EST 1808
CITY OF
DELAWARE
OHIO

INFRASTRUCTURE DESIGN MANUAL

APPENDIX F
AIRPORT REQUIREMENTS

Introduction

The City of Delaware (City) owns and operates Delaware Municipal Airport – Jim Moore Field. For land development activities, the Public Works Department Traffic & Engineering Services Division monitors the following in the vicinity of the airport: (1) the height of temporary and permanent objects; and (2) design of stormwater facilities to discourage nuisance waterfowl. These two subjects are described below.

This information is provided by the City as a summary of requirements that are impactful to new development and to redevelopment in the vicinity of the airport. This information and the requirements described below are not intended to take the place of other pertinent regulations by the City or any other jurisdiction including the Federal Aviation Administration (FAA).

Airport Data

Runway Dimensions:	5,800 ft. x 100 ft.
Established Airport Elevation:	945.00
Runway 10 Approach Elevation:	944.21
Runway 28 Approach Elevation:	944.67
Runway High Point:	945.08

Height of Temporary and Permanent Objects

FAA requirements pertaining to the height of temporary or permanent objects in the vicinity of the airport are published in Title 14 Code of Federal Regulations (CFR) Part 77, otherwise known as FAR Part 77. Information about two main FAA criteria related to the height of objects is presented here: (1) Obstruction Limitations; and (2) Notification Threshold Elevations.

Obstruction Limitations

FAA Part 77 includes obstruction standards that define elevations (called imaginary surfaces) above which objects would be classified as "obstructions to air navigation". An object deemed to be an obstruction to air navigation does not automatically disqualify construction of the object. Rather, the obstruction would need evaluated and approved by the FAA and ODOT.

The attached FAA Part 77 Exhibits, Sheet 1 of 2 provides elevations of the imaginary surfaces as defined by FAA Part 77, section 19. This exhibit includes an aerial image background for assistance in determining the imaginary surface elevation at a site.

Notification Threshold Elevations

The notification surface is comprised of elevations below the imaginary surface for obstructions. Temporary or permanent objects proposed with a height that exceeds the notification surface must be reviewed by the FAA and ODOT. This review is initiated by completing and submitting Form 7460-1 to the FAA well as permitting required by ODOT . This form is available at FAA regional offices and on the internet.

Notification and Permitting

Where required to notify the FAA, submit Form 7460-1 to the FAA in accordance with the instructions on the form.

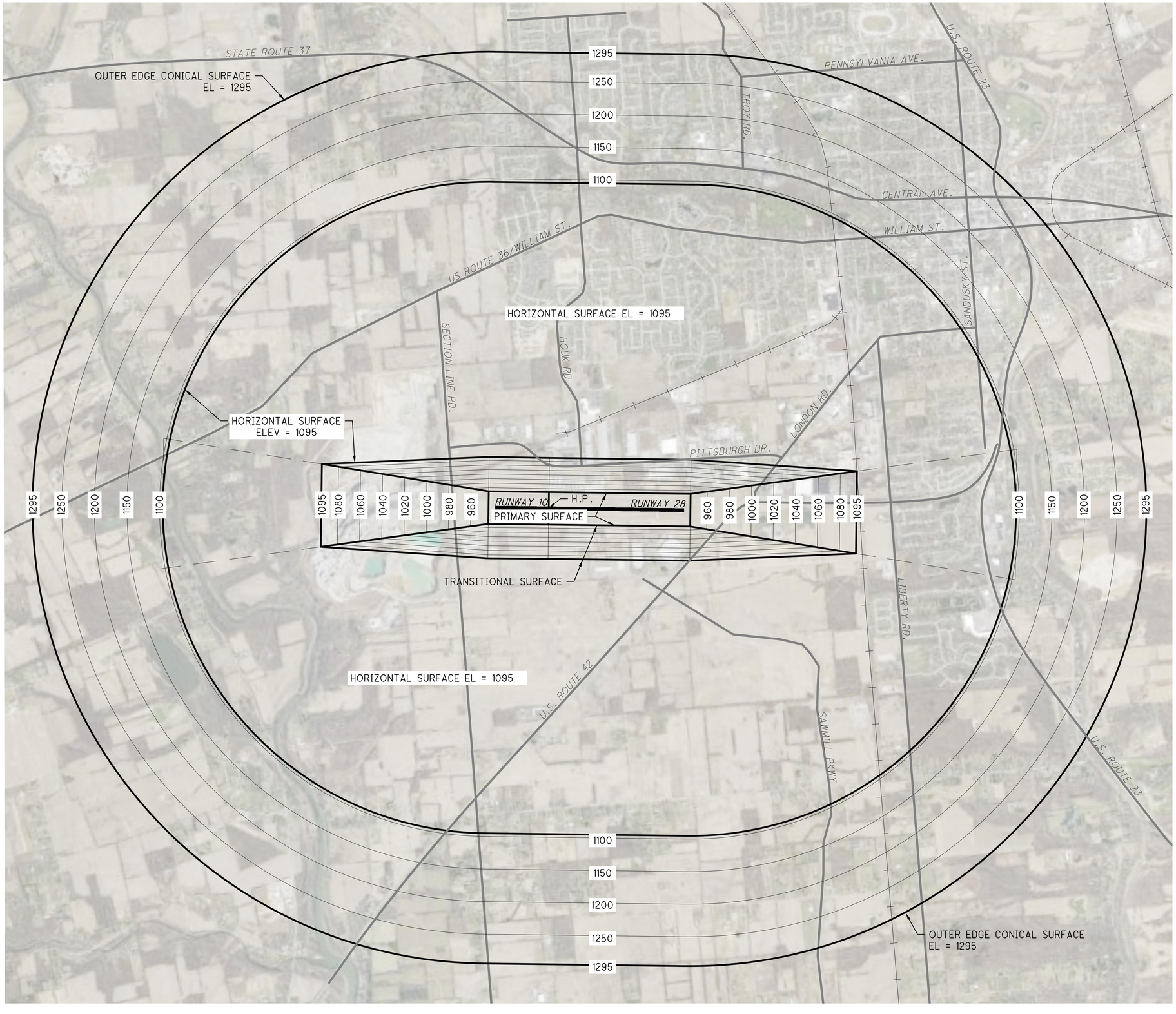
In addition to notifying the FAA, a permit is required to be issued by the Ohio Department of Transportation, Office of Aviation. The filing and permitting requirements are found in the Ohio Administrative Code Section 5501:1. For additional information, see the attached "Airspace Protection" document provided by ODOT.

