DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

Board of Directors

Meeting of the
Environmental Quality and Sewerage Services Committee

5000 Overlook Avenue, SW, Room 407
Thursday, February 18, 2016
9:30 a.m.

	I. Call to Order	James Patteson Chairperson
9:30 a.m.	**II. AWTP Status Updates** 1. BPAWTP Performance	Aklile Tesfaye
9:40 a.m.	**III. Intermunicipal Agreement (IMA) Regional Committee Annual Report**	Len Benson/ Tanya Spano
9:55 a.m.	**IV. BPSA Billing Meter Study**	Tanya Spano
10:10 a.m.	**V. Division PR-B, CSO 021 Diversion Facilities**	Christopher Allen
10:20 a.m.	**VI. Action Items** **Joint Use** 1. Contract No. 150230, James G. Davis Construction Corporation 2. Authorization to Execute Memorandum of Understanding with John F. Kennedy Center for the Performing Arts 3. Contract No. 14-PR-PCM-01, M. C. Dean 4. Contract No. 15-PR-DWT-52, W.K. Merriman, Inc.	Len Benson/Dan Bae
10:35 a.m.	**VII. Quarterly CIP Report**	Liliana Maldonado
10:50 a.m.	**VIII. Other Business/Emerging Issues**	
10:55 a.m.	**IX. Adjournment**	James Patteson Chairperson

* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(1); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10);proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.

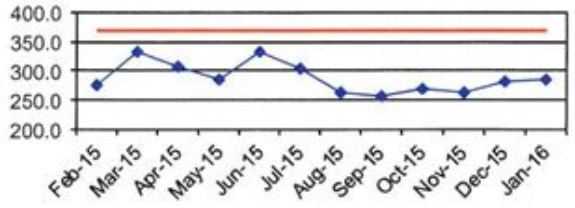
Follow-up Items from Prior Meetings:

1. Mr. Aklile Tesfaye will provide an update after the CHP optimization and data analysis are completed to report if the project goal of 30% average energy generation was achieved. ***{to be scheduled upon completion of CHP optimization and data analysis}***

DEPARTMENT OF WASTEWATER TREATMENT
January 2016

Average plant performance for the month was excellent with all effluent parameters well below the seven-day and monthly NPDES permit requirements. The monthly average influent flow was 283 MGD. There was 5 MG of Excess Flow during this reporting period. The following Figures compare the plant performance with the corresponding NPDES permit

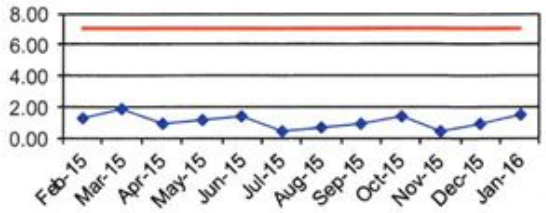
Plant Influent Flow (mgd)



Influent Flow — Average Design Capacity

This graph illustrates the monthly average influent flow to the plant. The design average flow is 370 MGD. Blue Plains has a revised 4-hour peak flow capacity of 511 MGD through complete treatment. Flows up to 336 MGD in excess of the 511 MGD peak capacity receive primary treatment, disinfection and dechlorination.

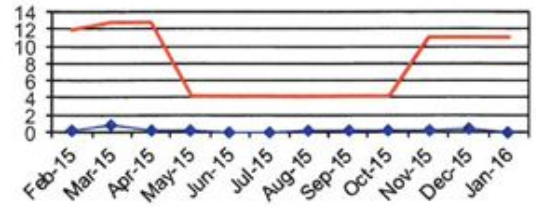
TSS (mg/l)



Effluent TSS — Permit Limit

Effluent Total Suspended Solids (TSS) is a measure of the amount of solid material that remains suspended after treatment. The effluent TSS concentration for the month averaged 1.45 mg/L, which is below the 7.0 mg/L permit limit.

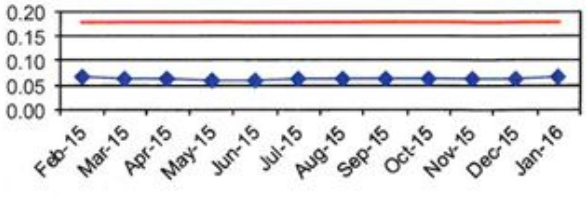
Ammonia (mg/l)



Effluent NH3 — Permit Limit

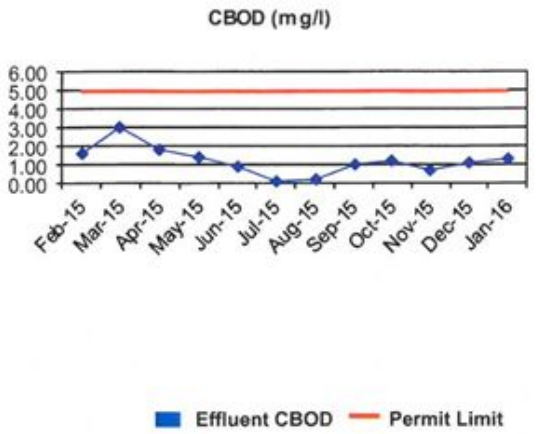
The Ammonia Nitrogen (NH3-N) is a measure of the nitrogen found in ammonia. For the month, effluent NH3-N concentration averaged 0.05 mg/L and is below the average 4.2 mg/L limit.

Total Phosphorus Annual Average (mg/l)

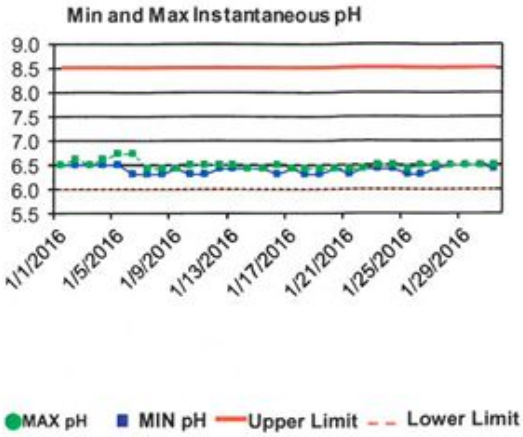


Effluent TP — Permit Limit

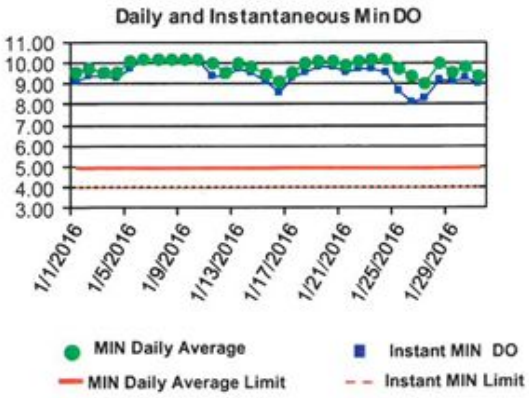
The Total Phosphorus (TP) is a measure of the particulate and dissolved phosphorus in the effluent. The annual average effluent TP concentration is 0.07 mg/L, which is below the 0.18 mg/L annual average limit.



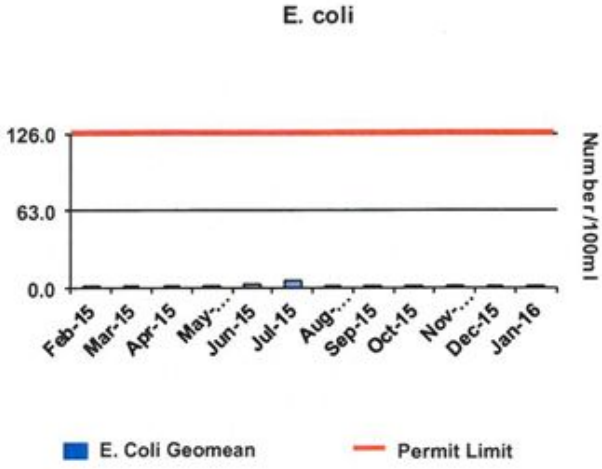
Carbonaceous Biochemical Oxygen Demand (CBOD) is a measure of the amount of dissolved oxygen required for the decomposition of organic materials. The effluent CBOD concentration averaged 1.12 mg/L (partial month) which is below the 5.0 mg/L limit.



pH is a measure of the intensity of the alkalinity or acidity of the effluent. The minimum and maximum pH observed were 6.4 and 6.7 standard units respectively. The pH was within the permit limits of 6.0 and 8.5 for minimum and maximum respectively.



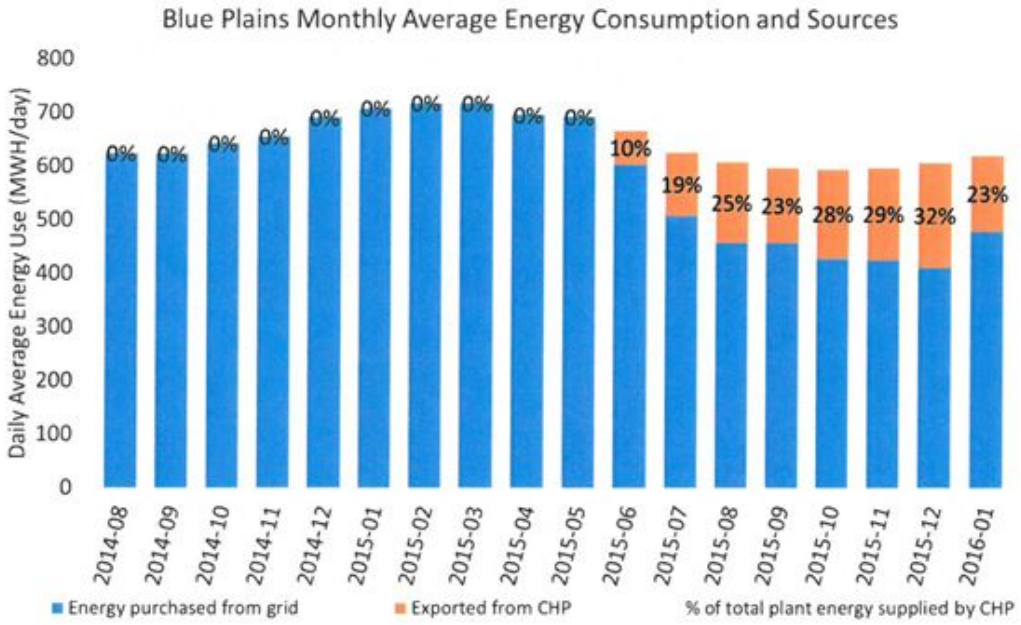
Dissolved Oxygen (DO) is a measure of the atmospheric oxygen dissolved in wastewater. The DO readings for the month are within the permit limits. The minimum daily average is 9.0 mg/L. The minimum instantaneous DO reading is 8.0 mg/L. The minimum permit limits are 5.0 mg/L and 4.0 mg/L respectively.



E.coli is an indicator of disease causing organisms (pathogens). The E.coli permit limit is 126/100mL. The E coli geometric mean is 1.0/100mL, and well below the permit limit.

BLUE PLAINS ELECTRICITY GENERATION AND USAGE

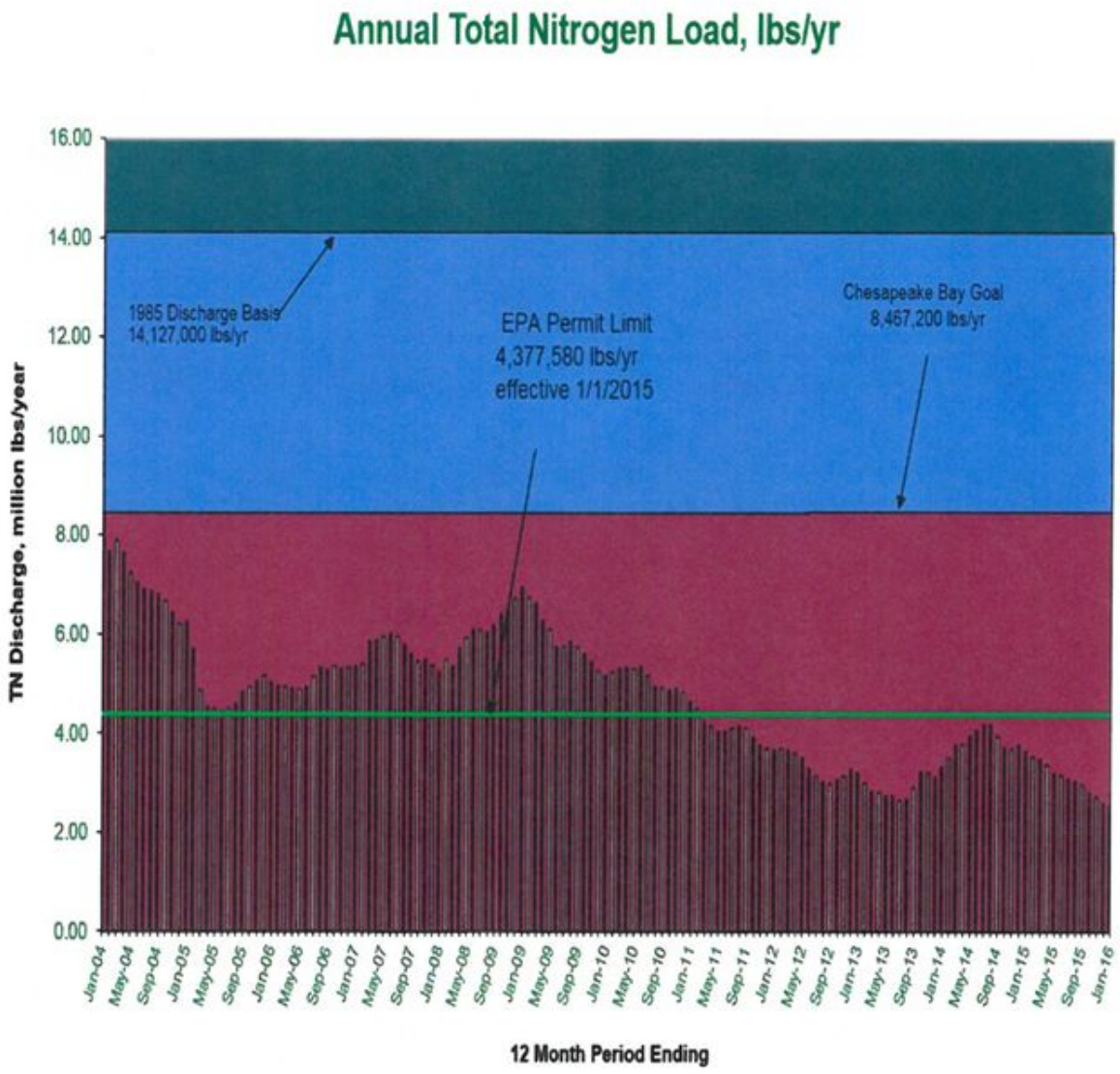
The average energy consumed at Blue Plains was 620 MWH/day for the month of January, while the average energy purchased from PEPCO was 479 MWH/day. The CHP facility produced an average of 140 MWH/day, making up for 23% of total energy consumed at Blue Plains. The net energy export from CHP was lower this month because of equipment downtime from maintenance related activities.



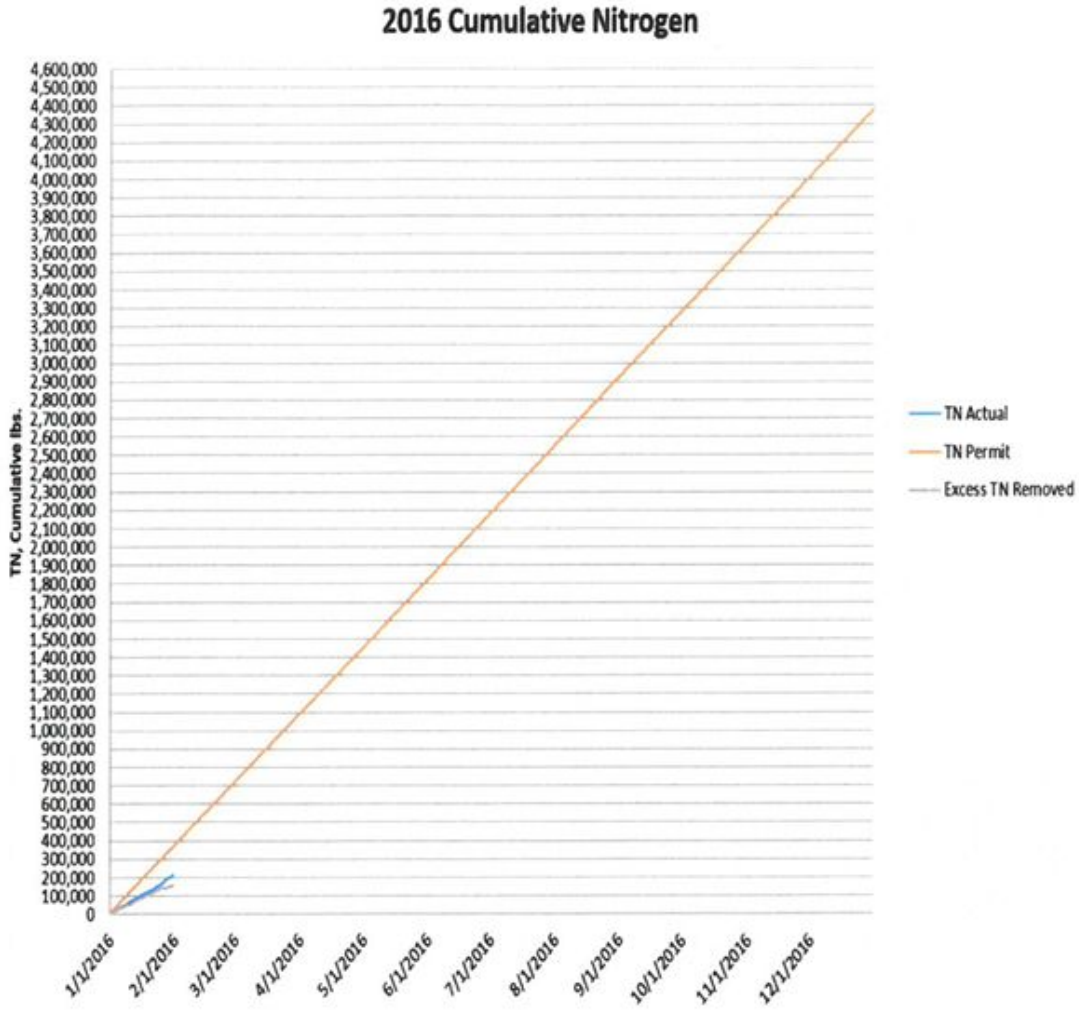
The graph above is based on power monitors installed at the Main Substation and CHP, and reflects total average energy consumed at Blue Plains in MWH/day. Of the total average use, the energy purchased from PEPCO and net energy supplied (exported) by CHP are indicated by the blue and orange highlights, respectively.

BIOLOGICAL NUTRIENT REMOVAL PERFORMANCE

During the month the full-scale BNR process produced an effluent with average total nitrogen concentration of 2.92 mg/l. The figure below shows Blue Plains effluent total nitrogen (TN) since the implementation of full scale BNR.

