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2017 PROPERTY CONDITION ASSESSMENT REPORT – VOLUME III – Utilities -FINAL

FOR THE

Buffalo Outer Harbor Access and Activation Civic Improvement Project

901 Fuhrmann Blvd, Buffalo, NY 14203

August, 2017

PREPARED FOR:

Erie Canal Harbor Development Corporation

95 Perry Street, Suite 500, Buffalo, NY 14203-3030

WSP

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2017 UTILITY CONDITION ASSESSMENT REPORT - FINAL

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Figure 1. Assessment Location Map

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I. EXECUTIVE SUMMARY

The utility service assessment of the Buffalo Outer Harbor property along Fuhrmann Blvd. was performed for Erie Canal Harbor Development Corporation (ECHDC) by WSP USA, Inc. (WSP) from April 5, 2017 to April 11, 2017. The intent of the assessment was to document the visible condition of all existing utilities that serve the property that comprises the Buffalo Outer Harbor, from Terminals A and B Site at the south end, to Michigan Pier at the north. The utilities documented include the following:

- Storm Drain
- Sanitary Sewer
- Water
- Natural Gas
- Electrical
- Telecommunications

The finding of the assessment were used to provide recommendations to correct the deficiencies observed in the near term (1-year). Photographs are included to illustrate the deficiencies.

For this report, the property assessed is divided into five geographic areas that include, from south to north:

- Terminals A and B
- Bell Slip
- Outer Harbor Drive
- North Event Space
- **Michigan Pier**

The following sections describe the location and function of each area, current extent and visible condition of each utility system serving the particular area, and needed short term remediation to correct the deficiencies identified.

II. LOCATION DESCRIPTIONS

1.0 Terminals A and B

Terminal A is located along a deep water shipping slip that extends west from the Buffalo Outer Harbor. Terminal B is a warehouse building located to the north of Terminal A, adjacent to the Outer Harbor ship wall bulkhead. Between Fuhrmann Blvd. and the slip, west of Terminal A, is the former Administration Building for Terminal A and a marine service building (“Blue Building”) that houses a boat maintenance, repair and storage company.

2.0 Bell Slip

The Bell Slip recreation area is located off of Fuhrmann Blvd. north of Terminals A and B. The recently constructed amenity provides parking and public access to the series of multi-use paths that line the Outer Harbor and Fuhrmann Blvd. The parking lot and path connection are located between Bell Slip and Fuhrmann Blvd. on the foundation of a former commercial building and boating facility. The public recreational access point is a popular destination for bicyclists, runners and kayakers. The area includes public way-finding signage.

3.0 Outer Harbor Drive

Outer Harbor Drive is an approximately 0.5 mile road that provides the primary vehicle access for the central and northern sections of the Outer Harbor property. While currently vacant, the land adjacent to this road formerly housed commercial and industrial marine facilities. Remnants of these former businesses are now only visible as overgrown gravel lots. Outer Harbor Drive is accessed from the western leg of the Fuhrmann Blvd. roundabout via NYS Route 5 and the Buffalo Skyway.

4.0 North Event Space

At the northern terminus of Outer Harbor Dr. is a series of paved lots that sit to the south of a deep water slip. The lots are occasionally used as event space for festivals and concerts. While connected to Outer Harbor Dr., public access to the lots is also provided via a direct driveway connection to Fuhrmann Blvd. Members of the public primarily use the area surrounding the lots for fishing, bicycling and walking.

5.0 Michigan Pier

Across the slip to the north of the event space is Michigan Pier, a strip of land approximately 1,200 feet long by 200 feet wide. The east end of the pier connects to the Fuhrmann Blvd. frontage. North of Michigan Pier is a second deep water slip and Wilkeson Point, a recently constructed public park and boat launch popular for walking, sight-seeing and kayaking. Once the site of commercial marine activity, Michigan Pier is currently vacant.

III. ASSESSMENT FINDINGS

The findings of the Outer Harbor utility assessment are detailed in the sections below. The assessment consisted of a review of record plans and visual observations documenting the presence, extent and visible condition of each system identified.

