

EXECUTIVE DIRECTOR'S REPORT



José "joey" Torres
Mayor

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March 20, 2016

Via Certified RRR Mail

Joseph Bella, Executive Director
Passaic Valley Water Commission
1525 Main Avenue
Clifton, NJ 07011

RE: Levine Reservoir Containment Project, Section 106 Review Comments

Dear Mr. Bella,

I am writing to formalize the position of my administration with regard to the Levine Reservoir Containment Project that the Passaic Valley Water Commission (PVWC) and NJ DEP have been working on for several years, under mandate of US Environmental Protection Agency/NJDEP.

As all parties have been made aware by several formal letters from the NJ Historic Preservation Office (SHPO) in 2014-15, your mandate to drain the reservoir and construct two containment tanks in the reservoir site will constitute an encroachment and negative impact to the Great Falls Historic Landmark District. The *formal* consultation process mandated by Section 106 of the National Historic Preservation Act was triggered only recently by your application for Federal funding through the NJDEP's Municipal Finance and Construction Element to carry out this project, and is being handled by NJ DEP as a prerequisite to any funding award or permits. It is expected that specific conditions, controls and measures will likely be incorporated into your project to mitigate the negative impacts that are created because of it. As part of the Section 106 review process, the SHPO will be responsive and sensitive to input by interested parties and the public in its consideration of what finally these measures shall be.

With this process in mind, PVWC has been reaching out to the community to inform and educate, and to gather their comments and provide responses to their concerns about the planned project. Following the lead of my numerous public announcements at public meetings since 2014, your public outreach campaign in the of fall 2015 included information about a mitigative measure to **reuse the reservoir as a component for rewatering the historic Raceway system**. It is my intention to provide the following substantial input to this process outlining specific mitigative measures that will have positive outcomes for City of Paterson and Passaic County residents, and visitors to the Great Falls National Historical Park (GFNP).

1. ***Historic Significance of the Raceways*** – As you are aware, the Raceway system is the GFHD's most historically significant resource. It was constructed by the Society for the Establishment of Useful Manufacturers (S.U.M.) following the concept of Alexander Hamilton and engineer Charles Pierre L'Enfant to harness the tremendous potential of the Great Falls of the Passaic to power mill machinery. Although L'Enfant's concept was too elaborate and expensive for the new corporation, the S.U.M. did at first construct a simple system in 1794, which it later expanded in 1800 and again in 1838. It was this engineering feature that launched Paterson onto its path to greatness and financial success, and earned it the status of "America's first planned industrial city."
2. ***Raceway Rehabilitation, Historic Interpretation & Visitor Amenity*** – Although the Raceway was first restored in the early 1980s by the city with the assistance of federal funding, it was necessary to temporarily shut it down after it sustained damage from the historic flooding events of hurricane Irene in 2010. Now that the General Management Plan for the GFNP is completed, we know for certain that the National Park Service (NPS) shares the same goal as we do that the Raceway system must be restored and rewatered, in order to represent the historical interpretation of the story of Hamilton and the S.U.M., as well as a featured amenity for the recreational enjoyment of the national park.
3. ***Engineering Study of the Raceway System & Levine Reservoir concept*** – We have received a grant from the Passaic County Open Space Fund to conduct a final and comprehensive engineering study of the Raceway's current conditions/deficiencies and hydrology to set it up for phased rehabilitation projects as soon as possible. In conjunction with this study, we are also commissioning an engineering feasibility study into my concept of *reusing the Levine Reservoir to assist with keeping the Raceway flowing continuously*, even during periods of low river flow. Because the 1838 Raceway was historically fed directly from the Passaic River from the intersection of McBride Ave. and Spruce St., the city obtained a FERC permit in 2002 for continuing to draw the water into the raceway for scenic purposes.

The basic concept is to pump the river water from the Raceway into the reservoir at the most convenient and feasible spot, and then pipe it back into the Raceway on demand when river water flow drops, such as it does throughout the summer months for example. The back-and-forth flow of the water into and out of the reservoir would need to be controlled by automatic equipment that measures flow levels and in turn activates pumps and valves as needed to transfer water flow between the raceway and the reservoir. The river water held in the reservoir would likely need to be managed with aerators and other apparatus to keep it moving and to prevent stagnation.

4. ***Historic Precedent for Raceway Water Storage*** – There has been substantial documentation of water power system configurations in early America. These are typically set up to best provide for a reliable source of flowing water on a daily basis. To do so, it was in most situations essential to engineer a way to hold water in reserve. This was done either directly within its naturally-flowing path, or by channeling the water out of its path and into a flooded area called a "mill pond" or "reservoir." The 1838 Raceway utilizes a large masonry diversion dam across the Passaic River that slows and holds back the flowing water enough to create a swollen area from where surplus water can be then draw from. The dam is not

designed to completely stop the flow of the river waters. The water from behind the dam is then allowed into the mouth of the Raceway system, and its flow is controlled by a gate and floating trash rack. In the earlier 1794 configuration of the S.U.M. raceway, however, the opposite system was laid out. River water was held back by a wooden dam in the river, and it was diverted to a reservoir (holding area) in the vicinity of where Libby's Restaurant and McBride Ave. are located today. The end of the reservoir was gated so the flow of water into the raceway could be controlled (see attached illustrations prepared by the NPS Historic American Engineering Record in 1973).

The concept that I am presenting is not different from the 1794 configuration in purpose -- it uses the Levine reservoir for what it was constructed for in 1884: to hold water temporarily in order to create a more reliable, continuous resource. In this case, the water would be used for supplementing the raceway and not for drinking. What I am proposing would require minimal changes to both the Raceway and the Levine Reservoir in order to accomplish.

5. ***Tank Design, Placement & Reuse of the Levine Reservoir Site*** – under this concept, the portion of the reservoir designated to receive the tanks would be engineered according to PVWC's proposed plans to separate the tanks from the rest of the site with an earthen berm. The rest of the reservoir would store the water pumped into it from the Raceway. The concrete tanks must be screened with vegetation and also painted accordingly to better camouflage them as demonstrated by the renderings you presented in public. A walking path with benches should be established around the perimeter of the reservoir. A connecting path would lead visitors from the reservoir path to a fabulous nearby promontory observation point overlooking the upper raceway and the also the Great Falls. This promontory point pathway is scheduled to be improved and formalized by the NPS this summer. The promontory point will be accessible from an entrance from the reservoir path, the McBride Avenue path from the vicinity of Libby's Restaurant, and also from the Stoney Road trail leading up from the upper raceway (see attached map and illustration).

The reservoir pathway should be landscaped, paved, and marked with signage that explains the history of the reservoir site and the Passaic Water Company (est. 1850). There should also be a way finding kiosk nearby the Grand Street entrance that can show visitors the trail network, including how to cross the Rt. 80 bridge (New Street) in order to reach the trails at Garrett Mountain Preserve and to Overlook Park where they can visit the Great Falls.

I look forward to submitting at a future date the engineering feasibility study that will outline and describe the concept I am presenting in further technical detail. In the meanwhile, I would like to provide for reference a hydrology study of the raceway completed in 2004 by Lichtenstein Engineering that points out its historic and technical operation, and identifies the necessity of maintaining a steady flow of water through the system for scenic purposes and to prevent stagnation and invasive weed growth.

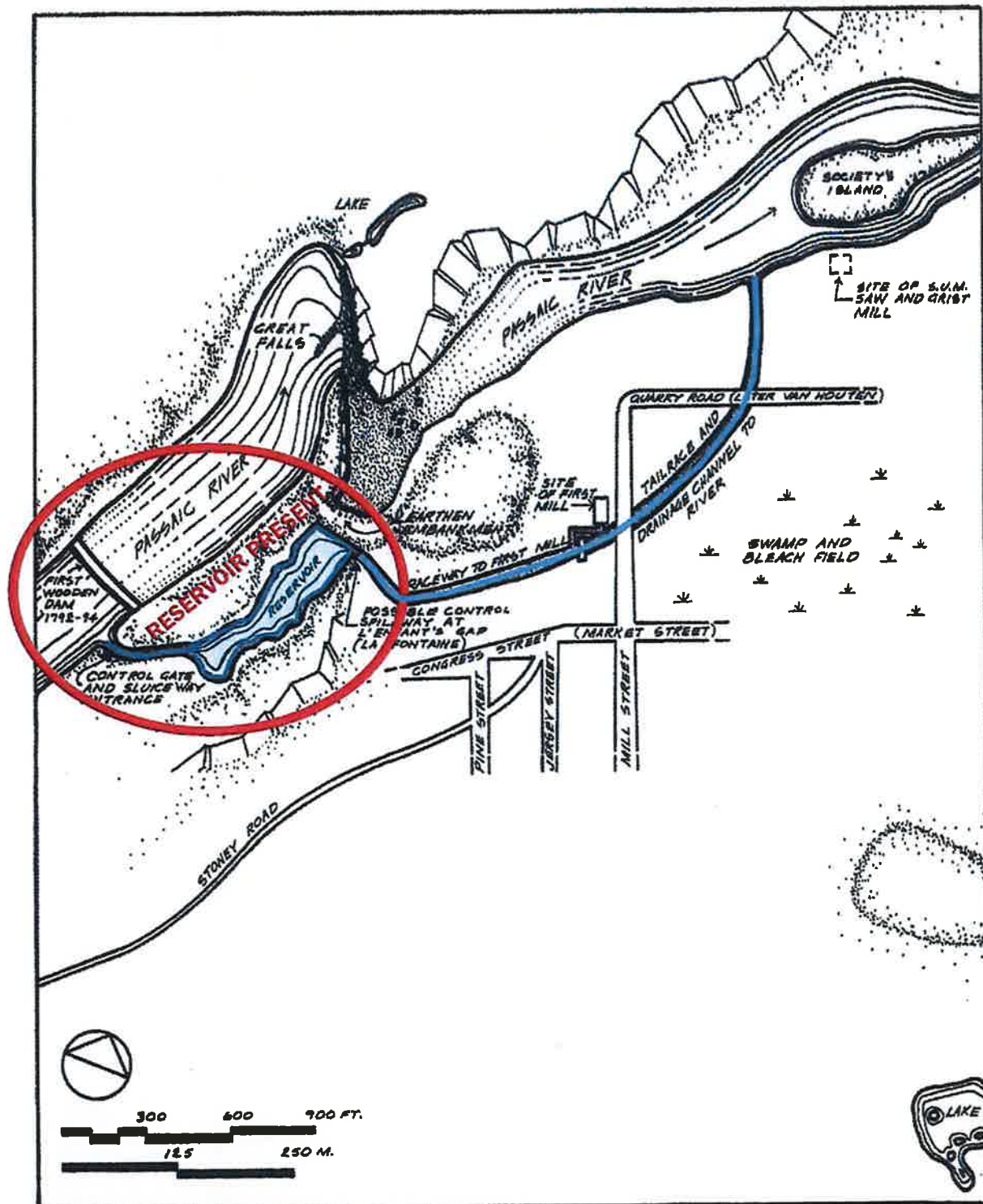
Please do not hesitate to contact me for further clarification or information regarding this topic, my staff and I will be pleased to be of further assistance.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Joey Torres', with a large, stylized initial 'J'.

Mayor Jose "joey" Torres
City of Paterson
Encl.

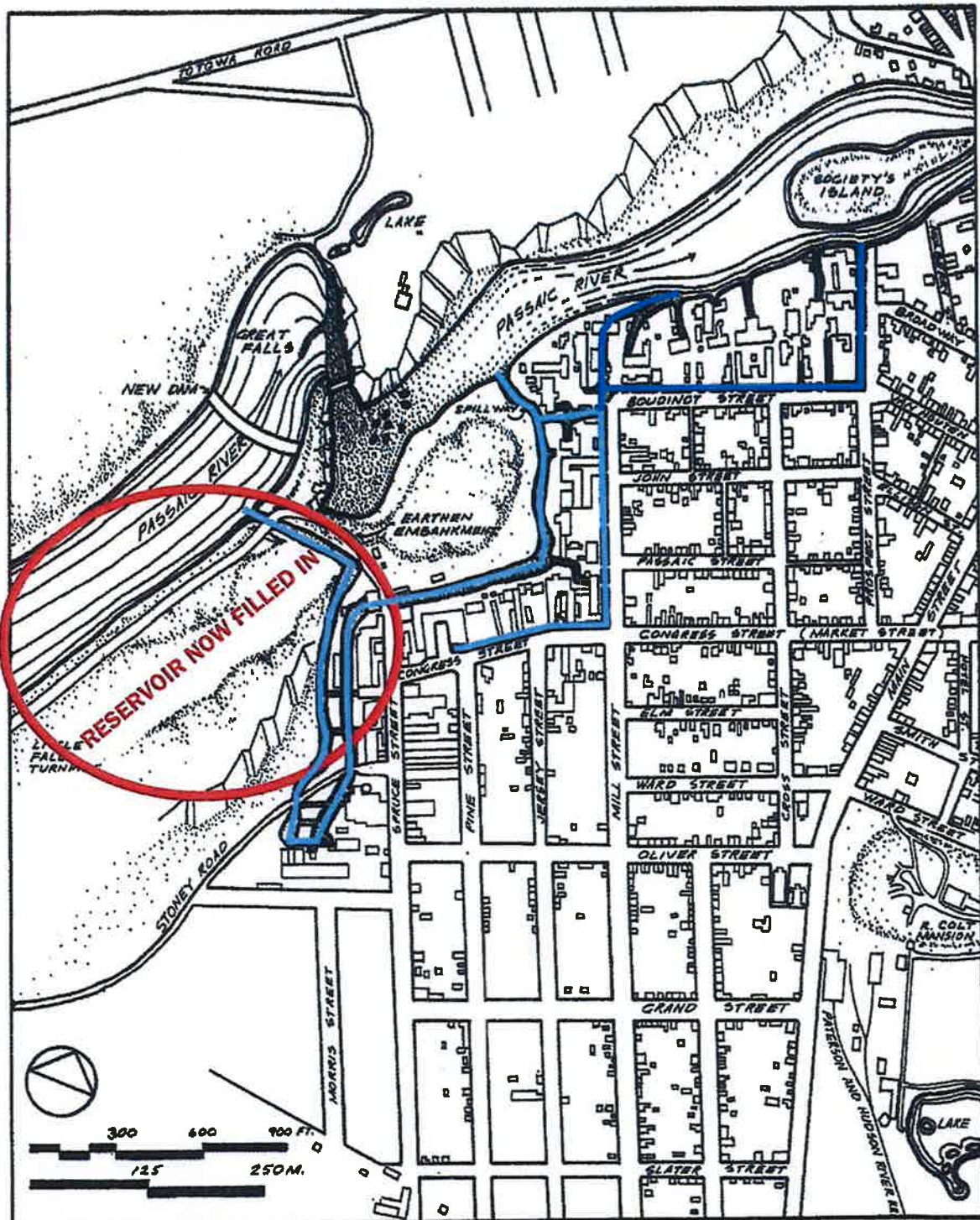
cc. PVWC Commissioners
Daniel Saunders, Deputy Administrator, Historic Preservation Office, NJDEP
Lisa Tracey, Northern Bureau Water Compliance & Enforcement, NJDEP
Elizabeth Davis, Municipal Finance and Construction Element, NJDEP
Jaime Loichinger, Advisory Council on Historic Preservation
Darren Boch, Superintendent, Great Falls National Historical Park, NPS
William C. Bolger, National Historic Landmarks Program, NPS
Robert Guarasci, Chairman, Great Falls National Historical Park Advisory Commission
Gianfranco Archimede, Director, Paterson HPC



PATERSON RACEWAYS, [1792-99]

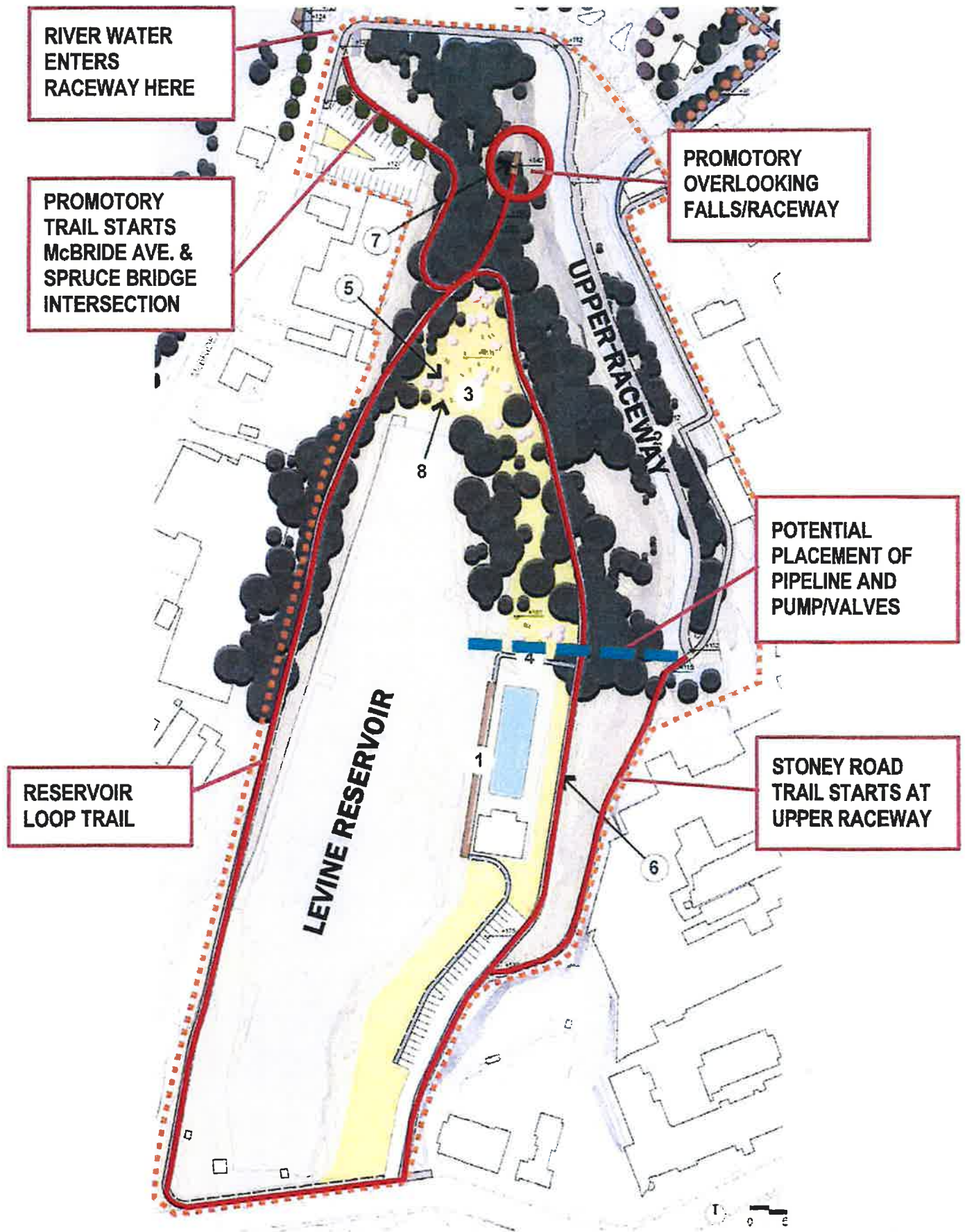
THIS SHEET DEPICTS THE FIRST RACEWAY PLAN ORIGINALLY DESIGNED BY PIERRE CHARLES L'ENFANT AND MODIFIED BY PETER COLT. WATER FROM THE PASSAIC WAS DIVERTED INTO THE RACEWAY SYSTEM BY A WOODEN DAM. WATER FELL INTO A RESERVOIR AND THEN PASSED THROUGH THE RACEWAY TO THE FIRST S.U.M. MILL. AFTER LEAVING THE MILL, WATER FLOWED BACK INTO THE PASSAIC THROUGH A DRAINAGE CHANNEL.

SOURCE: CONCEPTUAL MAP BASED ON HISTORICAL DOCUMENTATION AND 1"=100' MAP. MAP PREPARED BY THE HISTORIC AMERICAN ENGINEERING RECORD, HAER.



PATERSON RACEWAYS, [1838-PRESENT]

THIS SHEET DEPICTS FINAL ALIGNMENT OF THE S.U.M. RACEWAY SYSTEM. LEAKAGE THROUGH THE EARTHEN EMBANKMENT FORCED THE S.U.M. ENGINEER TO ABANDON THE RESERVOIR AND CHANNELS FROM THE RIVER. INSTEAD HE BUILT A MASONRY DAM DOWNSTREAM AND TURNED THE RIVER INTO THE RACEWAY THROUGH A NEW CHANNEL CUT INTO THE ROCKY RIVER EDGE. THE WATER WAS THEN CARRIED ACROSS THE GULLEY ON TOP OF THE EARTHEN EMBANKMENT WHICH HAD SERVED AS A DAM FOR THE RESERVOIR. IN THE LATE 1800'S S.U.M. FILLED THE RESERVOIR AND SOLD THE LAND. SOURCE: CONCEPTUAL MAP BASED ON HISTORICAL DOCUMENTATION AND 1"=100' MAP, CULTURE FROM PATERSON, N.J. MAP, 1850, BY J.C. SIDNEY, PUB. BY M. DRIPPS.





VIEW FROM THE PROMOTORY TRAIL OVERLOOKING FALLS AND RACEWAY

City of Paterson

Department of Community Development



Hydraulic Study of the Paterson Raceway System in the Great Falls National Historic District Paterson, New Jersey

January, 2004

Prepared By:

**Lichtenstein Consulting Engineers, Inc.
Paramus, New Jersey**



Lichtenstein

Consulting Engineers

City of Paterson

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Hydraulic Study

Introduction

As part of a comprehensive study of the Society of Useful Manufactures (SUM) waterpower raceway system performed for the City of Paterson, **Lichtenstein Consulting Engineers, Inc.** performed a detailed hydraulic investigation of the entire Paterson Raceway system. The hydraulic study assessed the flow and operation of the raceway network, including the identification and assessment of controlling features and sections, the operation of the raceways under varying flow conditions, and the ability of the raceways to accommodate anticipated peak flow events. The study also included historical research to determine past operating parameters, and utilized anticipated flow scenarios and historical data to assess the design flow rate for the restored raceway system. Finally, the study identified potential modifications to the existing hydraulic characteristics of the raceways (either for hydraulic, interpretive or historic restoration purposes) and assessed the impact of these modifications on the proposed hydraulic operation of the raceway.

