

## A. Utility Survey

### A.1. INTRODUCTION

The purpose of this utility survey is to support the ongoing Airport Master Plan Update (MPU) by locating utilities on the 1,166 acres of land currently known as the Greater Binghamton Airport (BGM). The utility survey provides a compilation of current active utilities on the site along with the known utilities which have been abandoned and remain in place should the owners decide to further develop the airport. The survey was conducted from September 2017 through January 2018 in the field and office. The report and separate drawing set has been developed for use as a supporting tool when performing the MPU or considering future infrastructure changes. A 58-page drawing set was developed as a part of this index.

### A.2. PROCESS OF MAP COMPILATION

The utility survey prepared for BGM was compiled from a number of sources. Record drawings, which are commonly known as-built maps, formed the basis for the survey. Using record mapping from the McFarland Johnson archives, the Federal Aviation Administration (FAA), and BGM Operations, a base map of utilities which included storm and sanitary sewers, water, natural gas, electric, communications and lighting was created. Record mapping dated as far back as 1951 and as recently as 2016. Once the mapping was compiled, field location and verification took place on the above ground utilities.

A surveying subcontractor was utilized to locate and elevate all storm and sanitary sewers while locating evidence of other underground utilities by acquiring locations of valves, paint marks, duct bank markers, lights, posts and other available information. Inverts for the sanitary and storm sewers were obtained and pipe runs were established to connect the underground gravity sewers. Location of surface features such as hydrants, valves, and paint marks gave visual evidence of subsurface utilities which were then located as accurately as possible by using subsurface utility engineering (SUE).

SUE utilizes electromagnetic, magnetic, sonic, and other energy fields to determine the approximate horizontal location of underground utilities.

### A.3. RUNWAY ELECTRICAL CIRCUITS

#### 16-34

The airport is served by two runways, a north-south runway designated 16-34 and an east-west runway designated 10-28. Runway 16-34 is served by runway circuit R-3 which originates in the existing electrical vault. It is a No. 8 5KV cable which passes through a series of duct banks, in front of the existing terminal before turning along Taxiway F and out to the Runway. Circuit R-3 encircles Runway 16-34 before returning to the electrical vault via Taxiway F. The runway lights



are a part of this circuit as are a number of directional and distance marking signs. The windsock and its light, get its power from this circuit.

### 10-28

Runway 10-28 is served by runway circuit R-8 which originates in the existing electrical vault. It passes through a series of duct banks to the edge of the runway. Circuit R-8 encircles Runway 10-28 before returning to the electrical vault. The runway lights are a part of this circuit as are a number of directional and distance marking signs. The Threshold lights and the windsock and its light, get their power from this circuit.

## A.4. TAXIWAY ELECTRICAL CIRCUITS

The airport has thirteen taxiways designated A through P (the letter “I” is not used to designate taxiways to avoid confusion with the number “1” and the letter “N” is not utilized). All of the taxiways are constructed using asphalt and are equipped with blue, omnidirectional medium intensity taxiway lights (MITL).

### Circuit T-1

Taxiway circuit T-1 is responsible for lighting Taxiway F, along the Air Carrier Apron, Taxiway G, and the southerly portion of Taxiway A between Taxiway G and Runway 10-28. The circuit originates in the existing electrical vault and runs through the duct banks under Taxiway K and Taxiway P before turning north to power the edge lighting for the southerly portion of the Air Carrier Apron. The circuit turns southeasterly and powers the northerly side Taxiway G and the southerly end of Taxiway A before returning back along the southerly side of Taxiway G and through existing duct banks under Taxiways P and K to its point of beginning. T-1 is shown on the attached Existing Utility plans on sheets UT-13, UT 19, UT 28 through UT-30.

### Circuit T-2

Taxiway circuit T-2 originates in the existing electrical vault at the West Apron and passes through a series of duct banks, crossing Taxiways K and P to a point opposite the Air Carrier Apron just east of Taxiway F. The circuit runs roughly parallel to the Taxiway F before passing through a duct bank across the Air Carrier Apron to a point along the westerly edge of Taxiway A. the circuit passes under Taxiway E and follows the west edge of Taxiway A, crossing Taxiway D before continuing along to a point near the westerly edge of Runway 16-34. T-2 turns south and crosses Taxiway A. It runs a route that serves Taxiways B, C, D, and F before crossing under Taxiway H. The circuit then cuts perpendicular across Taxiway A and then perpendicular across Runway 10-28. T-2 then runs easterly back to Taxiway A where it follows the Taxiway until it reaches a point where it cuts across Taxiway A to service Taxiway J before heading back to the north along Taxiway A. It crosses back over Runway 10-28 and then runs along the westerly side of Taxiway A before turning parallel along the southerly side of Taxiway G. It crosses through a duct perpendicular to Taxiway G and back to a point west of Taxiway A. T-2 then runs parallel with Taxiway A to a point near Taxiway F where it turns southwesterly along the Air Carrier apron and toward its point of origination. Along this path, T-2 powers taxiway lights and