With the exception of storm drainage, all utilities that serve the areas covered in this report are supplied from lines that run along Fuhrmann Blvd. When Fuhrmann Blvd. was reconstructed in 2007, utility lines along the corridor were upgraded. This includes the following:

- 8” Sanitary Sewer Line
- 16” Water Main

- National Fuel Natural Gas Main

In addition to the utilities listed above, closed storm drainage systems run parallel to Fuhrmann Blvd. These networks were also constructed in 2007. Catch basins located at the curb line collect runoff from the roadway, sidewalk, bicycle paths and upland areas. Along the roadway, there are several closed systems that each collect runoff and discharge through a separate outfall into Lake Erie.

Throughout the property assessed in this study, additional closed storm drain networks collect and convey runoff generated across parking lots, driveways and building roofs. These networks either connect to the Fuhrmann Blvd. drainage systems or discharge directly to the lake. The utilities that serve each individual area within the Outer Harbor are discussed further in the following sections.

1.0 Terminals A and B

The area at the south end of the Outer Harbor that encompasses Terminals A and B, as well as the Blue Building is served by domestic water, fire sprinkler, gas, sanitary sewer, electric and telecom lines, and storm drains. The service is fed from Fuhrmann Blvd.

1.1 Water Service

The domestic water and fire service mains are supplied by a 16” main that was replaced during the 2007 reconstruction of Fuhrmann Blvd. Water service is provided to the Blue Building, Terminals A and B, the Administration Building and the small guard house, now abandoned, located at the north entryway gate. Several fire hydrants are located throughout the site, primarily adjacent to Terminals A and B. Each hydrant is controlled by a post-indicator gate valve that is located within close sight distance of the hydrant it controls. Terminals A and B, and the Administration Building are equipped with fire sprinkler systems. The fire hydrants and sprinkler systems are fed by a 10” main that runs throughout the site. Water and fire service to the Blue Building, Terminals A and B, and the Admin. Building is fed from two tees located along the Fuhrmann Blvd. main, south of the Terminal A primary driveway entrance. A ¾” copper water service line to the north entrance guard house is fed by a separate connection between the north and south entrance driveways. The condition of the guard house service is unknown.

1.2 Sanitary Sewer

All of the buildings with water service also have sanitary sewer connections. Terminal A is served by twin 6” force mains that run from a pump station at the northwest corner of the building to the 8” line on Fuhrmann. Blvd.

The Blue Building is also served by a force main. Sanitary sewage collects into a pump station located on the southwest corner of the building and is conveyed to a pump station located in the Administration Building. From the Administration Building, the sewage is pumped into the upstream end

of the Terminal A gravity main. The gravity main then flows to the Terminal A pump station described above. A sanitary line also once served the north driveway entrance guard house, however the condition of this service is unknown.

1.3 Storm Drain

Several closed storm drain systems collect runoff from the parking lots and roof drains throughout the Terminals A and B Site. At least seven separate networks comprise the drainage system of this area. One network collects runoff along the paved surface west of Terminal A. While the discharge point could not be located, it likely flows directly to the lake. Ponding and sediment build-up was observed in these catch basins.

Rows of catch basins along the south, east and north sides of Terminal B collect drainage from the adjacent paved areas. Two pipe networks convey the runoff collected to outfalls located along the sea wall.

Two closed drainage networks convey runoff from the paved areas east of the Terminal A building and the lots surrounding the Admin. Building and Blue Building, discharging to the Terminal A slip. Most of the catch basins that comprise these two networks are filled with either ponded water or sediment.

Several catch basins along the barricaded Terminal A driveway connect to form a separate network that drains to Fuhrmann Blvd. Heavy sedimentation has caused most of these inlets to become completely filled with debris.