This report presents the results of the hydraulic portion of the comprehensive study. Report sections present the methodology followed in this study, historical information on hydraulic characteristics and operation of the raceway system, and recommendations for hydraulic design and operational characteristics to be utilized for future restoration and maintenance of this important cultural resource. Supporting documentation on the engineering analysis performed are included in the appendix.

Methodology

Existing hydraulic conditions for the raceway system were determined through detailed field survey of the raceways, including measurement and location of all flow control structures, critical and periodic cross sections and evidence of historical hydraulic data. As part of the on-site condition inspection, evidence of historic hydraulic operation was noted, located and measured.

Documentary research was performed to obtain pertinent engineering and hydraulic studies of the Passaic River and the raceway vicinity. Data utilized included the Flood Insurance Study (FIS) prepared by the Federal Emergency Management Agency (FEMA) for Paterson and a drainage study performed for the Hamilton Square Development on the sites of the Hamil, Hamilton and Hope Mills along Mill Street between Market Street and McBride Avenue Extension. Historical documentation obtained includes photographs, surveys and historical reports on aspects of the raceway operation.

Detailed hydraulic flow calculations were performed utilizing a variety of computer software and hydraulic flow theory methodologies. Flow in the open channel portions of the raceways was modeled utilizing the HEC-2 computer program developed by the US Army Corps of Engineers. Flow at critical flow control structures was analyzed utilizing appropriate weir flow or culvert flow computations. Characteristics were analyzed for a range of flow values based on reasonably anticipated scenarios.

Historical System Operation

System Layout

The Paterson raceway system was developed as an industrial resource to provide water to mills and manufacturing facilities for both water power and industrial process uses. The raceway system harnessed the energy naturally dissipated by the fall of water over the 70 ft. high precipice of the adjacent Great Falls of the Passaic.

As designed, the system operated in a combination of parallel and series water distribution networks. Each of the mills on a particular level of the raceway were arranged in parallel with the other mills on that level. Mills simultaneously shared water from the raceway, and the total water supply into that particular raceway level had to be at least equal to the total consumption of all mills on that level. Each mill could control their own water usage independent of others, assuming there was a sufficient total water supply in the raceway.

In series networks, by contrast, the water supply is routed through each of the network entities sequentially. Since each entity is connected in an end-to-end fashion, the discharge from one becomes the inflow to the next, and it therefore follows that the amount of flow through each must be the same. In the Paterson raceway system, each of the three levels operate in series with the other two levels. This had the advantage of utilizing the same water to drive three different sets of mills, but it limited the drop or head (vertical distance between the water surfaces in the headrace and tailrace) available for each level of the raceway. The energy available from water is proportional to the amount of water and the available head. In theory, the division of the total head available from the Great Falls into three discrete drops between raceway levels did not increase the total energy available from the raceway system. However, the physical difficulties of supplying water with a high head, and the water power technology available at the time of the raceway development, strongly favored high flow, low head installations. The raceway power could therefore be much more efficiently utilized by the development of the raceway in several levels, arranged in series.

Water Control Structures

The required flow through the raceway system could vary widely under varying conditions of operations. The minimum flow on any level was determined by the total demand of all mills on that level at any given time. Since the flow on each of the three levels had to be the same at all times, the level with the largest demand determined the minimum flow rate for the entire raceway system. Should the demand on other levels be less than this, a means had to be provided to pass this flow without adversely affecting the mills on these lower demand levels. In a worst case, should all mills on one level be in full operation while all mills on a different level be shut down, the control structures on the shut down level had to be able to pass the full demand flow of the operating level. If the situation were reversed, these same control structures must be capable of limiting extraneous flow so that the demand flow would be available to the mills.

In addition to accommodating varying flows through the raceways, water control structures had to maintain consistent water levels in the various parts of the system. Should water levels vary

significantly, flow to the mills would vary accordingly, potentially disrupting mill operations. The mills required consistent, reliable water flows for efficient, and profitable, operation.

In order to effectively control the flow and water level in the raceway system, the raceways utilized two types of water control features. Gates were utilized to regulate flow throughout the raceway system, including flow into the system from the river, flow between raceway levels, and flow to each of the mills. Although a variety of gate designs were utilized on the raceways, they were typically characterized by a submerged orifice. When gates are opened, the opening through which the water flows is submerged beneath the surface of the raceway. The submerged opening provides several benefits, including reduced variance in flow due to varying water surface levels, and restriction of floating debris from the flow. Since the opening is located at or near the bottom of the raceway, however, gates can drain the raceway (either intentionally or unintentionally) if more water is drawn from the system than is supplied to it. The only operational gate on the present raceway system is the inlet gate from the river. The remains of several other gate structures can be seen in the main river gatehouse, the remains of the Dolphin-Jute Mill flume structures, and extant gate structures on the flume entrance to the Industry Mills (currently Fabricolor).

The second type of control structure, weirs, are designed to maintain a consistent water level. Weirs are simply dams, or overflow structures constructed or adjusted to a particular elevation. Water will flow over the weir when the water surface elevation is above the top of the weir, but will obviously stop outflow if the water surface drops below the top of the weir. Weirs are not effective in regulating flow, since the flowrate over a weir varies widely with small changes in the elevation of the water surface, particularly when the water surface is near the weir elevation.

Sometimes, a single water control structure would incorporate both gate(s) and weir(s), or the same element could be designed to function as both. HAER photographs illustrate that the concrete spillway behind the Essex Mill functioned like this. When the gate (which filled the existing gap in the concrete spillway structure) was in a fully down position, its top edge was aligned with the adjoining concrete and water flowed over the top of it, functioning as a weir. The gate could be lifted by means of a geared mechanism, however, allowing water to flow under it through a submerged opening, functioning as a gate.

SUM controlled flow gates were located at the intake to the raceway system from the Passaic River, on the Upper Raceway at the Ivanhoe spillway and at two locations on the Middle Raceway: at the spillway to the Lower Raceway between the Essex Mill and the Gun Mill, and at the waste weir which emptied out to the Passaic River behind the Gun Mill. The original weir at the north end of the Lower Race also probably incorporated a gate to allow the Lower Raceway to be drained for maintenance. Gate control mechanisms were often contained in gatehouses, simple one-story frame structures built over the raceway at these locations to protect the mechanisms, and the gate operators, from the elements. Water levels in the raceway were maintained by three primary weirs: the Upper Raceway waste weir at the southerly end of the Upper Raceway, a waste weir on the Middle Race behind the Gun Mill, which overflowed out through the ATP site to the Passaic River, and a weir at the northerly end of the Lower Raceway at VanHouten Street and Curtis Place.

In practice, flow was regulated by watching the depth of water at the waste weirs. If the water level dropped below the waste weir, upstream flow gates would be opened to admit more water to the raceway

system, thereby raising the water level. If the flow over the waste weir became excessive, upstream gates would be closed, or parallel gates opened, depending upon flow demands in the other levels of the system. Flow in the Lower Raceway was regulated by varying the flow from the Middle Raceway by the Essex Mill. Excess water in the Middle Race which was not needed in the Lower Race could be wasted to the River behind the Gun Mill. Once the Middle Race waste weir was eliminated, flow in the Lower Raceway could not be varied independently of the Middle Raceway, so that the water flow in all three levels of the raceway system had to be the same.

No historical documentation of the daily water control operations were uncovered. Although the SUM certainly employed at least one gatekeeper to regulate flow in the raceways, it is not clear how strenuous this activity was. In all likelihood, water flow probably fluctuated slowly, rather than suddenly, as the relatively constant demand of the mills reached an equilibrium with the supply provided through the SUM gates. Typically, the SUM gates would have been set to provide excess water flow to the system, with the extra water discharging over the waste weirs from each level. Changes in water demands in the mills would thereby only increase or decrease the waste weir discharge, without requiring adjustment of the main gates. Main gate adjustment would only be required when significant changes in the water flow to a number of mills on a particular level occurred simultaneously, and the aggregate change in the inflow or outflow from a level was sufficient to warrant intervention.

Historic Water Levels and Depths

Although the Great Falls Historic District has seen dramatic and extensive changes over the years, significant portions of the extant raceway system date to original or very early raceway construction. Aspects of the system, including the basic location and layout of the raceways, has not changed significantly since the Upper Raceway was completed in the 1830's.

Headraces vs. Tailraces

In analyzing the extant evidence and attempting to determine the design intent of the raceway system, a distinction must be made between portions of the system which operated as headraces, and those which operated as tailraces. Headraces are those reaches of raceway which supplied water to mill flumes. Headraces always maintained a certain depth of water in order to efficiently provide water to the mill sluiceways. Gates at the sluiceways controlled the flow of water through submerged openings. In the Paterson raceway system, the standard measure of water flow to a mill was predicated upon a 30" head of water at the sluiceway, meaning that the center of the sluiceway water opening was 30" below the level of the raceway water surface (water power was purchased from the SUM in units of square feet of sluiceway opening at a head, or depth, of 30"). Assuming a minimum one foot high water opening, this would dictate a minimum headrace depth of three feet. It is likely that the design water depth was somewhat more than this to permit a sluiceway opening taller than one foot and to allow for some sedimentation or debris accumulation before the mill flow was affected.

Tailraces, on the other hand, served only the purpose of carrying used water from the mill sites. These were essentially drainage channels, and did not need to maintain any particular depth. As the head available to the mills was the difference between the headrace and tailrace elevations, the tailrace was generally kept as low as practical to maximize this head.

In the Paterson raceway system, headraces include the Upper Headrace from the gatehouse at the river to the Dolphin-Jute Mill sluiceway, the Middle Headrace from the Spruce Street bridge to the Essex Mill sluiceway (previously extending to the waste weir behind the Gun Mill) and the Lower Headrace from the intersection of Mill and VanHouten streets to the overflow at the corner of VanHouten Street and Curtis Place. The Upper Tailrace, which is at the same level as the Middle Headrace and is often mistakenly labeled as part of the Middle Raceway, extends from the bottom of the Upper Raceway waste weir to the Spruce Street bridge. The Middle Tailrace extends along the northerly side of Market Street from its intersection with Spruce Street and along the westerly side of Mill Street to just north of the Essex Mill. The Middle Tailrace, which is generally the same level as the Lower Headrace, is entirely filled in or covered over except for approximately two hundred feet along Mill Street between Passaic Street and McBride Avenue Extension. Mills utilizing water from the Lower Raceway wasted the water directly back to the river, eliminating the need for a lower tailrace.

Upper Raceway

Although the Upper Raceway exhibits the most disruption due to extensive restoration efforts in the early 1980's, based on information gleaned from available historic documentation, photographs, and examination of extant infrastructure, it is believed that the elevation of the overflow on the original waste weir at the southerly end of the Upper Headrace was approximately 111.4. This is confirmed by both the HAER documents, prepared in 1975 and a survey of the raceways signed by N.J. Miraldi, Sr. Engr., which is undated but is believed to date to around the middle of this century, and provides a relatively firm level for the historical impounded water elevation in this section of raceway. The current concrete waste weir crest is at elevation 109.5. Current field survey locates the concrete floor of the northern section of the Upper Headrace parallel to McBride Avenue at elevation 107.6±, and indicates that the raceway bottom slopes slightly to elevation 107.0± adjacent to the Ivanhoe spillway. South of the Ivanhoe spillway, the raceway bottom rises somewhat, reaching an elevation of 109.1± before dropping back down to 108 in the vicinity of the waste weir. The Miraldi survey indicates that the southern section of the Upper Headrace ranged between 108 and 109.7, dropping down to elevation 106.4 in the vicinity of the waste weir. This data was presumably collected after a long period of poor maintenance in the first half of this century and does not necessarily reflect the original design intent. Archaeological evidence gathered during raceway dredging in 1976 and 1977 estimates the historical raceway bottom south of the Ivanhoe spillway at approximately elevation 107.5-108 based on strata uncovered during the dredging operations. The lowest point of the upper raceway is the invert of the Ivanhoe spillway (without stop logs installed) at elevation 106.3. These elevations indicate a nominal original Upper Headrace depth of 3.5 to 4 feet, which is consistent with evidence elsewhere on the raceway system and known raceway operating conditions.

During periods of high flow, the water level in the Upper Tailrace is controlled by backwater from the Middle Raceway. The minimum water level in the Upper Tailrace during low flow conditions is governed by a concrete check dam with a crest elevation of 89.2 just upstream from the Ivanhoe basin. The checkdam was constructed during the restoration of the Upper Raceway in the early 1980s. Immediately prior to this, a wooden structure at this location kept backwater out of the Upper Tailrace, which was drained by a series of inlets connected by pipes. The history and purpose of this earlier dam and closed drainage system is not clear, as it does not appear on any of the known historical maps or surveys of the raceway system prior to 1977, although it was documented on the

existing conditions plans for the construction of Upper Raceway Park in 1980 (survey prepared in October, 1977). The current bottom of the upper tailrace varies around elevation 86.0, providing approximately three feet of water in the tailrace. Although little historical information is available, the Miraldi survey indicates an Upper Tailrace bottom elevation somewhat higher than the current condition, ranging from elevation $87\pm$ near the Ivanhoe wheelhouse to elevation 89 at the base of the waste weir, with a water surface elevation of 89.6.

Middle Raceway

The crest of the concrete spillway at the northerly end of the Middle Headrace is elevation 89.1. Constructed sometime between 1915 and 1927 when the waste weir to the river behind the Gun Mill was removed, this feature has determined the maximum impounded water level in the Middle Headrace since that time, although the water level can be lowered (to elevation 84.9, effectively emptying the raceway) by the removal of stop logs in the spillway. The HAER photos depict a $0.5\pm$ wooden extension constructed on top of the concrete spillway, although it appears in the photo that this served only to direct flow over the wooden gates and was not meant to increase the impoundment level. Waterline deterioration and photographic evidence indicate that the Middle Headrace was normally impounded to the concrete spillway crest (elevation 89.1) throughout much of this period. Although the HAER plans depict a water level for the Middle Headrace, the plans have some inconsistencies which render the plans unreliable for this information. Although no evidence has been uncovered to unequivocally document Middle Headrace water levels before the construction of this spillway, it is reasonable to assume that this structure maintained an earlier design water level. Extant infrastructure dating from earlier periods of the raceway and historic photographs support this assumption.

Currently, the Middle Headrace has bottom elevations which vary around 87.0 from the Spruce Street Bridge to the McBride Avenue Extension bridge. The Ivanhoe basin elevation varies around 86.5, while north of McBride Avenue Extension, the raceway slopes to around elevation 85.0 behind the Essex Mill. The Miraldi survey indicates that the Middle Tailrace was around elevation 85.5 from Spruce Street to McBride Avenue Extension, with a significant hump rising to elevation 88.8 under and just north of this latter crossing.

Extant historical evidence of the original Middle Headrace invert includes the bottom of the Hamil Mill sluiceway gate structure and the control structure behind the Essex Mill, both of which are at elevation $84.9\pm$. Archaeological work done in 1973 as part of NJDOT's Route 20 project included investigation of the Middle Headrace 80 ft. \pm east of Spruce Street. This investigation included a series of one foot square test pits dug with a post hole digger through three to four feet of overlying wet muck to of a yellow sand stratum. Unfortunately, accurate topographical survey of the archaeological work was not uncovered. Interpolating from the archaeologists' sketch, this stratum appears to be at approximately elevation 84.0. The archeologists hypothesized this sand stratum to be the original raceway bottom. It is likely that this sand bottom would have been overlaid with an impervious layer of clay to waterproof the raceway bottom, similar to the clay layer which was identified in archaeological work performed on the Upper Raceway. The archaeologists did not identify such a clay layer in their excavation, however this may have been due to the wet, mucky condition of the raceway bottom and the method in which they had to perform their test pit excavations under the adverse conditions. Assuming a clay layer did exist, and taken together with the control structures, this seems to indicate an original Middle Headrace invert of around elevation

85.0, which would confirm the hypothesized raceway depth of around four feet. Construction of two sewer lines in the McBride Avenue Extension right-of-way in the first half of the 20th century necessitated the raising of the bed of the raceway in that vicinity. The pipes, the top of which are as high as $86.3\pm$, explain the hump depicted on the Miraldi survey, and dictate the current invert of the raceway under the bridge of around 87.0.

Prior to the recent restoration work surrounding the Passaic Street Bridge, the exposed portion of the Middle Tailrace between Passaic Street and McBride Avenue Extension had a floor elevation varying between 66 and 67. A portion of a wooden floor in the Hamilton Mill sluiceway just north of Passaic Street, recently uncovered as part of that restoration, lies at elevation $64.4 \pm$, and the bottom of the stone walls on the westerly side of the tailrace in the same vicinity are approximately elevation 63.5. This evidence suggests that the tailrace floor in this area was probably around elevation 64.4, which is consistent with the information contained in the Miraldi survey. The Miraldi survey also indicates that north of McBride Avenue Extension, the raceway invert sloped gradually down to around elevation 63.0 at the northerly face of the Essex Mill. This stretch of tailrace has been filled in. Flow is maintained between McBride Avenue Extension and the Lower Raceway at the intersection of Mill and VanHouten Streets via a 24" RCP pipe which was laid in the bed of the raceway prior to filling.

South of Passaic Street to Market Street, the Middle Tailrace has been filled in and flow has been channeled through a 24" RCP pipe laid in the bed of the raceway. This pipe turns 90 degrees at a manhole at the corner of Mill and Market Streets, and runs along Market Street for approximately 55 feet before reaching the upstream end of this conduit. West of this point and extending nearly to Spruce Street, the Middle Tailrace is believed to be intact along the northerly side of Market Street, however this entire section of raceway is covered and inaccessible. In 1998, prior to the filling of a 35 ft. long, previously exposed portion of the Middle Tailrace along Market Street fifty feet west of Mill Street, the tailrace floor elevation in this area was surveyed at elevation 65.4. The Miraldi survey indicates an elevation of 65.3 in this vicinity. It is likely that the tailrace originally had a slight grade northerly along Mill Street and that the original raceway invert at the corner of Mill and Market Streets was in the range of 64.5 to 65.0.

Data contained in the HAER mapping for the raceway system, prepared in 1976, gives the invert of the upper end of the Middle Tailrace just east of the Union Works building on Spruce Street as 68.7. The Miraldi survey depicts the invert of this section of raceway as parallel to the centerline grade of Mill Street, and thus graphically assigns an elevation of approximately 77 at the westerly end of the Middle Tailrace. However, the lack of survey elevation data indicates that no actual survey elevations were obtained in this subterranean portion of raceway, and that the depicted elevations were merely assumed.

Based upon the Middle Raceway floor elevations as described above and assuming the Lower Raceway water elevation to be similar to its existing elevation of $65.0\pm$, the impounded water under static conditions in the Middle Tailrace would have stretched from the Lower Raceway southerly along Mill Street to the intersection of Market Street. The Market Street reach of the Middle Tailrace, however, was above the Lower Raceway water level and therefore would not have had impounded water. Of course, under flow conditions, water used by the Mills along the Middle Headrace would have been exhausted to the Middle Tailrace after passing through the wheels or

processes of the various industries. Moving downstream in the Middle Tailrace from Spruce and Market Streets, the flow would be increased as each mill discharge added to the flow, eventually reaching the full design flow of the system at the corners of Mill and VanHouten Streets.

Lower Raceway

The Lower Raceway begins at the Gun Mill access bridge at the foot of Mill Street. At this point, all flows from the Middle Raceway have been brought back together (except for water which was wasted to the river behind the Gun Mill prior to 1915), and none of the Lower Raceway mills have diminished this flow. As previously noted, the Lower Raceway system has only a headrace, as the mills which utilized water from this section wasted the water directly back to the river.

The Lower Raceway is currently impounded by a fixed concrete spillway with a crest elevation of 65.0 located in front of the Salvation Army building at the corner of VanHouten Street and Curtis Place. Overflow from the spillway is drained through a closed system around the corner and discharged into the historic raceway outlet channel running along the westerly side of Curtis Place back to the river. Prior to the construction of the spillway and closed drainage system in the third quarter of this century, the raceway extended an additional 115 ft. along VanHouten Street before turning at right angles and discharging over a nine ft. high spillway into the Curtis Place channel.

The historic spillway crest elevation at the easterly end of the Lower Raceway is difficult to fix with certainty. The HAER documentation indicates the Lower Raceway water elevation as 66.8 at the upstream (westerly) end. The easterly end elevation is not given, but scales to approximately $65 \pm$. This number is highly subjective due to the small scale of the drawing. This source also indicates that the Lower Raceway was very shallow, with what appears to be only several inches of water in some places. It is possible that at the time of the HAER documentation, the Lower Raceway was so heavily silted up that the water did not impound at a single level throughout the Lower Raceway. The 66.8 elevation could not have been indicative of the spillway crest elevation, as this elevation is above the top of the raceway walls and sidewalks adjacent to the easterly end of the Lower Raceway, and would have inundated several of the existing bridges and buildings which cross the raceway in this area. The Miraldi survey specifies the now removed easterly spillway elevation on the Lower Raceway as elevation 62.7 (top of weir). However, this was probably with the gate removed from the weir structure. Similarly, the Miraldi survey specifies the elevation of the concrete spillway behind the Essex Mill on the Middle Headrace as elevation 84.8 (top of weir), which by current field survey can be correlated to the invert of the gate opening with the gates removed. An elevation of 62.7 is 28 inches below the existing water level, and it is doubtful that such a design water level would provide sufficient water to power mills along the Lower Raceway. Due to a lack of any better data, it is assumed that the existing concrete spillway was constructed to replicate the historic water level in the Lower Raceway. This elevation (65.0) is reasonable, as it is below the existing structural members supporting bridges and buildings across the Lower Raceway, and provides approximately one ft. of freeboard to the sidewalk level of VanHouten Street at the easterly end of the raceway. Minimum freeboard from this water level is 8 inches to the old sluiceway between Industry Mills (now Fabricolor) and the Salvation Army.