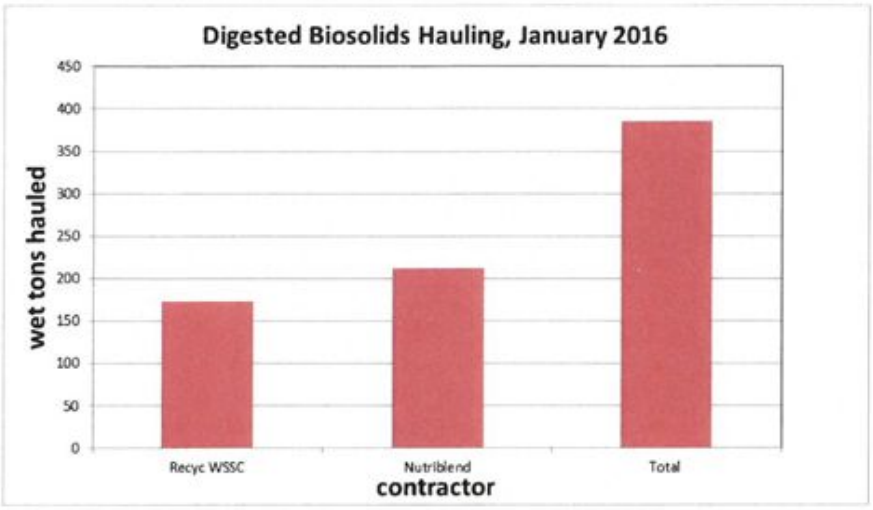


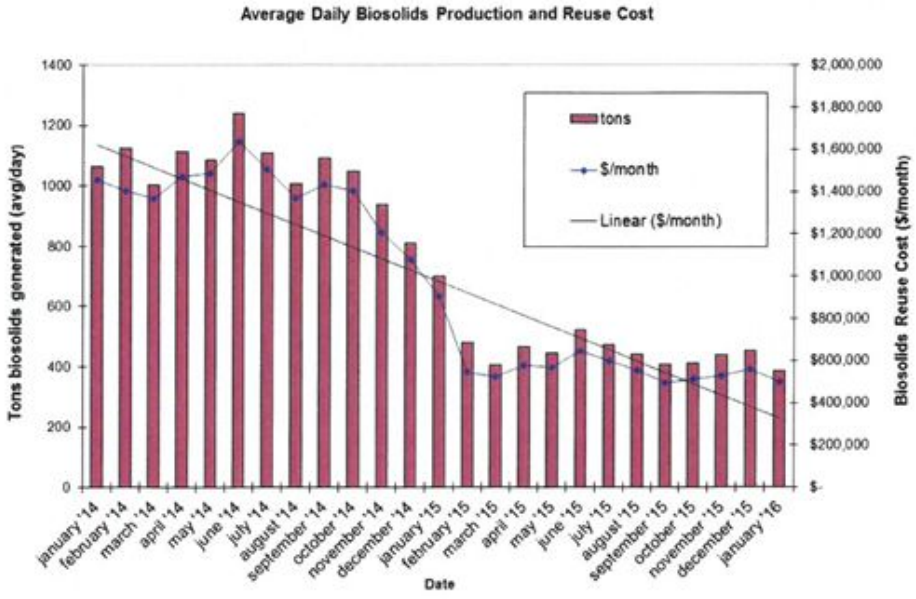
TN Removal at Blue Plains is on target to meet limits for 2016 as seen in the graph below.



BLUE PLAINS RESOURCE RECOVERY REPORT – JANUARY 2016

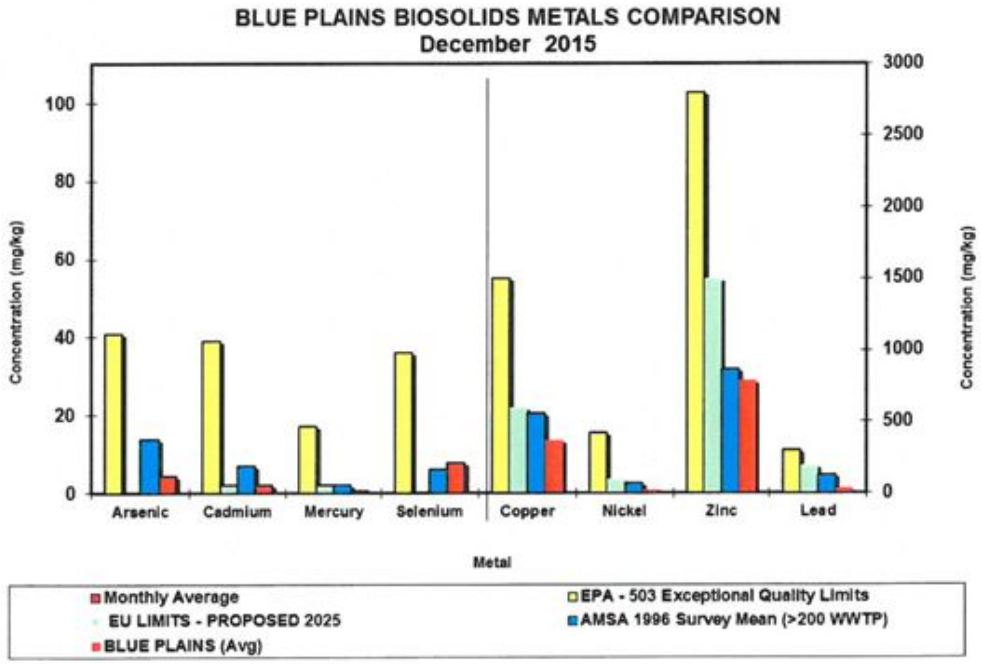
In January, biosolids hauling averaged 385 wet tons per day (wtpd). The graph below shows the total hauling by contractor for the month of January. The average percent solids for the digested material was 30.9%. At the end of January the Cumberland County storage pad had approximately 10,052 tons (~25,000 tons capacity), Cedarville lagoon had approximately 0 tons of Blue Plains biosolids (~30,000 tons capacity), Goochland pad had 782 tons, and Fauquier lagoon had 5900 tons (~15,000 tons capacity).





Please note the drop in biosolids management costs (second graph below, right vertical axis) due to the reduction in solids production since digesters came on line, and also due to the drop in fuel costs. In January, diesel prices averaged $2.33/gallon and with the contractual fuel surcharge the weighted average biosolids reuse cost in January for the two contracts (DC Water and WSSC) was $39.36/wet ton. For comparison, in January 2014 the average diesel price was $3.19/gal and the average contract cost was $41.72/wet ton.

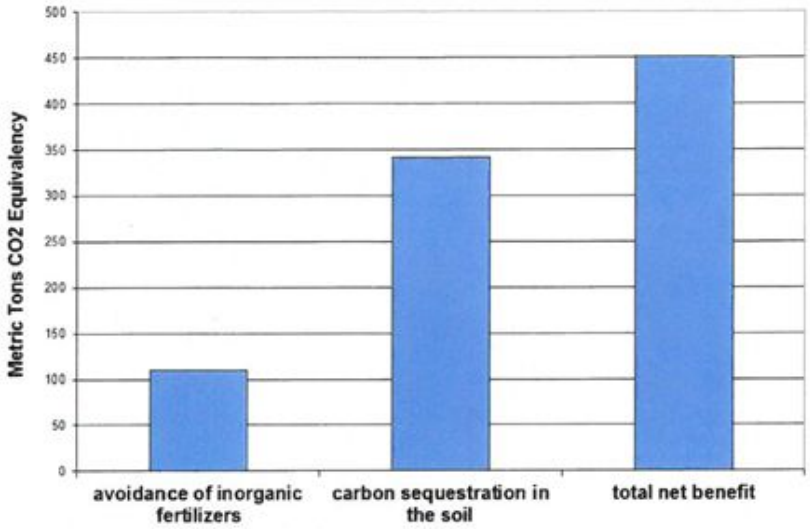
The graph below show the EPA regulated heavy metals in the Blue Plains biosolids for the month of December 2015. As can be seen in the graphs, the Blue Plains levels are considerably below the regulated exceptional quality limits, the national average levels surveyed in 1996, and the European Union (EU) limits. The EU limits are more conservative than the USEPA limits, and Blue Plains biosolids metals content is lower than the EU standards as well.



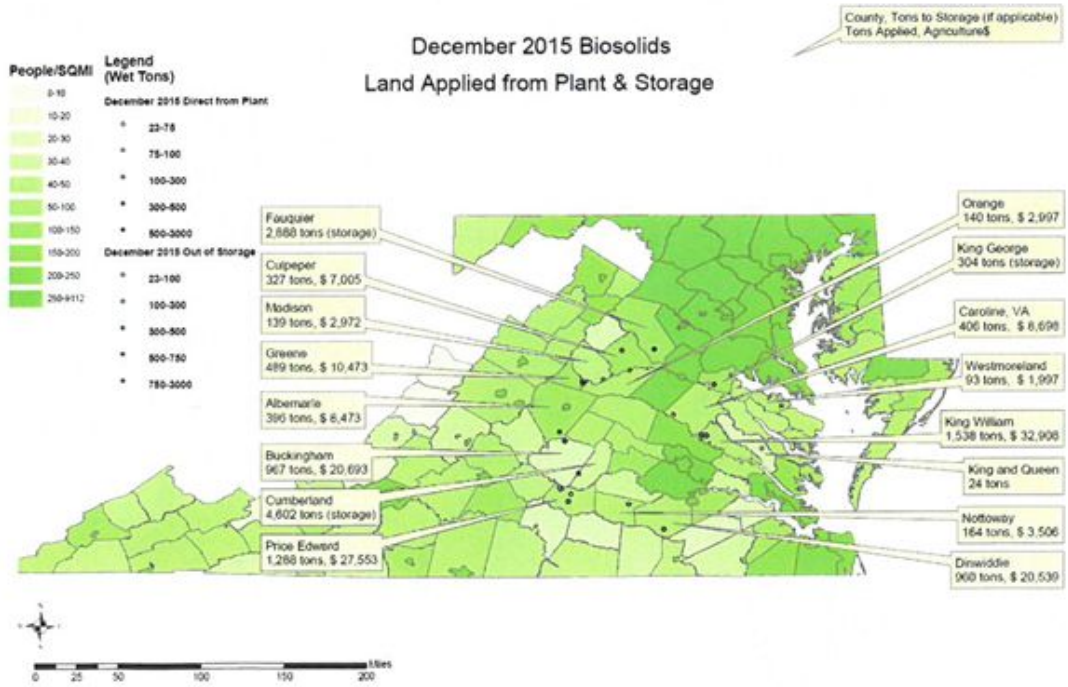
Environmental Benefits

The quantity land applied in December coming directly from the plant and from storage facilities equaled 13,882 tons. Taking into account the fuel required to transport biosolids to the field, the net benefit of the land applied material is 636 metric tons CO_2 equivalent avoided emissions. This is equivalent to taking 1,295,737 car miles off the road in the month of December (assumes 20 mpg, 19.4 lb CO_2 equivalent emissions/gallon gas – EPA estimate). The cumulative total avoided carbon emission since December, 2006 is 142,337 metric tons CO_2 equivalent.

DCWater Biosolids Recycling Program
Greenhouse Gas Balance Benefits
December 2015 Totals



Map of Blue Plains Biosolids Applications and Agricultural $'s for December 2015



Highlights

The Bloom team visited the Mid Atlantic nursery trade show to talk with landscapers about the possibility of using some of the Bloom product. Several landscapers agreed to visit blue Plains for a facility tour, and we remain in contact. Staff is compiling a list of partners for Bloom marketing. The Bloom product launch is scheduled for May 12th at Blue Plains. In addition, the Bloom website is live and mobile friendly at www.bloomsoil.com. The Bloom Launch will be an event for press, regulators, and elected officials to showcase several strategic partners in MD, DC, and VA (pending distribution permits). These partners will use the product in landscaping and soil blending. These partners will use the product for the next 6 months, allowing DC Water better understand the market, value, storage needs, and opportunities. At least one of the partners will provide a tuck for the event and showcase the transport of Bloom to their facility.

Also, staff funded three videos to promote the use of Bloom. The videos emphasize Bloom use in urban horticulture, general Bloom info, and safety. The videos are available on the shared drive at I:\WASAWIDE\BioSolid Video\final.

CLEAN WATER QUALITY AND TECHNOLOGY

The Clean Water Quality and Technology department includes the research and development, pretreatment and laboratory programs. A summary of activities for each group is provided below.

Research and Development Program

The research and development team continues to work on research topics associated with the planning and operation of Blue Plains. The current focus of research is to optimize plant process capacities and to pave the road for achieving energy neutral operations at Blue Plains advanced wastewater treatment plant (Blue Plains AWTP).

Research Highlights – Management of bioflocculation in secondary treatment using a high-rate contact-stabilization process

With the discovery of anammox bacteria and development of short-cut nitrogen removal processes, there is a renewed interest by the wastewater industry in 2-stage activated sludge processes like the one at Blue Plains AWTP. This renewed interest in applying high-rate activated sludge processes (HRAS) as a first stage to maximize carbon recovery upstream from the nitrogen removal process has led to the development of HRAS design criteria to maximize the capture of carbon into the sludge which then allows it to be directed to the anaerobic digestion process to produce more biogas for electricity generation. However, these criteria are not optimized towards the treatment of low strength wastewaters such as Blue Plains' chemically enhanced primary treatment (CEPT) effluent. These wastewater streams tend to lack heterotrophic biomass seed and contain less particulate and colloidal organic material compared to raw wastewater. These systems therefore struggle to promote proper bioflocculation and may not achieve much redirection of carbon to the sludge under the proposed criteria.

The research team aimed at developing a strategy for treating CEPT effluent in a high rate secondary treatment system to enhance bioflocculation and carbon capture. A pilot plant consisting of two cylindrical reactors (227 L each) and two secondary clarifiers (306 L each) was utilized to run various secondary process configurations as shown in Figure 1.

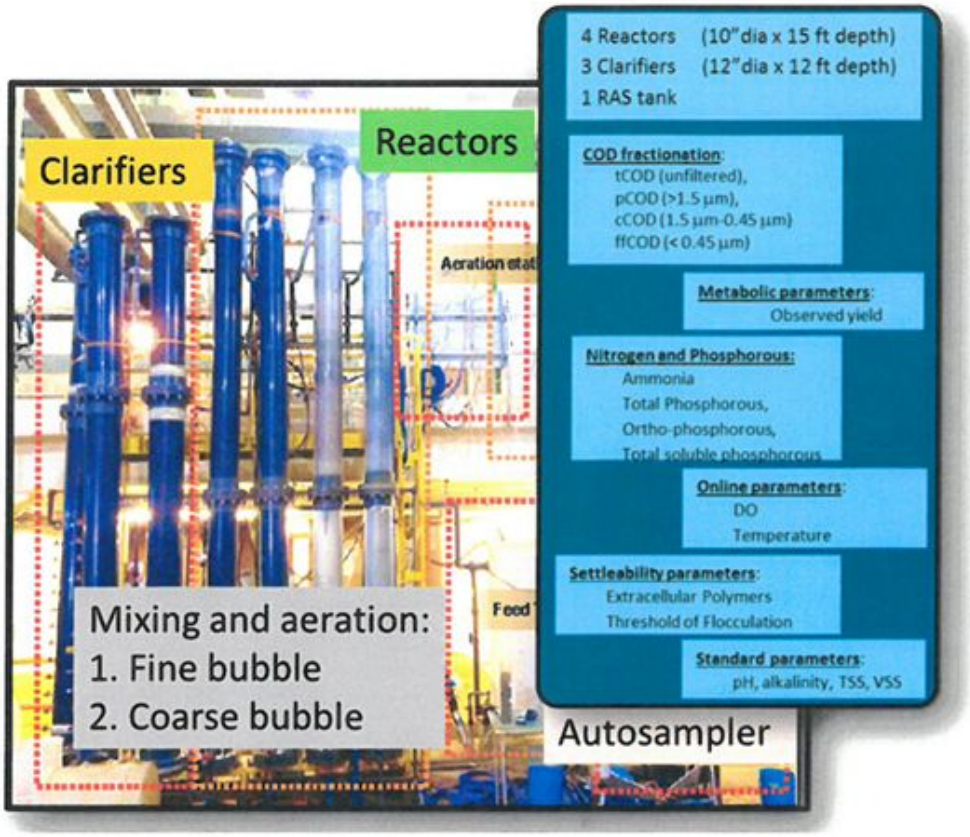


Figure 1. High Rate Secondary Treatment Pilot

The research team tested scenarios with HRAS operation in continuously stirred tank reactor (CSTR) mode starting with a 2 day SRT (similar to the typical Blue Plains full-scale operation) all the way down to an SRT of 0.2 day. Under these scenarios, more carbon was incorporated into the solids matrix through biomass synthesis, storage and adsorption. However, due to poor bioflocculation, the solids did not settle well and were lost to the effluent rather than being transferred into the sludge.

To enhance bioflocculation, operation in a high-rate contact stabilization (CS) mode was investigated. High-rate CS was investigated before for high-strength wastewater and showed great potential for achieving carbon redirection and capture. This process includes an aerobic stabilization step for conditioning of recycled sludge followed by an anaerobic contactor step in which carbon storage and bioflocculation can be maximized. Implementation of this reactor configuration improved bioflocculation significantly while effluent quality similar to the control scenario (CSTR at 2 days) was maintained. This meant that more carbon was directed to the sludge. Similar to the CSTR configuration, increased carbon redirection could be achieved at lower SRT (Figure 2, dark green bars, COD WAS). However, as SRT decreased, the efficiency of capturing the carbon in the clarifier also decreased (69%, 68.56%, and 61.2% capture efficiency for 1.7, 1 and 0.7 days SRT, respectively). It was clear that contact-stabilization enhanced the sorption of organic material significantly in contrast to CSTR mode where more heterotrophic

biomass was formed and thus more oxidation took place. Moreover, a significant amount of extracellular polymer content was formed in CS mode, which potentially formed the basis for improved bioflocculation. This correlated well with the improved flocculation affinity indicated by the low values of threshold of flocculation (TOF) (Table 1).

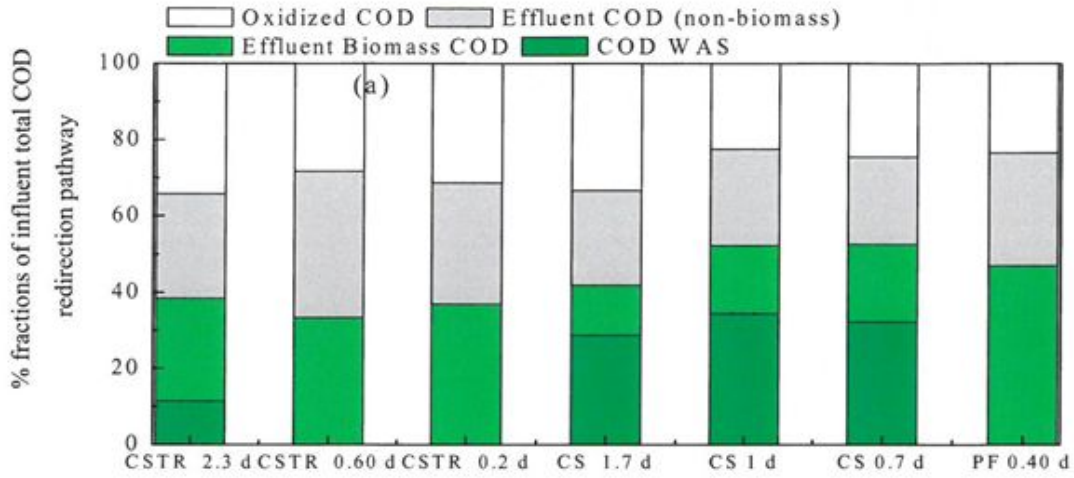


Figure 2. Fate of COD under different secondary treatment operating modes. (Carbon mass balance of CSTR, CS, and PF systems where CS mode has higher % of carbon directed to the waste activated sludge stream (WAS)).

Table 1. Sludge settling characteristics for full-scale and pilot high rate processes.

Parameter	Measure Of	Full-Scale		Research-Scale	
		Bioaugmented	Standard	DC Water CS	Plug-Flow
TOF	Flocculation/Settleability	292	586	156	>860
TSS	Effluent Quality	10	27	20	44

To confirm that the improved bioflocculation and carbon redirection was directly correlated to the CS mode and not for example due to the shear conditions (due to lower coarse bubble aeration in contactor), a plug flow (PF) configuration was evaluated. The only modification to the CS configuration to convert it to PF configuration was moving the feed inlet to the head of the stabilizer tank. When the pilot was switched from CS to PF mode, a rapid loss in inventory and increase in effluent concentration was observed due to loss of bioflocculation as indicated by the very high TOF values in PF mode (Table 1). Switching back to CS mode recovered the process performance showing that indeed the aerated the recycled sludge, combined with the anoxic contactor were key for achieving good bioflocculation under relatively low COD loading (Figure 3). Our findings show that switching from conventional operation to high-rate contact stabilization improved solids settleability, carbon sorption and potentially increased storage of soluble organics. The

two step process in which recycled sludge gets conditioned before feed becomes available in the anoxic contactor was found to be key to manage bioflocculation and thus recovery from low-strength carbon streams.

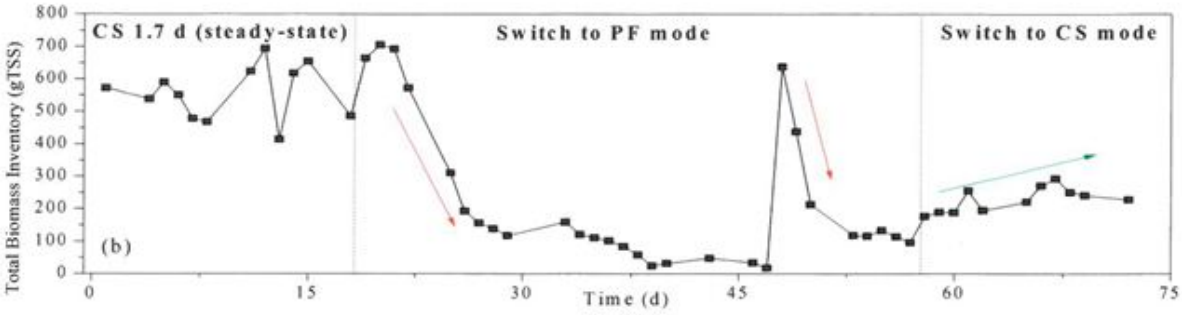


Figure 3. Confirmation experiment showing overall improvement of biomass inventory of CS system performance compared to PF mode.