directional marking signs. T-2 is shown on the attached Existing Utility plans on sheets UT-13, UT 14 and UT 28 through UT-33.

#### *Circuit T-4*

Taxiway circuit T-4 is responsible for the lighting and signage along Taxiway H. The circuit originates in the existing electrical vault and follows along the same route as Circuit T-1 until it reaches a point along the northerly edge of Taxiway G at its intersection with Runway 16-34. The circuit then crosses runway 16-34 and runs along the northerly side of Taxiway H to a point at the easterly end of Runway 10-28. The circuit then passes through an existing duct bank before running back along the southerly edge of Taxiway H to a point in the easterly edge of Runway 16-34. The circuit then runs parallel to the Runway before turning through a duct bank, further to the north than its original crossing, and crossing Runway 16-34. It then follows along on its original path back to the existing electrical vault. T-4 is shown on the attached Existing Utility plans on sheets UT-13, UT 19, UT 28 and UT-29.

#### *Circuit T-6*

Taxiway circuit T-6 is responsible for lighting along Taxiways K and L and the Western apron. The circuit gains its power from the existing electrical vault and runs to a point in the northerly edge of Taxiway K before turning easterly along the taxiway before going through an existing duct bank to a point east of Taxiway F. The circuit runs southerly along Taxiways F and P before crossing under Taxiway P. T-6 then moves northerly along Taxiway P and then westerly and southerly along the southern edge of Taxiway K before passing through a duct bank to the northerly edge of Taxiway K at the southwesterly end of Runway 10-28. The circuit then runs northerly and easterly along Taxiway K where it feeds a light pole on the west side of the West Apron and crosses under Taxiway M. The circuit feeds signage and lights to the east before returning and moving north along Taxiway M to a point along the southerly edge of the West Apron. The circuit heads east and south before crossing Taxiway L. It feeds more lighting on the east edge of the West Apron before returning to the electrical vault. T-6 is shown on the attached Existing Utility plans on sheets UT-05, UT 08, UT 13 and UT-14.

#### *Circuit T-7*

Taxiway circuit T-7 originates in the existing electrical vault and is primarily used to light the easterly edge of the North Apron and all of Taxiways D and E. The circuit follows the same path as T-2 to a point at the northerly edge of the Air Carrier Apron where it serves Taxiway E. The circuit then crosses Taxiway E and runs parallel to Taxiway A before crossing and serving Taxiway D. It then turns back along the easterly edge of the North Apron and follows its original path back across Taxiway E and back to the electrical vault. T-7 is shown on the attached Existing Utility plans on sheets UT-13, UT-19, UT-29 and UT 30.



## A.5. BUILDING UTILITIES

### *ASR 11 Digital Airport Surveillance Radar*

ASR 11 is located on the hill overlooking the airport on Brigham Road. The facility is served by electric and communications lines. The electric comes directly from pole NYSEG 28 to an existing electric panel then underground to the Engine/Generator (EG) Shelter via (4) 3/0- Thermoplastic Water-Resistant nylon coated wire (THWN) cables in 3" conduit. The power passes through switchgear and runs to the existing CMU Equipment building. The EG shelter on the site also contains a backup 100kw diesel generator. The electric for the Waveguide tower is provided from the existing CMU building. The site has a fiber-optic line that runs underground and is connected to the terminal building on the airport. The fiber optic line leaves the terminal on the northern side and works its way through a series of manholes to the westerly edge of Runway 16-34. The fiber optic line and power line to the old ASR 7 site crosses the runway at a point north of Taxiway F before continuing northeasterly toward ASR 7. The line heads generally north along the existing chain link fence line where it makes an abrupt southeasterly turn, generally parallel with Brigham Road. The line continues into MH 1 which is in front of the old RTR site before crossing the fence and entering on the east side of the CMU building. The ASR site is found on sheet UT-50 while the fiber optic path is found on sheets UT 19, 30, 31, 40, 41 and 50.