Similarly uncertain is the original elevation of the bottom of the Lower Raceway. The Miraldi survey gives the Lower Raceway bottom elevation of 62.8 to 63.0 west of McGee's Alley, but provides no information east of this. The HAER documentation provides only a small scale sketch

which does not specify any elevations, but which scales to indicate bottom elevations in the range of 66 at the westerly end, sloping to elevation 64 at the easterly end. Current field survey reveals existing bottom elevations in the Lower Raceway to vary from elevation 64 \pm adjacent to the Essex Mill to elevation 62.5 \pm at the easterly end by the overflow weir. If the original design depth of the Lower Raceway approximates four feet as is believed to be the case for the Middle and Upper Raceways, it follows that the bottom elevation of the Lower Raceway was originally around elevation 61 \pm , and the raceway currently contains 1.5 to 3 feet of sediment. This could be confirmed through archaeological work in the Lower Raceway, although in the research performed for this study, no records of Lower Raceway archaeology were uncovered.

Effects of Flowrates on Water Level

In the previous discussions of historic water levels relative to the raceway bottom and overflow weirs, the discussion centered around static levels, i.e. the level of water in the raceways neglecting the movement of water through the channels. This is consistent with the existing and anticipated future conditions in the raceways. In very low flow conditions, the elevations and behavior of the water in the channels is defined almost exclusively by the impoundment controls. As the volume of water flowing through the channels increases, however, the dynamics of fluids and the geometry of the channels become increasingly important to predict the water levels and behavior. Water levels under higher flow conditions are a result of two primary considerations: depth of flow over weirs, and hydraulic gradient in the raceway channels.

As more and more water flows over a weir structure, the thickness of the sheet of water dropping over the weir crest increases. This thickness is generated by an increased height of the surface of the water above the physical top of the weir. As an example, the concrete overflow weir behind the Essex Mill at the outlet of the Middle Raceway is elevation 89.1. Therefore, if very little water is flowing through the raceway (i.e. just enough to keep the raceway full to the weir crest and just dribble over the top), the water level would be expected to be just a "dribble" above 89.1. However, if the rate of flow in the middle raceway is increased to 25 cubic feet per second (cfs), the water level just upstream of the weir will increase by 0.79 ft. (9-1/2"), raising the water level at the outlet end of the Middle Headrace to elevation 89.9. Weir flow charts and graphs are included in the appendices of this report for each of the overflow weirs along the raceway.

At high flow rates, an additional factor to consider is the hydraulic gradient of the water in the channel. Water flows downhill, and the speed that it flows is dependant upon (among other factors) how steep the downhill slope is. If water flows through a level channel, the surface of the water will slope in the direction of flow, in effect creating its own hill to flow down. The faster the water flows through a channel of a given size, the steeper the slope of the water surface will be. The effect of the rate of water flowing through a channel on the water surface's elevation is dependant upon a variety of factors, including the geometry and composition of the channel and the cross sectional area available for flow at various points along the waterway. For natural and non-uniform channels such as the raceway, the calculations are complex and yield only an approximate value. The computer program HEC-2 was utilized in the analysis of the raceway to determine the water surface elevations for various flows. The results of this analysis indicate that in the range of anticipated flows for the current and future conditions of the raceway, hydraulic gradient can be considered to be negligible. The analysis also illustrates, however, that at the high flow rates which the raceways historically carried, water levels in the raceway

were dynamic and that accurate determination of historic water levels at various points along the raceway cannot ignore the effects of the hydraulic gradient. As an example, a flow of 25 cfs would induce no measurable hydraulic gradient along the Middle Headrace, but if the flowrate were increased to 275 cfs, the water level at the Spruce Street Bridge would be 1.2 feet higher than the water level at the Essex Mill spillway. The complete HEC-2 computer output is included in the appendices of this report.

The effects of hydraulic gradient can be clearly seen in the raceway design, particularly on the Middle and Lower Headraces. The static freeboard, or distance from the static water level to the top of the enclosing walls or earthworks increases significantly on the upstream end of both of these raceways. This increased freeboard would have been necessary to contain the raceway waters which would rise to the hydraulic gradient line as the flow in the raceways increased. While the water level at the downstream end of the raceways was controlled by the weirs, the water level at the upstream ends would be increased above this level by the hydraulic gradient. The Middle Raceway could accommodate about two feet of hydraulic gradient, while the narrower lower raceway could accommodate as much as three feet before the upstream water level would begin to cause problems.

Historic Flowrates

Based on documentary evidence, water supplied to the mills by the SUM from the Paterson Raceway system was sold based on the square foot measure of the mill's sluiceway opening from the raceway. In an agreement signed between the Morris Canal and the SUM in February, 1836, the SUM was required to regulate the gates of mills on the Middle Raceway such "that not more than twenty-two square feet of water should be drawn from the same, under a pressure or head of not more than thirty inches, measured from the center of the apertures to the surface of the water." In exchange for this, the Morris Canal agreed to feed three square feet of water into the raceway system from the Morris Canal, which sat on top of the hill on what is now the Route I-80 right-of-way. This was one of the few times in the history of the SUM that the raceway system and the Morris Canal were not at odds over rights to water in the Passaic River, albeit it was destined to be a short lived truce. By 1845, the SUM's agreement with the Morris Canal was canceled and the feeder canal from the canal to the raceways was removed. Presumably, so was the SUM's 22 square feet restriction on the sale of water from the Middle Raceway. By 1878, there was known to be 34 square feet of water to be in use on the Upper Raceway and 37 square feet on each of the Middle and Lower Raceways, according to a report by Levi Trumbull. Trumbull went on to report that the SUM considered the total capacity of its water supply to be an additional 16 square feet, or 124 square feet total, which when divided by the three raceway levels gives a maximum capacity of 42 square feet per raceway level.

By hydraulic theory in 1836, one square foot of opening submerged under 30 inches of head was considered to pass a flow of 12.5 cubic feet per second (cfs) of water. This is supported by modern hydraulic theory for hydraulically efficient sluiceway openings with no reduction in flow due to tailwater or friction losses in the sluiceway. Based on this flowrate, the SUM considered the capacity of the raceway system to be 525 cfs, and (according to Trumbull), had actually sold a total flowrate of 463 cfs by 1878. Due to the removal and addition of water from and to the raceways at the various sluiceways along the watercourse, not all of the raceway system would have been subjected to this maximum flow. However, by nature of the raceway design, several areas were subject to the entire maximum flow. These areas include the Upper Raceway from the river gatehouse to the Ivanhoe sluiceway, and the Middle Headrace under the Spruce Street Bridge. In addition, the Lower Raceway under the Gun Mill access

bridge would have been subject to the maximum flow utilized by the mills on the Middle and Lower Raceways. Resultant water velocities in these critical areas during these high flow periods would have been in the range of 5 to 10 feet per second.

While it is not certain whether the mills habitually used their maximum waterway opening and what the resultant "normal" flowrate in the overall raceway system was, it is clear that the Passaic River could not supply this maximum flow at all times. In 1827, Ephraim Beach, Chief Engineer on the Morris Canal, measured the flowrate of the Passaic River at Little Falls, 4 or 5 miles upstream from Paterson, throughout the summer. The minimum flow he recorded in the river that year was 291 cfs, only 55% of what the SUM later considered to be the capacity of the raceway. Throughout the nineteenth century, there were periods when the mills had to shut down due to a lack of sufficient water, and the battle over rights to the Passaic River water raged between the SUM and the Morris Canal until the dissolution of the latter in 1931.

Recommendations for Future Hydraulic Operation

System Layout

As previously noted, with few exceptions, the current layout of the primary raceway system elements dates to the 1830's. Preservation and interpretation of the system should maintain the current layout of the overall system and should seek to preserve and maintain all primary extant elements of the system as currently exists.

Water Control Structures

Six primary extant water control structures control the flow of water through the raceway system. These consist of the main river inlet gate at the northerly end of the Upper Raceway, the Ivanhoe spillway, the Upper Raceway waste weir, the Hamil Mill sluiceway gates, the Middle Raceway waste weir, and the Lower Raceway waste weir. In addition, a concrete checkdam has recently been installed in the Middle Tailrace adjacent to McBride Avenue Extension to impound water in the exposed tailrace section.

Water Levels and Depths

In order to preserve the historic integrity and visual effect of the raceway system, it is recommended that the water levels within the various elements of the raceway system be maintained at their historic elevations to the maximum extent practical. In some instances, some variance from historic levels is recommended, as described below:

Upper Raceway

The historic static water level of the Upper Headrace is believed to be at approximate elevation 111.4. During the reconstruction of the Upper Raceway in the early 1980's, the design water level was lowered to 110.0, as evidenced by the proposed elevation of the waste weir at the southerly end of the Upper Raceway. During construction, however, the proposed timber planking on the waste weir was eliminated after the concrete substructure had been completed, thereby further lowering the water level to 109.5. Construction of a wooden king post truss bridge over the Ivanhoe spillway was also completed at that time. The lower extremity of the wooden elements of that structure (the bottom of the king posts) are at approximate elevation 110.7, effectively limiting the maximum water elevation to some distance below this.

It is recommended that the crest of the Upper Raceway waste weir be at least raised to its 1980 design elevation of 110.0. This is particularly critical in light of the fact that much of the Upper Raceway has current floor elevations above 108, and in some cases above 109. In the future, if replacement of the Ivanhoe spillway bridge is necessitated, consideration should be given to raising the structure or utilizing a design which eliminates the lower elements to allow the re-establishment of the 111.4 historical water level elevation in the Upper Raceway.

It is recommended that the invert of the Upper Raceway be reconstructed generally to its historic elevation, refined somewhat to aid in modern maintenance. The northerly, concrete lined portion of the raceway parallel to McBride Avenue should be maintained at its level of 107.5±. To the south

of this section, the raceway floor should be sloped to the Ivanhoe spillway invert (elevation 106.3±). South of the Ivanhoe spillway, the floor should be very gradually sloped to an elevation of 108.0 at the waste weir. This configuration would provide positive drainage of the entire raceway to the Ivanhoe spillway for maintenance purposes, but would maintain a minimum of two feet of water at all locations in the Upper Raceway. Although two feet does not replicate the historic depth, this depth will be sufficient to give the impression of depth and will simultaneously impede the growth of weeds in the raceway. In addition, this depth will allow for up to one foot of siltation before the raceways need to be dredged again. This is the recommended minimum depth for all impounded water areas along the raceway for these reasons. In the future, if its possible to restore the original water surface elevation of the Upper Raceway, the recommended raceway floor elevations would provide depth conditions similar to the historic condition (i.e. 3.5 feet to 4 feet depth).

In the Upper Tailrace, it is recommended to maintain the existing water depth as controlled by the concrete checkdam at the northerly end of the tailrace and tailwater from the Middle Headrace (i.e. elevation 89.1±). It is also recommended to maintain the invert elevations as specified in the 1980 reconstruction plans, which would provide generally three feet of water in the tailrace. The tailrace currently has some areas of siltation reducing its depth and large amounts of weed growth which should be removed. The three ft. depth, combined with a flow of water through the tailrace once the Upper Raceway waste weir becomes operational, should significantly reduce the weed growth in the tailrace.

Middle Raceway

In the Middle Headrace, it is recommended to maintain the historic water level of 89.1 by restoring the stop logs to the top of the concrete spillway at the waste weir behind the Essex Mill. Stop logs in the Hamil Mill sluiceway should be set to match this elevation, so that flow through the Middle Race is split between the Essex Mill spillway and the Hamil Mill/Hamilton Mill South pipe/Middle Tailrace. It is noted that maintenance of this water level may require some remedial work in some areas of the raceway, particular behind the Essex Mill where re-establishment of the historic water level may result in an unacceptable amount of leakage through the stone wall below the race until additional waterproofing efforts are performed on the raceway wall in this area.

It is recommended to perform archaeological work in the Middle Headrace to confirm the historic raceway bottom elevation, and to restore the raceway to its historic contours and depth. It is believed that the archaeological work will confirm the historic depth of around four feet. The restored Middle Raceway invert should be sloped gradually from the Ivanhoe Spillway basin to the Hamil Mill Sluiceway, and from the McBride Avenue Extension bridge gradually in both directions to the Hamil Mill Sluiceway and the Essex Mill waste weir. The raceway bottom in the vicinity of McBride Avenue Extension cannot be restored to its original contours due to the presence of the sewer lines beneath the raceway in this area. However, the recent reactivation of the Hamil Mill sluiceway will allow the entire Middle Raceway to be emptied even with this interruption to the invert flow in the Middle Raceway.

The Middle Tailrace is completely filled in and/or covered except for several hundred feet along Mill Street between Passaic Street and McBride Avenue Extension. Although this area historically had very shallow impoundment (probably less than one foot), recent restorative work in this area included the construction of a checkdam just upstream of McBride Avenue Extension to impound

water in the tailrace in this area at a depth of two feet. This recommendation was made to improve the aesthetics and maintenance characteristics of the raceway in this area. As mentioned above, two feet is the minimum recommended depth of water to be maintained in the raceways to provide the aesthetics of a raceway full of water and to limit weed growth in the raceway system. The proposed two feet of water, combined with a flow through this reach provided via the rehabilitated Hamil Mill sluiceway, will keep this area from becoming stagnant and weed choked, and will allow for some room for siltation.

As part of the rehabilitation work recently performed in the Middle Tailrace, the raceway was excavated to bring the raceway bottom closer to its historical level. The original raceway bottom of around elevation 64.4 was not replicated, however, as this depth was too low to drain through the existing pipe which runs from McBride Avenue Extension to the Essex Mill in the bed of the tailrace in this area. The Middle Tailrace from Passaic Street to McBride Avenue Extension was excavated to depth 65.9± just upstream of the Passaic Street bridge, sloping to elevation 65.5± at the checkdam. The water elevation in this reach was set at elevation 67.5.

Lower Raceway

It is recommended to maintain the existing overflow sluiceway elevation of 65.0 at the easterly end of the Lower Raceway. This elevation provides approximately 8" of freeboard to overflow down the historic sluiceway to Industry Mills (Fabricolor), and about one foot of freeboard to overflow into VanHouten Street.

The lower raceway should be dredged and cleaned to provide additional depth throughout its length, but particularly at its upstream end in the vicinity of the Essex Mill and the Gun Mill tailrace. The basin area adjacent to the Essex Mill is currently heavily silted up, with extensive weed growth and shallow water depths in this area. The historic bed elevation of the raceway should be determined through archaeological investigation, and the bed should be restored to its historic depth wherever feasible. It is noted that, particularly at the upstream end, such a restoration might yield a surprisingly deep raceway section due to the high (five feet) freeboard on the raceway combined with its original design depth (believed to be around four feet).

Design Flow Rate

As part of the hydraulic study performed for the Raceway system, a reasonable flow rate to be maintained through the raceway system was studied. The study centered around the determination of a minimum flow rate which would preserve the aesthetics of the system while simultaneously preserving the advantages of flowing water and minimizing raceway system maintenance. Based on these parameters, it is recommended that a total of ten cubic feet per second (cfs) be maintained through the system. This flowrate will result in a nominal water velocity of 0.1 to 0.2 feet per second in most parts of the system, and will yield weir flows in the range of 1.5" to 3.5" over the various weirs and spillways located throughout the system. When the system is equalized for this flowrate, the hydraulic analysis demonstrates that the Upper and Middle sections of the raceway system will be able to accommodate the flows from a ten year storm, which are estimated to be approximately 54 cfs. The proposed raceway flow design has no effect on the Lower Raceway capacity at the easterly end. This area is calculated to overtop the existing raceway walls into the Industry Mill (Fabricolor) sluiceway at a flow of about 28 cfs.

At approximately 42 cfs, the system will overflow into VanHouten Street and will flow down Curtis Place back to the river.

The 10 cfs total design flowrate will be split to maintain flow to the various parts of the system. It is recommended that the Ivanhoe Spillway flashboards be set at an elevation of 0.1 ft. lower than the Upper Raceway waste weir. This will result in approximately 3 cfs flowing over the Ivanhoe spillway (2-3/4" deep), while an additional 7 cfs will flow over the waste weir, (approximately 1-1/2" deep). At the Hamil Mill sluiceway, the top of the stop logs should be set level with the crest of the Essex Mill waste weir. This will result in 4.2 cfs flowing through the Hamil Mill sluiceway/Hamilton Square South pipe/Middle Tailrace which will provide a 1-3/4" thick cascade over the Middle Tailrace checkdam. The remaining 5.8 cfs will cascade over the Essex Mill waste weir 3-1/2" deep. During storm events, a flow restriction plate constructed in the Hamil Mill sluiceway intake structure limits the flow through the Hamilton Square pipe to 10 cfs. The remaining storm flow will be diverted over the Essex Mill waste weir.

It is noted that the recommended 10 cfs design flow rate for the raceway system is less flow than would have been represented by one square foot of water sold on the raceway. Most mills operating on the Paterson raceway system are believed to have operated on an average of three to five square feet of water (40 to 60 cfs) each, with some of the larger wheels requiring twice this. In the future, if working water powered interpretations are successfully implemented on the Paterson Raceway system, design flows may have to be increased to provide sufficient water to operate the interpretive displays.

APPENDICES

Schematic Flow Diagram

Weir Flow Tables and Charts

Ivanhoe Spillway

Upper Raceway Waste Weir

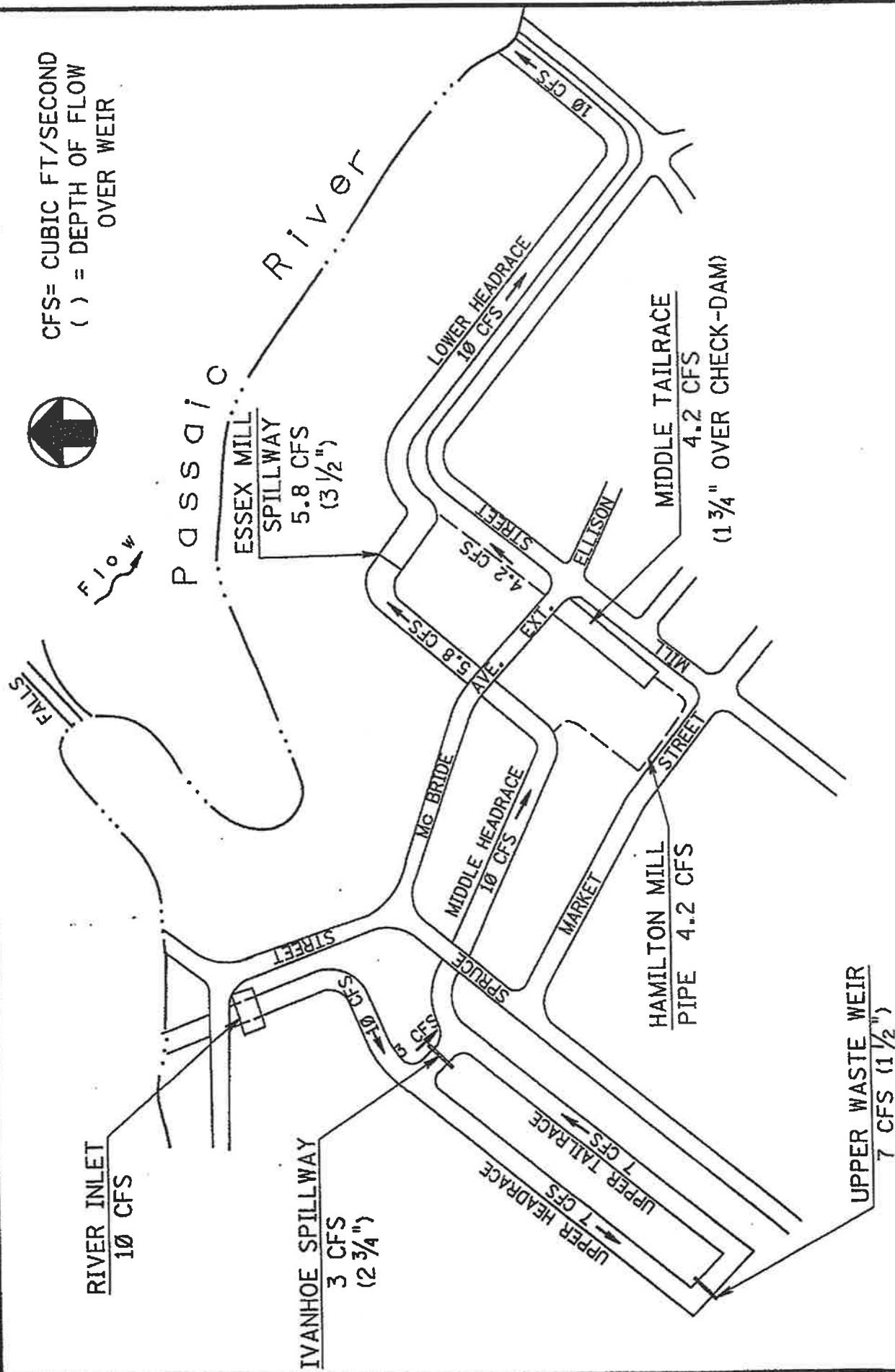
Hamil Mill Sluiceway

Essex Mill Waste Weir

Middle Tailrace Checkdam at McBride Avenue Extension

Lower Raceway Waste Weir

HEC-2 Computer Simulation Output



CFS= CUBIC FT/SECOND
() = DEPTH OF FLOW
OVER WEIR

SCHEMATIC FLOW DIAGRAM
N.T.S.



Executive Director's Report
For the Months
Of
March, 2016

Joseph A. Bella
April 20, 2016
Board Meeting

1. Finance and Accounting
2. Customer Service/Distribution Operations
3. Engineering
4. Information Technology Services
5. Plant Operations
6. Purchasing

~ Addendum: Laboratory Data Summary

~ Attachments: Call & work order charts, aged arrears,
Safe Drinking Water Act compliance &
Chemical cost summary

1. FINANCE AND ACCOUNTING OPERATIONS

The total flow from the Plant decreased from 2,561 million gallons in March, 2015, to 2,143 million gallons in March, 2016, by 418 million gallons. This equals a decrease of 13 million gallons per day; at the wholesale rate of \$2,389.12 per million gallons, this is equivalent to a decrease of \$998,652 in revenues for the month.