Blue Plains Pretreatment Program

The Blue Plains Pretreatment Program staff of two manages the Industrial Pretreatment Program, including temporary dewatering dischargers from construction activities, as well as the Hauled Waste Program. Additional responsibilities include providing specialized sampling and program management support for the Blue Plains NPDES permit and facilitating the quarterly Blue Plains Storm Water Committee meeting.

Industrial Pretreatment Program

DC Water currently manages fourteen (14) Significant Industrial User (SIU) permits and sixteen (16) Non-Significant Industrial User (NSIU) wastewater discharge permits. One SIU, Alsco, ceased operation at their DC facility on December 4, 2015, and moved to the WSSC service area. One SIU permit was renewed this month for District Apartments Realty Holding Company (a groundwater remediation facility). Three NSIU permits were renewed this month including the Veterans Affairs Medical Center (VAMC), Childrens National Medical Center, and the Government Publishing Office. Another NSIU permit for the George Washington University Hospital was administratively extended this month.

DC Water conducted compliance monitoring at two SIUs this month: WMATA Northern Bus Division and the Western Bus Division. DC Water received monthly self-compliance monitoring reports for six (6) SIUs and one NSIU. DC Water also received the semi-annual self-compliance monitoring reports for the July to December 2015 monitoring period from all SIUs and several NSIUs. A Notice of Violation was issued to the Capitol Power Plant on January 5, 2016, for a temperature violation that occurred on December 22, 2015. The outfall temperature exceeded 140^{0}F for a one minute period. All other SIUs and NSIUs are in compliance with discharge standards for the current month. DC Water issued a Directive Letter to Adams Row Condominiums requiring additional monitoring of the storm water management unit discharge at 2301 Champlain St., NW, and issued a letter to Atlantic Richfield Company/British Petroleum rescinding any

current obligations for remedial action at 2301 Champlain St due to issues with the storm water management unit design/operation.

DC Water currently manages 72 Temporary Discharge Authorization (TDA) permits, primarily for construction site discharges of groundwater and/or surface runoff in the combined sewer area. Two new TDA permits were issued this month. All TDA discharges are currently in compliance with pretreatment standards.

Hauled Waste Program

As of the end of the current month, the hauled waste program had 23 permitted haulers authorized to discharge domestic septage, portable toilet waste, grease trap waste, groundwater or surface runoff, and other types of waste, if approved in advance and have been characterized and meet pretreatment standards. One new hauler permit was issued this month and one permit was renewed. DC Water collected fees from seven waste haulers this month, including those on a monthly payment plan option.
DC Water received 491 hauled waste loads (1,118,791 gallons) from permitted haulers this month. Manifest forms from each truck entering the plant are collected by the security guards and picked up daily by Pretreatment staff. Data is entered into an Excel spreadsheet to track the volume and type of loads being discharged daily and the results of sampling. Two hauled waste samples were collected this month, both were grease trap waste samples. The grease trap waste sample collected from Magnolia Plumbing on December 14, 2015, violated the discharge standard for pH at 4.44 (limit is 5.0 to 10.0) and zinc at 9.3 mg/L (limit is 3.4 mg/L). A Notice of Violation (NOV) was issued on January 6, 2016. No impact to the treatment plant was observed due to this exceedance.

NPDES Permit Sampling

No NPDES compliance monitoring was conducted by pretreatment staff this month.

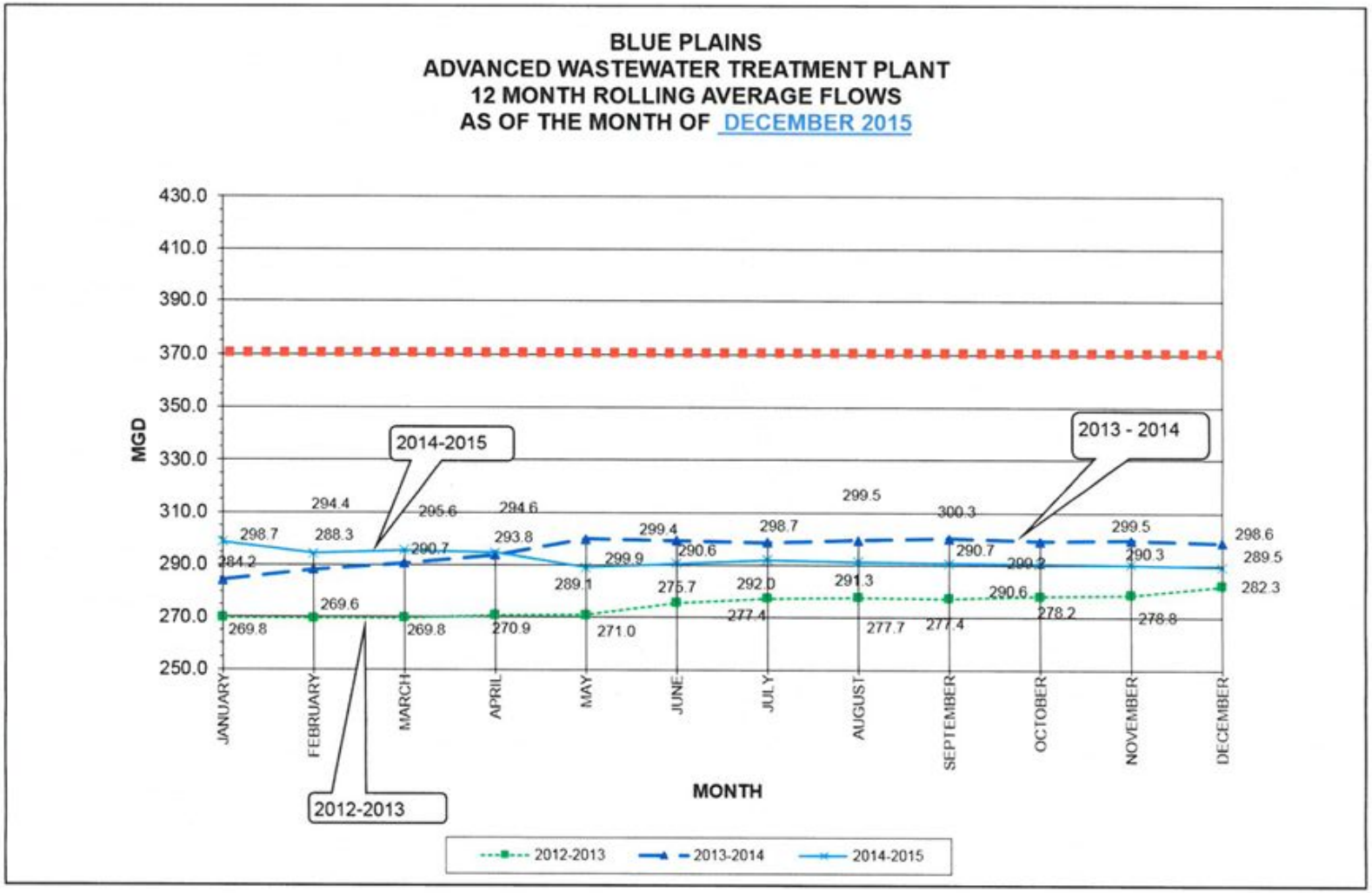
Blue Plains Main Laboratory

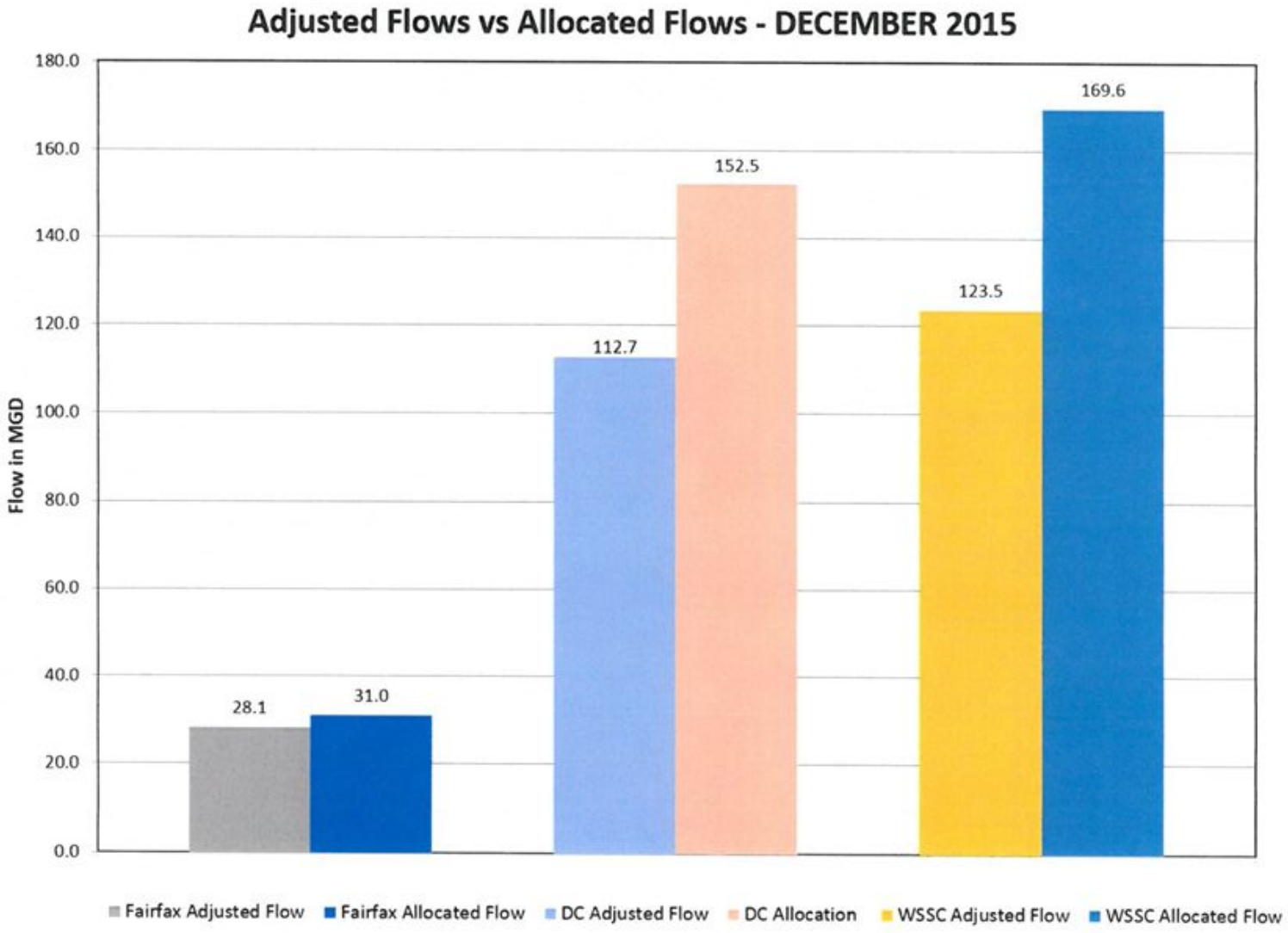
The Main Laboratory staff conducts analyses on Blue Plains AWTP effluent for NPDES Permit requirements, as well as on biosolids, pretreatment samples, storm water runoff, and process samples, on a daily basis, 365 days a year. The laboratory currently analyzes approximately 2,800 samples each month and conducts approximately 8,000 analyses, including Total Suspended Solids; Volatile Suspended Solids; Total and Volatile Solids; Ammonia Nitrogen; Nitrite and Nitrate Nitrogen; Total, Soluble, and Ortho Phosphorus; Total and Soluble Kjeldahl Nitrogen; Carbonaceous Biochemical Oxygen Demand; Chemical Oxygen Demand; Total Alkalinity and Hardness; and Fecal Coliform and E. Coli microbiological testing.

This month, the laboratory continued the analysis of Belt Filter Press cake samples for fecal coliform bacteria for DC Water's Class A Biosolids reporting, as well as digester samples from the new Cambi Thermal Hydrolysis and Anaerobic Digestion facility, including Total and Volatile Solids, Total and Volatile Suspended Solids, Ammonia Nitrogen, and pH. Fecal coliform in the BFP dewatered cake and TS and VS upstream and downstream of the digestion process are monitored to show compliance with 40 CFR 503 Pathogen and Vector Attraction Reduction requirements.

This month, the laboratory continued the analysis of Biosolids Digester Process samples, as well as Centrifuge samples, for Total Solids and Total Suspended Solids, to monitor and evaluate Process equipment performance and compliance.

The laboratory also assists the Department of Sewer Services on a regular basis conducting microbiological analysis of water samples for E. Coli bacteria. Laboratory staff also participates in the WWOA Executive Board.


BLUE PLAINS
ADVANCED WASTEWATER TREATMENT PLANT
12 MONTH ROLLING AVERAGE FLOWS
AS OF THE MONTH OF DECEMBER 2015
MGD
430.0
410.0
390.0
370.0
350.0
330.0
310.0
290.0
270.0
250.0
2014-2015
2013 - 2014
2012-2013
298.7
288.3
294.4
295.6
294.6
293.8
299.4
298.7
299.5
300.3
299.5
298.6
284.2
290.7
299.9
290.6
290.7
290.3
289.5
289.1
275.7
292.0
291.3
290.6
282.3
269.8
269.6
269.8
270.9
271.0
277.4
277.7
277.4
278.2
278.8
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
MONTH
2012-2013
2013-2014
2014-2015


Adjusted Flows vs Allocated Flows - DECEMBER 2015
Flow in MGD
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
28.1
31.0
112.7
152.5
123.5
169.6
Fairfax Adjusted Flow
Fairfax Allocated Flow
DC Adjusted Flow
DC Allocation
WSSC Adjusted Flow
WSSC Allocated Flow

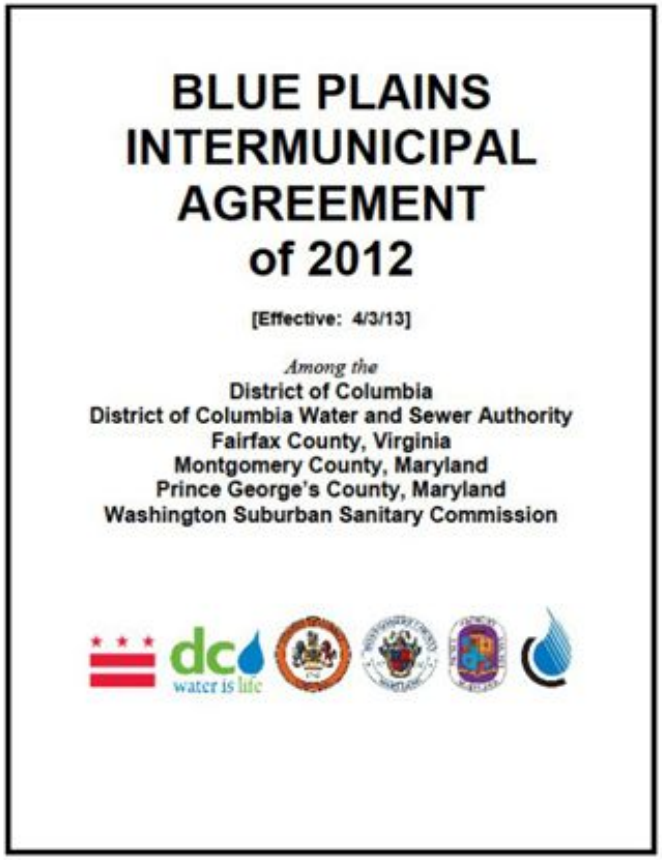
Blue Plains IMA Regional Committee
Annual Report – 2015

Presentation to DC Water EQ&SS Committee
February 18, 2016

Tanya T. Spano
Chief, Regional Water Quality Management

Metropolitan Washington Council of Governments

2012 IMA



BLUE PLAINS INTERMUNICIPAL AGREEMENT of 2012

[Effective: 4/3/13]

Among the
District of Columbia
District of Columbia Water and Sewer Authority
Fairfax County, Virginia
Montgomery County, Maryland
Prince George's County, Maryland
Washington Suburban Sanitary Commission

BLUE PLAINS 2012 IMA

IMA REGIONAL COMMITTEE ANNUAL REPORT

Year 2015
(January 1 through December 31, 2015)

2012 IMA

* Blue Plains Intermunicipal Agreement of 2012 (2012 IMA) was formally adopted on April 3, 2013
  * Outlines rights & responsibilities of IMA Parties to address flow, capacity, financial & coordination issues associated with Blue Plains
  * Section 2. Governance (E.9.) requires the IMA Regional Committee (IMA-RC) to prepare an annual report for the Parties *'regarding the implementation of this IMA…."*
* This annual report:
  * Summarizes IMA-RC activities for CY 2015 (Jan. 1 – Dec. 31, 2015)
  * Also notes new or evolving issues/activities IMA-RC expects to address over the coming year – directly & with support of TechSc & work groups
  * Ties efforts to specific charges within IMA & Operating Agreements

IMA Regional Committee

The IMA-RC members for this reporting period were:

* District of Columbia - Ayana Rockett (2016 IMA-RC Chair) & Spencer Davis [Scott Burrell/Melanie Bell]
* DC Water - Leonard Benson & Aklile Tesfaye [Walter Bailey]
* Fairfax County - Shahram Mohsenin & Randy Bartlett
* Montgomery County - Lisa Feldt & David Lake
* Prince George's County - Dawn Hawkins-Nixon & Shirley Branch
* WSSC - Gary Gumm (2015 IMA-RC Chair) & Ken Dixon [Craig Fricke]

Summary of IMA-RC Activities

Areas of Focus	Objectives / Goals	Actions / Outcomes

1. Flow Management & Long-term Planning
 	
(Sections 6 & 7, & OA #3 & 4)
	Evaluate current & future flows & address management within BPSA	**Evaluating Potential to Send New/Modified Flows & Loads to Potomac Interceptor (PI) & to Blue Plains**
		• WSSC & Washington Aqueduct Division - Requests to discharge drinking water plant filter backwash flows
		• Fairfax County, Loudoun Water, & Herndon - Expressed interest in potentially sending more flows thru PI to Blue Plains
		• Key technical reviews/evaluation:
		  • Implications to Blue Plains' operations/processes
		  • PI transmission capacity under various flow scenarios
		
		Evaluating BPSA Emergency Planning Needs
		• DC Water regularly updated IMA-RC & TechSc re: emergency planning evaluations & potential actions for BPSA
		• DC Water expects to provide additional updates in the coming year

Summary of IMA-RC Activities

Areas of Focus	Objectives / Goals	Actions / Outcomes
2. Financial Commitments *(Section 5 & OA #2)*	Address how Capital and O&M costs are allocated	**Approved application of cost allocation methodologies**: • Asset Management Phase 2 Capital Cost Allocation Methodology • Northeast Boundary Tunnel – Clean Rivers MJUF Cost Allocations • CSO LTCP Green Infrastructure initiative (i.e., non-MJUF costs) • MJUF Conveyance System - O&M Cost Allocations Methodology Report • MJUF Conveyance System - O&M Cost Allocations User Guide
3. Flow & Load Measurement & Management *(Section 6 & OA #3)*	Address Billing Flows	**Implemented BPSA Billing Meter <u>Assessment</u> Study** • TechSc & Billing Meter Work Group developed project scope • IMA-RC approved funding & implementation • COG issued RFP & negotiated contract with RJN Group • Project work began November 2015, expected to conclude by Fall 2016 **Proposing a BPSA Billing Meter <u>Service</u> Contract** • TechSc/Billing Meter Work Group to draft a scope of work for IMA-RC • Contract anticipated to be issued by & managed by DC Water • COG staff to brief DC Water's EQ&SS Committee (2nd presentation)

Summary of IMA-RC Activities

Areas of Focus	Objectives / Goals	Actions / Outcomes
4. Biosolids Management *(Section 9)*	Oversee research and coordinate on operational & outreach matters	**Endorsed Additional Biosolids Research** • Approved funding for joint WERF & UMD Research Proposal *"Assessment & Demonstration of the Use of High Quality Biosolids"* • Study expected to promote use of Class A EQ biosolids to support DC Water's Biosolids Management Program priorities
5. Legal Matters *(Section 10)*	Address legal matters associated with Operating Agreements & any proposed amendments	**Oversaw Implementation of the 2012 IMA** ('*living document*') • Approved transmittal of technical edits to four 2012 IMA OAs (i.e. OA #2, 3, 5, & 6) to the IMA-LC for formal approval • Edits were previously vetted by IMA-RC's technical work groups & Legal Work Group • As envisioned, OA edits help document technical refinements, details & funding approvals IMA-RC has agreed to during past 2 years • Instructed TechSc to continue to evaluate if/how other technical work also needs to be reflected in OAs

