



**FAA**

**Eastern Service Area Technical Operations  
Operations Engineering Support Group**

**ESA NRA Case File Minimum Data Requirements**

6/19/2014

## GENERAL

Construction and/or alteration activities to the airport environment must be carefully evaluated by OESG Technical Operations to ensure the proposal will not adversely impact the operation of NAS equipment and/or the critical services that they provide.

Due to the close proximity of on airport construction proposals to NAS facilities such as navigation, visual aids, surveillance, communications and weather, on airport construction proposal accuracy is critical. It is not only important to protect the defined NAS equipment critical areas but also areas outside the critical area. Structures outside the defined critical areas can act to degrade and/or inhibit intended radiated signals resulting in signal anomalies such as multipath propagation, signal blockage or interference.

It is imperative to ensure that NRA data points submitted for aeronautical studies are accurate. This will ensure that the resultant analysis and any subsequent recommendations/mitigations are based on factual data. If the submitted data is flawed, the subsequent analysis can be inaccurate effectually invalidating the results of the study. This also leads to creating NAS liability by potentially introducing conditions on airport that have adverse operational impact to both existing NAS facilities/services as well as future planned NAS facilities.

It is important to understand that relatively small deviations within an airport environment could cause significant impacts. In an effort to help facilitate Airports in ensuring both an accurate and comprehensive submittal is received by sponsors/representatives filing notice with the FAA, ESA OESG Technical Operations has developed the following guidelines for reference.

## DATA ACCURACY

On airport submissions should be validated to ensure they contain accurate elevation and location data.

The recommended horizontal accuracy standard for on airport submissions should be as stringent as feasible, but no greater than +/- 5 feet. It is recommended, if feasible, that design accuracy be within +/- 1.0 U.S. Survey foot of final construction.

The recommended vertical accuracy standard for on airport submissions should be as stringent as feasible and should be verified using topographic maps. The MSL (Mean Sea Level) and the AGL (Above Ground Level) structure heights should be rounded to the highest foot. It is recommended, if feasible, that a precision survey is performed to obtain these results within +/- 1.0 U.S. Survey foot.

Datum should be provided in either NAD83 or WGS 84 (and identified) and in format Degrees, Minutes, Seconds @ 2 decimal places.

## DATA REQUIREMENTS

### ALP

Approved Airport Layout Plans (ALP) should depict all existing/future proposed structures and equipment and include any and all approved pen and ink changes. It should also clearly depict all NAS facility critical areas. An electronic copy of proposed/revised ALP shall be uploaded to the case file for review.

### ANTENNA TOWERS

1. Type of tower design, i.e. free standing, guyed, monopole, lattice structure, etc.
2. Tower design construction detail depicting physical dimensions, i.e. number of sides, taper, width, height, depth, etc.
3. Maximum structure elevation to any portion of construction above ground level including height of antenna, lightning terminals and obstruction lighting
4. Submission of all known operating frequencies, ERP (Effective Radiated Power) and antenna types
5. Orientation of tower structure relative to True North
6. Guy wire connection points and angle to ground.

### ATCTS

Construction drawings/details including materials, height, width, cab dimensions, number of external faces/sides, orientation, and railings.

### BUILDINGS

1. Site plan depicting building footprint and also depicting location of where filed latitude/longitude coordinates are located on site plan with orientation reference to True North.
2. If available, site plan with airport layout showing orientation to runway(s).
3. Physical building dimensions
4. Vertical profile drawing for each building side.
5. Type of roof construction with vertical profile detail showing pitch, orientation with respect to the building footprint
6. Material Composition of roof and exterior facade of building
7. Identify any additional exterior metallic roof top or lateral building appurtenances such as air handlers, duct-work, railing systems, and antenna systems, lightning protection, etc.