Design of Stormwater Facilities to Discourage Nuisance Waterfowl

The presence of waterfowl at or near the airport runway are considered a nuisance that can be dangerous to aviation. This concern must be balanced with the need for stormwater management systems necessary for the control of release rates and to meet stormwater quality requirements. Therefore, the City has developed criteria for stormwater management systems located within 5,000 feet of the runway. See the attached exhibits "Airport Vicinity Criteria" for these criteria.

In the first zone, within 2,500 feet of the runway, retention basins (wet basins) are not permitted. The most common alternative to a retention basin is a detention basin (dry basin). The attached exhibits include requirements for detention basins in this zone. It should be noted that these detention basin criteria do not include a sediment forebay or micropool as would normally be required by the Ohio Environmental Protection Agency (OEPA). Therefore, alternate methods of providing water quality treatment should be utilized and approved by the City and OEPA. The detention basin requirement does not prohibit the use of other stormwater management systems, such as below-grade detention.

In the second zone, from 2,500 feet to 5,000 feet from the runway, either detention basins or retention basins with certain design criteria may be used. Specifically, the design of a retention basin in this zone is required to include a minimum of 10 feet wide crushed aggregate slope protection around the entire perimeter of the basin to discourage nuisance waterfowl.



N

0 1500 3000 4500

AIRPORT DATA:

ESTABLISHED AIRPORT ELEVATION = 945.00

RUNWAY 10 APPROACH ELEVATION = 944.21 AT WESTERN MOST EDGE OF PAVEMENT (ROUNDED TO 944.00 FOR PURPOSES OF THIS EXHIBIT)

RUNWAY 28 APPROACH ELEVATION 944.67 AT EASTERN EDGE OF PAVEMENT (ROUNDED TO 945.00 FOR PURPOSES OF THIS EXHIBIT)

A RUNWAY HIGH POINT OF 945.08 EXISTS WHERE INDICATED BY "H.P." (ROUNDED TO 945.00 FOR PURPOSES OF THIS EXHIBIT)

NOTES:

THE PRIMARY SURFACE IS CENTERED ON THE RUNWAY CENTERLINE, EXTENDS PAST BOTH ENDS OF THE RUNWAY FOR 200 FT., HAS A TOTAL WIDTH OF 1,000 FT., AND HAS AN ELEVATION EQUAL TO THE RUNWAY ELEVATION AT A POINT PERPENDICULAR TO THE PRIMARY SURFACE.

THE HORIZONTAL SURFACE IS A HORIZONTAL PLANE AT AN ELEVATION OF 1095 FT. (150 FT. ABOVE THE ESTABLISHED AIRPORT ELEVATION), THE EDGE OF WHICH IS ESTABLISHED BY SWINGING 10,000 FT. RADIUS ARCS FROM THE INTERSECTIONS OF THE EXTENDED RUNWAY CENTERLINE AND PRIMARY SURFACE AND CONNECTING THE ARCS WITH TANGENTIAL LINES.

THE CONICAL SURFACE EXTENDS PAST EDGE OF THE HORIZONTAL SURFACE FOR 4,000 FT. AT A SLOPE OF 20:1

THE TRANSITIONAL SURFACE EXTENDS OUTWARD AND UPWARD FROM THE SIDES OF THE PRIMARY SURFACE AND APPROACH SURFACE AT A SLOPE OF 7:1

REVISIONS

No.	DATE	DESCRIPTION	APPROVED

CITY OF DELAWARE, OHIO
MUNICIPAL AIRPORT
FAA PART 77 EXHIBITS

FAA PART 77
IMAGINARY SURFACES
FOR OBSTRUCTION LIMITATIONS

EST. 1808 CITY OF DELAWARE OHIO

DATE ISSUED:
8/30/2018

SHEET
1 OF 2

S:\ENGINEERING\ENGINEERING DEPARTMENT\STANDARDS AND SPECIFICATIONS\2018 STANDARDS_SPECIFICATIONS_AND TECHNICAL DESIGN MANUAL\FINAL FILES\DESIGN MANUAL\APPENDIX F - AIRPORT RELATED INFORMATION\CADD\HEIGHT RESTRICTION EXHIBIT.DWG - 11/20/2018 6:04:05 PM



1. NOTIFICATION MUST BE SUBMITTED TO THE FEDERAL AVIATION ADMINISTRATION (FAA) ON FORM 7460-1 IN ACCORDANCE WITH THE REQUIREMENTS OF FAR PART 77, SECTION 9 FOR (A) ANY CONSTRUCTION OR ALTERATION THAT EXCEEDS 200 FT. ABOVE GROUND LEVEL (AGL); OR (B) ANY CONSTRUCTION OR ALTERATION THAT EXCEEDS AN IMAGINARY SURFACE EXTENDING OUWARD AND UPWARD FROM THE EDGE OF THE RUNWAY FOR 20,000 FT. AT A H:V SLOPE OF 100:1. NOTIFICATION MUST BE SUPPLIED WHEN ANY OF THE OTHER CRITERIA OF FAR PART 77 IS MET AND WHEN REQUESTED BY THE FAA.