Wrap-up / Next Steps

* IMA-RC continues to meet on a quarterly basis
  * Meeting notices regularly shared with DC Water Board
* Once OA edits formally approved by IMA Leadership Committee, updated copies will be distributed to all IMA Parties
* Expect to brief EQ&SS next year with IMA-RC's 2016 report

* Questions?
  * Tanya Spano (202) 962-3776 / tspano@mwcog.org

Blue Plains Service Area Billing Meter Assessment Study

Presentation to DC Water EQ&SS Committee
February 18, 2016

Tanya T. Spano
Chief, Regional Water Quality Management

Metropolitan Washington Council of Governments

IMA-RC Responsibilities & Role

* Responsible for implementing the 2012 IMA
* Serves as a forum for in-depth discussions, coordination, and making various recommendations re: implementation of IMA:
  * Governance
  * Permit & Treatment Responsibilities
  * Flow Capacity, Load & Peak Flow Allocations & Limits
  * Financial Responsibilities
  * **Flow & Load Measurement and Management** – Today's Focus
  * Projected Flow Needs & Future Options (i.e., Long-term Planning)
  * Biosolids Management Commitments
  * Pretreatment & Operational Requirements
  * Administration & Derivative Agreements (i.e., Legal Matters)

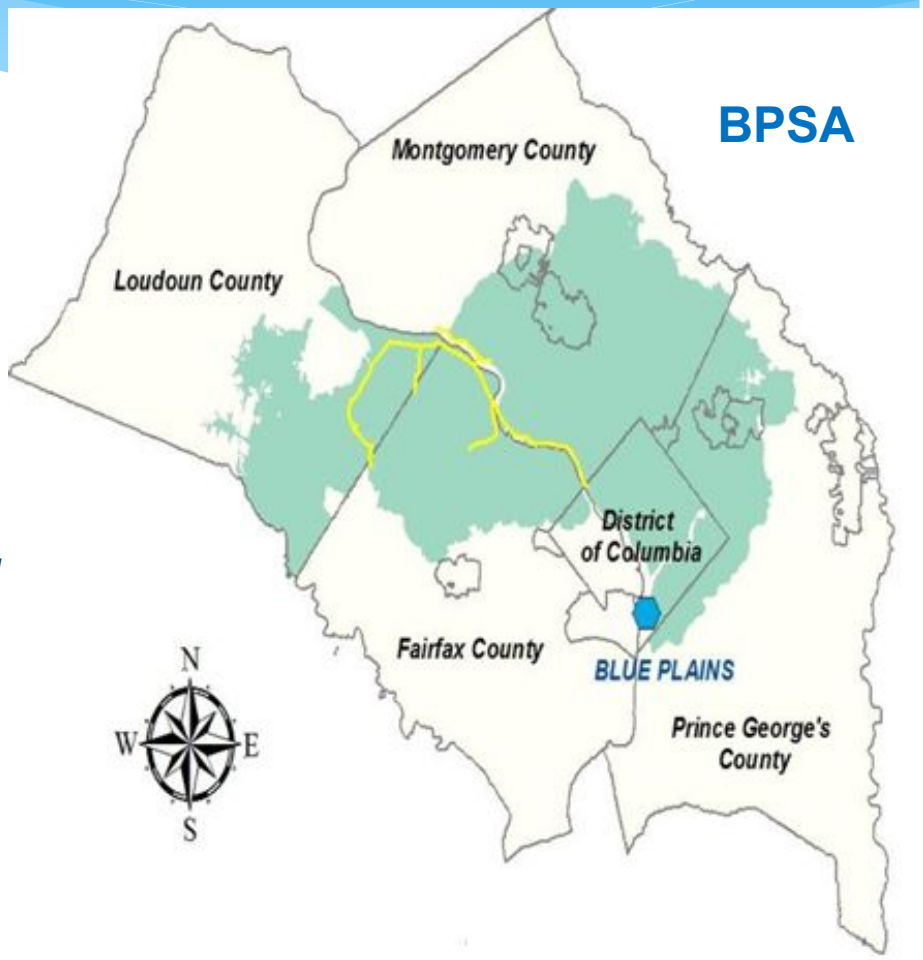
BPSA & Billing Meters

* All flow meters associated with billing for wastewater services within the Blue Plains Service Area (BPSA)

* **2012 IMA: Operating Agreement #3**

  FLOW MEASUREMENT, REPORTING AND ASSESSMENT [excerpts]

  * *The receiving Party shall mutually approve all such meter installations, shall designate who shall read, test, operate and maintain all such meters…*
  * *Parties may jointly read, test and inspect such meters at reasonable times at the request of any Party.*



BPSA Billing Meter Studies- History

* 2000 - Metcalf & Eddy contracted to produce first BPSA Billing Meter report
* 2008 - Significant changes in BPSA Billing Meter Network, so RJN Group contracted to produce updated BPSA Billing Meter Study
* 2009 – RJN Group issued BPSA Billing Meter Study
  * Major finding - Overall BPSA Billing Meter Network is reasonably well calibrated & functioning as intended

BPSA Billing Meter Studies - Current

* Post 2009:
  * Some BPSA Billing Meters have changed/been upgraded
  * Agencies/Jurisdictions started to use alternative billing meters
* 2015:
  * IMA-RC Agreed that:
    * It is desirable to have all BPSA Billing Meters calibrated & verified under one service contract
    * It would be beneficial to first re-assess the BPSA Billing Meters
  * November – COG issues the 'BPSA Billing Meter Assessment Study' contract to RJN Group

BPSA Billing Meter Assessment Study – Scope

Includes 83 BPSA Billing Meters from all Agencies/Jurisdictions:

Agencies/Jurisdictions	Number of meters
DC Water	28
Loudoun Water	25
WSSC	16
Fairfax County	8
Vienna	3
MWAA Dulles Airport	2
Herndon	1
TOTAL	**83**

BPSA Billing Meter Assessment Study – Roles & Schedule

* Blue Plains Technical Subcommittee, with Billing Meter Work Group - Responsible for addressing technical work & regularly updating IMA-RC
* RJN Group –
  * Focus on meter & network changes since 2009 report
  * Recommendations for specific improvements & proposed meter service contract
  * Draft report – June 23rd IMA-RC meeting
  * Final Report – Sept. 22nd IMA-RC meeting

Wrap-up / Next Steps

* Blue Plains Technical Subcommittee & Billing Meter Work Group
  * Concurrently working to develop an agreed upon scope of work for a BPSA Billing Meter Service Contract
  * Recommendation to be made to IMA-RC (est. Fall 2016)
  * BPSA Billing Meter Service Contract - Expected to be issued & managed by DC Water
* IMA-RC – Will review RJN report & service contract scope of work recommendations and determine next course of action
* Questions?
  * Tanya Spano (202) 962-3776 / tspano@mwcog.org
  * Lana Sindler (202) 962-3347 / lsindler@mwcog.org

District of Columbia Water and Sewer Authority
George S. Hawkins, General Manager

Briefing on:

Division PR-B

CSO 021 Diversion Facilities

Briefing for:

Environmental Quality and Sewerage Services Committee

February 18, 2016

DCWATER.COM

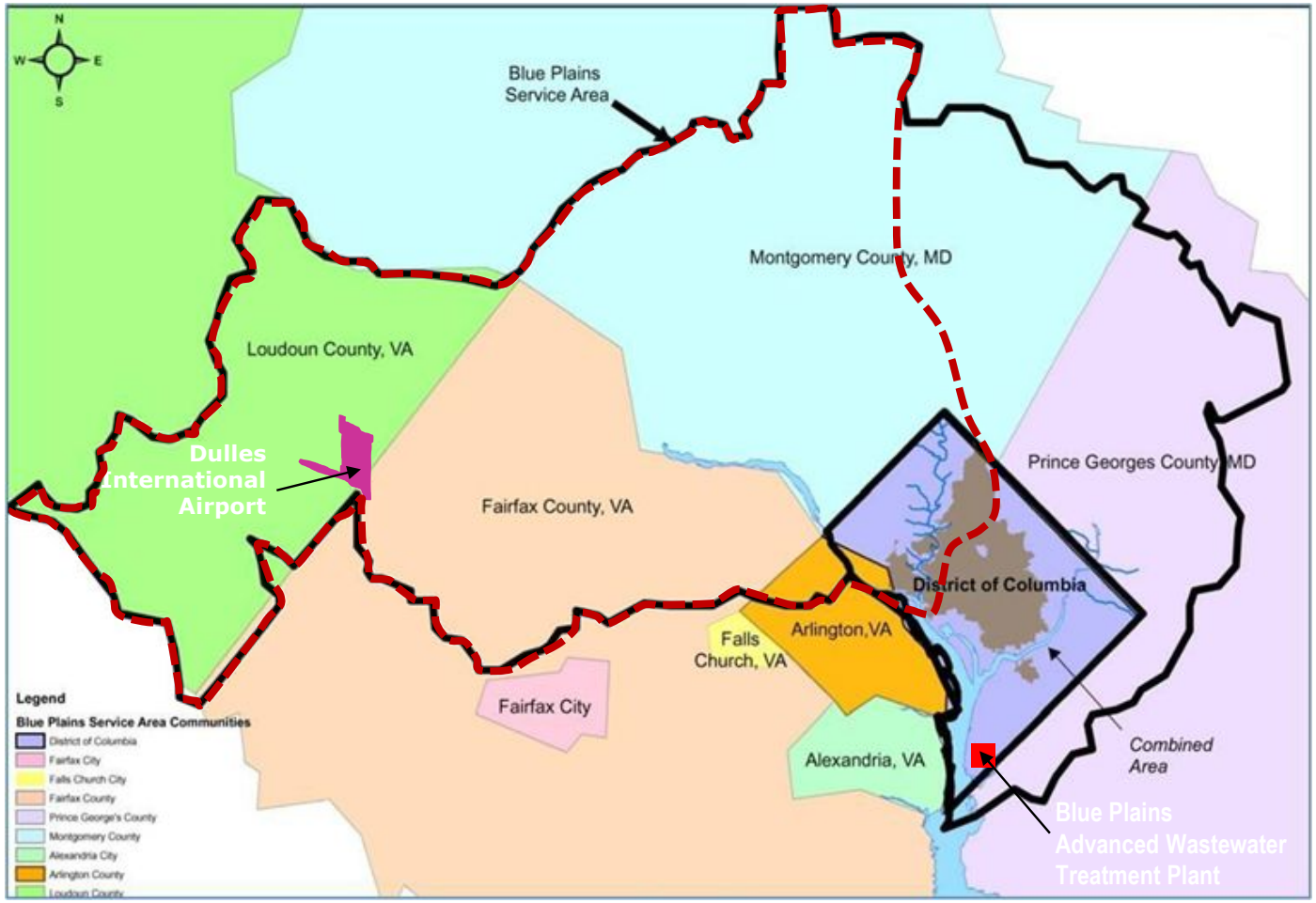
Agenda

- Memorandum of Understanding with the John F. Kennedy Center for the Performing Arts (KCPA)
  - DC Water Cleaning Project
  - Temporary and Permanent Easements
  - CSO 021 Construction
- Division PR-B CSO 021 Diversion Facilities Project
  - Evaluation of alternatives
  - Scope of Work
  - Procurement Approach
  - Recommendation

dc clean RIVERS PROJECT

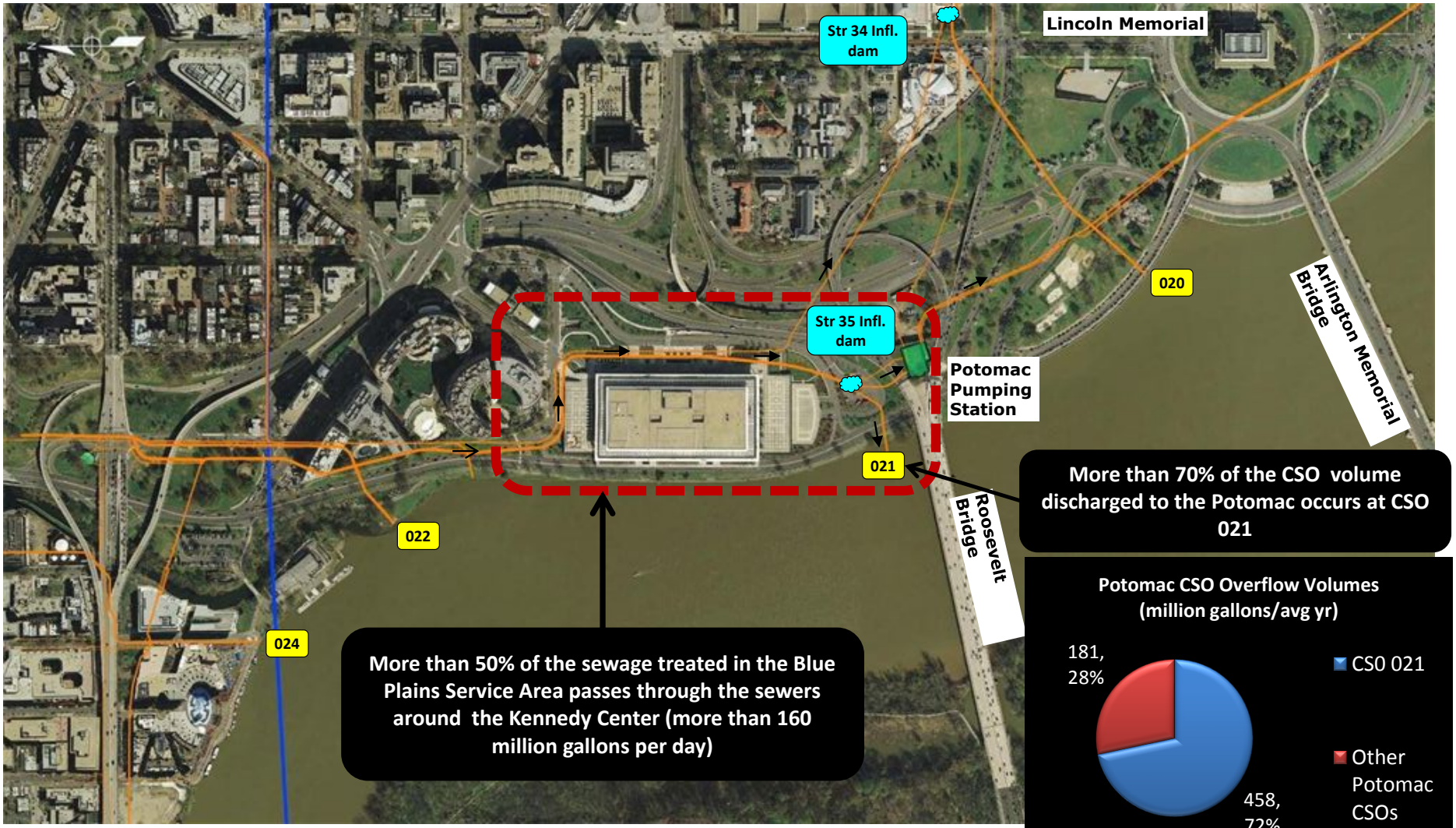
PROJECT BACKGROUND

Drainage Area Served by Sewers Under Kennedy Center & Potomac Pumping Station



dc clean RIVERS PROJECT

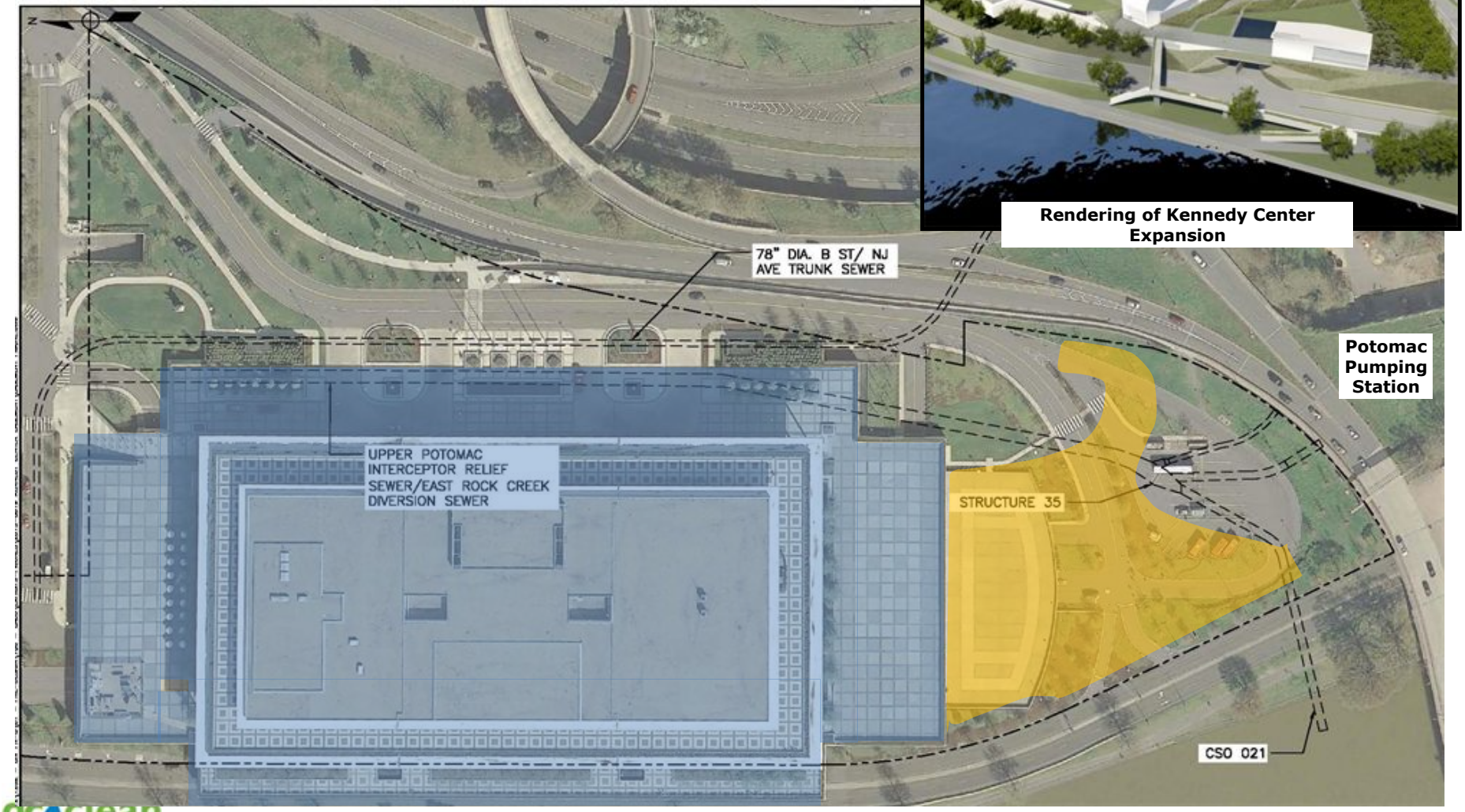
Sewers passing Through Kennedy Center are Critical Assets for Greater Metropolitan Washington Area



5

Kennedy Center Expansion will Limit Options for Intercepting CSO 021 in the Future