The total flow from the Plant for the prior reporting period of February, 2016, was 1,856 million gallons. March, 2016, has seen an increase of 9.6 million gallons per day which is equivalent to an increase of \$685,677 in revenues for the month.

2. CUSTOMER SERVICE/DISTRIBUTION OPERATIONS

- Total Customer Service calls for March, 2016, were 10,164; total call-rate abandonment was six percent for a total of 515 abandoned calls.
- For February, 2016, the total Customer Service calls were 10,017; the call-rate abandonment was six percent for a total of 529 abandoned calls.
- Year-to-date Customer Service calls for 2016 were 29,557; the total call-rate abandonment year-to-date calls for 2016 was 1,471.
- For 2015, total year-to-date Customer Service calls were 121,932; the total call-rate abandonment year-to-date for year 2015 was five percent (5,186 calls).

Customer Information System

- Completed.

Distribution Operations

- For the month of March, 2016, there were 1,132 work orders; and, 15 radio reads were installed on large, monthly-commercial accounts.
- February, 2016: for the month there were 1,749 work orders and 37 radio reads were installed on large, monthly-commercial accounts.
- Year-to-date work orders for 2016 were 3,822.
- Year-to-date work orders for 2015 were 14,110.
- There were nine main breaks in March, 2016, and 17 main breaks in March, 2015.
- There were 23 main breaks in February, 2016, and 43 main breaks in February, 2015.
- Year-to-date total main breaks for 2016 were 56.
- Year-to-date total main breaks for 2015 were 211.
- Fifty-six Employees worked 489 overtime hours in March, 2016.
- Fifty-six Employees worked 2,474 overtime hours in February, 2016.
- Year-to-date overtime hours were 4,366 in 2016, and 12,119 overtime hours in 2015.

3. ENGINEERING DEPARTMENT

Current Projects

- Project 16-P-47 "Professional Services for Geographic Information System (GIS) to Customer Information System (CIS) Integration" is now underway following the project kickoff meeting.
- Construction of the seismic retrofit of New Street Reservoir Dam is completed. An underwater inspection by divers revealed portions of the upstream faces of the dam require extensive repairs. Contract 16-B-13 entitled "Upstream Rehabilitation of New Street Reservoir Dam" to address completion of the necessary upstream repairs has been completed and is available for advertising for public bidding.
- Passaic Valley Water Commission's (PVWC's) consultant for the meter replacement project is continuing the evaluation of the feasibility of bidding a single multi-year contract to have a contractor furnish and install replacement water meters and a turnkey fixed-base radio meter reading system to serve PVWC's Distribution System compared to a phased-in approach to PVWC's meter replacement program for meters in PVWC's System. PVWC has removed a number of meters and had them tested as part of the background information requested by the consultant to refine their evaluation criteria. Regardless of which alternative for meter replacement PVWC ultimately decides, PVWC will still need to continue periodically bidding for procurement of replacement parts to repair/replace PVWC's existing malfunctioning/failing meters and related equipment in PVWC's Distribution System. The bid contracts for procurement of replacement parts for PVWC's existing water meters and for replacement water meters have been completed and issued for public bidding.
- The portion of the cleaning and lining contract in Clifton is completed. Remaining portions of cleaning and lining in North Arlington and Paterson included under this contract are currently being completed.
- The Request for Proposal RFP for the previously approved professional services project for design and construction administration services for improvements to the residuals storage and handling facilities will be advertised under the Fair and Open process after incorporating any changes resulting from a final review by PVWC Staff. An internal coordination meeting to finalize the project scope will be scheduled shortly.
- Furnishing and installation of new equipment and other contract Work under the remote sites Supervisory Control and Data Acquisition (SCADA) project is continuing. The SCADA project is anticipated to be completed in late spring of this year. At this time, this project is projected to be completed within budget.
- Rehabilitation of PVWC's Hydroelectric Generators:

Project 15-P-41 for professional services to assist PVWC with the design (including feasibility study and design, preparation of bid documents, and services during

construction) for rehabilitation of PVWC's hydroelectric generators and related facilities is underway.

As previously indicated, this rehabilitation project will consist of two, separate-bid contracts, the first to rehabilitate the penstock and penstock bypass valves and isolation stop-logs, and the second to sequentially rehabilitate the hydroelectric generators. An initial feasibility analyses to determine the number of hydroelectric generator units that should be included for rehabilitation was recently commenced and is progressing. Following award of the public bid contracts resulting from the outcome of the feasibility analysis, the rehabilitation phases of the project are anticipated to take place in stages over at least a two-year period with each of the contracts staggered but anticipated to be implemented concurrently.

- Horizontal Split-Case Pump Rehabilitation Contract: Bid documents are needed to replace the existing valves that will be needed to individually isolate those pumps for the future pump rehabilitation project. Sequential rehabilitation of the pumps will take place under a separate publically bid contract following completion of the valve rehabilitation contract.
- As part of PVWC's long-term initiative to increase replacement of existing failing piping, while continuing the current cleaning and lining program, several pipe replacement projects have been identified and are currently in the planning and design phase. Following completion of design, it is anticipated that each of these projects will be issued in sequence with minimized overlapping such that the timing of each issuance for public bidding will be guided by the extent of difficulties (such as unforeseen subsurface conditions) encountered as each successive pipe replacement contract unfolds.
- The National Park Service (NPS) has requested that PVWC convey its ownership of PVWC property contained within the Great Falls National Historical Park to them; and, they have prepared various draft documents with proposed reserved rights, terms and conditions for review by PVWC. Following review of the above referenced information, NPS's proposed approach will be brought to the Commission for further discussion and consideration.
- Grant/Loan/NJEIT Funding: PVWC's Engineering Department continues coordination with New Jersey Environmental Infrastructure Trust regarding upcoming projects and future, loan-forgiveness opportunities.
- Departmental Support: Assisted other PVWC Departments (Purification, Distribution, Maintenance and Legal) on Engineering-related matters, such as wholesale billing, allocation-related issues, interconnecting testing, regulatory interfacing related to the dams, the DPCC program and other regulatory-related issues.

Long-Term Ongoing Projects

- Levine Water Storage Improvements Project

On March 29, 2016 proposals for professional services for public outreach and participation for Project 16-P-60 "New Street Reservoir Water Storage Improvements" were received and opened under the Fair and Open Process. Following evaluation by PVWC staff, recommendations concerning award of the project will be submitted to the Commission for consideration at the April 20, 2016 Commission Meeting.

- Standby Power Generation System at the Plant, Levine, Great Notch, and New Street Water Storage Improvements

Modifications were made to the contract documents for the emergency generator project to incorporate HUD funding requirements. Authorization to advertise this contract for public bidding is anticipated to be received from the regulatory agencies shortly.

- Verona Tank

Contract 16-B-14 for rehabilitation of the existing Verona tank was awarded at the February 17, 2016, Commission Meeting. This Contract is currently underway.

- Geographical Information Systems (GIS)-Customer Account Validation

The refined customer account database continues being checked by PVWC's Engineering and Distribution Departments to verify reconciliation of all account discrepancies. Project 16-P-47 for professional services for GIS to CIS integration will enable PVWC to capture customer information and various types of service calls directly from the CIS database to GIS.

- NJDOT: Coordinated with officials from the New Jersey Department of Transportation regarding ongoing projects and their impact on PVWC facilities.

4. INFORMATION TECHNOLOGY SERVICES

Yitzchak Weiss will report.

5. PLANT OPERATIONS

MAINTENANCE AND CONSTRUCTION

EXECUTIVE SUMMARY

- Started removing old Totowa piping & pumps out of the Pump Station. Estimates were \$95,000 & \$102,000. Maintenance is removing on overtime at less than half the cost.
- Started Purification Office renovation

Maintenance

- Quarterly Ozone PM Inspections
- Work with R & R Pump to remove Wanaque Pump #5 for repair
- Pump out pit and rod out venture at Ridge Road and Belleville Pike (Kearny) Bill Macy Pit
- Repair traffic box at Ridge Road and Belleville Pike (Kearny) Bill Macy Pit
- Demo old Totowa Pumps (pipe and valves)
- Interconnection Test at North 8th Street and Prescott Avenue, West Caldwell, Fairfield Passaic Ave/New Dutch Lane and Lodi
- Isolate Verona Tank #1 for outside contractor

LITTLE FALLS WATER TREATMENT PLANT (LFWTP) MAINTENANCE

- Contactors
- Clarifier--Replace three-inch valve on Microsand Transfer System for Clarifier #2, Inspect Clarifier #3
- Dewatering Station
- Dry Polymer System
- Equalization Basin--Repair fire line
- Filters
- LOX Facility
- Microsand Transfer Tank--Replace three-inch valve for Clarifier #2, replace 2-inch ball valve and rebuild both check valves on the sump pumps
- Ozone System PACL System
- Residual Treatment Facility – Change oil on Flocculator mixers for Thickeners #1 and #2, inspect scrapers on Thickeners #1 and #2
- Sand recirculation pumps
- Settling Tubes Building--Replace drive motor on Basin #4, wash, inspect and make necessary repairs in Basins #3, #4, #1, and #2
- Travelling Screens--Grease bearings
- Trash Rake
- Wash Water Pumps/Transfer--Install motor, new drive shafts on Transfer Pump #2
- Wet Well Pumps--Add packing to pump #103

Transmission

- Airport Pump Station
- Industrial Pump
- Morris County Pump Station--Change oil on pumps Transfer #3, Pump #3, Pump #1, Pump #2
- Totowa Pump Station
- Transfer Pumps
- Verona Pump Station
- Wanaque Pump Station--Tap and install six-inch valve on Pump #5

- Wanaque South Pump Station

Chemical Feed System

- Pumped out Dry Polymer System #2, Tank #2 Mixing Tank and repaired leak on suction line fitting at the tank
- Replaced Caustic Gear Pump #4 wet end
- Cleaned the Corrosion Control Containment area in the Great Notch trailer
- Installed new-blind flange on Sulfuric Tank #3, where the sight tube was located
- Replaced all of the leaking-back pressure and pressure-relief valves on the Corrosion Control Pumps at Botany Pump Station
- Replaced sulfuric acid flowmeter to Raw Water Header #2
- Cleaned up the sulfuric acid leak in the containment area, pressure washed and vacuumed area
- Unclog Residuals Polymer Tote #1
- Cleaned the air bleeder on Ferric Pump #1 and installed a new coupling between the pump and motor
- Installed new wind sock on the Morris County Pump Station
- Replaced Sodium Hypochlorite Pump #3 with a new gear pump
- Pressure washed Ferric pumps and containment area
- Transported 3,100 gallons of corrosion control for the month to Great notch, Botany and Burhans Avenue Pump Stations
- Installed new Commissioner signs at all the reservoirs

Distribution/Remote Facilities

- Point View
- Nosenzo Pond
- Burhan's Ave Pump Station
- High Crest Public Water System
- Bloomingdale/Riverdale/Mathews Avenue Pump Station
- Great Notch Facilities
- Dixon Ave
- Garret Heights Pump Station
- Lodi
- New Street Pump Station
- Levine Reservoir
- Lincoln Park Pump Station
- Botany Pump Station
- Pressure Regulators/Air Release Valve
- Sunset Pit
- Prospect Park Pump Station
- Hepburn Road
- Jackson Avenue Pump Station--Run pump 8 to 12 hours per day
- East Side Pump Station

- Wanaque South
- Great Falls--install repaired impeller and send motor out for service on Pump #2
- Redwood Avenue Pump Station

WATER QUALITY AND TREATMENT OPERATIONS

Little Falls Water Treatment Plant (LFWTP) performance:

- All LFWTP treatment regulatory requirements were met in March, 2016.
- All LFWTP chemical disinfection requirements were met in March, 2016.
- Potassium permanganate was not used for source water treatment in March.
- Primary disinfection with ozone:
 1. The required Inactivation Ratios (IR = 1.0) for virus and Giardia disinfection with ozone were met all of the time for all active contactors during March.
- Filtration:
 1. There were no regulatory violations in March for either individual filter effluent or combined filter effluent.
 2. The maximum CFE turbidity in March was 0.058 NTU.
- Residual disinfection with chlorine:
 1. There were no regulatory violations for the chlorine residual concentrations.
 2. The target residual in February was 2.0 mg/L (1.6 to 2.3 mg/L). The range during February for CFE chlorine residual was 1.41 to 2.9 mg/L.
 3. The CFE chlorine residual varied outside of a range of 1.6 to 2.0 mg/L on the following occasion: NA
- Finished water (LFWTP) pH:
 1. Finished water pH was usually within the target range of 7.8 to 8.2, and was always between 7.6 and 8.6.

Management/Personnel:

- Sent a memo to Personnel asking for Employee title change from Assistant Water Treatment Plant Operator to Water Treatment Plant Operator. Employee received T-1 license in December of 2015.

Source Water:

- There was no source water need for permanganate oxidation in March.

LFWTP Treatment Processes:

- A-2 filter still out of service (influent valve).
- Annual Thickener cleanout and inspection for 2016.
- Annual TSB cleanout and inspection for 2016

Remote Chemical Feed Stations:

- All remote station chlorine disinfection requirements were met in March, 2016.

Consultant Projects:

- A. Treatment Process Optimization (Black & Veatch):
 - B. Residuals Process Optimization (Environmental Engineering & Technology, Inc.):
 - C. Ozone System Optimization (Process Applications Inc.)
- The primary reason for overtime was filling in shifts as needed (for vacation, sick days, etc.). Summaries of overtime are shown below for all instances greater than one hour:

Week Starting Date	Standby OT Hours	Emergency OT Hours
2/01/16	13	58.00
2/07/16	21	64.00
2/14/16	17	49.00
2/21/16	13	70.00
Total hours:	64.00	241.00

Cost Factors:

2016 Monthly Data:					
Month	Volume Produced (MG)	Water Treatment Cost	Residuals Treatment & Disposal Cost	Total Monthly Cost*	Total Cost per MG
January '16	1155	\$198,034	\$152,039	\$363,0281	\$314.33
February '16	1192	\$169,450	\$122,017	\$304,837	\$255.63
March '16	1386	\$213,113	\$155,970	\$384,686	\$277.49
April '16					
May '16					
June '16					
July '16					
Aug '16					

Sept '16					
Oct '16					
Nov '16					
Dec '16					

* Total monthly costs also include the chemical treatment costs for the three reservoirs and Botany Pump Station.

* March, 2016, cost totals include preliminary estimates for the costs Levine Reservoir, New St. Reservoir, Great Notch Reservoir and Botany Pump Station.

WTP Shutdowns:

- March 14, 2016: Plant shutdown for two hours due to Public Service Electric & Gas (PSEG).

Summary of Outstanding/Compliance Issues by system:

- Main System:
 - Lead Action Level exceedance incurred during the June 1 to September 30, 2015, monitoring period.
 - Ongoing exceedance of the New Jersey recommended upper limit (RUL) for sodium.
 - Administrative Consent Order with New Jersey Department of Environmental Protection (NJDEP) to address the uncovered drinking water reservoir requirements of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR).
- Post Brook:
 - On-going exceedance of the State Manganese RUL.

General Regulatory Compliance Update:

Total Coliform Rule (TCR)/ Revised Total Coliform Rule (RTCR)

- All PVWC systems are in compliance with the TCR for the month of March, 2016.
- Two of 229 coliform samples collected in the main PVWC system in March were total coliform positive, all were E. coli absent.
- All samples collected in March in the High Crest, Lodi, North Arlington, Post Brook and Wallington systems were absent for total coliform and absent for E. coli.
- RTCR coliform sampling plans were generated by March 31, 2016, as required by the new RTCR requirements which went into effect on April 1, 2016.

Lead and Copper Rule

- The 90th percentile lead result obtained during the last tap sample testing conducted June 1 through September 30, 2015, in the main PVWC system was 17 parts per billion (ppb). This level exceeded the lead action level of 15 ppb.
- The 90th percentile for copper was 87.6 ppb which is well below the 1,300 ppb copper action level.
- Mandated lead public education has been completed. Ongoing public education continues such as website postings, and billing statements. Additional voluntary lead public education will continue to be included in the annual water quality reports that are distributed to our customers in

the main PVWC system, as well as to our customers in the High Crest, Lodi, North Arlington and Post Brook water systems.

- As a result of the action level exceedance the system was put on an increased lead and copper tap sample monitoring schedule: twice per year (January through June and July through December).
- Lead and copper tap sample monitoring for the January through June monitoring period for the main PVWC system started during the second week of March.
- USEPA conducted an onsite Lead and Copper Rule compliance audit of the main system in March.
- The High Crest, Lodi, North Arlington, Post Brook and Wallington water systems are all in compliance with both the lead and copper action levels. These systems are on a triennial monitoring schedule and will be sampled next during June to September, 2018.

Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)

- March source water monitoring for Cryptosporidium, E. coli bacteria and turbidity, was completed. Bi-monthly monitoring will continue at this frequency through April, 2017.
- Results of this monitoring will be used to determine if additional treatment for removal/inactivation of Cryptosporidium is required at the Little Falls Water Treatment Plant.

Stage 2 Disinfection Byproduct Rule (DBPR)

- All PVWC systems are in compliance with Stage-2 DBPR total trihalomethane and haloacetic acid levels for the first quarter of 2016.
The next sampling event (Qtr-2 2016) is scheduled for the first week of May.

6. PURCHASING

Contract # 16-B-05 - "Pavement and Sidewalk Replacement" – bids to be received
April 5, 2016

Contract # 16-B-17 - "Furnish and Deliver Water Meter Repair Parts" – bids received
March 8, 2016 – recommendation to reject and re-bid

Contract # 16-B-19 - "Water Meters and Appurtenances" – bids to be received
April 12, 2016

Contract # 16-B-21 - "Printing and Mailing Services" – bids to be received April 26, 2016

Professional Services

Project # 16-P-60 - "Professional Services for Public Outreach and Participation for the New Street Reservoir Water Storage Improvements" – proposals
Received March 29, 2016

State Contract Purchase

Dell Marketing, LP – M7000-15-r-23681 88796 and M0483-16-r-24098 89967

Two Power Edge Servers, One Dell Data Protection and Five Dell Precision Workstations – Total - \$30,030.

W.B. Mason – G2004 12-r-22677 – A81608--various pieces of furniture and fixtures Customer Service and Engineering Departments – Total \$38,232.83

Shared Services

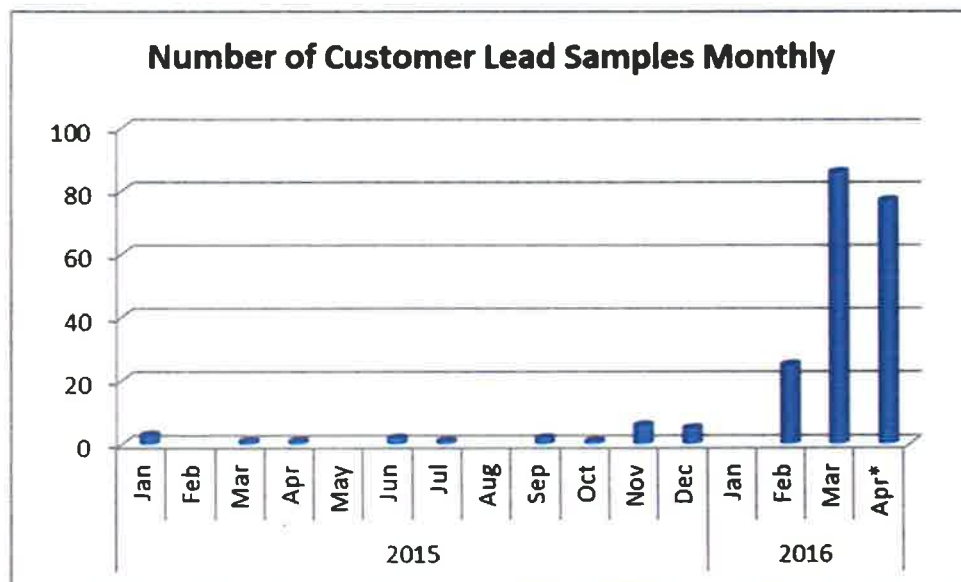
Brick Township Utilities Authority - Laboratory Services for Metals, Inorganics, Volatile Organic Compounds Haloacetic Acids MIB and Geosmin – two years - \$214,830.

ADDENDUM

LABORATORY DATA SUMMARY

1. Customer-Requested Lead Testing

With the recent public interest regarding lead in drinking water, and the publicized PVWC policy regarding free water testing for lead, the Laboratory is receiving an increased number of requests for lead testing in our customers' homes. The chart below gives monthly customer collection data (April 2016 results to date).