The north section of parking lots and secondary access driveway that was built in 1988 is also served by a separate storm drain system. Runoff collected by catch basins within the parking lot is routed through additional inlets that drain grassed swales alongside the entrance driveway. The network discharges to a point along the bank of Bell Slip. The piping of this network is made of PVC and polyethylene. Two of the inlets have steel plates placed over the grates, likely due to structure failure below. The catch basin structures of two other primary parking lot inlets are badly damaged and collapsing. The catch basin draining the lot used for salt storage is currently plugged, causing deep ponding to occur at the south end of the lot.

2.0 Bell Slip

No utilities currently serve the Bell Slip area. A 24” storm drain pipe conveys runoff from a Fuhrmann Blvd. drainage network to an outfall at the northeast corner of Bell Slip. The system runs through a series of pipe and manholes to the north of the Bell Slip recreation area parking lot. Loose branches and logs are piled up in front of the discharge point and the stone outlet protection has eroded down the slope below the outfall.

3.0 Outer Harbor Drive

No functioning utilities or storm drainage systems currently serve this area. Wooden light poles line a portion of Outer Harbor Drive and a former building driveway. While the luminaires are still affixed to these poles, the electric lines have been disconnected and dangle against the wooden poles.

4.0 North Event Space

At one time, a restaurant occupied the space at the northwest end of the parking lots that comprise this area. When the building was demolished, the utilities serving were disconnected, capped and buried. No utilities currently serve this area.

The western portion of the paved parking lots at the north edge of the event space are drained by three catch basins. Stormwater is conveyed by 12" corrugated pipe to a catch basin at the corner of the lot. From this point it flows west through a 24" concrete pipe to a fourth catch basin that collects runoff from the surrounding grassed area. Stormwater is then discharged to Lake Erie through an outfall located along the riprap. The discharge point could not be located during the assessment, likely hidden behind the shore line's protective riprap.

The catch basins throughout the North Event Space are partially filled with sediment. The grate of the large catch basin at the corner of the lot is severely damaged.

5.0 Michigan Pier

Several structure foundations exist on Michigan Pier. The buildings were demolished many years ago. While remnants of water piping connections to the building locations are visible, there are no active lines. No functioning utilities serve this section of the Outer Harbor.

IV. UTILITY REHABILITATION – SHORT-TERM IMPROVEMENTS (FIRST YEAR)

The short-term recommendations discussed in the section are proposed to be implemented in the first year for the purpose of maintaining or restoring functionality of existing drainage and utility systems, in accordance with the owner's intended use, for a period of five years. The systems covered by these recommendations include storm drains, sanitary sewer, water and natural gas services.

The intent of the first year storm drain improvements is to restore unobstructed conveyance of runoff from surface inlets to their outfalls, or discharge points. The sanitary sewer system serving the buildings on the south end of the site will be made operational for buildings currently in use, or expected to require functionality in the next five years. Gas, domestic water and fire sprinkler services will be tested and maintained for building areas serving existing and anticipated future tenants of the next five years. Short-term repairs also intend to eliminate any imminent safety risks in areas open to public use. Construction estimates for short-term improvements are presented in Section VI and detailed in Appendix C.

1.0 Terminals A and B

The areas and buildings covered by the proposed short-term utility improvements discussed below are located at the south end of the project site. The buildings include Terminal A, Terminal B, the Administration Building, Blue Building and vacant guard house at the Terminal A north driveway entrance.

1.1 Storm Drainage

The existing storm drainage systems that serves the parking lots in the Terminals A and B show varying levels of sedimentation and blockage, while newer systems appear to be functioning properly. Many catch basins are filled with standing water at a level above the top of inlet and outlet pipes. Other catch basins are either partially filled with sediment or nearly full to the grate with dirt and debris. These flooded and blocked inlets show that there is little to no conveyance of rain water from the paved surfaces to the outlets.

To restore function to all drainage systems in the vicinity of Terminals A and B, WSP recommends a thorough cleaning of the existing storm drain systems. This effort involves removing sediment from catch basins and manholes and cleaning the connecting storm drain pipe by water jetting. Use of a video inspection system will also help determine the cause of encountered blockages and locate damaged section of pipe.

