lateral expansion, the interface between existing waste and if existing or proposed, the recompacted soil liner, flexible membrane liner, geosynthetic clay liner, liner cushion layer, leachate collection layer, and filter layer.

(11) For industrial lagoons, if existing or proposed, the industrial liquid waste piping system, piping entrance, piping exit, piping erosion controls, manholes, cleanout wyes, seepage prevention, and level and flow control structures.

(12) Sediment and storm water management basins and discharge structures and surface water run-on and runoff control structures.

(13) Other necessary details including, but not limited to, transitional cover and industrial liquid waste pump station.