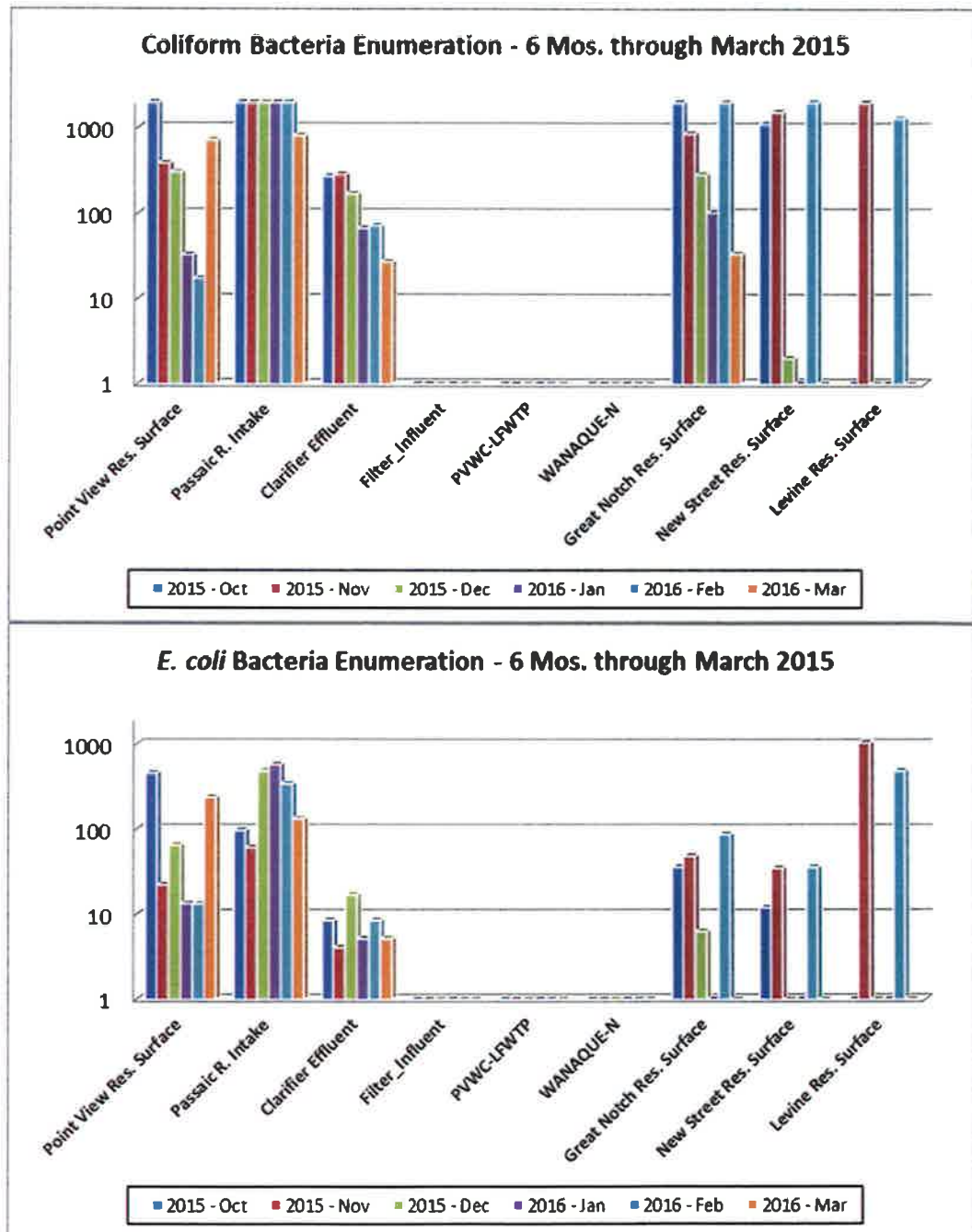


2. Coliform Profiling

We continue to test raw, process and finished water monthly for Coliform enumeration, including E. coli enumeration. Raw-water sampling locations include Point View Reservoir and the LFWTP intake. Plant process locations include Clarifier Effluent and Filter Influent, where we expect bacteria counts to be low. Finished water at the plant (LFWTP and NJDWSC) is sampled as are the surfaces of each Finished Water Reservoir. These monthly studies reveal how bacteria present in raw water are removed through the plant treatment process to the extent that finished water is virtually coliform-free on a consistent basis.

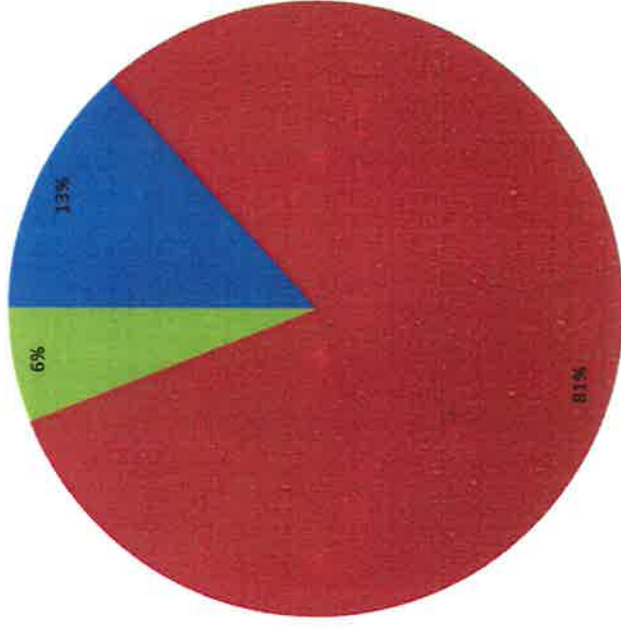
After this disinfected water is stored in open reservoirs, it regains its bacterial contamination such that it becomes, from a coliform contamination standpoint, nearly indistinguishable from the raw water before treatment. In the recent colder months the bacteria population decreased as usual but we expect it to return to higher levels with the upcoming warmer weather.

The following charts depict these monthly studies for the six-month period ending March, 2016, for Total Coliform and *E. coli* enumerations.



March 2016

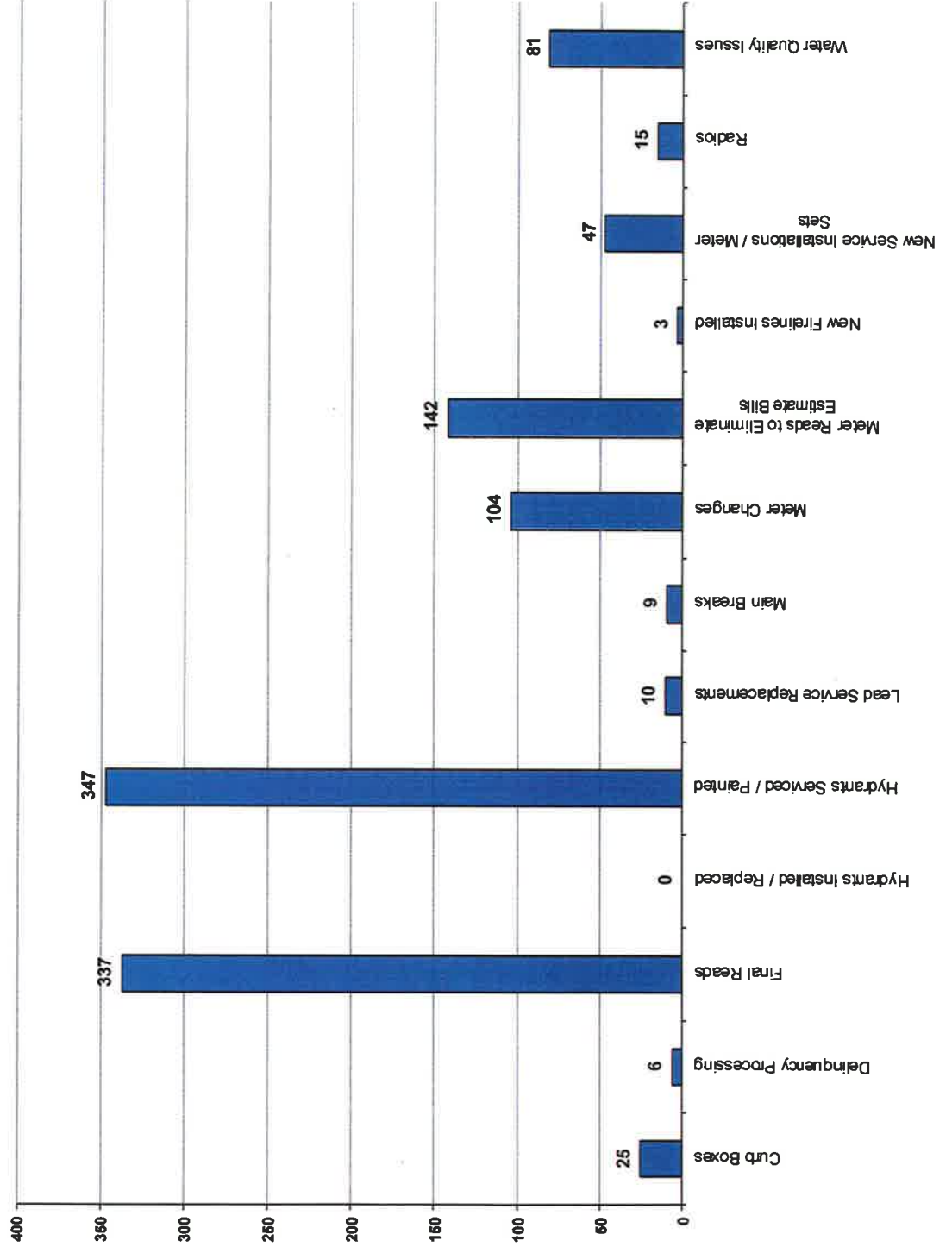
10,164 Calls



■ Transferred - 1,133
■ Handled - 6,870
■ Abandoned - 515

March 2016 – Work Orders

Total: 1,132
6 hydrants need to be replaced



Aged Arrears Detail Listing

Report Criteria Selected

A/R Type:	Electric;Sewer,
Account Status:	Active
Account Type:	
Company:	PASSAIC VALLEY WATER COMM
Cycle:	
A/R Amount:	9999.99
Ageing Date:	Friday, April 1, 2016
Selected Ageing Bucket:	0-30 Days
Selected Ageing Bucket:	31-60 Days
Selected Ageing Bucket:	61-90 Days
Selected Ageing Bucket:	91-120 Days
Selected Ageing Bucket:	120+ Days
Selected Ageing Bucket:	Not Aged

Printed: 04/01/2016 9:48:47 am
Company Name: PASSAIC VALLEY WATER COMM
Division: PVWC - Lodi
Cycle: 23

Aged Arrears Detail Listing

Customer # Account #	Customer Name Address	Account Status/ Account Type	Cycle	Not Aged	0 - 30 Days	31-60 Days	61-90 Days	91-120 Days	120+ Days	Current Balance
0179523 048230	MICHAEL CRUZ 4 GARIBALDI AVENUE - LODI, NJ, 07644	Active Residential	23		\$3,493.75			\$2,944.00	\$18,781.38	\$25,219.13
0270123 050832	YAN CHEN 83 MACARTHUR AVENUE - LODI, NJ, 07644	Active Residential	23						\$11.56	\$11.56
Cycle: 23					Total Customers: 2	\$3,493.75		\$2,944.00	\$18,792.94	\$25,230.69
Division: PVWC - Lodi					Total Customers: 2	\$3,493.75		\$2,944.00	\$18,792.94	\$25,230.69
0123149 055806	CARLTON TOWERS CONDO 285 AYCRIGG AVENUE - PASSAIC, NJ, 07055	Active Commercial - up to 6" mtr	15		\$11,327.08					\$11,327.08
0063879 058860	PASSAIC BOARD OF EDUCATION 390 GREGORY AVENUE - PASSAIC, NJ, 07055	Active Municipal	15		\$305.21	\$958.21			\$38,952.10	\$40,305.52
0244459 066410	GREEN UNION, LLC. 47 PASSAIC STREET - PASSAIC, NJ, 07055	Active Small Commercial - < 2"	15		\$109.77	\$524.41			\$10,558.68	\$11,192.86
0119831 066876	PASSAIC BOARD OF EDUCATION 175 GREGORY AVENUE - PASSAIC, NJ, 07055	Active Municipal	15		\$199.43	\$3,130.52			\$17,027.72	\$20,357.67
0061411 088328	VICTOR CAMILO 380-400 RIVER DRIVE - PASSAIC, NJ, 07055	Active Commercial - up to 6" mtr	15		\$3,582.44	\$2,110.95	\$2,484.71	\$20,195.46	\$13,988.16	\$42,358.62
Cycle: 15					Total Customers: 5	\$15,823.83	\$6,724.08	\$2,484.71	\$20,195.46	\$80,504.68
0068543 056344	ST. MARY'S HOSPITAL 350 BOULEVARD - PASSAIC, NJ, 07055	Active Commercial - up to 6" mtr	99		\$35,684.53		\$11,047.85			\$46,732.38
Cycle: 99					Total Customers: 1	\$35,684.53	\$11,047.85			\$46,732.38
Division: PVWC - Passaic					Total Customers: 6	\$51,308.36	\$6,724.08	\$13,542.56	\$20,195.46	\$80,504.66
Company: PASSAIC VALLEY WATER COMM					Total Customers: 8	\$54,802.11	\$6,724.08	\$13,542.56	\$23,138.46	\$99,297.80
Grand Total:					8	\$54,802.11	\$6,724.08	\$13,542.56	\$23,138.46	\$99,297.80

Safe Drinking Water Act Regulatory Compliance Executive Summary - Submitted on April 7, 2016

- Lead Action level exceedance and ongoing sodium exceedance in the PVWC main system.
- Work is in progress under an Administrative Consent Order with NJDEP to address the open finished water reservoir requirements of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR).
- Ongoing manganese exceedance in the Post Brook system.
- US Environmental Protection Agency (EPA) Lead and Copper Rule compliance audit.

SAFE DRINKING WATER ACT REGULATORY COMPLIANCE OVERVIEW - MARCH 2016						
	PVWC	HIGH CREST	LODI	NORTH ARLINGTON	POST BROOK	WALLINGTON
	NJ1608002	NJ1616003	NJ0231001	NJ0239001	NJ1616008	NJ0266001
Microbiological Contaminants - status	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE
Coliform Detections	2	None	None	None	None	None
E. coli/Fecal Coliform Detections	None	None	None	None	None	None
Asbestos	IN COMPLIANCE	WAIVER	WAIVER	WAIVER	WAIVER	WAIVER
Bromate	IN COMPLIANCE					
Disinfection Byproducts: Trihalomethanes and Haloacetic Acids - status	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE
Disinfection Byproduct Precursors (TOC Removal)	IN COMPLIANCE					
Inorganics Contaminants- General	IN COMPLIANCE				IN COMPLIANCE	
Lead	OUT OF COMPLIANCE LEAD ACTION LEVEL EXCEEDANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE
Copper	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE	IN COMPLIANCE
Nitrate, mg/L	IN COMPLIANCE				IN COMPLIANCE	
Radiological Contaminants	IN COMPLIANCE				IN COMPLIANCE	
Secondary Contaminants - General	IN COMPLIANCE EXCEPT 1st QTR ODOR EXCEEDS OPTIMUM RANGE				IN COMPLIANCE EXCEPT FOR: CHLORIDE, HARDNESS AND TOTAL DISSOLVED SOLIDS	
Secondary Manganese (Mn)	IN COMPLIANCE		IN COMPLIANCE	IN COMPLIANCE	OUT OF COMPLIANCE ONGOING EXCEEDANCE	IN COMPLIANCE
Secondary Sodium	OUT OF COMPLIANCE ONGOING EXCEEDANCE				IN COMPLIANCE	
Volatile Organic Compounds	IN COMPLIANCE PENDING COMPLETION OF 1st QTR RESULTS				IN COMPLIANCE	
Synthetic Organic Compounds	2011-2013 WAIVER				2011-2013 WAIVER	

**PASSAIC VALLEY WATER COMMISSION
INTEROFFICE MEMORANDUM**

Date: March 18, 2016

To: Hon. Commissioners

From: J. Bella & J. Duprey

cc: G. Hanley
L. Amodio
L. Beckering

Re: Request to Advertise a Request for Proposals (Under the Fair and Open Process) for Project No. 16-P-63 "Professional Architectural Services for Rehabilitation of PVWC's Main Pump Station building, Superintendent's Building, and Jackson Avenue Pump Station"

Permission is requested to prepare and advertise a Request for Proposals (under the Fair and Open Process) for Project No. 16-P-63 "Professional Architectural Services for Rehabilitation of PVWC's Main Pump Station building, Superintendent's Building, and Jackson Avenue Pump Station"

The roof structure, building ventilation, windows and other portions of the Main Pump Station at the Plant need to be rehabilitated, the existing flat roof at the Jackson Avenue Pump station needs to be replaced with a new pitched roof, and the superintendent's building adjacent to the entrance to the Plant needs new replacement windows and other miscellaneous architectural improvements.

**PASSAIC VALLEY WATER COMMISSION
INTEROFFICE MEMORANDUM**

Date: March 18, 2016

To: Hon. Commissioners

From: J. Bella & J. Duprey

cc: G. Hanley
L. Amodio
L. Beckering

Re: Request to Advertise a Request for Proposals (Under the Fair and Open Process) for Project No. 16-P-62 "Professional Architectural Services for Rehabilitation of Two PVWC Buildings in the Great Falls National Park"

Permission is requested to prepare and advertise a Request for Proposals (under the Fair and Open Process) for Project No. 16-P-62 "Professional Architectural Services for Rehabilitation of Two PVWC Buildings in the Great Falls National Park".

The roof structure and other portions of PVWC's Great Falls Pump Station and PVWC's adjacent building in the Great Falls National Park are nearing or at the end of their useful lives and need to be rehabilitated.

Portions of the rehabilitation Work will be required to be designed and constructed in accordance with applicable historic preservation requirements.

The consultant will be required to demonstrate sufficient specialized experience providing professional architectural services associated with the restoration of historic structures.

**PASSAIC VALLEY WATER COMMISSION
INTEROFFICE MEMORANDUM**

Date: April 13, 2016

To: Hon. Commissioners

From: J. Bella & J. Duprey

cc: G. Hanley
L. Amodio
L. Beckering

Re: Request for Permission to Present a Proposed Shared Services Agreement to the City of Paterson for the Provision of Emergency Rescue and Preventive Services and Consultation Related to Confined Spaces

Permission is requested to present a proposed draft of a shared services agreement to the City of Paterson's Law Department and their Fire Department for the provision of emergency rescue and preventive services and consultation related to confined spaces.

The agreement would be for the provision of services by specially assigned Fire Department Personnel and to provide regular and consultative services with respect to PVWC's operations at its' various facilities in order to enhance the safety and protection of PVWC's employees, agents, officers, vendors, members of the general public and others; all in accordance with the requirements of 29 CFR 1910.146 et seq. and Paterson shall have the PFDP provide supervision of the appropriate and necessary Personnel and all equipment and materials necessary to perform the duties stated herein and in accordance with applicable OSHA law and regulations, guidelines and standards (the "Services").

Unless terminated earlier by either Party as set forth below, the initial Term of the Agreement would be for a 2-year period of time, with provision for automatic renewal of the Agreement, subject to the mutual consent of both Parties, for up to three (3) additional 1-year periods.

The Services would enhance PVWC's permit-required confined space program, and this enhancement would be separate and apart and in addition to that which is provided by Paterson to other residents, taxpayers and citizens, and separate and apart and in addition to that which is provided by the County or State in which PVWC's facilities are located.

PVWC would pay Paterson \$150,000.00 annually as payment in full for all Services required under the Agreement. These payments shall be payable in quarterly installments, upon receipt of an invoice from Paterson. Paterson would provide (and would include in the Annual Amount stipulated hereinabove) planned onsite rescue services ("Planned Standby Complex Confined Space Events") for up to four (4) separate Planned Standby Complex Confined Space Events, each of which, if any, shall be requested by PVWC's designated representative in writing ahead of time, and each authorized Planned Standby Complex Confined Space Event shall require PFDP to be onsite for up to forty eight (48) continuous hours for the said rescue services. The invoices for the quarterly installments would be issued to PVWC at the end of the quarter for which the invoice relates. Payment would be made within thirty (30) days of receipt of the invoice.

In addition to the four (4) separate Planned Standby Complex Confined Space Events per year included within PFDP's scope of services, PVWC may request additional Planned Standby Complex Confined Space Event, if requested in writing in advance by PVWC's Designated Representative. The PFDP would staff the Event with one (1) trained captain and three (3) trained firefighters. The Event may last as short a time or as long as needed to complete the purposes of the Event, however, under no circumstances would the Event last more than eight (8) consecutive hours without a change of personnel from the PFDP. PVWC would compensate Paterson for the optional additional services ordered by PVWC as follows: PVWC would pay for the staffing of the Event at prevailing rates for straight or regular time as set forth in the then-effective collective bargaining agreement between Paterson and the PFDP. If the Event takes four (4) hours or less, PVWC would pay for four (4) hours of staffing. For Events lasting over four (4) hours, PVWC would pay for the actual time spent by the PFDP at the Event. The compensation set forth herein for optional additional services would be the only compensation due to Paterson for same. No additional compensation would be due from PVWC for mobilization, demobilization, equipment costs, or any other costs associated with the optional additional services.

Either Party would be able to terminate the agreement upon 120 days written notice to the other Party, in which case Paterson would reimburse PVWC for any unused time by pro-rating the Annual Amount accordingly.

RESOLUTION OF PASSAIC VALLEY WATER COMMISSION

**SHARED SERVICES AGREEMENT WITH THE CITY OF PATERSON FOR
THE PROVISION OF EMERGENCY RESCUE AND PREVENTIVE
SERVICES AND CONSULTATION RELATED TO CONFINED SPACES
DATE OF ADOPTION:**

Approved as to form and legality by Law Department on basis of facts set forth by Executive Director, Purchasing, Engineering and Finance Departments.