Rendering of Kennedy Center Expansion



dc clean RIVERS PROJECT

Existing Structures on top of CSO 021

Expansion structures on top of CSO 021

6

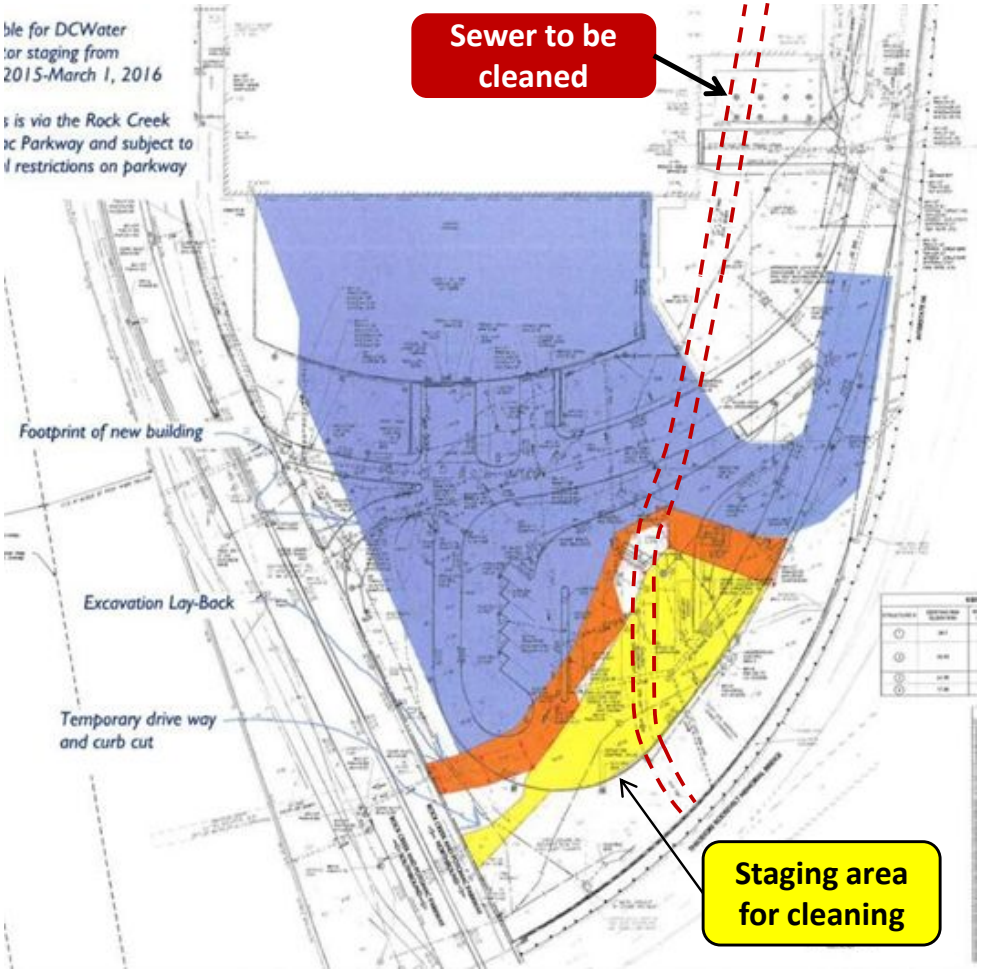
MEMORANDUM OF UNDERSTANDING

Purpose of MOU

- Codify agreements between DC Water and KCPA
- 3 main topics addressed in MOU
  1. DC Water Sewer Cleaning Project
  2. Easements for Existing Sewers and Future Facilities
  3. Construction of CSO 021 Diversion Facilities Project

Topic 1:Cleaning of DC Water's Sewer (Upper Potomac Interceptor Relief Sewer)

- Temporary easement for cleaning of Upper Potomac Interceptor Relief Sewer
- Access via Rock Creek & Potomac Parkway (permit from Nat'l Park Service by DC Water)
- Start: Dec 2015
- Complete: March 31, 2015*
- Right of Entry and Temporary Easement has been Executed



***Completion of the cleaning project by March 31 is critical for schedule of the KCPA Expansion and CSO 021 project**

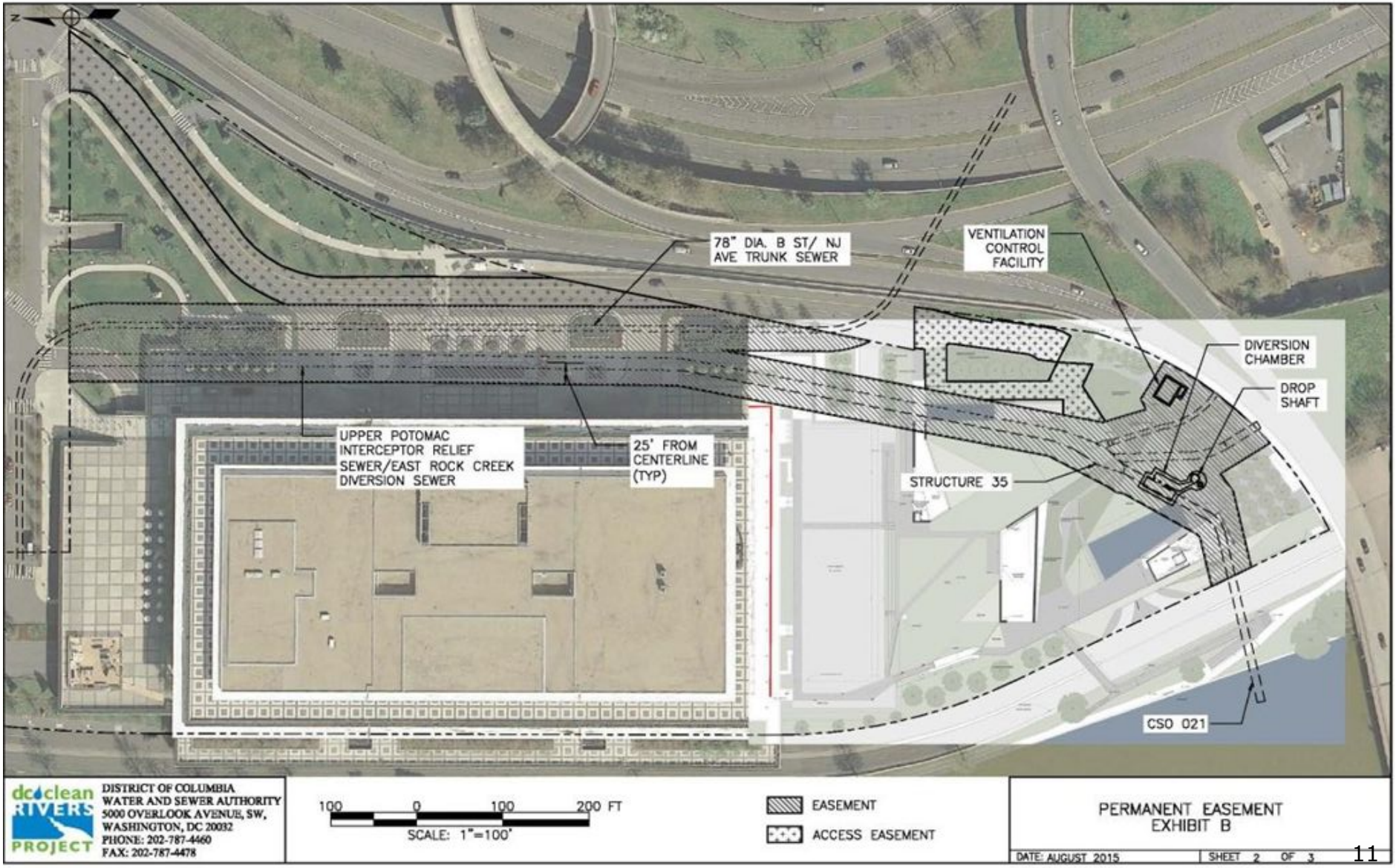
Topic 2: Easements for Sewers

- Kennedy Center was constructed on top of critical infrastructure assets
- Expansion proposes additional structures on top of sewers
- MOU achieves the following:
  - Granting of easements to DC Water for existing sewers
  - Granting of easements for new CSO facilities
  - Procedures to address
    - Emergencies
    - Regular maintenance
    - Planned repair work

Minimize impact on Kennedy Center structures and operations while protecting DCW assets

dc clean RIVERS PROJECT

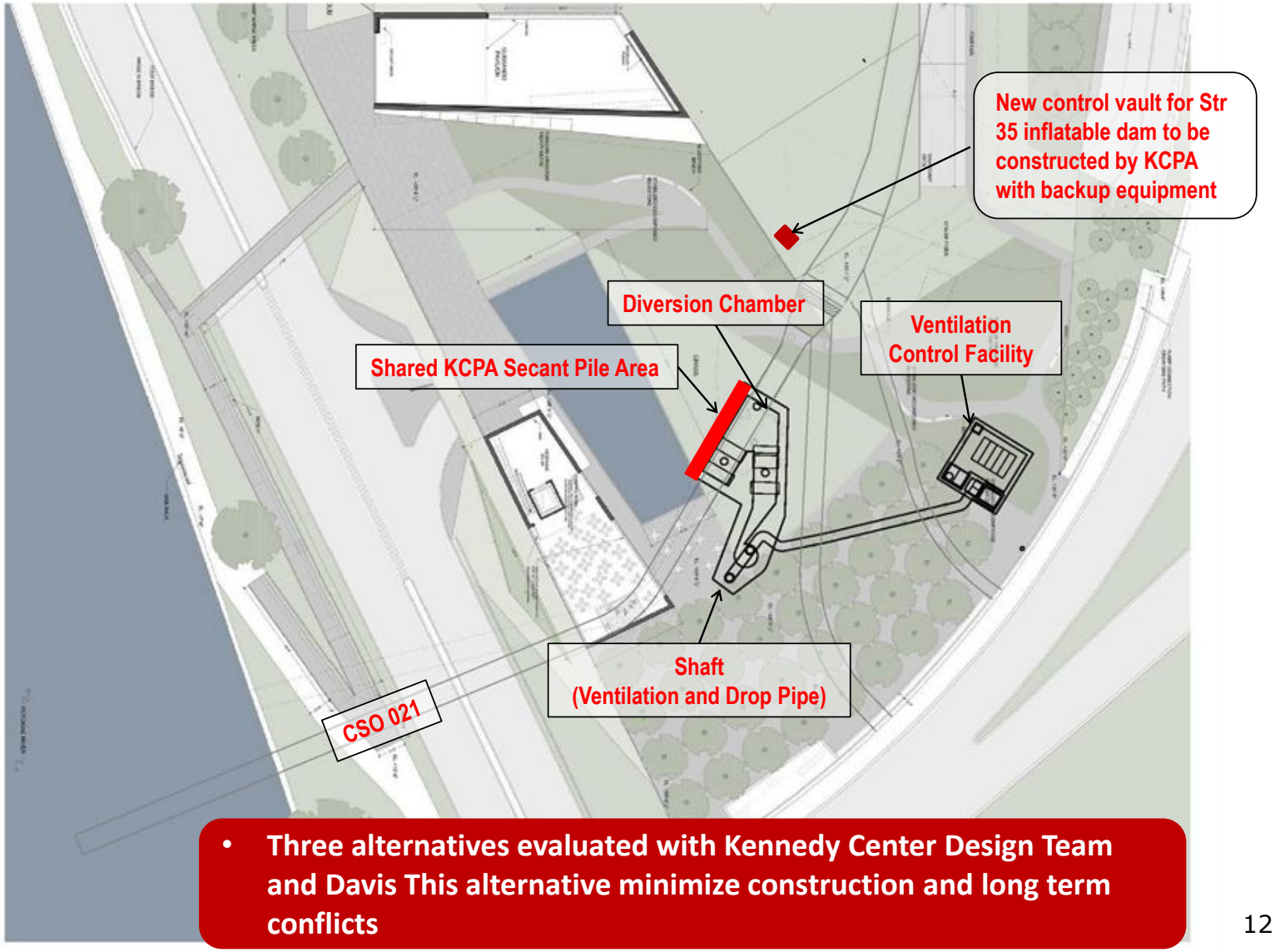
Topic 2: Easement Areas



11

Topic 3: Construction of CSO 021 Diversion

CSO 021 Site Plan



- Three alternatives evaluated with Kennedy Center Design Team and Davis This alternative minimize construction and long term conflicts

Background image is future KCPA landscaping

Topic 3: Construction of CSO 021 Diversion

Approach in MOU

- KCPA provides
  - Access for DC Water to construct facilities
  - Preconstruction and construction accommodations to facilitate construction
- DC Water contracts with Davis Construction to perform construction
  - Davis competitively bids major elements of work
  - KCPA constructs Expansion on north part of site
  - DC Water constructs CSO 021 diversion on south site of site
  - DC Water agrees to substantial completion date for completion of CSO 021 facilities
  - DC Water turns over south part of site at completion for KCPA to complete landscaping
- Each entity is responsible for its own construction

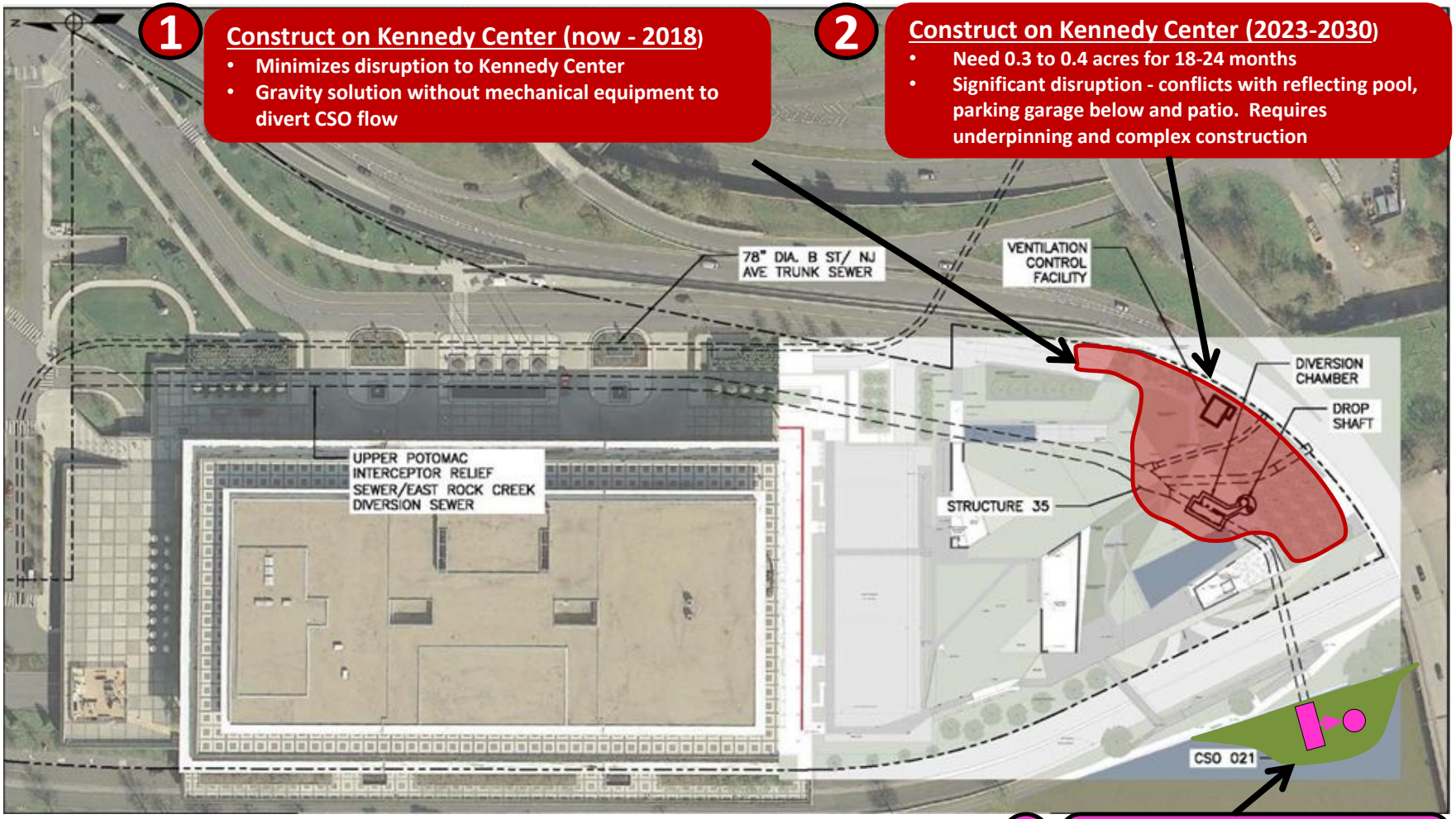
dc clean RIVERS PROJECT

Costs in MOU

Topic	Item	Services Provided by Kennedy Center	Cost (lump sum)	Comments
1	DC Water Sewer Cleaning	• Construct access road • Modify support of excavation to allow cleaning	$ 560,070	
2	Easements for sewers	Provide easements	$ 0	• Easements provided at no cost
3	CSO 021 Facilities	Improvements Str. 35 Inflatable Dam Vault	$ 421,077	• Provide backup equipment to improve reliability of inflatable dam vault
		Preconstruction Accommodations	$ 207,028	• Design and coordination costs to integrate CSO facilities into Kennedy Center Expansion
		Secant Pile Wall Construction	$ 743,347	• Kennedy Center will construct support of excavation wall required by DC Water due to proximity to Expansion Project
		Construction Accommodations	$ 2,697,888	• Revised PEPCO power feeds to serve future CSO facilities • Revised landscaping to accommodate Ken. Center opening • Additional Kennedy Center construction administration costs due to extended construction to accommodate CSO 021
		Total	**$ 4,629,410**	

DIVISION PR-B
CSO 021 DIVERSION FACILITIES

Evaluation of CSO 021 Diversion Locations
Alternatives 1, 2 and 3



Conclusion: Alternative 1 is recommended

16

Evaluation of Alternatives

Alternatives to Constructing CSO 021 Diversion as part of Expansion

Altern.	Description	Conclusions	Estimated Cost ($M)
Construct as part of Kennedy Center Expansion:			
1	Construct as part of Kennedy Center Expansion	• **Minimizes disruption to Kennedy Center** • **Gravity solution without mechanical equipment to divert CSO flow**	$ 34
Construct after Kennedy Center Expansion:			> $ 47
2	Construct after Kennedy Center Expansion	• Major disruption to Kennedy Center • Complex construction • More expensive to DC ratepayers	
3	Construct in River	• Not approvable by regulatory agencies	Not approvable by regulatory agencies

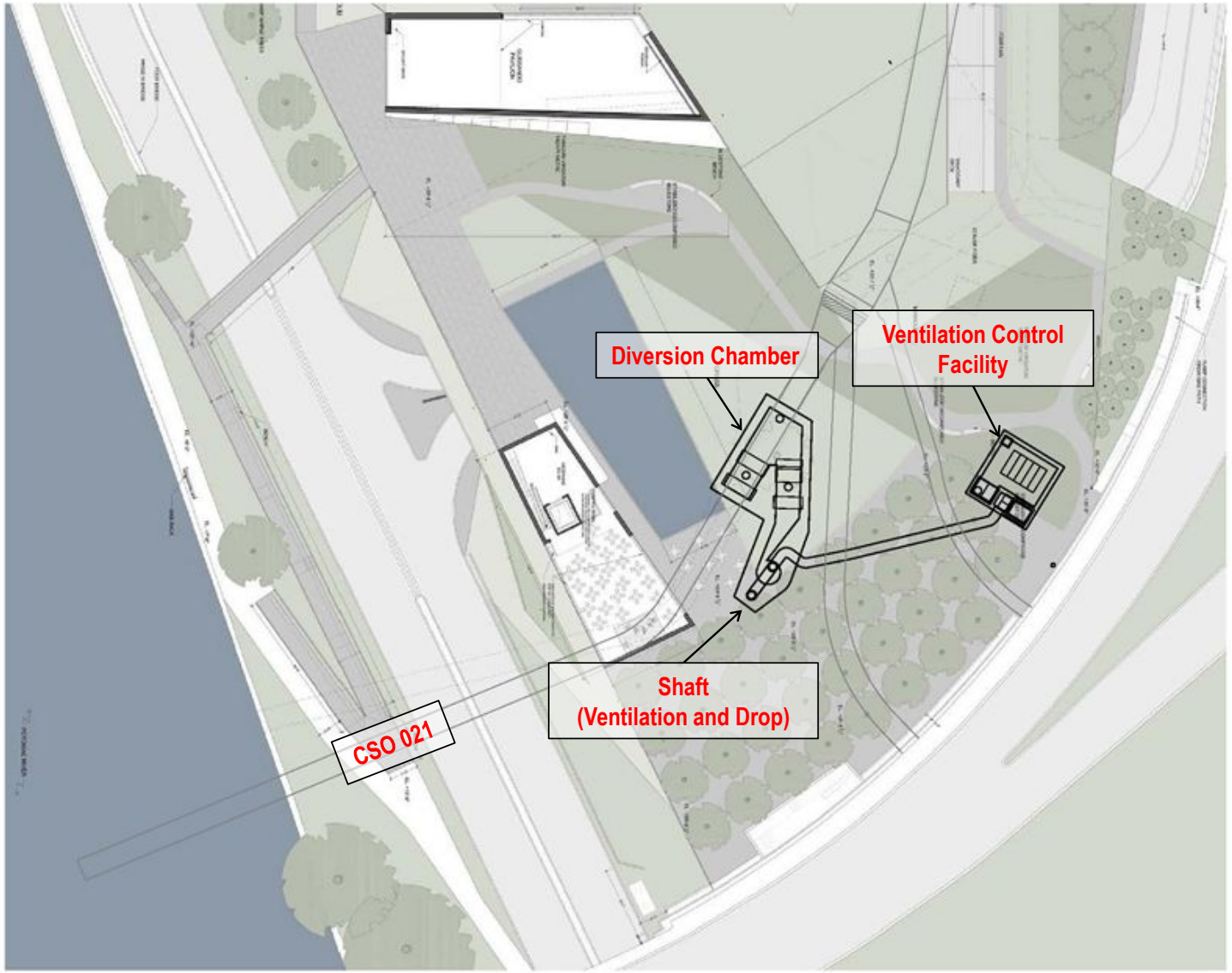
dc clean RIVERS PROJECT

Scope of CSO 021 Diversion Facilities

- Diversion Chamber to divert flows from existing CSO 021
- Ventilation Control Facility and ancillary piping
- Shaft containing two pipes; drop pipe for flows and ventilation pipe for air
- Utility Relocation and installation
- Electrical conduit and pad installed to supply power to the future ventilation equipment and monitoring equipment

dc clean RIVERS PROJECT

Site Plan



Background image is future KCPA landscaping

Procurement Approach

(As Provided by DC Water Procurement Regulations and Procurement Manual and as performed for Division B: Tingey Street Diversions)