Three of the catch basins located within the 1988 expansion portion of the Terminal A parking lot exhibit structure damage. The top portion of the catch basin structure has failed and caused collapse of the surrounding pavement. Two of the catch basins have steel plates placed over them eliminate the safety risk. WSP recommends removing the steel plates and existing grates and frames, repairing the damaged concrete structure top, and replacing the frame, grate and surrounding pavement.

The roofs of Terminals A and B are drained by leaders that run to the floor of the building and join to form trunk lines. The trunks collect roof runoff and discharge to outfall locations along the lake-wall bulkhead.

1.2 Sanitary Sewer

The short-term repair work recommended in the first year for the sanitary sewer system consists of inspection of all system components serving the buildings at the south end of the site, as noted by RJR in their assessment.

The three sanitary ejector pump stations that comprise part of the sanitary sewer system should be cleaned, inspected and rehabilitated if not performing properly. During the field investigation, water mixed with oil was observed discharging from the fresh air pipe located on the gravity main that exists Terminal B. The discharge flows over the pavement until reaching the nearest storm drain inlet. If the source of the discharge is the

building's sanitary sewer, the water observed would contain raw sewage. WSP recommends that the sanitary main that serves Terminal B be cleaned and inspected to locate the source of the discharge.

1.3 Water Service

Water service is provided to each building at the south end of the Outer harbor site. WSP recommends that all backflow preventers and meters throughout the complex be inspected and tested by a water service contractor. Currently, water service is shut off to unused buildings. The first-year recommendations include test-operating each section of service.

The south end buildings are provided fire sprinkler service by a 10" fire main.

During the field investigation, the water meter pit located at the southeast corner of Terminal B was observed to be flooded with water. This indicates that the sump pump located within is either de-energized or inoperable. WSP recommends that the pit be drained and the meter inspected and serviced.

1.4 Natural Gas Service

WSP recommends that the gas service to each building be tested to verify it is operable.

2.0 Bell Slip

WSP recommends that the outlet of the Fuhrmann Blvd. closed storm drainage network at the northeast corner of Bell Slip be cleared of all blocking debris. The riprap protection at the pipe outlet should be re-place. No other short-term improvements are necessary for the Bell Slip recreation area.

3.0 Outer Harbor Drive

No utility service currently exists along Outer Harbor Drive. No short-term utility work is required.

4.0 North Event Space

1.1 Storm Drainage

The large asphalt parking lot at the north end of the site is drained by three catch basins. Flow collected by these inlets is piped to a fourth inlet located to the west of the lot at the low point of a grassy area. From this point, an outlet pipe extends toward Lake Erie. During the site investigation, the outfall was not located. It's possible that the pipe outlet is hidden behind the large stone riprap that lines the shore.

Sediment was found blocking flow in two of the catch basins. Also, the steel grate over the large catch basin in the southwest corner of the lot is damaged and falling into the structure.

WSP recommends that the closed drainage system in the north end parking lot be cleaned and sediment removed. The frame and grate of the

large catch basin should be replaced to eliminate a safety risk to the public. A contractor should also be hired to inspect the outlet pipe section to locate the discharge point and, if necessary, clean or replace the end to provide an outlet for runoff collected by the system.

5.0 Michigan Pier

There are currently no storm drain or other utilities that serve the Michigan Pier area. The area is absent of any development. No short-term utility improvements are recommended.

V. UTILITY REHABILITATION – LONG-TERM IMPROVEMENTS

1.0 Terminals A and B

The future uses of the group of buildings at the south end of the Outer Harbor site are uncertain. The sections below identify repairs needed to restore the existing systems to their original capacities and levels of service.

1.1 Storm Drainage

The long-term recommendations for storm drainage work in the Terminals A and B area at the south end of the Outer harbor site assume that the future use of the complex sees full upgrade in-kind of the existing parking lots, and that the current extent of pavement is maintained. To support the re-surfaced lots, WSP recommends that the original closed storm drain systems be replaced with new piping, manholes and catch basins.