## CRANES

Crane Type, i.e. boom, crawler, tower, sidelif, gantry, jib, etc. If feasible, make and model along with horizontal and vertical profile if required. Additionally, crane operation should be accompanied by a description of what activity will be conducted. It is important to understand what types of material the crane will be hoisting as these materials themselves could pose a risk.

If the crane is not fixed and will be bound within a work area, that area should be specific with coordinate boundaries.

## FENCES

General: Site plan depicting fence location, overall length, discrete section length if applicable, AGL and fabrication material. Metal fencing will require fence detail, site plan and location where filed coordinates are located.

1. Power Lines/Utility Lines
2. Pole or tower design detail for each structure
3. Capacity of each line run
4. Number of lines with tower-to-tower point-to-point line details (i.e. straight run, twisted configuration, etc.)
5. MSL/AGL/AMSL of each pole/tower

## POWER LINES/UTILITY LINES

1. Pole or tower design detail for each structure
2. Capacity of each line run
3. Number of lines with tower-to-tower point-to-point line details (i.e. straight run, twisted configuration, etc.)
4. MSL/AGL/AMSL of each pole/tower

## SOLAR PANELS

1. Solar project proposal coordinate boundary corner points
2. Vertical tilt of the structure/panels
3. Horizontal Azimuth/bearing the structure is facing
4. Solar Panel Manufacturer/Type/Specifications
5. Overall solar project plan design
6. Mechanics of the structure (Static - Fixed angle or Dynamic - Automatic tracking)
7. Dynamic Structures shall provide the full range of movement
8. FAA approved Solar Glare Study as requested

## WATER TOWERS/STORAGE TANKS

1. Height above ground level
2. Water tower type/style
3. Tower design construction detail depicting physical dimensions

## WIND TURBINES (CURRENTLY INSTALLED AT A SMALL NUMBER OF AIRPORTS)

All proposals for wind turbines and met towers regardless of whether they are on airport property or not should be filed as Off Airport Construction filings so they can be processed by the FAA's Obstruction Evaluation Group.

<https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp?action=showWindTurbineFAQs>.

## OTHER MISCELLANEOUS LARGE STRUCTURES ON/OFF AIRPORT

1. Bridges will require site plan, dimensions, vertical profile drawing, and construction details and coordinate locations. In addition, reference to either True North or Airport layout depicting runway configuration.
2. Stadium Lighting will require site plan, dimensions, vertical profile drawing, and construction details and coordinate locations. In addition, reference to either True North or Airport layout depicting runway configuration. Orientation of lighting is required to assess potential visibility blockage and possible glare for ATCT.
3. Bill Board Structures will require site plan, dimensions, and construction details and coordinate locations, and an identification if bill board is digital. In addition, reference to either True North or Airport layout depicting runway configuration.

## OTHER MISCELLANEOUS LARGE STRUCTURES ON/OFF AIRPORT (CONTINUED)

4. Flagpole will require a site plan, coordinates, and elevation data, dimensions and materials. Actual flag dimensions will be required to assess potential visibility obstruction for ATCT.
5. Smoke Stacks will require site plan, dimensions, vertical profile drawing, construction details, and materials and coordinate locations. In addition, expected smoke plumes will need to be addressed to assess potential visibility obstruction for ATCT.

**Should you have any questions regarding this information, please contact Jeff Stern, Operations Engineering Support Group B, AJW-E24B, at 718-977-6516.**

# Technical Operations Minimum Case File Requirements Checklist

## DATA ACCURACY

The recommended horizontal accuracy standard for submissions should be as stringent as feasible and should be verified using topographic maps. The MSL (Mean Sea Level) and the AGL (Above Ground Level) structure heights should be rounded to the highest foot. It is recommended, if feasible, that a precision survey is performed to obtain these results within +/- 1.0 U.S. Survey foot.

Datum should be provided in either NAD83 or WGS 84 (and identified) and in format Degrees, Minutes, Seconds @ 2 decimal places.