REVISIONS

No.	DATE	DESCRIPTION	APPROVED

CITY OF DELAWARE, OHIO
MUNICIPAL AIRPORT
FAA PART 77 EXHIBITS

FAA PART 77
NOTIFICATION THRESHOLD
ELEVATIONS

EST. 1808 CITY OF DELAWARE OHIO

DATE ISSUED:
8/30/2018

SHEET
2 OF *2*

S:\ENGINEERING\ENGINEERING DEPARTMENT\STANDARDS AND SPECIFICATIONS\2018 STANDARDS_SPECIFICATIONS_AND TECHNICAL DESIGN MANUAL\FINAL FILES\DESIGN MANUAL\APPENDIX F - AIRPORT RELATED INFORMATION\CADD\HEIGHT RESTRICTION EXHIBIT.DWG - 11/20/2018 6:04:14 PM

AIRSPACE PROTECTION







Guidance and considerations for development in the vicinity of Ohio's airports and heliports

UPDATED SPRING 2018

OHIO DEPARTMENT OF TRANSPORTATION

AIRSPACE PROTECTION

When construction is proposed near public use airports and heliports in the State of Ohio, airport authorities, local government officials, zoning and building departments, contractors and everyone else in the planning and construction process should be aware of federal and state notification and permitting requirements.

The criteria for when the Federal Aviation Administration (FAA) requires notification is found in *14 Code of Federal Regulations (CFR) (a.k.a. Federal Aviation Regulations [FAR]) Part 77 - Safe, Efficient Use, and Preservation of the Navigable Airspace)*. In addition to notifying the FAA, a permit is required to be issued by the Ohio Department of Transportation, Office of Aviation. The filing and permitting requirements are found in the *Ohio Administrative Code Section 5501:1*.

IT *MAY* BE A PROBLEM IF:

The proposed construction, alteration or associated construction equipment exceeds (or in the case of trees and other vegetation may eventually exceed) any of the following limits:

- The project is 200 feet or more above ground level at any location within the State of Ohio;

OR

The closer the proposed project is to an airport or heliport, the shorter the structure must be.

- The proposed project is between 0 feet and 200 feet above ground level and;
  - Within 20,000 feet of an Airport with a runway length greater than 3,200 feet; or
  - Within 10,000 feet of an Airport with a runway length less than 3,200 feet; or
  - Within 5,000 feet of a Heliport

…then you need to file a notification and get permission to build, alter or plant.



FILE BEFORE YOU BUILD

WHO: The owner of the land, the development or the project that wants to construct, build or alter any structure or plant anything near an airport or heliport (overpasses, light poles, antenna or cell towers, wind turbines, buildings, billboards, trees…)

WHAT: 1. File FAA Form 7460-1 "Notification of Proposed Construction or Alteration" with the FAA
and
2. Obtain a permit from the Ohio Department of Transportation, Office of Aviation.

WHEN: 90 days prior to the proposed start of construction (45 days for the FAA review and an additional 45 days for ODOT's review)

WHERE: File electronically at http://oeaaa.faa.gov

WHY: To protect the navigable airspace from obstructions, obstacles and hazards.

NOTIFICATION PROCESS

All Four Steps are required even if the FAA issues a Determination of No Hazard

Step 1:

Determine if notification is required based on height of the project and the distance of the project from the runway or helipad.

Step 2:

Submit FAA Form 7460-1 to the FAA.

Step 3:

FAA determines that the project does not adversely affect the surrounding airspace and issues a Determination of No Hazard. Proceed to Step 4 on state level.
OR
Notice of presumed hazard determination is issued.

Step 4:

ODOT conducts an independent aeronautical study and issues a permit
OR
a permit and waiver
OR
ODOT denies the permit.

WHEN IS A PERMIT APPLICATION (FAA FORM 7460-1) REQUIRED?

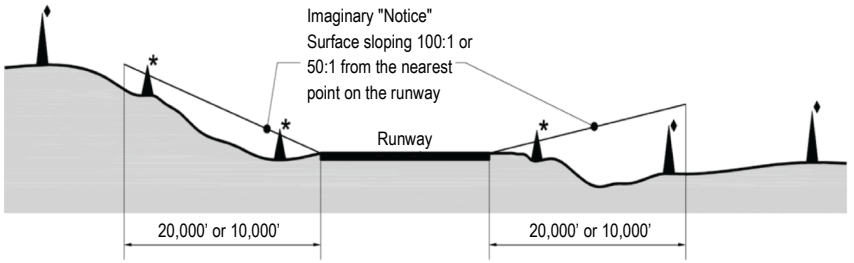
The FAA Form 7460-1 must be filed for any proposed construction, alteration or associated construction equipment of 200 feet or more in height.

Additionally, any construction or alteration that exceeds extending outward and upward in excess of one of the following slopes requires filing:

i) 100 to 1 slope for a horizontal distance of 20,000 feet from the nearest public use runway greater than 3,200 feet in length, excluding heliports.

ii) 50 to 1 slope for a horizontal distance of 10,000 feet from the nearest public use runway less than 3,200 feet in length, excluding heliports.

iii) 25 to 1 slope for a horizontal distance of 5,000 feet from the nearest touchdown and liftoff area of a public use heliport.