- DC Water and Kennedy Center finalized MOU for DC Water to construct CSO 021 facilities during Kennedy Center Expansion
- DC Water has prepared 100% design
- Davis (Kennedy Center's Contractor) has solicited bids from a minimum of three (3) DC Water approved subcontractors for major work elements
- DCW and Davis agree on Not To Exceed Price, consisting of:
  - Maximum Bid Price
  - Contractor Contingency Based on Bid Price
  - Davis Management Expense and Fee Based on Bid Price
- Davis follows all DC Water contracting requirements:
  - First Source Employment
  - M/WBE Requirements
  - Davis Bacon prevailing wages
- Contract Form was developed by DC Water General Counsel's office

Benefits of Approach

- Risk associated with protecting existing Kennedy Center facilities would be to Davis, who is best to manage risk by sequencing work appropriately.
- Obtaining permits is more efficient due to Davis's existing permits and agreements.
- Coordination of CSO 021 project with expansion project will be responsibility of Davis; risk of conflicts between contractors sharing adjacent sites would be minimized.
- Avoiding future disruption, risks and costs associated with future construction after Expansion is completed

- **Similar approach was successful with Forest City for Tingey St. Diversion**

dc clean RIVERS PROJECT

Details of CSO 021 Contract

Item	Description	Forest City	Davis	Davis Cost $(000)
1	Cost of the Work			$26,400
2	Davis Fee	4%*	5%*	$1,362
3	Contingency (Contr. Notice to DC Water)	10%	4%	$1,042
4	Contingency (DC Water Approval)	7%	8%	$2,225
5	Subtotal Percentages	**21%**	**17%**	$31,150
6	DC Water Underground Risk Allowance	10%	11%	$2,800
8	**Not to Exceed Total**			**$33,950**

*Typical fee for private construction is 4% to 6%

Cost of using Davis Contract

- Not to Exceed Estimate: $33,950 million, includes:
  - Design of Temporary Facilities
  - Construction
  - Permit fees
  - Contingencies & Allowances
  - Construction Management
  - Davis Fee
- Expected savings over DC Water D-B-B procurement with a separate contractor:
  - Lower procurement expenses
  - Lower costs for mitigation of public impact
  - Lower costs due to avoidance of likely claims from having two contractors working at the site: Benefit of using Davis
  - Lower costs due to permit efficiencies
  - Lower costs from existing Contractor efficiencies

dc clean RIVERS PROJECT

Schedule for Div PR-B CSO 021

- Procurement: October 2015 - March 2016
- Execute Contract and give NTP: March 10, 2016
- Substantial Completion: May 2018 (26 month construction duration)

Recommendation

- Authorize execution of MOU with KCPA with a value of $ 4,629,410

- Authorize DC Water Clean Rivers Project to proceed with a Contract with Davis with a Not To Exceed value of $33.95 Million

dc clean RIVERS PROJECT

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS CONTRACTOR FACT SHEET

ACTION REQUESTED

CONSTRUCTION CONTRACT:

Division PR-B – CSO 021 Diversion Facilities (Joint Use)

Approval to execute a construction contract not to exceed: $33,950,000.00

The not to exceed value is based on pre-bid estimates. The final agreement along with associated MBE/WBE participation in accordance with DC Water standard practice will be determined upon receipt of all bids. This value will not be exceeded without Board approval.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
James G. Davis Construction Company 12530 Parklawn Drive Rockville, MD 20852	MBE/WBE Participation Davis has committed to meet or exceed the US EPA Fair Share objectives in accordance with the contract documents.	US EPA Fair Share Objective for Construction: MBE 32%/WBE6%

DESCRIPTION AND PURPOSE

Contract Value, Not-To-Exceed:	$33,950,000.00	
Contract Time:	797 Days	(2 Years, 2 Months)
Anticipated Contract Start Date (NTP):	03-24-2016	
Anticipated Contract Completion Date:	05-30-2018	

Purpose of the Contract:

To construct diversion facilities for combined sewer overflow (CSO) Outfall 021.

This work is required by a Consent Decree.

Contract Scope:

- Construction diversion structure, drop shaft, ventilation control structure and appurtenances for CSO Outfall 021

Federal Grant Status:

- The Construction contract is funded in part by prior Congressional appropriations for CSO projects.

PROCUREMENT INFORMATION

Contract Type:	Not to Exceed	**Award Based On:**	Best Value
Commodity:	Construction	**Contract Number:**	150230
Contractor Market:	Public-Private Partnership		

BUDGET INFORMATION

Funding:	Capital	**Department:**	DC Clean Rivers Project
Service Area:	Combined Sewer Overflow	**Department Head:**	Carlton Ray
Project:	CZ		

*ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	92.9%	$ 31,539,550.00
Federal Funds *	0.00%	
Washington Suburban Sanitary Commission	5.54%	$ 1,880,830.00
Fairfax County	1.01%	$ 342,895.00
Loudoun County & Potomac Interceptor	0.55%	$ 186,725.00
Total Estimated Dollar Amount	**100.00%**	**$ 33,950,000.00**

* Subject to future Federal appropriations. If future Congressional appropriation is received, DC share will decrease.

For Gail Alexander-Reeves, Director of Budget — 2/11/16 Date

Dan Bae, Director of Procurement — 2/12/16 Date

Leonard R. Benson, Chief Engineer — 2/11/16 Date

George S. Hawkins, General Manager — Date

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS CONTRACTOR FACT SHEET

ACTION REQUESTED

Memorandum of Understanding Between John F. Kennedy Center for the Performing Arts and DC Water for the Kennedy Center Expansion (Joint Use)

Approval to execute a Memorandum of Understanding with the Kennedy Center not to exceed $4,629,410.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
John F. Kennedy Center for the Performing Arts 2700 F St., NW Washington, D.C. 20566	Not Applicable	Not Applicable

DESCRIPTION AND PURPOSE

MOU Value, Not-To-Exceed:	$4,629,410.00
MOU Duration:	Until completion of CSO Diversion Facilities 021 or execution of easements, whichever is later
Anticipated MOU Start Date:	03-10-2016
Anticipated MOU Completion Date:	09-21-2019

Purpose of the MOU:

To provide the legal framework for construction of CSO 021 Diversion Facilities and other work at the Kennedy Center.

This work is required by a Consent Decree.

Scope of MOU:

- Provision of easements to DC Water for the existing DC Water sewers on the property
- Provision of easements to DC Water for the CSO 021 diversion facilities and future easements necessary to connect the CSO 021 diversion facilities to the Potomac Tunnel
- Provisions for the Kennedy Center to make improvements to a portion of the inflatable dam system at CSO 021
- Provisions to allow construction of the CSO 021 diversion facilities by DC Water
- Provision of permits to the Kennedy Center to construct the Kennedy Center's Expansion while protecting DC Water's sewers

PROCUREMENT INFORMATION

Contract Type:	Not applicable	**Award Based On:**	Not applicable
Commodity:	Not applicable	**Contract Number:**	Not applicable
Contractor Market:	Not applicable		

BUDGET INFORMATION

Funding:	Capital	**Department:**	DC Clean Rivers Project
Service Area:	Combined Sewer Overflow	**Department Head:**	Carlton Ray
Project:	A4 & CZ		

ESTIMATED USER SHARE INFORMATION

Project A4

User	Share %	Dollar Amount
District of Columbia	22.1%	$123,775.47
Federal Funds	0.00%*	
Washington Suburban Sanitary Commission	41.9%	$234,669.33
Fairfax County	27.10%	$151,778.97
Loudoun County & Potomac Interceptor	8.9%	$49,846.23
Total Estimated Dollar Amount	**100.00%**	**$560,070.00**

Project CZ

User	Share %	Dollar Amount
District of Columbia	92.9%	$3,780,416.86
Federal Funds	0.00%*	
Washington Suburban Sanitary Commission	5.54%	$225,441.44
Fairfax County	1.01%	$41,100.33
Loudoun County & Potomac Interceptor	0.55%	$22,381.37
Total Estimated Dollar Amount	**100.00%**	**$4,069,340.00**

Combined

User	Share %	Dollar Amount
District of Columbia	84.33%	$3,904,192.33
Federal Funds		
Washington Suburban Sanitary Commission	9.94%	$460,110.77
Fairfax County	4.17%	$192,879.30
Loudoun County & Potomac Interceptor	1.56%	$72,227.60
Total Estimated Dollar Amount	**100.00%**	**$4,629,410.00**

* Eligible for Federal Grant Funding at 50% of the District of Columbia share. Grant funding is insufficient to fund all eligible contracts. Federal Grant Funding may be used if additional funding becomes available or if other eligible projects are postponed.

FOR Gail Alexander-Reeves, Director of Budget — 2/11/16 Date

2/12/16

Dan Bae / Date
Director of Procurement

2-11-16

Leonard R. Benson / Date
Chief Engineer

George S. Hawkins / Date
General Manager

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS CONTRACTOR FACT SHEET

ACTION REQUESTED

GOODS AND SERVICES CONTRACT

Annual Maintenance, Repair and Calibration of Instrumentation Control Equipment

(Joint Use)

Approval to exercise option year one (1) of the Annual Maintenance, Repair and Calibration of Instrumentation Control Equipment contract in the amount of $1,200,000.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
M.C. Dean, Inc. 22461 Shaw Road Dulles, VA 20166		

DESCRIPTION AND PURPOSE

Base Year Contract Value:	$1,200,000.00
Contract Base Period:	04-30-2015 – 04-29-2016
Number of Option Years:	2
Option Year (1) Values:	**$1,200,000.00**
Option Year (1) Dates:	**04-30-2016 – 04-29-2017**

Purpose of the Contract:

To provide annual services for the maintenance, repair, calibration and installation services of various industrial instrumentation equipment, valve actuators, control systems and various equipment for the District of Columbia Water and Sewer Authority's (DC Water) Process Engineering Department (AWWTP).

Original Contract Scope:

Provide technical expertise, supervision, labor, transportation and replacement parts for repairs to ensure effective calibration, installation and maintenance services of instrumentation equipment, process control equipment and the SCADA system for the Blue Plains Wastewater Treatment Plant.

Spending Previous Year:

Cumulative Contract Value:	04-30-2015 to 04-29-2016: $1,200,000.00
Cumulative Contract Spending:	04-30-2015 to 01-04-2016: $ 426,242.11

No LSBE participation with this procurement.

PROCUREMENT INFORMATION

Contract Type:	Fixed Price	**Award Based On:**	Highest Ranking Score
Commodity:	Service	**Contract Number:**	14-PR-PCM-01
Contractor Market:	Open Market with LBE and LSBE Preference Point		

JOINT-USE (DIRECT)

BUDGET INFORMATION

Funding:	Operating	**Department:**	Process Engineering
Service Area:	Blue Plains	**Department Head:**	Nicholas Passarelli

ESTIMATED USER SHARE INFORMATION

User	Share %*	Dollar Amount
District of Columbia	41.67%	$500,040.00
Washington Suburban Sanitary Commission	43.21%	$518,520.00
Fairfax County	10.45%	$125,400.00
Loudoun County	4.02%	$48,240.00
Potomac Interceptor	0.65%	$7,800.00
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$1,200,000.00**

Gail Alexander- Reeves / 01/05/16
Director of Budget

Dan Bae / 1/14/16
Director of Procurement

Aklile Tesfaye / 01/27/16
Assistant General Manager
Blue Plains

George S. Hawkins / _____
General Manager

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS CONTRACTOR FACT SHEET

ACTION REQUESTED

GOODS AND SERVICES CONTRACT:

Supply and Delivery of Calcium Hydroxide (Joint Use)

Approval to execute a contract for the supply and delivery of calcium hydroxide with a base year value of $1,334,400.00.

CONTRACTOR/SUB/VENDOR INFORMATION

PRIME:	SUBS:	PARTICIPATION:
W. K. Merriman, Inc. 7038 Front River Road Pittsburgh, PA 15225	N/A	N/A

DESCRIPTION AND PURPOSE

Base Year Contract Value:	$1,334,400.00
Contract Time:	5 Years
Anticipated Contract Start Date:	03-15-2016
Anticipated Contract Completion Date:	03-14-2017
Bid Opening Date:	10-14-2015
Bids Received:	2
Other Bids Received:	
Tricon Chemical Corp.	$1,660,800.00
Preference Points Received:	$100,000.00
Evaluation Bid Amount	$1,334,400.00

Purpose of the Contract:

This contract is to provide calcium hydroxide to the Blue Plains Advanced Wastewater Treatment Facility for DC Water's Department of Wastewater Treatment. The Department of Wastewater Treatment has an on-going need for calcium hydroxide in slurry form (approximately 30-35% lime slurry) to feed the Nitrification Facility at the Blue Plains Wastewater Treatment Plant. The product is used in the BNR process for pH control. Estimated usage is 4,800 dry tons per year.

Contract Scope:

To furnish and deliver calcium hydroxide in the form of lime slurry.

Evaluated Bid Companies:

W. K. Merriman, Inc.	$278.00 per dry ton	$1,334,400.00 spend*
Tricon Chemical	$346.00 per dry ton	$1,660,800.00 spend*

* Based on estimated quantity of 4,800 tons

Tricon is an LSBE firm. DC Water's LSBE program allows for LSBE bids to receive preference points and be evaluated as if they are the lesser of 10% or $100,000 lower than actual. Even after reducing Tricon's bid by $100,000, it is still significantly higher than W.K. Merriman pricing.

No LSBE participation

PROCUREMENT INFORMATION

Contract Type:	Fixed Price Requirement Contract	**Award Based On:**	Lowest Responsive and Responsible Bidder.
Commodity:	Goods and Services	**Contract Number:**	15-PR-DWT-52
Contractor Market:	Open Market with Preference Points for LBE/LSBE participation		

BUDGET INFORMATION

Funding:	Operating	**Department:**	Wastewater Treatment
Service Area:	Blue Plains AWTP	**Department Head:**	Salil Kharkar

ESTIMATED USER SHARE INFORMATION

User	Share %	Dollar Amount
District of Columbia	41.67%	$556,044.48
Washington Suburban Sanitary Commission	43.21%	$576,594.24
Fairfax County	10.45%	$139,444.80
Loudoun County & Potomac Interceptor	4.02%	$53,642.88
Others	0.65%	$8,673.60
TOTAL ESTIMATED DOLLAR AMOUNT	**100.00%**	**$1,334,400.00**

2/1/16
Dan Bae Date
Director of Procurement

02/05/16
Gail Alexander-Reeves Date
Director of Budget

02/01/16
Aklile Tesfaye Date
AGM, Blue Plains

George S. Hawkins Date
General Manager

District of Columbia Water and Sewer Authority

Capital Improvement Program Report

FY-2016 1st Quarter
October 1st through December 31st, 2015

Board of Directors
Environmental Quality and Sewerage Services Committee

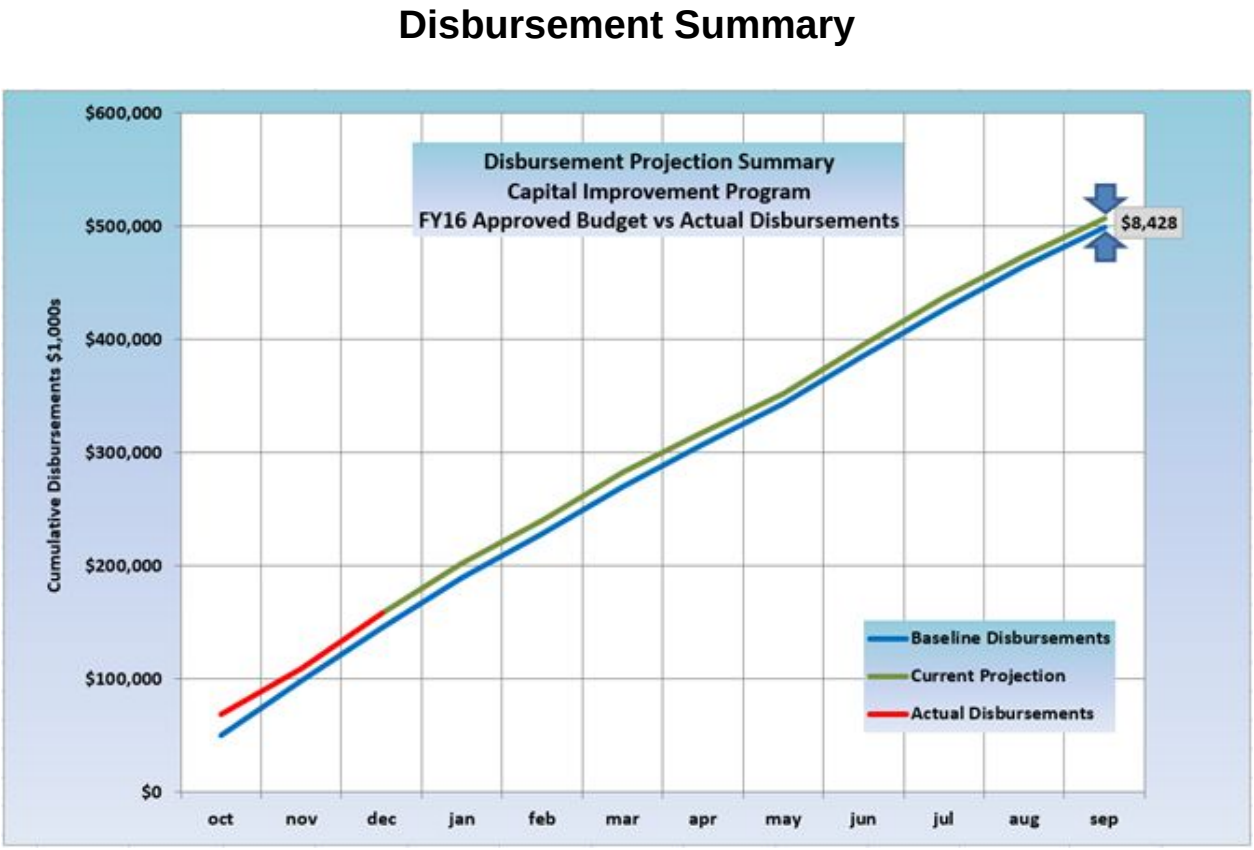
George S. Hawkins, General Manager
Leonard R. Benson, Chief Engineer

February 2016

Capital Improvement Program Report
1st Quarter FY2016

CIP Disbursement Performance

Current projected program disbursements through the end of the fiscal year compared with the approved FY16 baseline are shown in the chart below:



Current fiscal year 2016 CIP disbursements are $507,405,000 through the end of December, which is 1.7% above the baseline disbursement projection of $498,977,000.

Achieved disbursements within the service areas are as follows:

Non Process Facilities
Baseline Disbursements $9,330,000
Projected Disbursements $4,760,000 ($4.6M below baseline projection)
Significant project variances are listed below:

- *Non Process Facilities Program Area – ($4.6M below baseline)*
  - The disbursements for Project HH – New Fleet Management Facility are $4.7 million below baseline mainly due to ongoing coordination of the agreement between DC Water and the District of Columbia Government that has rescheduled the start of design and construction.

Wastewater Treatment Service Area
Baseline Disbursements $168,638,000
Projected Disbursements $173,379,000 ($4.7M above baseline projection)
Significant project variances are listed below:

- *Enhanced Nitrogen Removal Facilities Program – ($6.4M above baseline)*
  - The disbursements for Project BI – Enhance Nitrogen Removal (ENR) North are projected to be $5.4M above baseline due to continuing favorable construction progress and for additional work due to unforeseen conditions relating to the rehabilitation of existing facilities.

CSO Service Area
Baseline Disbursements $223,037,000
Projected Disbursements $226,639,000 ($3.6M above baseline projection)
There are no significant project variances for this service area.

Stormwater Service Area
Baseline Disbursements $1,264,000
Projected Disbursements $2,129,000 ($0.9M above baseline projection)
There are no significant project variances for this service area.

Sanitary Sewer Service Area
Baseline Disbursements $34,803,000
Projected Disbursements $36,917,000 ($2.1M above baseline projection)
There are no significant project variances for this service area.