<b>Airport Layout Plan (ALP)</b>			
Data Requirement	Required	Not Required	Comments
ALP should depict all existing/future proposed structures and equipment and include any and all approved pen and ink changes.	<input type="checkbox"/>	<input type="checkbox"/>	
ALP should clearly depict all National Airspace (NAS) facility critical areas.	<input type="checkbox"/>	<input type="checkbox"/>	
Provide an electronic copy of proposed/ revised ALP.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Antenna Tower</b>			
Data Requirement	Required	Not Required	Comments
Type of tower design (i.e. free standing, guyed, monopole, lattice structure, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
Tower design construction detail depicting physical dimensions (i.e. number of sides, taper, width, height, depth, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
Maximum structure elevation to any portion of structure above ground level including height of antenna, lightning terminals and obstruction lighting.	<input type="checkbox"/>	<input type="checkbox"/>	
Submission of all known operating frequencies, ERP (Effective Radiated Power) and antenna types.	<input type="checkbox"/>	<input type="checkbox"/>	
Orientation of tower structure relative to True North	<input type="checkbox"/>	<input type="checkbox"/>	
Guy wire connection points and angle to ground.	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Air Traffic Control Tower (ATCT)</b>			
Data Requirement	Required	Not Required	Comments
Construction drawings/details including materials, height, width, cab dimensions, number of external faces/sides, orientation, and railings.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Buildings</b>			
Data Requirement	Required	Not Required	Comments
Site plan depicting building footprint and also depicting location of where filed.	<input type="checkbox"/>	<input type="checkbox"/>	
If available, site plan with airport layout showing orientation to runway(s).	<input type="checkbox"/>	<input type="checkbox"/>	
Physical building dimensions.	<input type="checkbox"/>	<input type="checkbox"/>	
Vertical profile drawing for each building side.	<input type="checkbox"/>	<input type="checkbox"/>	
Type of roof construction with vertical profile detail showing pitch, orientation with respect to the building footprint.	<input type="checkbox"/>	<input type="checkbox"/>	
Material composition of roof and exterior façade of building.	<input type="checkbox"/>	<input type="checkbox"/>	
Identify any additional exterior metallic roof top or lateral building appurtenances such as air handlers, duct-work, railing systems, and antenna systems, lighting protection, etc.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Cranes</b>			



Data Requirement	Required	Not Required	Comments
Crane type (i.e. boom, crawler, tower, side lift, gantry, jib, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
If feasible, make and model along with horizontal and vertical profile.	<input type="checkbox"/>	<input type="checkbox"/>	
A description of what activity will be conducted with the crane.	<input type="checkbox"/>	<input type="checkbox"/>	
Types of materials crane will be hoisting.	<input type="checkbox"/>	<input type="checkbox"/>	
If crane is not fixed and will be bound within a work area, specify the work area coordinate boundaries.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Fences</b>			
Data Requirement	Required	Not Required	Comments
Site plan depicting fence location, overall length, discrete section length if applicable, height (AGL) and fabrication material.	<input type="checkbox"/>	<input type="checkbox"/>	
Metal fencing will require fence detail, site plan and location where filed coordinates are located.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Power Lines/Utility Lines</b>			
Data Requirement	Required	Not Required	Comments
Pole or tower design detail for each structure.	<input type="checkbox"/>	<input type="checkbox"/>	
Capacity of each line run.	<input type="checkbox"/>	<input type="checkbox"/>	
Number of lines with tower-to-tower point line details (i.e. straight run, twisted configuration, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
MSL/AGL/AMSL of each pole/tower.	<input type="checkbox"/>	<input type="checkbox"/>	