♦ §77.13(a)(1) Any proposed construction or alteration 200 feet or more in height above ground level (AGL) at its site requires notice

* §77.13(a)(2) Any proposed construction or alteration penetrating imaginary surfaces in proximity to runways or heliports require notice

Note: Proposed construction or alteration that is lower than 200 feet AGL and is lower than the 100:1 or 50:1 notification surfaces may require notification under other types of notification requirements. Please see §77.13 (a)(3), §77.13(a)(4) and §77.13(a)(5)

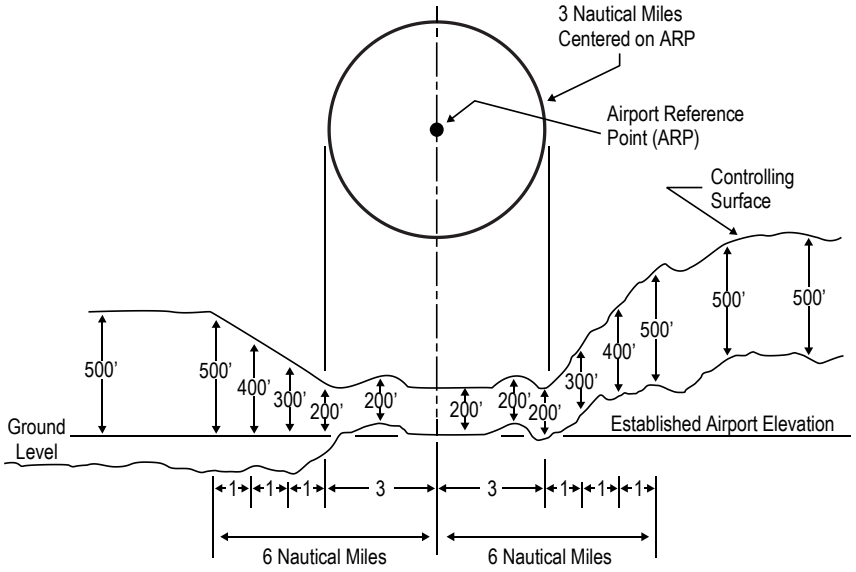
Sources: FAR Part 77. FAA Order 7400.2
Prepared by: Jacobs Consultancy

WHAT AIRSPACE DOES ODOT OFFICE OF AVIATION PROTECT?

ODOT Office of Aviation protects all of 14 CFR Part 77 airspace as a whole for every public use airport and heliport in the State of Ohio. These surfaces are described as:

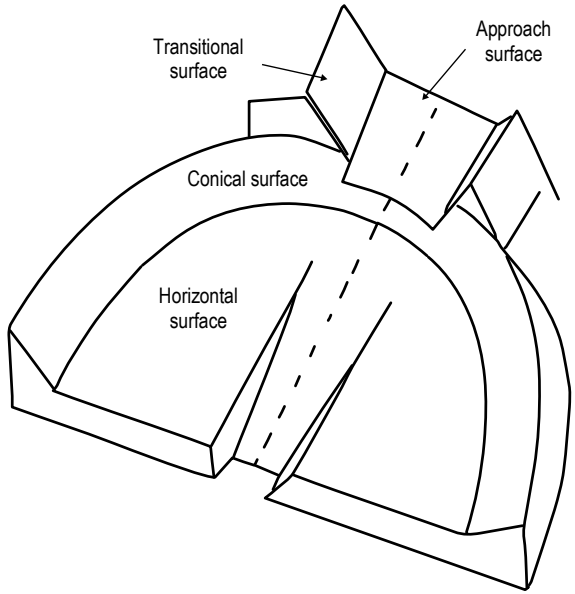
77.17 Obstruction Standards:

- 499 feet AGL anywhere in the State of Ohio
- 200 feet AGL or above airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport that has a runway more than 3,200 feet in length. This height increases at a rate of 100 feet per nautical mile up to a maximum of 499 feet.
- Any height within a terminal obstacle clearance area which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area to be less than the required obstacle clearance.



77.19 Civil Airport Imaginary Surfaces:

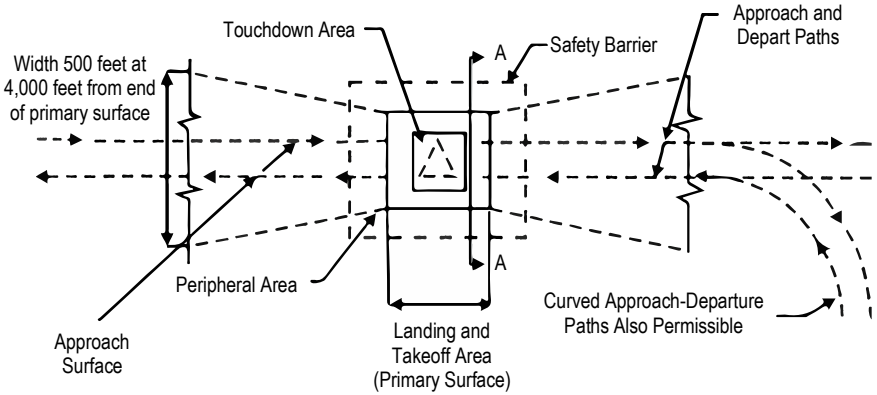
- **Horizontal Surface** – a surface 150 feet above the established airport elevation for a distance of 5,000 feet or 10,000 feet, depending on the classification of the runway
- **Conical Surface** – a surface extending outward and upward from the limit of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.
- **Primary Surface** – a surface centered longitudinally on the runway, the elevation of which is the same as the runway. The width and length are dependent on the classification of the runway.
- **Approach Surface** – a surface longitudinally centered on the extended runway centerline and extending outward and upward from the end of the primary surface. The width and length are dependent on the type of approach available or planned for each end of the runway.
- **Transitional Surface** – surfaces that extend outward and upward at right angles to the runway centerline and extended runway centerline at a slope of 7 to 1 from the sides of the primary surface and approach surface.