Introduced by Commissioner: _____

Seconded by Commissioner: _____

WHEREAS, The Passaic Valley Water Commission ("PVWC") desires to enter into a two (2) year shared services agreement with the City of Paterson ("Paterson") with the option to renew for three (3) additional one (1) year periods for the provision of services by specially assigned Fire Department Personnel ("PFDP") and to provide regular and consultative services with respect to PVWC's operations at its' various facilities in order to enhance the safety and protection of PVWC's employees, agents, officers, vendors, members of the general public and others; all in accordance with the requirements of 29 CFR 1910.146 et seq., and Paterson shall have the PFDP provide supervision of the appropriate and necessary Personnel and all equipment and materials necessary to perform the duties stated herein and in accordance with applicable OSHA law and regulations, guidelines and standards (the "Services"); and

WHEREAS, the Services shall enhance PVWC's confined space program, and this enhancement shall be separate and apart and in addition to that which is provided by Paterson to other residents, taxpayers and citizens, and separate and apart and in addition to that which is provided by the County or State in which PVWC's facilities are located; and

WHEREAS, the goods and services shall be as set forth in the Form of Agreement (the "Agreement"), a copy of which is attached hereto and made a part hereof, and including a copy of Paterson's Collective Bargaining Agreement referenced therein, as an attachment to Exhibit A referenced below; and

WHEREAS, the Executive Director and the Director of Engineering, and the General Counsel (as to form and legality), have reviewed the Agreement, and a PVWC memorandum dated April 13, 2016 regarding same is attached hereto and made a part hereof as Exhibit A; and

WHEREAS, PVWC agrees to pay Paterson in the amount of \$150,000.00 annually (the "Annual Amount") as payment in full for all goods and services supplied in connection with this Agreement, with these payments payable in quarterly installments; and

WHEREAS, Paterson shall provide (and shall include in the Annual Amount stipulated hereinabove) planned onsite rescue services ("Planned Standby Complex Confined Space Events") for up to four (4) separate Planned Standby Complex Confined Space Events, each of which, if any, shall be requested by PVWC's designated representative in writing ahead of time, and each authorized Planned Standby Complex Confined Space Event shall require PDPF to be onsite for up to forty eight (48) continuous hours for the said rescue services; and

WHEREAS, in addition to the four (4) separate Planned Standby Complex Confined Space Events per year included within Paterson's scope of Services, PVWC may request additional Planned Standby Complex Confined Space Events if requested by PVWC's designated representative in writing ahead of time, with the provisions and costs for same as set forth in the Agreement; and

WHEREAS, either Party would be able to terminate the Agreement upon one hundred and twenty (120) days prior written notice to the other Party, in which case Paterson would reimbursement PVWC for any unused time by pro-rating the Annual Amount accordingly; and

WHEREAS, PVWC's Comptroller has certified, with respect hereto, that funds are currently available for said purpose and said certificate is attached hereto as Exhibit B;

NOW THEREFORE BE IT RESOLVED, by the Passaic Valley Water Commission, in the County of Passaic, New Jersey:

1. That the Commission hereby authorizes and approves the Shared Services Agreement between PVWC and Paterson.
2. That appropriate officers of PVWC are hereby authorized and directed to perform such acts and execute such documents as are necessary to implement the terms and intentions of this Resolution and the submissions provided in connection therewith, as all set forth hereinabove.

RECORD OF COMMISSION VOTE ON FINAL PASSAGE

	AYE	NAY	ABSTAIN	ABSENT
VANNOY, R.	_____	_____	_____	_____
LEVINE, J.	_____	_____	_____	_____
CLEAVES, C.	_____	_____	_____	_____
KOLODZIEJ, G.	_____	_____	_____	_____
FRIEND, G.	_____	_____	_____	_____
BLUMENTHAL, D.	_____	_____	_____	_____
SANCHEZ, R.	_____	_____	_____	_____

Adopted at a meeting of Passaic Valley Water Commission.

President
RIGO SANCHEZ

Secretary
CHRYSTAL CLEAVES

This Resolution, when adopted, must remain in the custody of the Administrative Secretary.

CERTIFICATION

I, LOUIS AMODIO, Administrative Secretary of the Passaic Valley Water Commission in the County of Passaic, and the State of New Jersey do hereby certify that the foregoing Resolution is a true copy of a legal quorum of the Original Resolution duly passed and adopted by a majority of the full membership of the Passaic Valley Water Commission at its meeting of _____, 2016.

LOUIS AMODIO
Administrative Secretary

PASSAIC VALLEY WATER COMMISSION

**SHARED SERVICES AGREEMENT WITH THE CITY OF PATERSON FOR THE
PROVISION OF EMERGENCY RESCUE AND PREVENTIVE SERVICES AND
CONSULTATION RELATED TO CONFINED SPACES**

PVWC MEMORANDUM DATED APRIL 13, 2016

EXHIBIT A

**PASSAIC VALLEY WATER COMMISSION
INTEROFFICE MEMORANDUM**

Date: April 13, 2016

To: Hon. Commissioners

From: J. Bella & J. Duprey

C: G. Hanley
L. Amodio

Re: Shared Services Agreement with the City of Paterson ("Paterson") for the Provision of Emergency Rescue and Preventive Services and Consultation Related to Confined Spaces

Paterson has requested that PVWC enter into a shared services agreement (see attached Form of Agreement) to have the Paterson Fire Department Personnel ("PFDP") provide emergency rescue and preventive goods and services and consultation related to PVWC's confined spaces in conformance with 29 CFR 1910.146 et seq., and Paterson shall have the PFDP provide supervision of the appropriate and necessary Personnel and all equipment and materials necessary to perform the duties stated herein and in accordance with applicable OSHA law and regulations, guidelines and standards (the "Services").

Unless terminated earlier as set forth below, the shared services agreement with the City of Paterson ("Paterson") would be for a period of two (2) years and includes the option to renew for three (3) additional one (1) year periods for the provision of Services.

The Services would enhance PVWC's confined space program, and this enhancement would be separate and apart and in addition to that which is provided by Paterson to other residents, taxpayers and citizens, and separate and apart and in addition to that which is provided by the County or State in which PVWC's facilities are located. Proposed compensation to Paterson would be as follows:

- A. PVWC would pay Paterson \$150,000.00 annually as payment in full for all Services required under the Agreement. These payments shall be payable in quarterly installments, upon receipt of an invoice from Paterson. The invoices for the quarterly installments would be issued to PVWC at the end of the quarter for which the invoice relates. Payment would be made within thirty (30) days of receipt of the invoice. Paterson will provide (and will include in the Annual Amount stipulated hereinabove) planned onsite rescue services ("Planned Standby Complex Confined Space Events") for up to four (4) separate Planned Standby Complex Confined Space Events, each of which, if any, shall be requested by PVWC's designated representative in writing ahead of time, and each authorized Planned Standby Complex Confined Space Event shall require PFDP to be onsite for up to forty eight (48) continuous hours for the said rescue services.
- B. In addition to the four (4) separate Planned Standby Complex Confined Space Events per year included within PFDP's scope of services, PVWC may request additional Planned Standby Complex Confined Space Event, if requested in writing in advance by PVWC's Designated Representative. The PFDP would staff the Event with one (1) trained captain and three (3) trained firefighters. The Event may last as short a time or as long as needed to complete the purposes of the Event, however, under no circumstances would the Event last more than eight (8) consecutive hours without a change of personnel from the PFDP. PVWC would compensate Paterson for the optional additional services ordered by PVWC as follows: PVWC would pay for the staffing of the Event at prevailing rates for straight or regular time as set forth in the then-effective collective bargaining agreement between Paterson and the PFDP. If the Event takes four (4) hours or less, PVWC would pay for four (4) hours of staffing. For Events lasting over four (4) hours, PVWC would pay for the actual time spent by the PFDP at the Event. The compensation set forth herein for optional additional services would be the only compensation due to Paterson for same. No additional compensation would be due from PVWC for mobilization, demobilization, equipment costs, or any other costs associated with the optional additional services.

Either Party would be able to terminate the Agreement upon 120 days prior written notice to the other Party, in which case Paterson would reimbursement PVWC for any unused time by prorating the Annual Amount accordingly.

Subject to review and approval as to form and legality by the Law Department, it is recommended that the shared services agreement with Paterson for the provision of emergency rescue and preventive services and consultation related to confined spaces be submitted to the Commission for review and approval.

PASSAIC VALLEY WATER COMMISSION

**SHARED SERVICES AGREEMENT WITH THE CITY OF PATERSON FOR THE
PROVISION OF EMERGENCY RESCUE AND PREVENTIVE SERVICES AND
CONSULTATION RELATED TO CONFINED SPACES**

FORM OF SHARED SERVICES AGREEMENT

ATTACHMENT TO EXHIBIT A

SHARED SERVICES AGREEMENT
BETWEEN
PASSAIC VALLEY WATER COMMISSION
AND
THE CITY OF PATERSON
THROUGH IT'S FIRE DEPARTMENT
FOR THE PROVISION OF EMERGENCY RESCUE AND PREVENTIVE SERVICES
AND CONSULTATION RELATIVE TO CONFINED SPACES

This Agreement (hereinafter the "Agreement"), made and entered into as of this ____ day of _____, 201__, by and between Passaic Valley Water Commission (hereinafter "PVWC"), having offices at 1525 Main Avenue, Clifton, New Jersey 07011 and the City of Paterson, (hereinafter "Paterson"), having offices at 155 Market St, Paterson, NJ 07505, is for the provision of emergency rescue-related health and safety services associated with PVWC's Confined Space Program for a 2-year period (the "Term of the Agreement") commencing on June 1, 2016 and, unless terminated earlier in accordance with Article 11 herein, continuing until May 31, 2018 with the option to extend the Agreement for three (3) additional one (1) year periods.

WHEREAS, PVWC desires to contract with Paterson for the provision of Services (as defined below) by specially assigned Fire Department Personnel ("PFDP") sworn and trained in accordance with the highest standards of the Fire Department's Confined Space Program; and to provide goods and services for standby services for confined space emergency rescues, and for confined space planned entries; all as set forth in more detail herein; and

WHEREAS, these Services shall enhance PVWC's confined space program, and are separate and apart and in addition to that which is provided by Paterson to other residents, taxpayers and citizens, and separate and apart and in addition to that which is provided by the County or State in which PVWC's facilities are located; and

WHEREAS, the program objective is for Paterson to provide for comprehensive, quality Services as defined herein to all PVWC employees, properties, and facilities through appropriate means; and

WHEREAS, Paterson desires to provide Services to PVWC as set forth herein, and PVWC wishes to contract with Paterson for said Services;

NOW THEREFORE, PVWC and Paterson agree, as follows:

1. Staffing:

Paterson shall have the PFDP provide staffing, equipment and other goods and services necessary to provide adequate protections against the risks of maintaining and operating confined space facilities in accordance with the United States Department of Labor, Office of Occupational Safety and Health Administration ("OSHA") requirements set forth in 29 CFR 1910.146 et seq., and in accordance with this Agreement. Paterson shall have the PFDP provide supervision of the appropriate and necessary Personnel and all equipment and materials necessary to perform the duties stated herein and in accordance with applicable OSHA law and regulations, guidelines and standards (herein the "Services").

Each party to this Agreement shall provide the other party in writing or by email, with the name and contact information of a single point of contact ("SPOC") for purposes of exchanging information. The SPOC for Paterson shall be Deputy Chief/Executive Officer Brian J. McDermott. The SPOC for the Commission shall be Michael Marotta, General Supervisor of Maintenance (PVWC's Designated Representative). Each party shall notify the other party of any change in the information for the SPOC within three (3) working days of such change.

An Advisory Board shall be established that will consist of four (4) members; two (2) from PFDP and two (2) from PVWC. The advisory board will meet a minimum of twice per year to gather and share information, to review/update the onsite surveys and evaluations of confined spaces owned by PVWC, to review/update current policies, and to plan for the Annual Entry Exercises.

2. Term:

Unless terminated earlier in accordance with Article 11 herein, the Term of the Agreement shall commence on June 1, 2016 and continue until May 31, 2018 with the Parties retaining the option to renew the Agreement for three (3) additional one (1) year periods under the same terms and conditions. The term of the Agreement may not be renewed and/or extended without the prior written consent of the Parties as evidenced by their respective governing bodies duly adopted

resolutions. One hundred twenty (120) days prior to expiration of this Agreement, the Parties hereto agree to give written notice as to their intention to extend and/or terminate or revise this Agreement subject to the mutual agreement of said Parties.

3. Scope of PFDP's Services:

All services to be provided by Paterson through the PFDP hereunder, including but not limited to all Planned Standby Complex Confined Space Events (as defined elsewhere herein) and all confined space rescues, shall be performed under PFDP's permit and shall comply with all applicable laws and regulations. Paterson shall have the PFDP provide to PVWC, without implied limitation, the Services as outlined below for the Term of the Agreement:

- a. As one of the first items to be completed under this Agreement, PFDP shall conduct a comprehensive on-site survey and evaluation of confined spaces owned and/or controlled by PVWC, and other confined spaces as required by PVWC (herein, the "Onsite Survey and Evaluation"). Thereafter, the PFDP shall revise the Onsite Survey and Evaluation from time to time as needed to keep it up to date and/or as required by PVWC.
- b. PFDP shall serve as PVWC's Rescue Authority. PFDP shall make its Personnel available for deployment for twenty-four (24) hours per day, seven (7) days a week throughout the Term of the Agreement.
- c. PFDP shall provide "On call" emergency rescue response, which shall mean that PVWC will notify the PFDP prior to every confined space entry. During that time, PFDP shall have their emergency rescue response team available for rescue operations in the case of emergency rescue. In the case of emergency rescue, it is expressly understood that 9-1-1 shall be the first call that is made, immediately followed by the call to PFDP.
- d. PFDP shall possess, and shall be required to maintain, all necessary equipment for the performance of confined space rescue operations.
- e. The PFDP must respond to emergency rescue calls in a timely manner as required by the law, including OSHA regulations. In addition, the PFDP shall investigate and calculate the maximum rescue response time(s) for each confined-space location and confirm that the said maximum rescue response time(s) conform to the OSHA regulations. The PFDP shall develop and implement a plan to enhance the ability of the PFDP to respond in a timely manner to any rescue call, including calls to known confined space location as well as "unplanned" confined spaces. "Unplanned" confined spaces are those which are not among the known confined spaces set forth in the Onsite Survey and Evaluation, such as emergency trench excavations to repair water main breaks. The PFDP's internal plan shall set forth: (i) the various locations where properly trained PFDP are expected to be housed in quarters, assembled as a group, and capable of responding to a rescue call in a timely manner; (ii) identification of ways that the PFDP can improve the ability of the PFDP to respond in a timely manner; (iii) identification of potential impediments to the ability of the PFDP to respond in a timely manner; and (iv) PFDP's recommendations, strategies, and back-up strategies for helping to ensure that the PFDP can respond in a timely manner to any rescue call.
- f. PFDP shall guarantee that no less than eighty (80) of its fire fighters shall remain trained and operations-grade certified for "confined space" rescues. PFDP shall maintain up-to-date training records of all members assigned to the team.
- g. For purposes of this Agreement, the term "complex" (as used hereinafter is referring to a PVWC-owned and controlled onsite permit-required "complex" confined space) shall be deemed to mean a PVWC-owned and controlled onsite permit-required confined space that, due to the extraordinary and substantial complexities that would be involved in a permit-required confined space rescue operation (due to the nature of the confined space and/or potential hazards related thereto) distinguishes same from a "normal" PVWC owned and controlled onsite permit-required confined space. It is anticipated that only a few PVWC-owned and controlled confined spaces at PVWC's water treatment plant would be categorized as PVWC-owned and controlled onsite permit-required complex confined spaces (herein referred to as "Planned Standby Complex Confined Space").
- h. PFDP shall, in cooperation with PVWC, perform at least one 8-hour exercise annually (herein, the "Annual Entry Exercise") at a Planned Standby Complex Confined Space, which, and only for the purpose of selecting the particular Planned Standby Complex Confined Space for the Annual Entry Exercise, shall be determined by the Advisory Board, which Annual Entry Exercises will not be counted as any of the Planned Standby Complex Confined Space Events specified elsewhere herein.

- i. PFDP shall provide (and shall include in the Annual Amount stipulated elsewhere herein) planned onsite standby rescue services ("Planned Standby Complex Confined Space Events") for up to four (4) separate Planned Standby Complex Confined Space Events, each of which, if any, shall be as requested by PVWC's Designated Representative in writing ahead of time. Each authorized Planned Standby Complex Confined Space Event shall require PFDP to be onsite for up to 48 continuous hours for the said rescue services.
- j. The Scope of PDFP's Services hereunder include whatever staffing and work that the PDFD is required to supply relating to: (i) the Advisory Board referenced in paragraph 1 above entitled "Staffing" and (ii) reciprocal training referenced in paragraph 9 below entitled "Reciprocal Training".
- k. PDFP shall train specified PVWC employees in any prerequisite courses that are necessary or recommended in order for the PDFP to perform its services effectively for the PVWC, including but not limited to, in Hazardous Materials Awareness, Hazardous Materials Operations, Basic Rope Rescue, Confined Space Awareness, and Confined Space Operations.

4. Compensation:

PVWC shall pay Paterson the amount of One-Hundred, Fifty-Thousand Dollars (\$150,000.00) annually (the "Annual Amount"), as payment in full for all goods and services supplied in connection with this Agreement, including the Scope of PDFD's Services set forth above in paragraph 3, including mobilization, demobilization, maintenance, supervision, and continuing training and education relating to same. These payments shall be payable in quarterly installments, upon receipt of an invoice from Paterson. Payment shall be made within thirty (30) days of receipt of the invoice. The invoices for the quarterly installments shall be issued to PVWC at the end of the quarter for which the invoice relates.

5. Optional Additional Services and Compensation for Same:

During the Term of this Agreement, the PVWC may request the following optional additional services from the PFDP. When requested by the PVWC, the PFDP shall supply all goods and services in connection therewith and the PVWC shall compensate Paterson as follows:

In addition to the four (4) separate Planned Standby Complex Confined Space Events per year included within the PFDP's Scope of Services, the PVWC may request additional Planned Standby Complex Confined Space Events, if requested in writing in advance by PVWC's Designated Representative. The PFDP shall staff the Event with one trained captain and three trained firefighters. The Event may last as short a time or as long as needed to complete the purposes of the Event, however, under no circumstances may the Event last more than eight (8) consecutive hours without a change of personnel from the PFDP.

The PVWC shall compensate Paterson for the optional additional services ordered by the PVWC as follows: The PVWC shall pay for the staffing of the Event at prevailing rates for straight or regular time set forth in the then-effective Collective Bargaining Agreement between Paterson and the PFDP. If the Event takes four hours or less, the PVWC shall pay for four hours of Staffing. For Events lasting over four hours, the PVWC shall pay for the actual time spent by the PFDP at the Event. The compensation set forth herein for optional additional services is the only compensation due to Paterson for same. No additional compensation shall be due from the PVWC for mobilization, demobilization, equipment costs, or any other costs associated with the optional additional services.

6. Independent Contractor:

Notwithstanding anything in the Agreement to the contrary, nothing in this Agreement shall be construed as PFDP (other than PVWC's personnel) being employees of PVWC. Paterson, through the PFDP, shall at all times provide supervision, control and direction of work activities and assignments of their own Personnel, including disciplinary action. It is expressly understood that Paterson shall be responsible for the compensation of the officers and all employee benefits, including worker's compensation insurance, as well as any injury to their officers, their property or Paterson's property.

7. Indemnification:

The City of Paterson and the PVWC shall indemnify each other, defend and save and hold harmless each other from and against any damage, liability, loss, costs or claims arising out of, resulting from or related to any intentional or negligent acts of their agents or employees in performance of the Work under this Agreement.

These Indemnifications are intended to provide the broadest indemnification permitted by law and shall be construed consistent with all applicable laws of the State of New Jersey, including but not limited to the laws pertaining to indemnification, which shall survive the termination of the Agreement.

8. Insurance Requirements:

Both Parties acknowledge that they have an insurable interest relative to the scope of services rendered and/or received by each, and other related and material risks.

Nothing contained in this Article shall be construed as limiting the extent of the liability for claims for damages resulting from or related to the services performed under this Agreement.

All insurance required hereunder shall include the interests of each Party. Each Party waives all rights against the other and any parties named as additional insured's in such policies for all losses and damages caused by any of the perils covered by such policies and all such policies shall contain provisions to the effect that in the event of payment of any loss for damage, the insurer will have no rights of recovery against any of the parties named as additional insured's.

It is recognized that both Parties are self-insured for the first dollar up to certain levels. Notwithstanding same, each Party shall provide and maintain, at its sole expense, insurance that will provide protection from claims and liabilities, which may arise out of or result from their performance and furnishing Services and other obligations under this Agreement, whether it is to be performed or furnished by said Party, by any of the Party's employees, by anyone directly or indirectly employed by any of them to perform or furnish Services, or by anyone for whose acts any of them may be liable to the other, and shall maintain reserve funds sufficient to meet applicable statutory requirements or other applicable standards, if any, as follows:

- a. Worker's Compensation and Employer's Liability Insurance: Covering all of the employees directly or indirectly engaged in the performance of this Agreement. This insurance shall comply with the statutory requirements of the State of New Jersey and shall include Employer's Liability Insurance.
- b. Commercial General Liability Insurance: The Commercial General Liability Insurance shall include completed operations coverage. Blanket Contractual Liability Insurance must be included, expressly insuring each Party's liability for occurrences assumed under the indemnification clause of the Agreement to the extent covered by the standard form Commercial General Liability policy in New Jersey
- c. Comprehensive Automobile Liability Insurance: covering each Party for claims arising from all owned, hired and non-owned vehicles for bodily injury and property damage.
- d. Forms of Policies: all liability insurance shall be on an occurrence basis.

Each party hereto shall provide an original endorsement of its applicable Insurance Policies confirming that the other Party is an Additional Insured with respect to the required coverage hereunder.

9. Reciprocal Training.

PFDP and PVWC further agree to perform reciprocal training in areas such as Confined Space Awareness, annual refresher training and OSHA Disaster Site Worker courses. These refresher training courses shall be scheduled regionally whenever possible.

10. Assignment, Delegation, and Assurances.

Neither Party may assign any of its rights or duties under this Agreement to any person or entity without securing in advance the expressed, written permission of the of Party.

If the Paterson wishes to, or believes that it needs to, delegate any of its duties to other persons or entities who are not employed by Paterson or the PFD, the PFDP shall provide notice to the PVWC of the various proposed delegees and their proposed duties (hereinafter "Paterson's Notice of Delegees") before delegating any duties owed to the PVWC arising out of this Agreement. The Paterson's Notice of Delegees shall be provided to the PVWC's Designated Representative reasonably in advance of the proposed delegation to enable the PVWC to address to the PDFP's Designated Representative any concerns that it might have in connection therewith. The PVWC may reject a proposed delegee or reject the proposed delegation of certain tasks if the PVWC has good cause to reject same, in which case, Paterson shall not delegate to the extent objected to by the

PVWC. Paterson shall be responsible for supervising any delegees. Paterson shall remain responsible to the PVWC for the acts and/or omissions of its delegees, and in no event shall Paterson be relieved of liability on the basis that the goods, services, or other work supplied under this Agreement were performed by a delegee of Paterson and not by the PFDP or Paterson. In no event shall the PFDP delegate a duty herein if such delegation may violate the law or expose the PVWC to liability as a result of the delegation.