### *Sand Dome*

The Sand Dome is located at the north end of the airport support area. It is serviced by electric and liquid propane. The 240 Volt electrical service originates in the SRE building and leaves the building at the northwest corner and runs diagonally to the electric panel located on the southwesterly side of the Sand Dome via ½" conduit. The liquid propane is supplied via the existing propane tanks located just outside the fence and is delivered via 1" line to the southeasterly side of the building. The Sand Dome is shown on the attached Existing Utility plans on sheets UT-20 and 21.

### *Snow Removal Equipment Building*

The Snow Removal Equipment Building (SRE) is located just south of the Sand Dome on the western side of Runway 16-34. The SRE is serviced by water, electric, sanitary, telephone/communications and natural gas. The building is fed by a 6" water service that enters the building on the west face. The electric is underground via pole NYSEG 2075 19-6 and is metered prior to entering the south side of the building. The sanitary sewer is a 4" PVC gravity sewer which leaves the building on the western face and connects to a sanitary sewer manhole in the parking area. The fiber optic line is in a 2" SCH40 PVC conduit that enters the building on the south side just east of the electric. The gas line is a 1 1/2" steel gas line that runs from the south to a meter along the western building face.

### *Fuel Farm*

The fuel farm is a 50,140-gallon Jet-A fuel and 10,140-gallon AVGAS storage facility, located just south of the SRE building. There are two 25,000-gallon Jet A fuel tanks and one 140-gallon Jet-A

fuel tank on the site. The fuel farm also has one 10,000 gallon and one 140-gallon AVGAS tanks. Electric for the pumps is provided via underground electric which comes from pole NYSEG 2075 19-5 to the meters and pumps located in the southeastern portion of the Fuel Farm facility. There is also a stop oil sump and 1,000-gallon oil/water separator just north of the tanks provided for the water collected from the concrete containment areas.

### *North Glycol Tank*

Sitting just to the south of the fuel farm fencing is the 10,000 Gallon Propylene Glycol tank used for Aircraft Deicing. Its only utility is electric for the pump which is underground from pole NYSEG 2075 19-5 to the meter and pump located on the west side of the tank.

### *T-Hangars*

The T-Hangars are only equipped with electric. The electric is underground from pole NYSEG 2075 19-5 and runs to each of the Hangars. The buildings are metered on the north side of the hangars.

### *Hangar 1*

Hangar 1 is the largest hangar on the north side and is serviced by water, electric, sanitary, telephone/communications and natural gas. The water connection is made via a 2" water line which enters the building on the southern face, near to the southwesterly corner. The hangar is served by a natural gas line that is located and metered on the westerly face of the building. The electric is overhead and connects to the west face of the hangar above the gas meter. Sanitary sewer effluent leaves the building by a 4" PVC line on the southern wall near to the middle of the hangar. It flows westerly from its wye connection into a sewer manhole near the southwesterly building corner.

### *Crash and Fire Rescue Facility*

The Crash and Fire Rescue Facility (CRF) is the operational hub of the airport. It houses the emergency response and operations teams. The building is serviced by water, electric, sanitary, telephone/communications and natural gas. The water is a 6" water service that connects to the existing 12" watermain and passes to the north of the building before turning and entering the building from the east wall. The electric originates at NYSEG 2075 21 and travels underground to a metering point on the north wall near the garage doors. The underground cable follows the same path. The Sanitary effluent flows out of the building via a 4" PVC to an existing lift station where it changes to a 1 ¼" PE- DR11 forcemain. The forcemain is then pumped to the existing 6" sanitary sewer near Circle Drive. The facility is equipped with an oil/water separator that sits just west of the main garage doors on the buildings west side. It has a 4" PVC outlet which connects to the building's 4" sanitary line. An underground fiber optic line runs north of the existing propane tanks and before turning south to enter the building along the north face. Natural gas is fed to the building from the existing gas main on Circle Drive to the northwest corner of the facility.