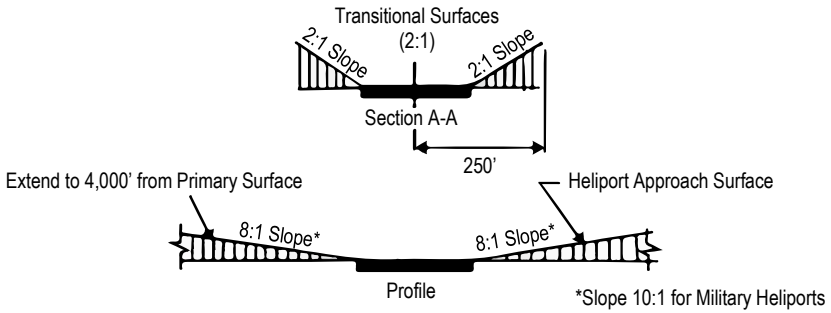


WHAT AIRSPACE DOES ODOT

77.23 Heliport Imaginary Surfaces:

- **Primary Surface** – a surface consisting of a horizontal plane at the elevation of the established heliport elevation that coincides in size and shape with the designated take-off and landing area.
- **Approach Surface** – a surface that begins at each end of the heliport primary surface with the same width as the primary surface, and extends outward and upward for a horizontal distance of 4,000 feet to a width of 500 feet. The slope of the approach surface is 8 to 1.
- **Transitional Surface** – surfaces that extend outward and upward from the lateral boundaries of the primary and approach surfaces for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces. The slope of the transitional surface is 2 to 1.





OFFICE OF AVIATION PROTECT?

PERMIT APPROVALS

A permit is issued, allowing the proposed construction to move forward.

PERMIT DENIALS

In accordance with the Ohio Administrative Code, anyone denied a permit has the right to request an administrative hearing pursuant to section 119.06 of the Revised Code.

WAIVER REQUESTS

The Department may grant a permit that includes a waiver from compliance with the obstruction standards. Waivers are based on sound aeronautical principles. The consideration of safety shall be paramount to considerations of economic or technical factors. Waivers are considered on a case by case basis.







DEFINITIONS

Airport: Any area of land or water used in maneuvering for landing and taking off of aircraft.

Aeronautical Study: The FAA's or State's review of the effects of proposed construction or alteration of a structure on navigable airspace.

AGL: Height Above Ground Level.

Hazard: An obstruction that is determined to interfere with air navigation.

Heliport: Any area used in maneuvering for landing and taking off of helicopters.

Imaginary Surface: A surface defined in 14 CFR Part 77 and used to identify objects that exceed that surface and may, therefore, affect air navigation. Imaginary surfaces are typically three-dimensional sloping surfaces and are determined based on approach and departure aircraft procedures.

Navigable Airspace: The air and surface space that an aircraft requires to remain clear of obstructions when taking off and landing at an airport or heliport.

Object: Any structure, natural or artificially made, permanent or temporary, existing or future, that lies within the notification criteria area surrounding any public use airport/heliport.

Obstacle: Any object that penetrates clearance requirements within 14 CFR Part 77 protected surfaces.

Obstruction: Any obstacle that impacts navigable airspace.

Runway: The surface of the airport used for landing and taking off of aircraft.

Traverse Way: Any roadway, highway, driveway, railroad, waterway or bikeway that allows mobile objects and vehicles to navigate.

RESOURCES

The Ohio Airport Directory:

All Public Use airports, heliports and seaplane landing areas and their runway lengths are listed in the Ohio Airport Directory.
The Ohio Airport Directory can be found online at:

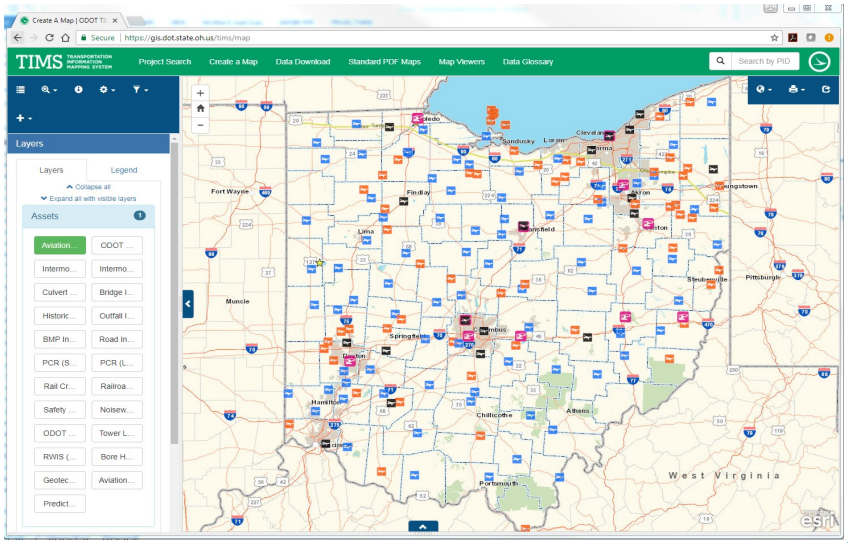
http://transportation.ohio.gov/aviation
& click on "Aeronautical Publications."

This information is available as well in ODOT's Transportation Information Mapping System (TIMS).

Transportation Information Mapping System (TIMS) found at:
http://gis.dot.state.oh.us/tims

Although notification is not required when building around private use airports and heliports, it is strongly encouraged. Coordinate with the private owner of the airport or heliport and ODOT, Office of Aviation. Private use airports, heliports, and seaplane bases can be located in the TIMS system.

Select "Create A Map", under "Assets", select "Aviation Facilities (Private Use)."