11. Termination:

Each Party may terminate this Agreement upon the provision of one hundred twenty (120) days written notice to the other. Such notice shall be delivered by Certified Mail, Return Receipt Requested to the address specified in this Agreement. In the event of termination, Paterson shall reimburse PVWC for any unused time by pro-rating the Annual Amount accordingly.

12. Applicable Law:

This Agreement is made and entered into in the County of Passaic, State of New Jersey. Any and all questions of law arising hereunder shall be construed in accordance with the laws of the State of New Jersey, and venue and jurisdiction shall lie in the County of Passaic, unless otherwise agreed to by consent of both Parties and in accordance with applicable law.

13. The Agreement:

The Agreement shall be deemed the entire Agreement between the Parties and shall consist of the following component parts:

- a. This Agreement.
- b. Any subsequent addenda, Exhibits, Schedules, etc., agreed to by both Parties and entered into in accordance with Paragraph 15 below.

14. Severability:

The invalidity or unenforceability of any provisions of this Agreement shall not affect the validity or enforceability of any other provision of this Agreement, which shall remain in full force and effect.

15. Amendments:

This Agreement may only be amended by a written document duly authorized by their respective governing bodies and properly executed and attested by the authorized officers of both Parties.

ATTEST:

CITY OF PATERSON

JOSE "JOEY" TORRES
Mayor

Approved:

SONIA GORDON
City Clerk

ROBERT BRIGLIADORO, ESQ.
First Assistant Corporation Counsel

ATTEST:

PASSAIC VALLEY WATER COMMISSION

LOUIS AMODIO
Administrative Secretary

RIGO SANCHEZ
President

PASSAIC VALLEY WATER COMMISSION

**SHARED SERVICES AGREEMENT WITH THE CITY OF PATERSON FOR THE
PROVISION OF EMERGENCY RESCUE AND PREVENTIVE SERVICES AND
CONSULTATION RELATED TO CONFINED SPACES**

PVWC'S FINANCIAL CERTIFICATION SHEET

EXHIBIT B

COMPTROLLER'S REPORT TO THE BOARD OF
COMMISSIONERS

Passaic Valley Water Commission
Overtime Analysis - Executive Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	539,084.05	0.00	528,509.80	0.00	10,574.25	0.00
February		0.00		0.00		0.00
March		27.91		0.00		27.91
April		0.00		0.00		0.00
May		0.00		0.00		0.00
June		0.00		0.00		0.00
July		0.00		0.00		0.00
August		0.00		0.00		0.00
September		0.00		0.00		0.00
October		0.00		0.00		0.00
November		0.00		0.00		0.00
December		0.00		0.00	0.00	0.00
	<u>539,084.05</u>	<u>27.91</u>	<u>528,509.80</u>	<u>0.00</u>	<u>10,574.25</u>	<u>27.91</u>
Department Head: Joseph Bella						
Number of Employees: 4						
Total thru Mar	<u>134,771.01</u>	<u>27.91</u>	<u>528,509.80</u>	<u>0.00</u>	<u>10,574.25</u>	<u>27.91</u>
% Change		<u>0.02%</u>		<u>0.00%</u>	<u>2.00%</u>	<u>0.00%</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Legal Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	517,439.57	1,449.51	367,075.80	0.00	150,363.77	1,449.51
February		635.03		0.00		635.03
March				0.00		0.00
April				0.00		0.00
May				0.00		0.00
June				528.87		(528.87)
July				761.42		(761.42)
August				855.91		(855.91)
September				883.52		(883.52)
October				883.52		0.00
November				1,049.18		(1,049.18)
December				2,181.18		(2,181.18)
					<u>0.00</u>	<u>0.00</u>
	<u>517,439.57</u>	<u>2,084.54</u>	<u>367,075.80</u>	<u>7,143.60</u>	<u>150,363.77</u>	<u>(4,175.54)</u>
Department Head: George Hanley						
Number of Employees: 3 3						
Total thru Mar	<u>129,359.89</u>	<u>2,084.54</u>	<u>367,075.80</u>	<u>0.00</u>	<u>150,363.77</u>	<u>2,084.54</u>
% Change	<u>1.61%</u>			<u>0.00%</u>	<u>40.96%</u>	<u>0.00%</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Engineering Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	1,146,368.81	837.57	670,961.20	1,669.62	475,407.61	(832.05)
February		699.90		1,607.06		(907.16)
March		64.99		979.63		(914.64)
April				975.22		(975.22)
May				2,887.63		(2,887.63)
June				2,924.62		(2,924.62)
July				5,102.92		(5,102.92)
August				1,949.13		(1,949.13)
September				2,432.64		(2,432.64)
October				1,912.67		(1,912.67)
November				4,275.88		(4,275.88)
December				4,565.93		(4,565.93)
				<u>0.00</u>		<u>0.00</u>
	<u>1,146,368.81</u>	<u>1,602.46</u>	<u>670,961.20</u>	<u>31,282.95</u>	<u>475,407.61</u>	<u>(29,680.49)</u>
Department Head: James Duprey						
Number of Employees: 8 9						
Total thru Mar	<u>286,592.20</u>	<u>1,602.46</u>	<u>670,961.20</u>	<u>4,256.31</u>	<u>475,407.61</u>	<u>(2,653.85)</u>
% Change		<u>0.56%</u>		<u>0.63%</u>	<u>70.85%</u>	<u>(62.35%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Purchasing Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	192,397.87	467.28	188,624.80	819.07	3,773.07	(351.79)
February		438.96		402.59		36.37
March		269.04		666.36		(397.32)
April				680.25		(680.25)
May				208.24		(208.24)
June				97.18		(97.18)
July				55.53		(55.53)
August				222.12		(222.12)
September				291.54		(291.54)
October				138.83		(138.83)
November				152.71		(152.71)
December				333.18		(333.18)
	<u>192,397.87</u>	<u>1,175.28</u>	<u>188,624.80</u>	<u>4,067.60</u>	<u>0.00</u>	<u>0.00</u>
					<u>3,773.07</u>	<u>(2,892.32)</u>
Department Head: Linda Beckerling						
Number of Employees: 2 2						
Total thru Mar	<u>48,099.47</u>	<u>1,175.28</u>	<u>188,624.80</u>	<u>1,888.02</u>	<u>3,773.07</u>	<u>(712.74)</u>
% Change		<u>2.44%</u>		<u>1.00%</u>	<u>2.00%</u>	<u>(37.75%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Accounting Department
12/31/2016

2016		2015		Variance		
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	927,282.93	11,926.64	608,699.00	8,979.27	318,583.93	2,947.37
February		10,750.37		8,215.38		2,534.99
March		7,772.69		7,743.35		29.34
April				7,341.77		(7,341.77)
May				11,112.79		(11,112.79)
June				8,121.00		(8,121.00)
July				12,084.41		(12,084.41)
August				8,016.97		(8,016.97)
September				7,573.94		(7,573.94)
October				7,711.92		(7,711.92)
November				7,101.69		(7,101.69)
December				10,824.08		(10,824.08)
	<u>927,282.93</u>	<u>30,449.70</u>	<u>608,699.00</u>	<u>104,826.57</u>	<u>318,583.93</u>	<u>(74,376.87)</u>
					<u>0.00</u>	<u>0.00</u>
Department Head: Vitzchak Weiss						
Number of Employees: 10 9						
(Billing dept was moved into Accounting)						
Total thru Mar	<u>231,820.73</u>	<u>30,449.70</u>	<u>608,699.00</u>	<u>24,938.00</u>	<u>318,583.93</u>	<u>5,511.70</u>
% Change		<u>13.14%</u>		<u>4.10%</u>	<u>52.34%</u>	<u>22.10%</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Commercial Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	1,509,683.47	3,911.98	737,737.00	14,923.49	771,946.47	(11,011.51)
February		4,057.50		11,480.53		(7,423.03)
March		4,297.18		9,829.23		(5,532.05)
April				9,806.85		(9,806.85)
May				14,623.17		(14,623.17)
June				9,458.32		(9,458.32)
July				9,773.46		(9,773.46)
August				5,387.06		(5,387.06)
September				4,551.80		(4,551.80)
October				4,774.78		(4,774.78)
November				5,812.26		(5,812.26)
December				7,480.42		(7,480.42)
				<u>0.00</u>		<u>0.00</u>
	<u>1,509,683.47</u>	<u>12,266.66</u>	<u>737,737.00</u>	<u>107,901.37</u>	<u>771,946.47</u>	<u>(95,634.71)</u>
Department Head: Andy Bisesi						
Number of Employees: 13 12						
(Billing dept was moved into Accounting)						
Total thru Mar	<u>377,420.87</u>	<u>12,266.66</u>	<u>737,737.00</u>	<u>36,233.25</u>	<u>771,946.47</u>	<u>(23,966.59)</u>
% Change		<u>3.25%</u>		<u>4.91%</u>	<u>104.64%</u>	<u>(66.15%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Personnel Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	615,501.69	372.59	449,477.60	673.52	166,024.09	(300.93)
February		799.32		212.26		587.06
March		1,584.21		270.45		1,313.76
April				338.06		(338.06)
May				428.21		(428.21)
June				112.69		(112.69)
July				135.23		(135.23)
August				67.62		(67.62)
September				386.40		(386.40)
October				218.87		(218.87)
November				184.59		(184.59)
December			3,482.96			(3,482.96)
					0.00	0.00
	<u>615,501.69</u>	<u>2,756.12</u>	<u>449,477.60</u>	<u>6,510.86</u>	<u>166,024.09</u>	<u>(3,754.74)</u>
Department Head: James Gallagher						
Number of Employees: 5 5						
Total thru Mar	<u>153,875.42</u>	<u>2,756.12</u>	<u>449,477.60</u>	<u>1,156.23</u>	<u>166,024.09</u>	<u>1,599.89</u>
% Change		<u>1.79%</u>		<u>0.26%</u>	<u>36.94%</u>	<u>138.37%</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Purification Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	1,752,818.34	9,757.95	860,191.80	18,142.39	892,626.54	(8,384.44)
February		11,508.09		16,525.00		(5,016.91)
March		11,320.87		17,041.40		(5,720.53)
April				16,770.24		(16,770.24)
May				13,729.51		(13,729.51)
June				17,112.03		(17,112.03)
July				19,490.52		(19,490.52)
August				15,649.90		(15,649.90)
September				16,037.16		(16,037.16)
October				10,966.51		(10,966.51)
November				13,663.64		(13,663.64)
December				18,912.62		(18,912.62)
				<u>0.00</u>		<u>0.00</u>
	<u>1,752,818.34</u>	<u>32,586.91</u>	<u>860,191.80</u>	<u>194,040.92</u>	<u>892,626.54</u>	<u>(161,454.01)</u>
Department Head: Wendy Simone						
Number of Employees: 15 14						
Total thru Mar	<u>438,204.59</u>	<u>32,586.91</u>	<u>860,191.80</u>	<u>51,708.79</u>	<u>892,626.54</u>	<u>(19,121.88)</u>
% Change		<u>7.44%</u>		<u>6.01%</u>	<u>103.77%</u>	<u>(36.98%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Pumping Department
12/31/2016

	2016		2015		Variance	
	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>	<u>Annual Salary</u>	<u>OT</u>
January	1,390,298.83	10,480.05	798,891.60	12,212.14	591,407.23	(1,732.09)
February		8,963.33		12,891.39		(3,928.06)
March		5,639.55		12,601.29		(6,961.74)
April				8,147.74		(8,147.74)
May				6,427.70		(6,427.70)
June				7,061.98		(7,061.98)
July				21,552.96		(21,552.96)
August				17,918.20		(17,918.20)
September				18,759.15		(18,759.15)
October				17,267.14		(17,267.14)
November				14,377.26		(14,377.26)
December				27,422.51		(27,422.51)

	<u>1,390,298.83</u>	<u>25,082.93</u>	<u>798,891.60</u>	<u>176,639.46</u>	<u>591,407.23</u>	<u>(151,556.53)</u>
Department Head: Kevin Byrne						
Number of Employees:		13	15			
Total thru Mar	<u>347,574.71</u>	<u>25,082.93</u>	<u>798,891.60</u>	<u>37,704.82</u>	<u>591,407.23</u>	<u>(12,621.89)</u>
% Change		<u>7.22%</u>		<u>4.72%</u>	<u>74.03%</u>	<u>(33.48%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Maintenance Department
12/31/2015

	2016		2015		Variance	
	Annual Salary	OT	Annual Salary	OT	Annual Salary	OT
January	4,727,301.39	20,364.65	2,958,584.20	19,962.46	1,768,717.19	402.19
February		25,601.27		38,158.67		(12,557.40)
March		14,392.45		19,402.03		(5,009.58)
April				30,577.25		(30,577.25)
May				17,665.29		(17,665.29)
June				20,938.41		(20,938.41)
July				14,741.46		(14,741.46)
August				10,338.44		(10,338.44)
September				8,115.04		(8,115.04)
October				8,412.51		(8,412.51)
November				16,580.46		(16,580.46)
December				16,919.44		(16,919.44)
					0.00	0.00
	<u>4,727,301.39</u>	<u>60,358.37</u>	<u>2,958,584.20</u>	<u>221,811.46</u>	<u>1,768,717.19</u>	<u>(161,453.09)</u>
Department Head: Michael Marotta						
Number of Employees:		44		44		
Total thru Mar	<u>1,181,825.35</u>	<u>60,358.37</u>	<u>2,958,584.20</u>	<u>77,523.16</u>	<u>1,768,717.19</u>	<u>(17,164.79)</u>
% Change		<u>5.11%</u>		<u>2.62%</u>	<u>59.78%</u>	<u>(22.14%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Distribution Department
12/31/2015

	2016		2015		Variance	
	Annual Salary	OT	Annual Salary	OT	Annual Salary	OT
January	4,613,651.33	48,415.80	3,050,138.00	110,110.29	1,563,513.33	(61,694.49)
February		48629.67		74,178.06		(25,548.39)
March		27539.8		61,323.30		(33,783.50)
April				60,422.27		(60,422.27)
May				41,904.36		(41,904.36)
June				31,543.78		(31,543.78)
July				45,751.07		(45,751.07)
August				18,245.05		(18,245.05)
September				14,805.06		(14,805.06)
October				24,216.85		(24,216.85)
November				34,547.18		(34,547.18)
December				58,702.40		(58,702.40)
	<u>4,613,651.33</u>	<u>124,585.27</u>	<u>3,050,138.00</u>	<u>575,749.67</u>	<u>1,563,513.33</u>	<u>(451,164.40)</u>
	Department Head: Andy Bisesi					
	Number of Employees: 53		50			
Total thru Mar	<u>1,153,412.83</u>	<u>124,585.27</u>	<u>3,050,138.00</u>	<u>245,611.65</u>	<u>1,563,513.33</u>	<u>(121,026.38)</u>
% Change		<u>10.80%</u>		<u>8.05%</u>	<u>51.26%</u>	<u>(49.28%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Laboratory Department
12/31/2015

	2016		2015		Variance	
	Annual Salary	OT	Annual Salary	OT	Annual Salary	OT
January	1949064.62	1,535.20	1,262,370.20	7,668.47	686,694.42	(6,133.27)
February		3016.74		4,424.20		(1,407.46)
March		7288.92		2,675.22		4,613.70
April				5,456.40		(5,456.40)
May				3,910.61		(3,910.61)
June				3,463.88		(3,463.88)
July				6,719.58		(6,719.58)
August				4,135.79		(4,135.79)
September				4,799.21		(4,799.21)
October				4,363.25		(4,363.25)
November				4,002.37		(4,002.37)
December				6,881.30		(6,881.30)
	<u>1,949,064.62</u>	<u>11,840.86</u>	<u>1,262,370.20</u>	<u>58,500.28</u>	<u>686,694.42</u>	<u>(46,659.42)</u>
Department Head: David Prانيتis						
Number of Employees: 17						
Total thru Mar	<u>487,266.16</u>	<u>11,840.86</u>	<u>1,262,370.20</u>	<u>14,767.89</u>	<u>686,694.42</u>	<u>(2,927.03)</u>
% Change		<u>2.43%</u>		<u>1.17%</u>	<u>54.40%</u>	<u>(19.82%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Analysis - Totals
12/31/2016

	2016		2015		Variance	
	Annual Salary	OT	Annual Salary	OT	Annual Salary	OT
January	19,880,892.90	109,519.22	12,569,554.40	195,160.72	7,311,338.50	(85,641.50)
February		115,100.18		168,095.14		(52,994.96)
March		80,197.61		132,532.26		(52,334.65)
April		0.00		140,516.05		(140,516.05)
May		0.00		112,897.51		(112,897.51)
June		0.00		101,362.76		(101,362.76)
July		0.00		136,168.56		(136,168.56)
August		0.00		82,786.19		(82,786.19)
September		0.00		78,635.46		(78,635.46)
October		0.00		80,866.85		(80,866.85)
November		0.00		101,747.22		(101,747.22)
December		0.00		157,706.02		(157,706.02)
	<u>19,880,892.90</u>	<u>304,817.01</u>	<u>12,569,554.40</u>	<u>1,488,474.74</u>	<u>7,311,338.50</u>	<u>(1,183,657.73)</u>
Number of Employees:		187		180		
Total thru Mar	<u>4,970,223.23</u>	<u>304,817.01</u>	<u>12,569,554.40</u>	<u>495,788.12</u>	<u>7,311,338.50</u>	<u>(190,971.11)</u>
% Change		<u>6.13%</u>		<u>3.94%</u>	<u>58.17%</u>	<u>(38.52%)</u>

* Note that Annual Salary has been ratably adjusted to 3 months.

Passaic Valley Water Commission
Overtime Hours Analysis
12/31/2016

	<u>Total OT</u>	<u>Exec</u>	<u>Legal</u>	<u>Eng</u>	<u>Purch</u>	<u>Acctg</u>	<u>Comm</u>	<u>Personnel</u>	<u>Purif</u>	<u>Pump</u>	<u>Maint</u>	<u>Dist</u>	<u>Lab</u>
January	2,344.74	-	22.50	18.25	8.25	247.50	83.93	8.00	203.75	239.75	414.72	1,081.34	16.75
February	2,512.63	-	11.50	13.50	7.75	227.00	87.63	14.75	246.75	200.25	516.46	1,129.79	57.25
March	1,653.82	0.50	-	1.00	4.75	158.75	94.44	29.00	232.00	127.00	289.99	590.89	125.50
April	-	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-	-	-	-	-	-
	<u>6,511.19</u>	<u>0.50</u>	<u>34.00</u>	<u>32.75</u>	<u>20.75</u>	<u>633.25</u>	<u>266.00</u>	<u>51.75</u>	<u>682.50</u>	<u>567.00</u>	<u>1,221.17</u>	<u>2,802.02</u>	<u>199.50</u>
Total thru Mar	6,511.19	0.50	34.00	32.75	20.75	633.25	266.00	51.75	682.50	567.00	1,221.17	2,802.02	199.50
Prior Year MTD Totals	10,995.58	-	-	86.50	34.00	531.00	764.24	26.25	1,143.08	892.50	1,622.86	5,619.90	275.25
Variance Over (Under)	<u>(4,484.39)</u>	<u>0.50</u>	<u>34.00</u>	<u>(53.75)</u>	<u>(13.25)</u>	<u>102.25</u>	<u>(498.24)</u>	<u>25.50</u>	<u>(460.58)</u>	<u>(325.50)</u>	<u>(401.69)</u>	<u>(2,817.88)</u>	<u>(75.75)</u>

Passaic Valley Water Commission
Overtime Hours Analysis
12/31/2015

	<u>Total OT</u>	<u>Exec</u>	<u>Legal</u>	<u>Eng</u>	<u>Purch</u>	<u>Acctg</u>	<u>Comm</u>	<u>Personnel</u>	<u>Purif</u>	<u>Pump</u>	<u>Maint</u>	<u>Dist</u>	<u>Lab</u>
January	4,310.39	-	-	29.75	14.75	192.25	315.54	15.50	405.08	288.25	410.81	2,499.96	138.50
February	3,740.64	-	-	34.25	7.25	174.50	243.76	4.75	367.75	309.00	807.15	1,709.23	83.00
March	2,944.55	-	-	22.50	12.00	164.25	204.94	6.00	370.25	295.25	404.90	1,410.71	53.75
April	3,040.72	-	-	21.50	12.25	157.50	203.70	7.50	352.75	195.25	641.23	1,350.54	98.50
May	2,461.21	-	-	59.25	3.75	235.00	307.86	9.50	301.07	155.25	374.88	935.40	79.25
June	2,206.27	-	10.00	59.50	1.75	171.75	194.82	2.50	389.24	167.25	443.48	698.48	67.50
July	3,006.04	-	14.00	103.75	1.00	262.92	199.68	3.00	442.25	521.74	306.90	1,013.55	137.25
August	1,801.42	-	15.50	39.00	4.00	170.50	107.32	1.50	340.24	430.24	220.34	393.03	79.75
September	1,737.59	-	16.00	49.75	5.25	164.00	92.36	8.50	355.25	456.24	167.90	322.09	100.25
October	1,756.40	-	16.00	39.00	2.50	165.00	97.65	4.75	244.90	402.00	168.08	529.52	87.00
November	2,226.16	-	19.00	87.50	2.75	149.17	124.47	4.00	298.25	336.25	348.13	779.14	77.50
December	3,541.11	-	39.50	81.75	6.00	231.50	164.62	85.25	422.00	647.73	365.76	1,347.25	149.75
	-	-	-	-	-	-	-	-	-	-	-	-	-
	32,772.50	-	130.00	627.50	73.25	2,238.34	2,256.72	152.75	4,289.03	4,204.45	4,659.56	12,988.90	1,152.00
	-	-	-	-	-	-	-	-	-	-	-	-	-
Total thru Mar	10,995.58	-	-	86.50	34.00	531.00	764.24	26.25	1,143.08	892.50	1,622.86	5,619.90	275.25
Prior Year MTD Totals	9,463.25	-	-	54.50	22.50	222.25	315.87	10.25	1,108.90	853.75	1,537.21	4,993.52	297.50
Variance Over (Under)	1,532.33	-	-	32.00	11.50	308.75	448.37	16.00	34.18	38.75	85.65	626.38	(22.25)