### *Terminal*

The terminal building is serviced by water, electric, sanitary, telephone/communications and natural gas. The building receives its water from a 10" water service that enters the building approximately 31 feet southerly from the northeasterly corner. Electric power for the terminal originates at a pole at the entrance to the car rental parking lot and is 3 Phase primary wiring. The electrical cables run southeasterly and then southerly across the car rental parking lot before reaching the electrical cabinets and entering the building. The Automated Surface Observing System (ASOS) Station located on the airport derives its power from the southerly side of the terminal via duct bank. The sanitary leaves the terminal building in two places. The northerly sanitary pipe leaves the building approximately 72 feet south from the northwesterly building corner. The southerly sanitary pipe leaves the building approximately 158 feet northerly from the building's southwesterly corner. Each of the runs are 8" Vitrified Clay Pipe and flow into existing manholes along the access road. Communications for the terminal are fed from the front of the terminal building via underground cable. The cable enters the building approximately 138 feet southerly from the northwesterly building corner. Underground fiber optic and FAA power cables run from the north face of the terminal northerly toward the current RTR site ASR-11.

### *Electrical Vault*

The electrical is located adjacent to the West Apron and provides all the electricity for Runway and Taxiway circuits. The vault receives its power from a pole NYSEG 675 6-1 with 3 transformers just east of the southeasterly corner of the old maintenance building. The power is supplied by underground secondary cable in conduit. The circuit is metered at the old maintenance building and then cuts diagonally across the pavement to the vault. The vault contains regulators for all circuits and a backup diesel generator along with two 330-gallon fuel tanks.

### *Hangar 2*

Hangar 2 is leased by FirstAir and is located adjacent to the West Apron. The hangar is serviced by water, electric, sanitary, telephone/communications and natural gas. The water service is a 6" to the hangar and ties back to the existing 8" that runs toward Hangar 3. The electric, telephone and cable all enter the building on the north face approximately 40 feet from the northwest building corner. The electric and cable are overhead and come from pole NYSEG 4146-4 while the telephone is underground and can be located by the existing telephone pedestals. The sanitary sewer line is a 4" PVC lateral that ties to an existing manhole just northeast of the hangar. The natural gas line enters the building on the eastern face and splits into two. These two lines serve the office area and the hangar sections of the building.

### *Hangar 3*

Hangar 3 is leased by First Air and others and is located adjacent to the West Apron. The hangar is serviced by water, electric, sanitary, telephone/communications and natural gas. A 2" copper water service enters the building at the north face approximately 28 feet from the northeasterly corner. The electric service comes directly from a transformer, obscured by trees,



into the northeasterly corner of the building. Sanitary effluent flow comes from the building and connects to the existing 8" sanitary main under the parking area. The communications line ties into the northwesterly building corner and comes from a telephone manhole located in the grass island north of the hangar. Gas service runs parallel to the west side of the building to a meter midway along buildings west face.

### *Rental Car Service Facility*

The Rental Car Service Facility is located on Shea Drive and is serviced by water, electric, and sanitary. The water is a 2" service that crosses Shea Drive and connects to an existing 6" DIP watermain. The water service enters the building near the midpoint of the east face of the building. The sanitary is a 4" PVC gravity line that runs along the south side of Shea Drive. The oil/water separator collects the car wash water and flows into the same gravity system as the effluent. Overhead electric service is the main power for the building and comes from two 75 KVA transformers mounted on pole NYSEG 2075 17-3C on the west side of the building. The building electric feeds the pump islands and supplies power to the 10,000-gallon gasoline tank located on the east edge of parking area.

### *National Weather Service*

The National Weather Service (NWS) building on Dawes Drive is serviced by water, electric, sanitary, telephone/communications and natural gas. A 2" water service running from the main at Dawes Drive runs easterly to the south of the existing parking lot before turning north and entering the building at the southeast corner. The building electric and cable are underground and come from an unnamed pole in front of the NWS and run toward the northwesterly building corner and then parallel to the building before entering into the building near the northerly corner. Building power provides for the antenna farm power. The sanitary effluent leaves the building under the south face and runs through a grinder pump south of the parking lot before entering a 1 ½" forcemain. The forcemain connects to an existing 4" forcemain on Dawes Drive. Four 4" PVC conduits provide telephone service to the NWS. It runs along the north edge of the parking lot before turning into the building.

### *Doppler Weather Station*

The Doppler weather station is served only by electric. The station is located on the hill above Commercial Drive and obtains its power from overhead electric to pole NYSEG 2229 17-4 where it splits and serves a number of buildings. The power for the main power building is overhead from NYSEG 2229 17-4 to an unnamed power pole just south of the Doppler Radar site via a 120/240V 100-amp service. From here it goes underground and is metered near the southwest corner of the site before entering the facility and powering the Radar site's buildings. A 100-kw backup generator located in the power building provides alternate power for the radar. The rest of the site uses a combination of underground and overhead electric for its buildings.