WHEN IN DOUBT

File a FAA Form 7460-1 "Notification of Proposed Construction or Alteration" at http://oeaaa.faa.gov

OR

Contact the Ohio Department of Transportation Office of Aviation

Contact Information:

ODOT Office of Aviation

2829 West Dublin-Granville Road

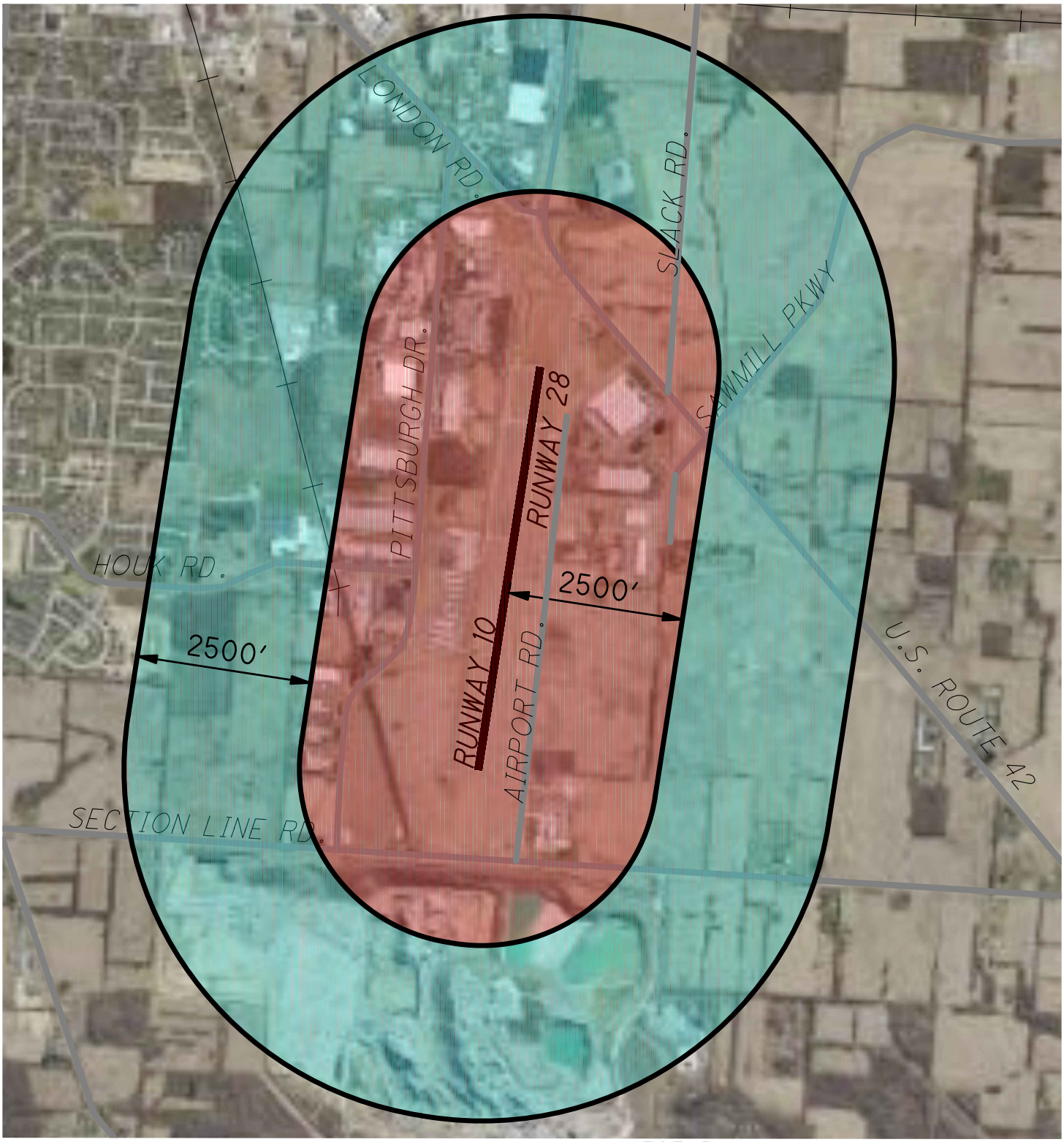
Columbus, Ohio 43235-2786

Ohio Airport Protection Hotline: (614) 466-6804

Ohio Airport Protection Toll Free: (855) 867-1852

Email: Ohio.Airport.Protection@dot.ohio.gov

Web: transportation.ohio.gov/aviation & click on *Ohio Airport Protection Act*



LEGEND

ONLY DETENTION (DRY) BASINS PERMITTED WITHIN 2,500 FT. OF RUNWAY, SEE EXHIBITS 2 AND 3 OF 4

DETENTION (DRY) BASINS OR RETENTION (WET) BASINS FROM 2,500 FT. TO 5,000 FT. FROM RUNWAY, SEE EXHIBITS 2 THROUGH 4 OF 4.