Replacement of the section built in the late 1980s is not necessary since the piping and most of the basins are operating properly, with no major deficiencies aside from those anticipated to be fixed as part of the first year repairs. While the entire system wouldn't need replacing, WSP recommends that the catch basins that currently exhibit structural damage be replaced during long-term improvement work.

As the existing storm drain networks and pavement surrounding Terminal A is replaced, the systems will need to comply with the New York State Stormwater Pollution Discharge Elimination System (NYS SPDES) requirements that include installing storm water treatment units at the ends of the drainage networks, such as hydro-dynamic separators or filtration vaults.

1.2 Sanitary Sewer

No long-term sanitary sewer improvements are recommended at this time, until more information is obtained.

1.3 Water Service

No long-term water service improvements are recommended at this time, until more information is obtained.

1.4 Natural Gas Service

No long-term water service improvements are recommended at this time, until more information is obtained.

2.0 Bell Slip

No long-term improvements are necessary for the Bell Slip recreation area. The Fuhrmann Blvd. storm drain system outlet that passes through this area is in satisfactory condition. No other utility services are present in this area.

3.0 Outer Harbor Drive

No utility service currently exists along Outer Harbor Drive. No long-term utility work is recommended.

4.0 North Event Space

1.1 Storm Drainage

WSP recommends full replacement of the closed drainage system that serves the large asphalt parking area at the north end of the Outer Harbor site. The system consists of four drainage inlets, piping and an outlet along the riprap-lined shore line.

5.0 Michigan Pier

There are currently no storm drain or other utilities that serve the Michigan Pier area. The area is absent of any development. No long-term utility improvements are recommended.

VI. UTILITY REHABILITATION – SHORT-TERM CONSTRUCTION ESTIMATE

The following table summarized anticipated short-term utility improvements. Refer to Appendix C for a detailed list of costs.

SUMMARY OF COSTS	
	Total
Storm Drainage	$ 254,230.00
Sanitary Sewer	$ 16,556.00
Water Service	$ 70,420.00
Natural Gas Service	$ 2,560.00
Mobilization	$ 13,750.00
Field Construction Allowance	$ 17,190.00
TOTAL CONSTRUCTION COST	$ 374,706.00

APPENDIX A

Photographs

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Photo A-1: Storm drain inlet along Terminal A northern entrance driveway

Photo A-2: Collapsing pavement surrounding Terminal A auxiliary parking lot catch basin

Photo A-3: Collapsed catch basin covered by steel plate in Terminal A auxiliary parking lot

Photo A-4: Blocked and flooded catch basin in Terminal A salt storage lot

Photo A-5: Terminal A east driveway catch basin plugged with sediment

Photo A-6: Terminal A sanitary pump station (northwest corner)

Photo A-7: Terminal A sanitary pump station control panel

Photo A-8: Access hatches to Terminal A abandoned septic system

Photo A-9: Terminal B sanitary fresh air vent discharging backed-up sanitary waste

Photo A-10: Terminal B fire hydrant and water vault with post-indicator valve

Photo A-11: Waste discharging from Terminal B sanitary fresh air vent reaching drainage inlet

Photo A-12: Blue Building sanitary pump station (west side)

Photo A-13: Blue Building sanitary pump station control panel

Photo A-14: Sanitary pump station in basement of Administration Building

Photo A-15: Dismantled water meter on Terminal A water supply main in utility tunnel

Photo A-16: Terminal A primary water supply main in utility tunnel

Photo A-17: Fire service pump in fire pump building

Photo A-18: Fire hydrant on north side of fire pump building

Photo A-19: Fire service post-indicator valves on east side of Terminal A

Photo A-20: Fire hydrant and post-indicator valves on north side of Terminal A

Photo A-21: Post-indicator valves along west side of Terminal A

Photo A-22: Fire hydrant north of Terminal B

Photo A-23: Double-Check Detector Assembly on fire service line in Terminal B

Photo A-24: Access to Guard House water meter vault

Photo B-1: Disconnected street lighting along Outer Harbor Drive

Photo B-2: Disconnected street light near Outer Harbor Drive

Photo C-1: North Events Space catch basin

Photo C-2: North Events Space collapsed catch basin grate

Photo C-3: Natural gas line marker along Fuhrmann Blvd.