Water Service Area
Baseline Disbursements $61,906,000
Projected Disbursements $63,582,000 ($1.7M above baseline projection)
There are no significant project variances for this service area.

Capital Improvement Program Report
1st Quarter FY2016

Priority 1 Projects (Court Ordered, Stipulated Agreements, etc.)

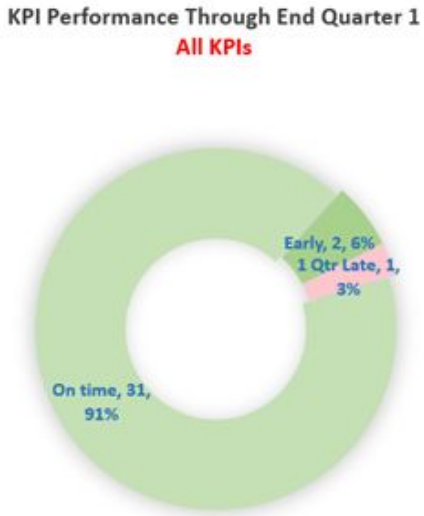
All priority 1 projects are on schedule and within budget.

Large Contract Actions Anticipated – 6 Month Look-Ahead

Project	Name	Contract Type	Cost Range	Committee	BOD
CZ	Kennedy Center CSO 021	Construction	$30M - $35M	EQ&SS Feb	Mar
MA	Saint Elizabeth's Water Tank	Construction	$15M - $20M	WQ&WS Mar	Apr
CY	Div U - Advance Utility Relocations for NEBT	Construction	$15M - $20M	EQ&SS Mar	Apr
J3	National Arboretum Sewer Rehab	Construction	$5M - $10M	EQ&SS Apr	May
BV	Raw Wastewater Pumping Station No. 2	Construction	$25M - $35M	EQ&SS Apr	May
Various	Miscellaneous Facilities Upgrades 5	Construction	$25M - $35M	EQ&SS Apr	May
03	Small Diameter Watermain Rehab 11b	Construction	$5M - $10M	WQ&WS May	Jun
DE	Small Diameter Watermain Rehab 12a	Construction	$5M - $10M	WQ&WS Jun	Jul
IL	Creekbed Sewer Rehabilitation – Oregon Avenue	Construction	$10M - $15M	EQ&SS Jun	Jul
G1	Rehab of Sewers in Georgetown	Construction	$5M - $10M	EQ&SS Jun	Jul

Capital Improvement Program Report
1st Quarter FY2016

Schedule - Key Performance Indicators, Capital Improvement Program



For the 1st[th] Quarter, two of the Key Performance Indicators (KPIs) were achieved early and three were achieved on time; one of the remaining planned KPIs was not achieved, as follows:

1. The construction substantial completion for Potomac Sewer - Odor Remedy, due to delayed completion of HVAC and training of DC Water personnel, which are expected to be completed in the second quarter.

Capital Improvement Program Report
1st Quarter FY2016

FY2016 - KPI Report

DS	Design Start
CS	Construction Start
CSC	Construction Substantial Completion
CO/PC	Consent Oder/Permit Compliance

Planned		On time	
Early		1 Quarter Late	
		> 1 Quarter Late	

				QUARTER				
Qtr.	Project	Job Name	KPI Name	1	2	3	4	To Date
1	FA04	Ft. Stanton Reservoir No. 1 Upgrade	CSC					On time
1	N712	Potomac Sewer - Odor Remedy (VA Sites)	CSC					1 Qtr Late
1	O301	Small Dia Watermain Repl 11a	CS					On time
1	I802	Large Valve Replacements 12	CS					On time

Capital Improvement Program Report
1st Quarter FY2016

FY2016 - KPI Report

DS	Design Start
CS	Construction Start
CSC	Construction Substantial Completion
CO/PC	Consent Oder/Permit Compliance

Planned		On time	
Early		1 Quarter Late	
		> 1 Quarter Late	

				QUARTER				
Qtr.	Project	Job Name	KPI Name	1	2	3	4	To Date
2	CY19	Div A - Blue Plains Tunnel MPS Section	CSC					On time
2	F101	Small Diameter Water Main Rehab 13A	DS					On time
2	XA10	Biosolids Combined Heat and Power (CHP)	CSC					On time
2	FA06	Brentwood Reservoir Upgrade	CSC					On time
2	O103	Small Dia Watermain Repl 9b	CSC					On time
2	Q302	Pope Branch Stream Restoration and Sewer Replacement	CS					Early

Capital Improvement Program Report
1st Quarter FY2016

FY2016 - KPI Report

DS	Design Start
CS	Construction Start
CSC	Construction Substantial Completion
CO/PC	Consent Oder/Permit Compliance

Planned		On time	
Early		1 Quarter Late	
		> 1 Quarter Late	

				QUARTER				
Qtr.	Project	Job Name	KPI Name	1	2	3	4	To Date
3	AY01	Upgrades to Ft. Reno Pumping Station	CSC					On time
3	MA01	St. Elizabeth Water Tank	CS					On time
3	S503	Large Dia. Water Main Internal Repairs 3	CSC					Early
3	O302	Small Dia Watermain Repl 11b	CS					On time
3	F103	Small Diameter Water Main13C - C&L	DS					On time
3	F104	Small Diameter Water Main Repl 13D	DS					On time
3	CY31	Div U - Advance Utility Relocations for NEBT	CS					On time
3	C904	66" Low Service Steel Main at 8th Street NE & SE	DS					On time
3	JX01	Sanitary Sewer Rehabilitation 10	DS					On time

Capital Improvement Program Report
1st Quarter FY2016

FY2016 - KPI Report

DS	Design Start
CS	Construction Start
CSC	Construction Substantial Completion
CO/PC	Consent Oder/Permit Compliance

Planned		On time	
Early		1 Quarter Late	
		> 1 Quarter Late	

				QUARTER				
Qtr.	Project	Job Name	KPI Name	1	2	3	4	To Date
4	DE01	Small Diameter Water Main Repl 12A	CS					On time
4	DR02	Low Area Trunk Sewer - Rehabilitation	CS					On time
4	G101	Rehab of Sewers in Georgetown	CS					On time
4	G800	Small Local Sewer Rehab 2	CSC					On time
4	GA01	Small Local Sewer Rehab 4	CSC					On time
4	J306	National Arboretum Sewer Rehab	CS					On time
4	O101	Small Dia Watermain Repl 9a	CSC					On time
4	O201	Small Dia Watermain Repl 10a	CSC					On time
4	I801	Large Valve Replacements 11R	CSC					On time
4	O202	Small Dia Watermain Repl 10b	CSC					On time
4	BV01	RWWPS No. 2 Upgrades	CS					On time
4	IL10	Creekbed Sewer Rehab Rock Creek Oregon Avenue	CS					On time
4	IX01	Headworks HVAC Rehab	DS					On time
4	DS01	New Headquarters Building	CS					On time
4	FY02	Rehab of RCMI & Beach Dr Sewers Ph II (Lining)	DS					On time

District of Columbia Water and Sewer Authority
George S. Hawkins, General Manager

Briefing on:

Division PR-B

CSO 021 Diversion Facilities

Briefing for:

Environmental Quality and Sewerage Services Committee

February 18, 2016

DCWATER.COM

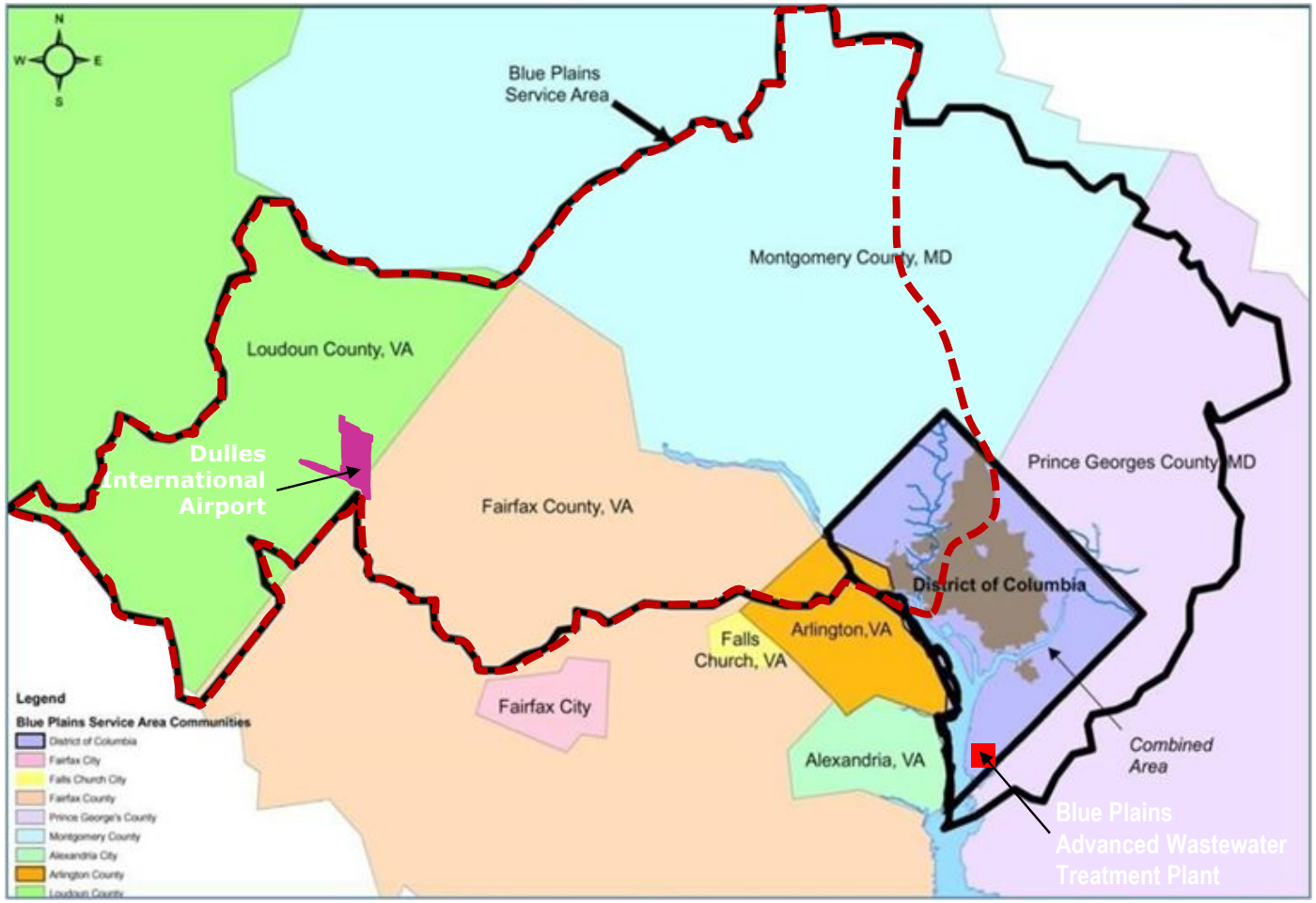
Agenda

- Memorandum of Understanding with the John F. Kennedy Center for the Performing Arts (KCPA)
  - DC Water Cleaning Project
  - Temporary and Permanent Easements
  - CSO 021 Construction
- Division PR-B CSO 021 Diversion Facilities Project
  - Evaluation of alternatives
  - Scope of Work
  - Procurement Approach
  - Recommendation

dc clean RIVERS PROJECT

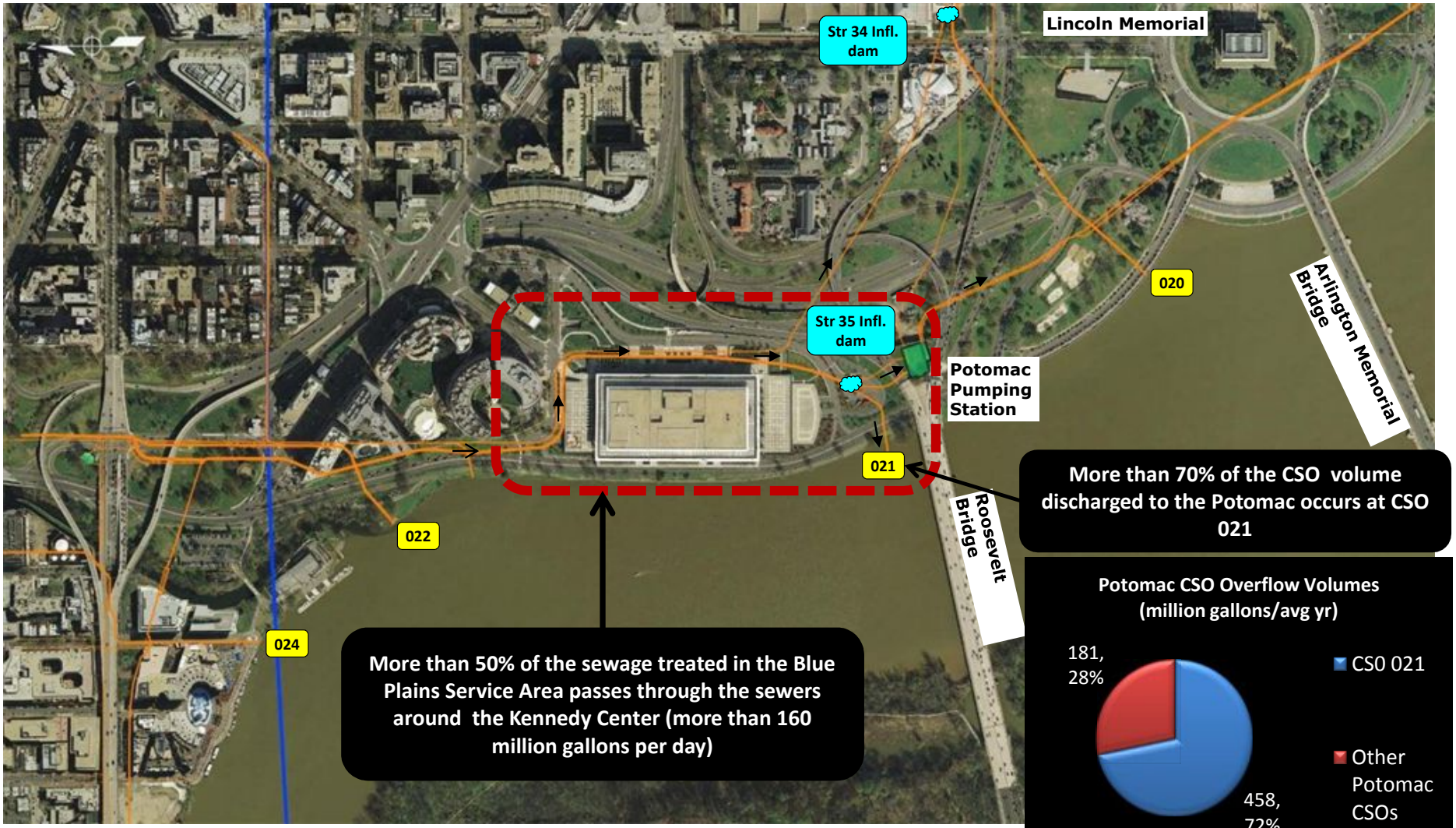
PROJECT BACKGROUND

Drainage Area Served by Sewers Under Kennedy Center & Potomac Pumping Station



dcclean RIVERS PROJECT

Sewers passing Through Kennedy Center are Critical Assets for Greater Metropolitan Washington Area



Kennedy Center Expansion will Limit Options for Intercepting CSO 021 in the Future

Rendering of Kennedy Center Expansion

78" DIA. B ST/ NJ AVE TRUNK SEWER

UPPER POTOMAC INTERCEPTOR RELIEF SEWER/EAST ROCK CREEK DIVERSION SEWER

STRUCTURE 35

Potomac Pumping Station

CSO 021

dc clean RIVERS PROJECT

Existing Structures on top of CSO 021

Expansion structures on top of CSO 021

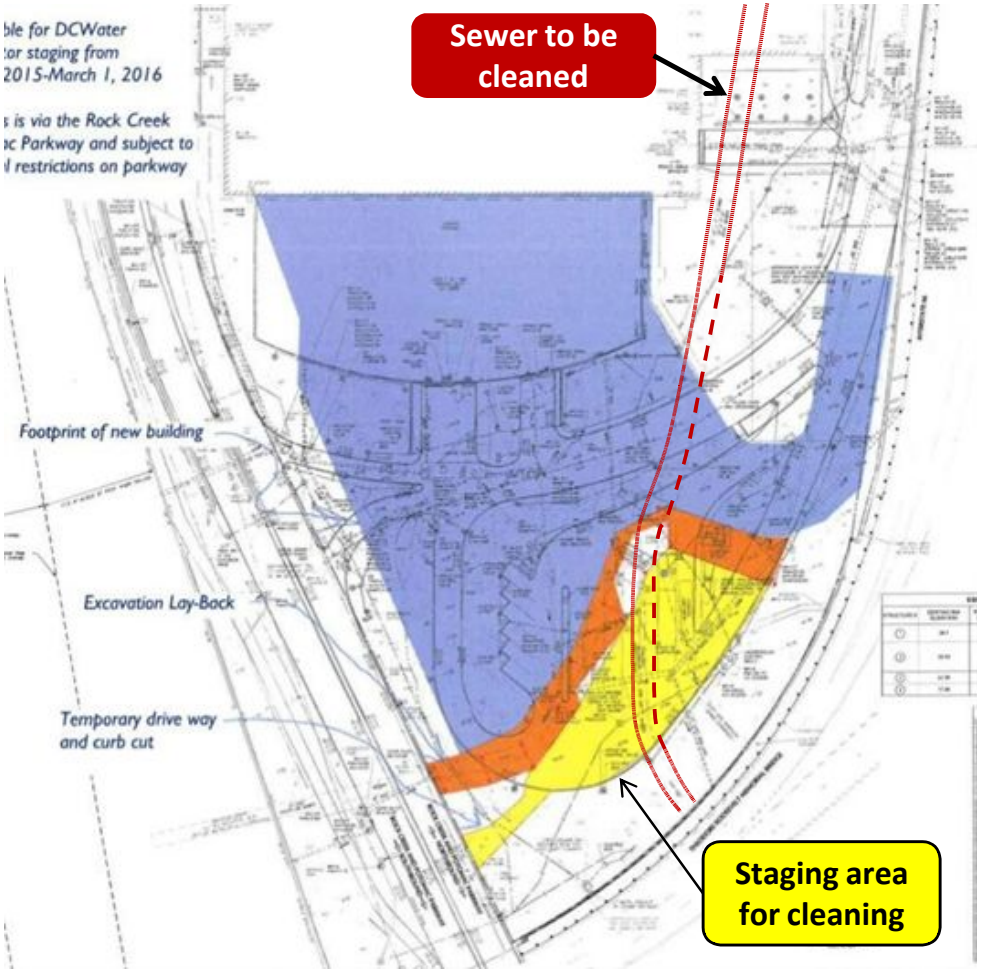
MEMORANDUM OF UNDERSTANDING

Purpose of MOU

- Codify agreements between DC Water and KCPA
- 3 main topics addressed in MOU
  1. DC Water Sewer Cleaning Project
  2. Easements for Existing Sewers and Future Facilities
  3. Construction of CSO 021 Diversion Facilities Project

Topic 1:Cleaning of DC Water's Sewer (Upper Potomac Interceptor Relief Sewer)