Solar Panels			
Data Requirement	Required	Not Required	Comments
Solar project proposal coordinate boundary corner points.	<input type="checkbox"/>	<input type="checkbox"/>	
Vertical tilt of structure/panels.	<input type="checkbox"/>	<input type="checkbox"/>	
Horizontal azimuth/bearing the structure is facing.	<input type="checkbox"/>	<input type="checkbox"/>	
Solar panel manufacturer/type/specifications	<input type="checkbox"/>	<input type="checkbox"/>	
Overall solar project plan design.	<input type="checkbox"/>	<input type="checkbox"/>	
Mechanics of the structure (i.e. static, fixed angle or dynamic, automatic tracking, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
For dynamic structures provide the full range of movement.	<input type="checkbox"/>	<input type="checkbox"/>	
FAA Approved Solar Glare Study as requested.	<input type="checkbox"/>	<input type="checkbox"/>	
Water Tower/Storage Tanks			
Data Requirement	Required	Not Required	Comments
Height above ground level (AGL).	<input type="checkbox"/>	<input type="checkbox"/>	
Water tower type/style.	<input type="checkbox"/>	<input type="checkbox"/>	
Tower design construction detail depicting physical dimensions.	<input type="checkbox"/>	<input type="checkbox"/>	

Wind Turbines			
Data Requirement	Required	Not Required	Comments
Specification sheet if available.	<input type="checkbox"/>	<input type="checkbox"/>	
Manufacture and model number.	<input type="checkbox"/>	<input type="checkbox"/>	
Base height.	<input type="checkbox"/>	<input type="checkbox"/>	
Base width (at the bottom).	<input type="checkbox"/>	<input type="checkbox"/>	
Base width (at the top).	<input type="checkbox"/>	<input type="checkbox"/>	
Base offset (from the blades).	<input type="checkbox"/>	<input type="checkbox"/>	
Nacelle length.	<input type="checkbox"/>	<input type="checkbox"/>	
Nacelle radius.	<input type="checkbox"/>	<input type="checkbox"/>	
Blade length.	<input type="checkbox"/>	<input type="checkbox"/>	
Blade width.	<input type="checkbox"/>	<input type="checkbox"/>	
Miscellaneous Large Structures			
Bridges			
Data Requirement	Required	Not Required	Comments
Site plan, dimensions, vertical profile drawing, and construction details and coordinate locations.	<input type="checkbox"/>	<input type="checkbox"/>	
Reference to either True North or Airport layout depicting runway(s) configurations.	<input type="checkbox"/>	<input type="checkbox"/>	

Stadium Lighting			
Data Requirement	Required	Not Required	Comments
Site plan, dimensions, vertical profile drawing and construction details and coordinate locations.	<input type="checkbox"/>	<input type="checkbox"/>	
Reference to either True North or Airport layout depicting runway(s) configurations.	<input type="checkbox"/>	<input type="checkbox"/>	
Orientation of lighting is required to assess potential visibility blockage and possible glare for Air Traffic Control Tower (ATCT).	<input type="checkbox"/>	<input type="checkbox"/>	
Bill Board Structures			
Data Requirement	Required	Not Required	Comments
Site plan, dimensions, and construction details and coordinate locations.	<input type="checkbox"/>	<input type="checkbox"/>	
Identify if the bill board is digital.	<input type="checkbox"/>	<input type="checkbox"/>	
Reference to either True North or Airport layout depicting runway(s) configurations.	<input type="checkbox"/>	<input type="checkbox"/>	
Flagpole			
Data Requirement	Required	Not Required	Comments
Site plan, coordinates, and elevations data, dimensions and materials.	<input type="checkbox"/>	<input type="checkbox"/>	
Actual flag dimensions will be required to assess potential visibility obstruction for Air Traffic Control Tower (ATCT).	<input type="checkbox"/>	<input type="checkbox"/>	

Smoke Stacks			
Data Requirement	Required	Not Required	Comments
Site plan, dimensions, vertical profile drawing, construction details, and materials and coordinate locations.	<input type="checkbox"/>	<input type="checkbox"/>	
Expected smoke plumes will need to be addressed to assess potential visibility obstruction for Air Traffic Control Tower (ATCT).	<input type="checkbox"/>	<input type="checkbox"/>	