EST 1808
CITY OF
DELAWARE
OHIO

INFRASTRUCTURE DESIGN MANUAL APPENDIX F

AIRPORT VICINITY CRITERIA OVERALL VIEW

APPENDIX F

1 OF 4

Rev.12/31/2018

WATERFOWL EXHIBITS.DWG - 11/20/18

CITY OF DELAWARE OHIO
EST 1808

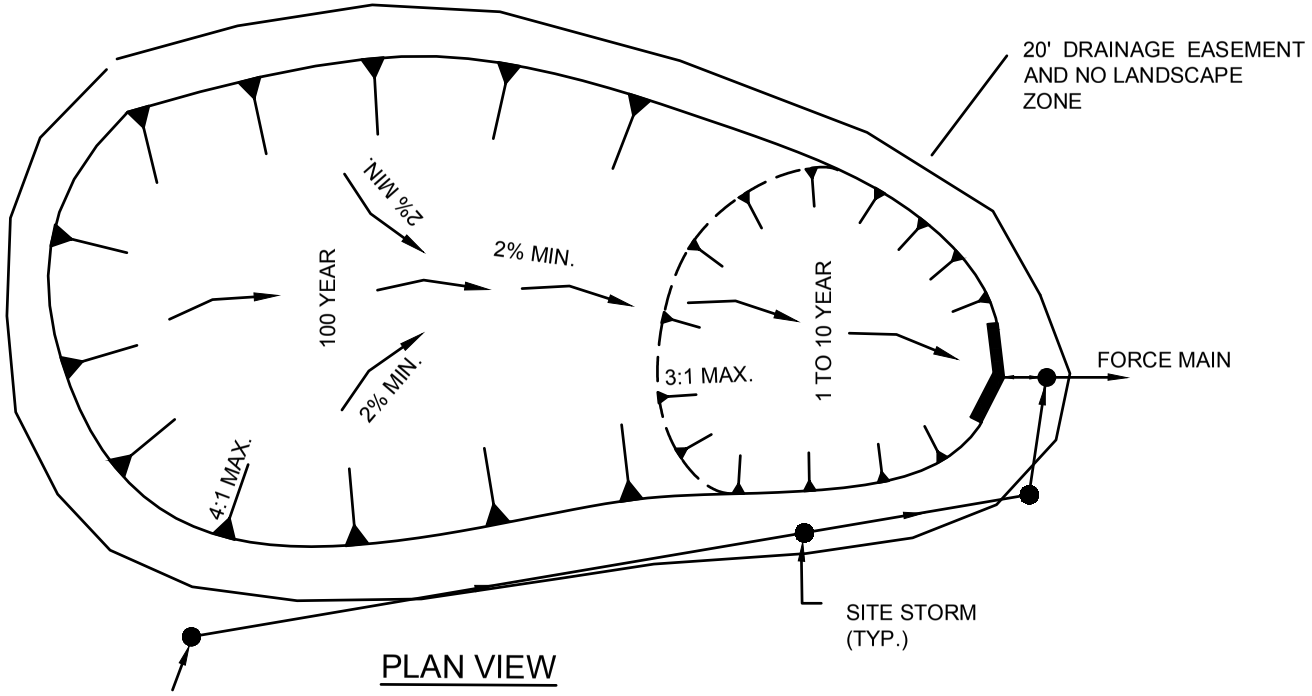
INFRASTRUCTURE DESIGN MANUAL APPENDIX F

AIRPORT VICINITY CRITERIA
DETENTION BASINS

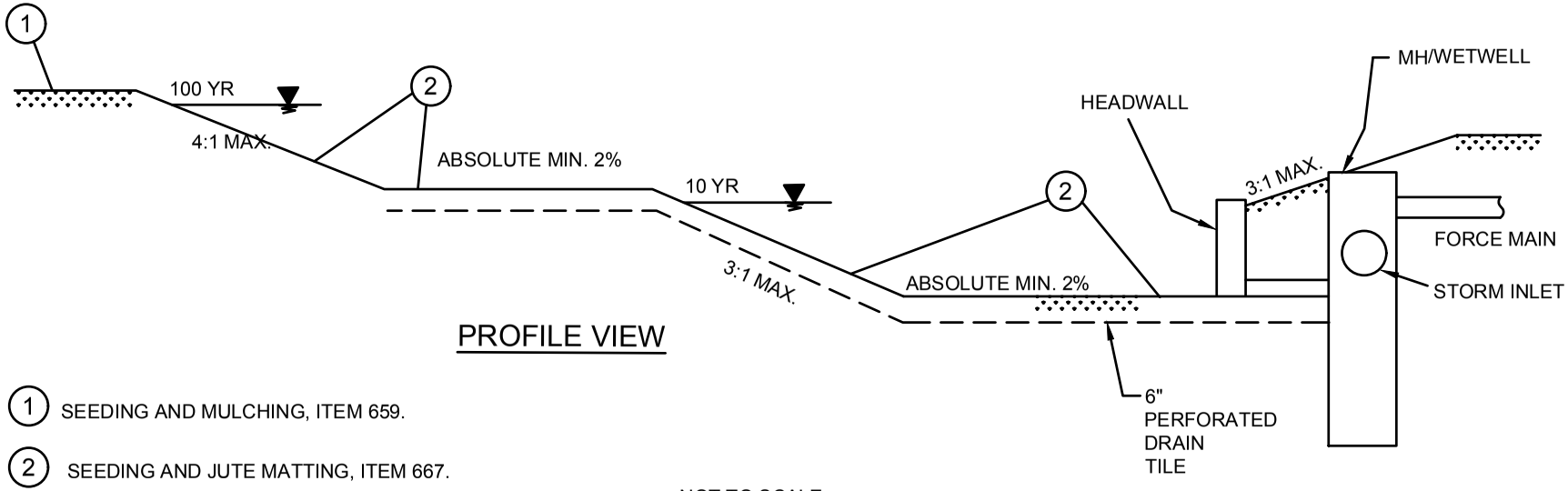
EXHIBIT

2 OF 4

Rev.12/31/2018



PLAN VIEW



PROFILE VIEW

(1) SEEDING AND MULCHING, ITEM 659.

(2) SEEDING AND JUTE MATTING, ITEM 667.

NOT TO SCALE

NOTES:

1. THIS SPECIFICATION IS APPLICABLE TO ALL STORM WATER DETENTION BASINS LOCATED WITHIN 2,500 LF OF THE CITY OF DELAWARE AIRPORT RUNWAY.

2. BASIN IS TO BE MAINTAINED FREE OF ANY VEGETATION OR PLANT MATERIAL BY MEANS OF ROUTINE TRIMMING, CHEMICAL TREATMENT OR OTHER APPROVED METHOD.