- Temporary easement for cleaning of Upper Potomac Interceptor Relief Sewer
- Access via Rock Creek & Potomac Parkway (permit from Nat'l Park Service by DC Water)
- Start: Dec 2015
- Complete: March 31, 2015*
- Right of Entry and Temporary Easement has been Executed



dc clean RIVERS PROJECT

***Completion of the cleaning project by March 31 is critical for schedule of the KCPA Expansion and CSO 021 project**

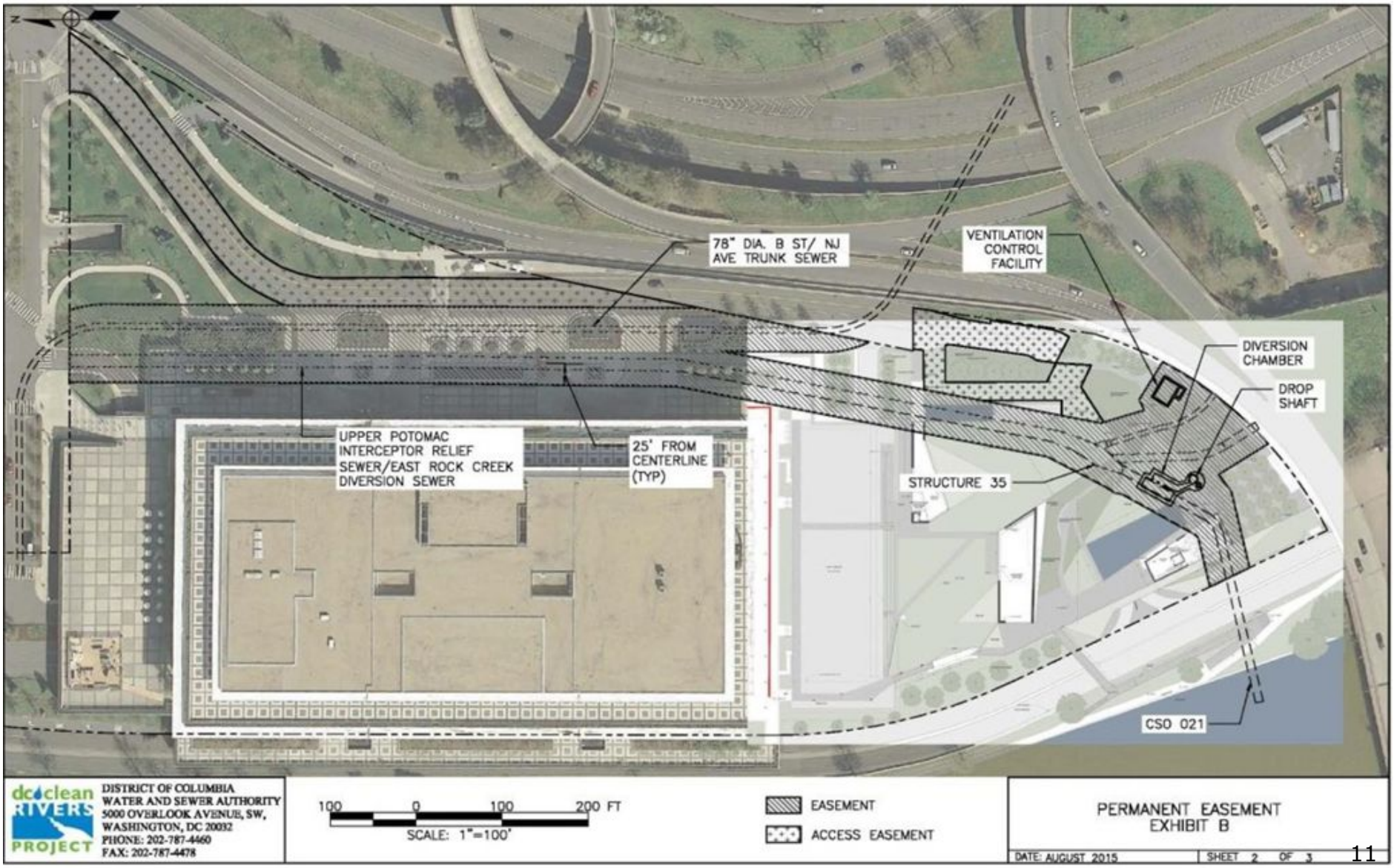
Topic 2: Easements for Sewers

- Kennedy Center was constructed on top of critical infrastructure assets
- Expansion proposes additional structures on top of sewers
- MOU achieves the following:
  - Granting of easements to DC Water for existing sewers
  - Granting of easements for new CSO facilities
  - Procedures to address
    - Emergencies
    - Regular maintenance
    - Planned repair work

Minimize impact on Kennedy Center structures and operations while protecting DCW assets

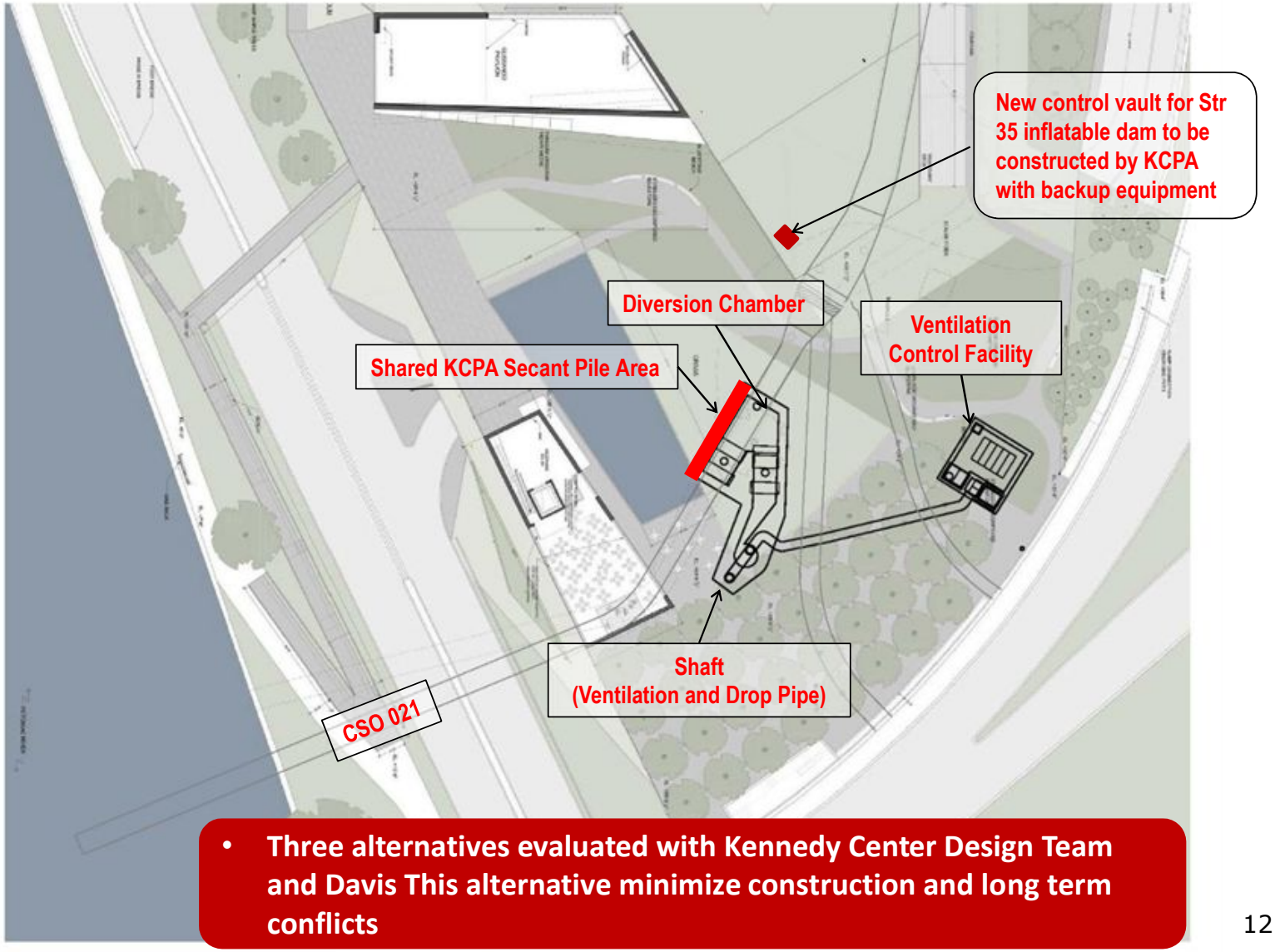
dc clean RIVERS PROJECT

Topic 2: Easement Areas



Topic 3: Construction of CSO 021 Diversion

CSO 021 Site Plan



- Three alternatives evaluated with Kennedy Center Design Team and Davis This alternative minimize construction and long term conflicts

Background image is future KCPA landscaping

Topic 3: Construction of CSO 021 Diversion

Approach in MOU

- KCPA provides
  - Access for DC Water to construct facilities
  - Preconstruction and construction accommodations to facilitate construction
- DC Water contracts with Davis Construction to perform construction
  - Davis competitively bids major elements of work
  - KCPA constructs Expansion on north part of site
  - DC Water constructs CSO 021 diversion on south site of site
  - DC Water agrees to substantial completion date for completion of CSO 021 facilities
  - DC Water turns over south part of site at completion for KCPA to complete landscaping
- Each entity is responsible for its own construction

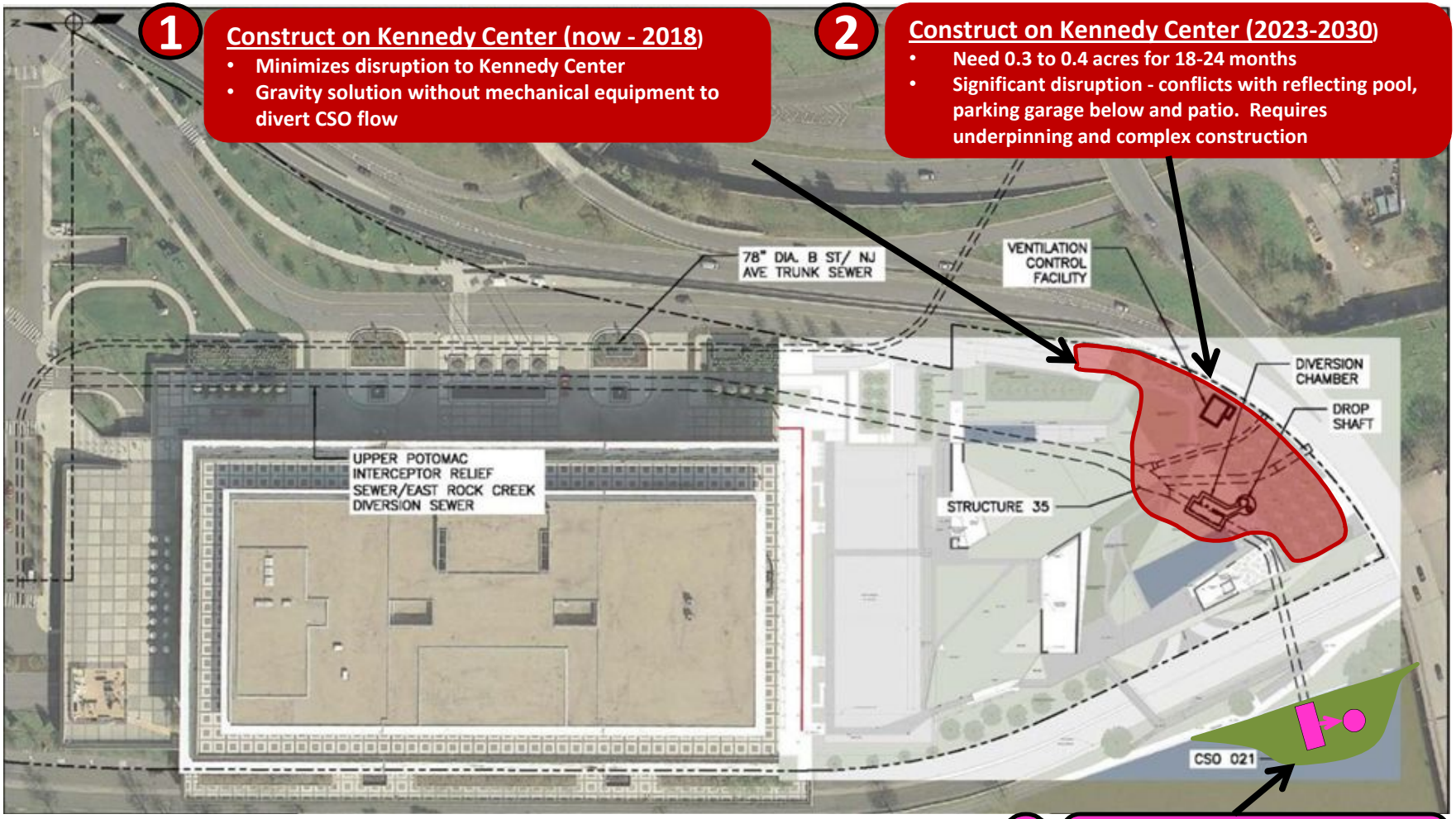
dc clean RIVERS PROJECT

Costs in MOU

Topic	Item	Services Provided by Kennedy Center	Cost (lump sum)	Comments
1	DC Water Sewer Cleaning	• Construct access road • Modify support of excavation to allow cleaning	$ 560,070	
2	Easements for sewers	Provide easements	$ 0	• Easements provided at no cost
3	CSO 021 Facilities	Improvements Str. 35 Inflatable Dam Vault	$ 421,077	• Provide backup equipment to improve reliability of inflatable dam vault
		Preconstruction Accommodations	$ 207,028	• Design and coordination costs to integrate CSO facilities into Kennedy Center Expansion
		Secant Pile Wall Construction	$ 743,347	• Kennedy Center will construct support of excavation wall required by DC Water due to proximity to Expansion Project
		Construction Accommodations	$ 2,697,888	• Revised PEPCO power feeds to serve future CSO facilities • Revised landscaping to accommodate Ken. Center opening • Additional Kennedy Center construction administration costs due to extended construction to accommodate CSO 021
		Total	**$ 4,629,410**	

DIVISION PR-B
CSO 021 DIVERSION FACILITIES

Evaluation of CSO 021 Diversion Locations
Alternatives 1, 2 and 3



dc clean RIVERS PROJECT

Conclusion: Alternative 1 is recommended

16

Evaluation of Alternatives

Alternatives to Constructing CSO 021 Diversion as part of Expansion

Altern.	Description	Conclusions	Estimated Cost ($M)
Construct as part of Kennedy Center Expansion:			
1	Construct as part of Kennedy Center Expansion	• **Minimizes disruption to Kennedy Center** • **Gravity solution without mechanical equipment to divert CSO flow**	$ 34
Construct after Kennedy Center Expansion:			> $ 47
2	Construct after Kennedy Center Expansion	• Major disruption to Kennedy Center • Complex construction • More expensive to DC ratepayers	
3	Construct in River	• Not approvable by regulatory agencies	Not approvable by regulatory agencies

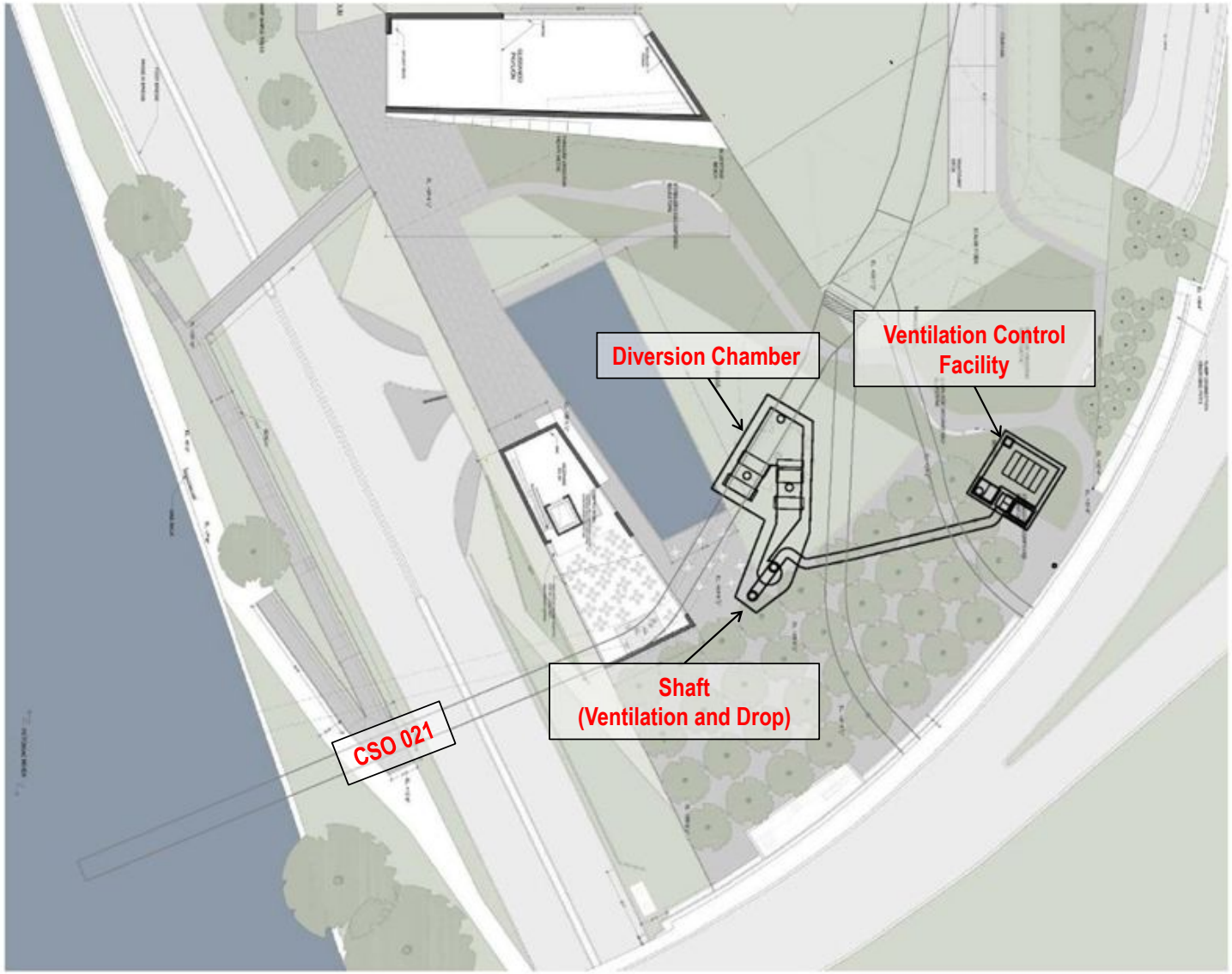
dc clean RIVERS PROJECT

Scope of CSO 021 Diversion Facilities

- Diversion Chamber to divert flows from existing CSO 021
- Ventilation Control Facility and ancillary piping
- Shaft containing two pipes; drop pipe for flows and ventilation pipe for air
- Utility Relocation and installation
- Electrical conduit and pad installed to supply power to the future ventilation equipment and monitoring equipment

dc clean RIVERS PROJECT

Site Plan



Background image is future KCPA landscaping

Procurement Approach

(As Provided by DC Water Procurement Regulations and Procurement Manual and as performed for Division B: Tingey Street Diversions)

- DC Water and Kennedy Center finalized MOU for DC Water to construct CSO 021 facilities during Kennedy Center Expansion
- DC Water has prepared 100% design
- Davis (Kennedy Center's Contractor) has solicited bids from a minimum of three (3) DC Water approved subcontractors for major work elements
- DCW and Davis agree on Not To Exceed Price, consisting of:
  - Maximum Bid Price
  - Contractor Contingency Based on Bid Price
  - Davis Management Expense and Fee Based on Bid Price
- Davis follows all DC Water contracting requirements:
  - First Source Employment
  - M/WBE Requirements
  - Davis Bacon prevailing wages
- Contract Form was developed by DC Water General Counsel's office

Benefits of Approach

- Risk associated with protecting existing Kennedy Center facilities would be to Davis, who is best to manage risk by sequencing work appropriately.
- Obtaining permits is more efficient due to Davis's existing permits and agreements.
- Coordination of CSO 021 project with expansion project will be responsibility of Davis; risk of conflicts between contractors sharing adjacent sites would be minimized.
- Avoiding future disruption, risks and costs associated with future construction after Expansion is completed

- **Similar approach was successful with Forest City for Tingey St. Diversion**

dc clean RIVERS PROJECT

Details of CSO 021 Contract

Item	Description	Forest City	Davis	Davis Cost $(000)
1	Cost of the Work			$26,400
2	Davis Fee	4%*	5%*	$1,362
3	Contingency (Contr. Notice to DC Water)	10%	4%	$1,042
4	Contingency (DC Water Approval)	7%	8%	$2,225
5	Subtotal Percentages	**21%**	**17%**	$31,150
6	DC Water Underground Risk Allowance	10%	11%	$2,800
8	**Not to Exceed Total**			**$33,950**

*Typical fee for private construction is 4% to 6%

Cost of using Davis Contract

- Not to Exceed Estimate: $33,950 million, includes:
  - Design of Temporary Facilities
  - Construction
  - Permit fees
  - Contingencies & Allowances
  - Construction Management
  - Davis Fee
- Expected savings over DC Water D-B-B procurement with a separate contractor:
  - Lower procurement expenses
  - Lower costs for mitigation of public impact
  - Lower costs due to avoidance of likely claims from having two contractors working at the site: Benefit of using Davis
  - Lower costs due to permit efficiencies
  - Lower costs from existing Contractor efficiencies

dc clean RIVERS PROJECT

Schedule for Div PR-B CSO 021

- Procurement: October 2015 - March 2016
- Execute Contract and give NTP: March 10, 2016
- Substantial Completion: May 2018 (26 month construction duration)

Recommendation

- Authorize execution of MOU with KCPA with a value of $ 4,629,410

- Authorize DC Water Clean Rivers Project to proceed with a Contract with Davis with a Not To Exceed value of $33.95 Million

dc clean RIVERS PROJECT