Photo C-4: Telecommunications line marker along Fuhrmann Blvd.

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APPENDIX B

Construction Estimate

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Buffalo Outer Harbor

Short Term (First Year) Utility Improvements

Estimated Cost of Construction

Draft Estimate

5/19/2017

						UNIT COST BACKUP		
	Quantity	Unit	Unit Cost	Total Cost		DOT Item	RSMEANS Section	Justification
Drainage								
Catch Basin Sediment Removal/Cleaning - Light Sedimentation	63	EA	$ 75.00	$ 4,725.00		621.04		
Catch Basin Sediment Removal/Cleaning - Heavy Sedimentation	15	EA	$ 150.00	$ 2,250.00		621.04		
Storm Drain Pipe Cleanout, 6" - 12"	5300	LF	$ 4.00	$ 21,200.00		621.03		
Storm Drain Pipe Cleanout, 15" - 24"	3750	LF	$ 5.00	$ 18,750.00		621.03		
Building Interior Roof Drain Trunk Inspection, 6" - 12"	4600	LF	$ 4.00	$ 18,400.00		634.3500001		
Building Interior Roof Drain Trunk Inspection, 15" - 24"	700	LF	$ 4.00	$ 2,800.00		634.3500001		
Trench Drain Cleanout, 20 LF	14	EA	$ 300.00	$ 4,200.00		621.04		
Re-cast Catch Basin Top	4	EA	$ 800.00	$ 3,200.00				
Install New Frame and Grate	4	EA	$ 750.00	$ 3,000.00				
Remove Steel Plates Covering Catch Basins	2	EA	$ 200.00	$ 400.00				
SPDES Stormwater Treatment Units	4	EA	$ 20,000.00	$ 80,000.00				
Utilities-Water								
Fire Hydrant Operation Test	10	EA	$ 200.00	$ 2,000.00				
Domestic Service Test (One per Building)	5	EA	$ 500.00	$ 2,500.00				
Inpsect Backflow Preventer	7	EA	$ 300.00	$ 2,100.00				
Inspect Meter	5	EA	$ 150.00	$ 750.00				
Pump-out Vault and Service Sump Pump	1	EA	$ 3,000.00	$ 3,000.00				
Utilities-Sanitary								
Inspect, Clean and Service Grinder Pump Station	3	EA	$ 4,000.00	$ 12,000.00				
Investigate and Mitigate Overflowing Terminal B Air Vent	1	EA	$ 5,000.00	$ 5,000.00				
Cleanout Sanitary Gravity Mains, 6" - 8"	2000	LF	$ 4.00	$ 8,000.00				
Cleanout Sanitary Force Mains, 6"	2700	LF	$ 6.00	$ 16,200.00				
Cleanout Sanitary Force Mains, 2"	470	LF	$ 6.00	$ 2,820.00				
Utilities-Gas								
Natural Gas Service Test	4	EA	$ 400.00	$ 1,600.00				
SUBTOTAL				$ 214,895.00				
Misc.								
Mobilization	0.04	LS		$ 8,595.80				
Field Construction Allowance	0.05	LS		$ 10,744.75				
TOTAL				$ 234,235.55				

Design and Estimating Contingency (20%)	$46,847	
Direct Cost Subtotal	$ 281,082.66	
General Conditions, Bonds, Insurance, Permits, O&P (15%)	$42,162	Some of these already incl in unit prices
Estimated Construction Cost	$ 323,245.06	
Soft Costs (12%)	$38,789	
Estimated Total Project Cost, May 2017	$362,034.47	
Escalation to May 2018 (3.5%)	$12,671	
Estimated Total Project Cost May 2019	$374,706	