Passaic Valley Water Commission
Overtime Hours Analysis
12/31/2014

	<u>Total OT</u>	<u>Exec</u>	<u>Legal</u>	<u>Eng</u>	<u>Purch</u>	<u>Acctg</u>	<u>Comm</u>	<u>Personnel</u>	<u>Purif</u>	<u>Pump</u>	<u>Maint</u>	<u>Dist</u>	<u>Lab</u>
January	4,319.89	-	-	30.25	6.50	85.75	112.16	4.25	436.25	493.50	562.92	2,501.31	87.00
February	3,392.56	-	-	10.75	6.25	65.50	99.46	3.50	336.00	209.75	803.37	1,738.48	119.50
March	1,750.80	47.00	-	13.50	9.75	71.00	104.25	2.50	336.65	150.50	170.92	753.73	91.00
April	1,983.95	-	-	26.50	8.25	87.50	128.54	5.00	318.75	178.00	191.80	967.11	72.50
May	1,789.48	0.50	-	32.50	5.25	115.25	185.82	19.75	308.00	211.50	102.57	747.59	60.75
June	1,441.26	-	-	11.50	3.25	94.00	138.62	1.25	219.00	226.50	171.76	507.88	67.50
July	3,283.13	0.25	-	28.50	15.25	148.25	234.91	6.00	388.42	583.99	448.60	1,287.96	141.00
August	2,136.37	-	0.50	23.00	9.75	137.25	170.66	1.75	270.00	407.74	422.94	630.78	62.00
September	2,270.01	-	-	47.75	6.75	107.25	127.00	6.75	341.92	266.24	561.82	684.53	120.00
October	2,372.79	-	-	23.00	6.75	146.71	162.62	4.75	301.75	216.50	473.11	956.60	81.00
November	2,394.63	-	-	56.00	4.25	184.30	159.77	3.00	381.50	160.00	466.20	889.86	89.75
December	3,549.62	-	10.00	71.25	12.00	183.75	163.53	2.50	584.00	360.00	607.17	1,421.42	134.00
	-	-	-	-	-	-	-	-	-	-	-	-	-
	30,684.49	47.75	10.50	374.50	94.00	1,426.51	1,787.34	61.00	4,222.24	3,464.22	4,983.18	13,087.25	1,126.00
	-	-	-	-	-	-	-	-	-	-	-	-	-
Total thru Mar	9,463.25	47.00	-	54.50	22.50	222.25	315.87	10.25	1,108.90	853.75	1,537.21	4,993.52	297.50
Prior Year MTD Totals	7,499.43	-	1.50	72.25	5.25	169.50	233.78	7.75	657.75	684.25	1,206.53	4,055.35	405.52
Variance Over (Under)	1,963.82	47.00	(1.50)	(17.75)	17.25	52.75	82.09	2.50	451.15	169.50	330.68	938.17	(108.02)

Passaic Valley Water Commission
Overtime Hours Analysis
12/31/2013

	<u>Total OT</u>	<u>Exec</u>	<u>Legal</u>	<u>Eng</u>	<u>Purch</u>	<u>Acctg</u>	<u>Comm</u>	<u>Personnel</u>	<u>Purif</u>	<u>Pump</u>	<u>Maint</u>	<u>Dist</u>	<u>Lab</u>
January	3,348.18	-	0.50	21.50	3.25	44.75	75.87	2.75	291.50	337.75	423.90	1,992.64	153.77
February	2,312.89	-	1.00	6.25	0.50	34.50	83.56	2.50	204.25	189.00	383.36	1,309.47	98.50
March	1,838.36	-	-	44.50	1.50	90.25	74.35	2.50	162.00	157.50	399.27	753.24	153.25
April	1,536.66	-	-	21.50	12.25	157.50	203.70	7.50	352.75	195.25	641.23	1,350.54	98.50
May	1,615.71	-	(16.00)	17.00	3.75	43.50	47.50	2.00	281.00	181.00	316.70	572.76	166.50
June	1,542.65	-	-	12.50	3.50	38.75	50.25	0.50	247.00	173.50	126.08	766.07	124.50
July	1,381.66	-	0.50	24.75	3.25	51.25	44.17	1.00	249.00	213.50	63.66	610.83	119.75
August	2,387.48	-	0.75	30.75	1.75	82.25	104.75	3.00	276.25	540.25	182.73	982.00	183.00
September	1,590.22	-	1.00	67.00	4.75	32.50	67.00	3.00	171.08	203.50	127.39	779.75	133.25
October	1,915.41	-	-	75.75	5.25	52.00	69.75	1.50	171.75	376.00	444.24	577.17	142.00
November	1,967.75	0.50	-	68.25	5.50	42.00	75.06	2.00	223.25	348.00	480.90	625.04	97.25
December	2,040.13	-	-	67.00	3.50	37.25	56.32	1.25	335.25	468.75	235.25	733.06	102.50
	23,477.10	1.00	3.75	455.50	38.25	592.75	797.08	22.75	2,788.58	3,326.75	3,492.91	10,347.31	1,610.47
Total thru Mar	7,499.43	-	1.50	72.25	5.25	169.50	233.78	7.75	657.75	684.25	1,206.53	4,055.35	405.52



PASSAIC VALLEY WATER COMMISSION

RESOLUTION #16-30

RESOLUTION OF PASSAIC VALLEY WATER COMMISSION

DATE OF ADOPTION: April 20, 2016

Factual Contents certified to by Louis Amodio, Administrative Secretary. Approved as to Form and Legality on basis of facts set forth by George T. Hanley, General Counsel. Entering Executive Closed Session in accordance with Open Public Meetings Act, R.S. 10:4-6 et seq. Pursuant to the Open Public Meetings Act,

COMMISSIONER: _____ offers the following Resolution for adoption:

WHEREAS, Section 8 of the Open Public Meetings Act, c. 231, P.L. 1975, permits the exclusion of the public from a meeting in certain circumstances: and

WHEREAS, the public body is of the opinion that such circumstances presently exist:

NOW, THEREFORE, BE IT RESOLVED, by the Commissioners of Passaic Valley Water Commission:

1. The public shall be excluded from discussion of the hereinafter specified subject Matters; the general nature of the subject matters being: Financial, Insurance, Personnel, Contracts, Negotiations, Security, and Law: LAW: Personnel: Administration: other matters as may be discussed *in camera*.
2. It is anticipated at this time that the above-stated subject matter will be ratified During public meeting following or as soon thereafter as the reason for discussion no Longer exists.
3. This Resolution shall take effect immediately.

Second by COMMISSIONER:

AYES: ABSENT: Time:12: p.m.

RECORD OF COMMISSION VOTE ON FINAL PASSAGE

	AYE	NAY	ABSTAIN	ABSENT
JEFFREY LEVINE	_____	_____	_____	_____
ROBERT VANNOY	_____	_____	_____	_____
CHRYSTAL CLEAVES	_____	_____	_____	_____
GLORIA KOLODZIEJ	_____	_____	_____	_____
DAVID BLUMENTHAL	_____	_____	_____	_____
GERALD FRIEND	_____	_____	_____	_____
RIGO SANCHEZ	_____	_____	_____	_____

PRESIDENT RIGO SANCHEZ

SECRETARY CHRYSTAL CLEAVES



PASSAIC VALLEY WATER COMMISSION

CERTIFICATION

I, LOUIS AMODIO, Administrative Secretary of the Passaic Valley Water Commission in the County of Passaic, and the State of New Jersey do hereby certify that the foregoing Resolution is a true copy of a legal quorum of the Original Resolution duly passed and adopted by a majority of the full membership of the Passaic Valley Water Commission at its meeting of April 20, 2016.

LOUIS AMODIO
Administrative Secretary

EXECUTIVE CONFERENCE

OPEN SESSION RESUMED

RESOLUTION(S)

**RESOLUTION OF PASSAIC VALLEY WATER COMMISSION
STATE CONTRACT #G2004 12-r-22677 A81608
FURNITURE AND FIXTURES
DATE OF ADOPTION:**

Approved as to form and legality by Law Department on basis of facts set forth by Executive Director, Purchasing, Engineering and Finance Departments.

Introduced by Commissioner: _____

Seconded by Commissioner: _____

WHEREAS, State Contract #G2004 12-r-22677 A81608 (the "State Contract") is for the procurement of various furniture and fixtures needed for the renovations of the offices at Passaic Valley Water Commission (PVWC)'s Customer Service Department at PVWC's administrative facilities at 1525 Main Ave, Clifton to accommodate additional personnel; and

WHEREAS, in accordance with N.J.S.A. 40A:11-12, PVWC may purchase goods or services under contracts entered into on behalf of the State by the Division of Purchase and Property in the Department of the Treasury; and

WHEREAS, PVWC has elected to procure the above-referenced furniture and fixtures from WB Mason Company of Secaucus, New Jersey (the "Awardee") under the State Contract, in the amount of \$38,232.83, and a copy of a memorandum dated April 1, 2016 from PVWC's Director of Purchasing, along with other relevant correspondence, is attached hereto and made a part hereof as Exhibit A; and

WHEREAS, N.J.S.A. 40A:11-12 of the Local Public Contracts Law provides for the awarding of said contract to the Awardee; and

WHEREAS, the Executive Director, the Director of Engineering, and the Comptroller have reviewed the above-referenced memorandum and concur with the Director of Purchasing's recommendations, (and the General Counsel has reviewed the proposed purchase as to form and legality);

NOW, THEREFORE, BE IT RESOLVED, by Passaic Valley Water Commission, in the County of Passaic, New Jersey;

- 1. That the State Contract for procurement of the above-referenced furniture and fixtures is hereby awarded to the Awardee as set forth hereinabove; and
- 2. That the appropriate officers and employees of PVWC are hereby authorized and directed to perform such acts and execute such documents as are consistent herewith, with respect to the State Contract as set forth hereinabove.

RECORD OF COMMISSION VOTE ON FINAL PASSAGE

	AYE	NAY	ABSTAIN	ABSENT
VANNOY, R.	_____	_____	_____	_____
LEVINE, J.	_____	_____	_____	_____
CLEAVES, C.	_____	_____	_____	_____
KOLODZIEJ, G.	_____	_____	_____	_____
FRIEND, G.	_____	_____	_____	_____
BLUMENTHAL, D.	_____	_____	_____	_____
SANCHEZ, R.	_____	_____	_____	_____

Adopted at a meeting of Passaic Valley Water Commission.

President
RIGO SANCHEZ

Secretary
CHRYSTAL CLEAVES

This Resolution, when adopted, must remain in the custody of the Administrative Secretary.

CERTIFICATION

I, LOUIS AMODIO, Administrative Secretary of the Passaic Valley Water Commission in the County of Passaic, and the State of New Jersey do hereby certify that the foregoing Resolution is a true copy of a legal quorum of the Original Resolution duly passed and adopted by a majority of the full membership of the Passaic Valley Water Commission at its meeting of April 20, 2016.

LOUIS AMODIO
Administrative Secretary

PASSAIC VALLEY WATER COMMISSION

**STATE CONTRACT #G2004 12-r-22677 A81608
FURNITURE AND FIXTURES**

**PVWC'S PURCHASING DEPARTMENT'S
MEMORANDUM DATED APRIL 1, 2016
AND OTHER RELEVANT CORRESPONDENCE**

EXHIBIT A

PASSAIC VALLEY WATER COMMISSION

INTER-OFFICE MEMO

DATE: April 1, 2016

FROM: Purchasing Department

TO: Joseph A. Bella
George T. Hanley
Yitzchak Weiss

RE: **State Contract Purchase – Contract # G2004 12-r-22677 – A81608
Furniture and Fixtures**

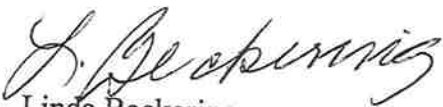
We are currently in the process of renovating the offices in the Customer Service Department to accommodate additional personnel.

Various pieces of furniture and fixtures (quotes attached) will be needed for the completion of these renovations.

The Engineering Department is requesting book shelves for a Lodi project (quote attached)

The State Contract purchase will be from **WB Mason Company**, of Secaucus, New Jersey, in the amount of \$38,232.83. Funds for this purchase have been budgeted under our 2016 Capital Expenditures. The Finance Department has "Certified the Availability of Funds" (attached).

Respectfully submitted,



Linda Beckering
Purchasing Agent

cc: L. Amodio
J. Duprey ✓

OFFICE OF THE COMPTROLLER

CERTIFICATION OF AVAILABILITY OF FUNDS

It is hereby certified that subject to Commission approval of future Budgets, with respect to multi-budget year contracts, there are or will be sufficient available funds for expenditures to be incurred as result of any contract or commitment to be entered into by Passaic Valley Water Commission as follows:

Description of Project or Contract: **State Contract Purchase – G2004 12-r-22677**
A81608
WB Mason Company


Amount of Project or Contract: \$ 38,232.83

1. Acct: # 001-0901-419-95-01 Capital / Furniture and Fixtures

Specific Appropriation to which expenditures will be charged: Capital Budget 2016

Other comments: Single Purchase: Contract Commencing: April 2016
Furniture & Fixtures

Date of Certification: 04/01/2016 Certified: \$ 38,232.83


Yitzhak Weiss
Comptroller and Chief Financial Officer

YW:lb

Allsteel

Contract name: G2004 Furniture: Office & Lounge and Systems-Statewide
Contract number: 81608
PPCA: A10894

Administration:

This term contract is to be used for initial installations and to facilitate the replacement of existing furniture. This contract includes Office & Lounge Furniture, Non-Modular & Files, as well as System, Open Plan/Landscape furniture.

Contract period -

July 30, 2012 through July 31, 2017

Synergy Contract Codes -

9422 - State of NJ Platform/Standard

9424 - State of NJ Spotted/Standard

Servicing Dealers:**AUTHORIZED STATE OF NEW JERSEY SERVICING DEALERS:**

Business Environments, LLC
Business Interiors by Staples
Casey's Executive Interiors
Cofco Office Furnishings
Henricksen & Company-NYC
Office Basics, Inc.
WB Mason Company

Pricing:

Effective 8/1/15, discounts based upon the following 2015 price lists:

- Terrace System Price List, dated 3/29/15
- Optimize Price List, dated 3/29/15
- Concensys Price List, dated 3/29/15
- Stride System Price List, dated 3/29/15
- Optimize System Price List, dated 3/29/15
- Further System Price List, dated 3/29/15
- Seating, Collaboration, & Tables Price List, dated 3/29/15
- Altitude Supplement Price List, dated 7/1/15

Rapid Advantage is not available on this contract.

Beckering, Linda

From: Lucianin, Gregg
Sent: Tuesday, March 29, 2016 12:10 PM
To: Beckering, Linda
Subject: FW: State Contract

Gregg B Lucianin
Purchasing Assistant
Passaic Valley Water Commission
1525 Main Ave, Clifton NJ 07011
973-340-4316-P
973-340-5584-F
glucianin@pvwc.com

From: Michael Whalen [<mailto:michael.whelen@wbmason.com>]
Sent: Wednesday, February 17, 2016 8:52 AM
To: Lucianin, Gregg
Subject: RE: State Contract

Hey Gregg

Sorry for the wait

state contract # 81608

Thanks!!

Mike Whalen
(CSR) 1-888-926-2766
(DL) 1-888-926-2766 ext 5452
(F) 877-348-2591
(C) 973-362-6062
(E) Michael.Whalen@wbmason.com

"Who but WB for Janitorial, Coffee/Water service, Print/Promo, and Furniture"



From: Lucianin, Gregg [<mailto:GLUCIANin@PVWC.com>]
Sent: Tuesday, February 16, 2016 1:43 PM
To: Michael Whalen <michael.whelen@wbmason.com>
Subject: State Contract



535 Secaucus Road
Secaucus, NJ 07094
1-888-926-2600
www.wbmasoninteriors.com

Mike Whalen

Bill To:

Passaic Valley Water Commission
Clifton, NJ

Ship to:

Passaic Valley Water Commission
Clifton, NJ

Line #	Mfg	Part Description	Qty	Unit Sell Price	Extended
COMBO ROOM					
1	ALS	Optimize Inline Connector Kit	6	\$24.95	\$149.70
2	ALS	Power Harness 24W	4	\$86.67	\$346.68
		CLR: Black			
3	ALS	Power Harness 36W	4	\$86.67	\$346.68
		CLR: Black			
4	ALS	Duplex Recept Circuit 1: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
5	ALS	Duplex Recept Circuit 2: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
6	ALS	Duplex Recept Circuit 3: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
7	ALS	Duplex Recept Circuit 4: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
8	ALS	Optimize Integrated Power pole 78H	1	\$221.57	\$221.57
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Line #	Mfg	Part Description	Qty	Unit Sell Price	Extended
Skipped Option					
9	ALS	Ceiling Electrical In-Feed Cable 12' Flex Cable	1	\$99.75	\$99.75
CLR: Black					
10	ALS	Panel Top Cap 24"W	8	\$9.41	\$75.28
CoreClr Opts					
Undecided PAINT Option					
11	ALS	Panel Top Cap 36"W	4	\$10.23	\$40.92
CoreClr Opts					
Undecided PAINT Option					
12	ALS	Panel Top Cap 48"W	2	\$12.68	\$25.36
CoreClr Opts					
Undecided PAINT Option					
13	ALS	Panel Top Cap 72"W	6	\$18.41	\$110.46
CoreClr Opts					
Undecided PAINT Option					
14	ALS	Optimize Panel End Covers 50H	10	\$27.40	\$274.00
CorePnt Opts					
Undecided PAINT Option					
15	ALS	Optimize "T" Connector 50H	2	\$72.77	\$145.54
CorePnt Opts					
Undecided PAINT Option					
16	ALS	Optimize "X" Connector 50H	3	\$72.77	\$218.31
CorePnt Opts					
Undecided PAINT Option					
17	ALS	Worksurface Bracket Kit	12	\$17.99	\$215.88

Line #	Mfg	Part Description	Qty	Unit Sell Price	Extended
		Core Clr Opts			
		Undecided PAINT Option			
18	ALS	Cantilever Bracket 24D LH Terrace	6	\$21.26	\$127.56
		Core Clr Opts			
		Undecided PAINT Option			
19	ALS	Cantilever Bracket 24D RH Terrace	6	\$21.26	\$127.56
		Core Clr Opts			
		Undecided PAINT Option			
20	ALS	Ess Support Ped BBF28H 22-7/8D Arch Pull	8	\$253.88	\$2,031.04
		Core Clr Opts			
		Undecided PAINT Option			
		Undecided PULL Option			
		Standard Random key			
21	ALS	Ess Support Ped FF 28H 19-7/8D Arch Pull	8	\$244.07	\$1,952.56
		Core Clr Opts			
		Undecided PAINT Option			
		Undecided PULL Option			
		Standard Random key			
22	ALS	Optimize Tackable Panel 50H x 24W	8	\$144.72	\$1,157.76
		GRD A FAB			
		Undecided FABRIC Option			
		Core Pnt Opts			
		Undecided PAINT Option			
23	ALS	Optimize Tackable Panel 50H x 36W	4	\$181.11	\$724.44
		GRD A FAB			
		Undecided FABRIC Option			
		Core Pnt Opts			
		Undecided PAINT Option			

Line #	Mfg	Part Description	Qty	Unit Sell Price	Extended
24	ALS	Optimize Tackable Panel 50H x 48W	2	\$217.09	\$434.18
		GRD A FAB			
		Undecided FABRIC Option			
		Core Pnt Opts			
		Undecided PAINT Option			
25	ALS	Optimize Tackable Panel 50H x 72W	6	\$289.85	\$1,739.10
		GRD A FAB			
		Undecided FABRIC Option			
		Core Pnt Opts			
		Undecided PAINT Option			
26	ALS	Primary 24Dx24W Flat Eg Lam w/Grommet	6	\$98.11	\$588.66
		L1 Core Lam Opts			
		Undecided LAMINATE Option			
		Undecided EDGE Option			
		Plastic Grommet			
27	ALS	Primary 24Dx60W Flat Eg Lam w/Grommets	2	\$172.94	\$345.88
		L1 Core Lam Opts			
		Undecided LAMINATE Option			
		Undecided EDGE Option			
		Plastic Grommet			
28	ALS	Corner Cove 72x36-24L/24R Extd LH Flat w/Groms	2	\$247.74	\$495.48
		L1 Core Lam Opts			
		Undecided LAMINATE Option			
		Undecided EDGE Option			
		Plastic Grommet			
29	ALS	Corner Cove 36x72-24L/24R Extd RH Flat w/Grom	4	\$247.74	\$990.96
		L1 Core Lam Opts			
		Undecided LAMINATE Option			
		Undecided EDGE Option			
		Plastic Grommet			

Line #	Mfg	Part Description	Qty	Unit Sell Price	Extended
Subtotal:					\$13,246.91
CUSTOMER SERVICE PHONE RM					
30	ALS	Optimize Inline Connector Kit	12	\$24.95	\$299.40
31	ALS	Power Harness 36W	8	\$86.67	\$693.36
		CLR: Black			
32	ALS	Optimize 72W 4 Circuit	6	\$92.81	\$556.86
		CLR: Black			
33	ALS	Duplex Recept Circuit 1: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
34	ALS	Duplex Recept Circuit 2: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
35	ALS	Duplex Recept Circuit 3: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
36	ALS	Duplex Recept Circuit 4: 3+1 or 2+2 System	4	\$16.35	\$65.40
		Skipped Option			
37	ALS	Base Power In-Feed Cable 3+1 & 2+2 Systems	3	\$97.30	\$291.90
		CLR: Black			
38	ALS	Panel Top Cap 24"W	4	\$9.41	\$37.64
		CoreClrOpts			
		Undecided PAINT Option			
39	ALS	Panel Top Cap 30"W	8	\$9.81	\$78.48
		CoreClrOpts			
		Undecided PAINT Option			
4/1/2016					
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