3. A 20' MINIMUM NO LANDSCAPE CLEAR ZONE AROUND THE PERIMETER OF THE BASIN SHALL BE FREE OF ANY PLANTINGS, BUSHES, TREES, ETC., WITH THE EXCEPTION OF A WELL MAINTAINED STAND OF GRASS THAT IS MOWED REGULARLY.

4. ADDITIONAL COUNTER MEASURE SHALL BE IMPLEMENTED IN THE BASIN TO DISCOURAGE THE PRESENCE OF WATERFOWL IN ACCORDANCE WITH FAA ADVISORY CIRCULAR NO. 150/5200-33 HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.

5. BASINS WITHOUT ADEQUATE GRAVITY OUTFALL WILL REQUIRE A WET WELL/ PUMPING SYSTEM AS INDICATED ON THE DRAWING.

6. THE DRAINAGE EASEMENT SHALL BE GRANTED TO THE CITY FOR MAINTENANCE PER CITY CODE.

7. BASINS ARE TO BE LOCATED AT FURTHEST DISTANCE ON PROPERTY FROM AIRPORT, WHENEVER PRACTICABLE.

8. WHERE THESE DETENTION BASIN REQUIREMENTS VARY FROM THOSE OF THE OHIO EPA CONSTRUCTION STORM WATER PERMIT, OHIO EPA APPROVAL WILL NEED TO BE GRANTED IN COORDINATION WITH THE CITY.

CITY OF DELAWARE OHIO EST 1808

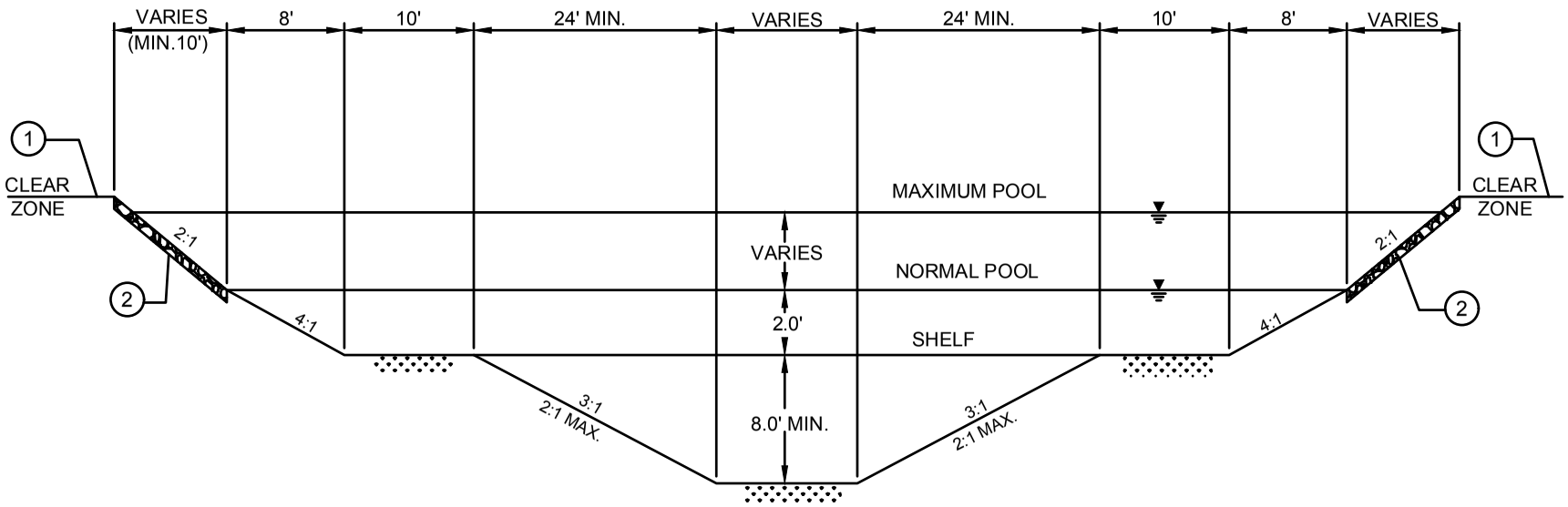
INFRASTRUCTURE DESIGN MANUAL APPENDIX F

AIRPORT VICINITY CRITERIA
RETENTION BASINS

EXHIBIT

4 OF 4

Rev.12/31/2018



WET BASIN TYPICAL SECTION

NOT TO SCALE

NOTES:

1. THIS SPECIFICATION IS APPLICABLE TO ALL STORM WATER RETENTION BASINS LOCATED WITHIN 2,500 LF TO 5,000 LF OF THE CITY OF DELAWARE AIRPORT RUNWAY.
2. BASINS ARE TO BE LOCATED AT FURTHEST DISTANCE ON PROPERTY FROM AIRPORT, WHEREVER PRACTICABLE.
3. BASIN IS TO BE MAINTAINED FREE OF ANY VEGETATION OR PLANT MATERIAL BY MEANS OF ROUTINE TRIMMING, CHEMICAL TREATMENT OR OTHER APPROVED METHOD.
4. A 20' MINIMUM NO LANDSCAPE CLEAR ZONE AROUND THE PERIMETER OF THE BASIN SHALL BE FREE OF ANY PLANTINGS, BUSHES, TREES, ETC., WITH THE EXCEPTION OF A WELL MAINTAINED STAND OF GRASS THAT IS MOWED REGULARLY.
5. ADDITIONAL COUNTER MEASURE SHALL BE IMPLEMENTED IN THE BASIN TO DISCOURAGE THE PRESENCE OF WATERFOWL IN ACCORDANCE WITH FAA ADVISORY CIRCULAR NO. 150/5200-33 HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.

(1) SEEDING AND MULCHING, ITEM 659.

(2) 8" CRUSHED AGGREGATE SLOPE PROTECTION, ITEM 601 (TYP. ENTIRE PERIMETER OF BASIN).