

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

1. Provide an Excel spreadsheet that lists the following information for the distribution and supply mains in the Middlesboro service territory: (1) Pipe Material (i.e.; asbestos, Polyvinyl Chloride (PVC), cast iron, galvanized steel, etc.); (2) Pipe Diameter; (3) Expected Life of Pipe Material; (4) Average Life Pipe Material has been In Service; (5) the Main Break History over the Past 10 Calendar Years; (6) the Length of Each Type of Pipe in the System; (7) the Repair Cost Incurred over the Past 10 Calendar Years; (8) the Replacement Cost Incurred over the Past 10 Calendar Years; and (9) the Estimated Replacement Cost for each Material Type.

RESPONSE:

1. See Excel spreadsheet provided as “Response to Staff DR 2.01 and 2.02 – pipe inventory”.
2. See Excel spreadsheet provided as “Response to Staff DR 2.01 and 2.02 – pipe inventory”.
3. A pipe fails through several mechanisms, including external corrosion, internal corrosion, gasket deterioration, hydraulic transients, and external loads. These failure mechanisms are affected by environmental factors such as soil type and road traffic and operational conditions such as pressure and water quality. The utility is only able to control some of these factors. Publications from the Environmental Protection Agency (EPA) and American Water Works Association (AWWA) identify a range of observed and expected life for watermain pipe types, depending on vintage, material, and size. The Company plans to research further and review its own historical data as it develops the updated Asset Management Plan (AMP) to identify expected service life based on pipe material and diameter. In general, the Company expects new pipe (PVC or ductile iron) to last 75 to 100 years with modern material and installation procedures.
4. See Excel spreadsheet provided as Attachment to PSC DR 2-1A.
5. See Excel spreadsheet provided as Attachment to PSC DR 2-1B. The Company began tracking water main break history electronically within the last two years.
6. See Excel spreadsheet provided as Attachment to PSC DR 2-1A.
7. Please see the attached file, “Response to Staff DR 2.01 and 2.02 - Historical Maintenance Repairs”.
8. Please see the attached file, “Response to Staff DR 2.01 and 2.02 - Historical Replacement Cost and Additions”
9. Replacement cost is more dependent on location of the watermain than the existing material type. The Company would not necessarily replace existing watermain with the same, existing material type. The Company typically will replace existing watermain

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with PVC or Ductile Iron, depending on location. The location of the watermain will significantly affect the replacement cost because it affects the access available for construction equipment and supplies, other utility conflicts to circumvent, restoration needed, number of service connections, potential service disruptions, and other factors. The latest major watermain replacement, the Queensbury Heights project, cost approximately \$64,528 for 615 linear feet (LF) of 6" watermain, including engineering and construction, approximately \$105/LF. The location was beneath a road which allows easier access for construction but requires more expensive asphalt restoration (compared to landscaping restoration). Typically, the Company would expect \$150/LF or greater for watermain replacement, with increasing costs for larger diameter watermain, number of hydrants and valves, service connections, or more difficult access and restoration.

WITNESS:

Justin Kersey, Stephen Vaughn

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2. Provide an Excel spreadsheet that lists the following information for the distribution and supply mains in the Clinton service territory: (1) Pipe Material (i.e.; asbestos, PVC, cast iron, galvanized steel, etc.); (2) Pipe Diameter; (3) Expected Life of Pipe Material; (4) Average Life Pipe Material has been In Service; (5) the Main Break History over the Past 10 Calendar Years; (6) the Length of Each Type of Pipe in the System; (7) the Repair Cost Incurred over the Past 10 Calendar Years; (8) the Replacement Cost Incurred over the Past 10 Calendar Years; and (9) the Estimated Replacement Cost for each Material Type.

RESPONSE:

1. See Excel spreadsheet provided as “Response to Staff DR 2.01 and 2.02 – pipe inventory”.
2. See Excel spreadsheet provided as “Response to Staff DR 2.01 and 2.02 – pipe inventory”.
3. A pipe fails through several mechanisms, including external corrosion, internal corrosion, gasket deterioration, hydraulic transients, and external loads. These failure mechanisms are affected by environmental factors such as soil type and road traffic and operational conditions such as pressure and water quality. The utility is only able to control some of these factors. Publications from the Environmental Protection Agency (EPA) and American Water Works Association (AWWA) identify a range of observed and expected life for watermain pipe types, depending on vintage, material, and size. The Company plans to research further and review its own historical data as it develops the updated Asset Management Plan (AMP) to identify expected service life based on pipe material and diameter. In general, the Company expects new pipe (PVC or ductile iron) to last 75 to 100 years with modern material and installation procedures.
4. See Excel spreadsheet provided as Attachment to PSC DR 2-2A.
5. See Excel spreadsheet provided as Attachment to PSC DR 2-2B. The

Company
6. See Excel spreadsheet provided as Attachment to PSC DR 2-2A.

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7. Please see the attached file, "Response to Staff DR 2.01 and 2.02 - Historical Maintenance Repairs".
8. Please see the attached file, "Response to Staff DR 2.01 and 2.02 - Historical Replacement Cost and Additions"
9. Refer to the Response to PSC DR 2-1(9). The Company has not recently completed any major watermain replacement in the Clinton water system and does not have recent bid costs for watermain replacement in the area. However, the Company would generally expect similar costs to the \$150/LF identified for the Middlesboro area.

WITNESS:

Justin Kersey, Stephen Vaughn

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3. In Case No. 2020-00027,¹ the Commission stated that the primary reason it approved the Kentucky-American Water Company's (Kentucky-American Water) Qualified Infrastructure Program (QIP) was to replace aging water main that has or will be reaching the end of its service life and contributes to unaccounted-for water loss.² For each of the following categories, explain in detail how it is reasonably related to the Commission's stated purpose of the QIP:

- a. Distribution and Transmission System Structures and Improvements;
- b. Mains and Valves;
- c. Hydrants;
- d. Distribution Tanks;
- e. Services, Meters and Meter Installations;
- f. Power Generation and Pumping Equipment;
- g. Unreimbursed Funds Related to Capital Projects to Relocate Facilities Required by Governmental Infrastructure Projects;
- h. Source of Supply and Water Treatment Structures, Pipe and Equipment Including Sampling Equipment;
- i. SCADA Equipment; and
- j. Power Generation and Pumping Equipment.

RESPONSE:

¹ See, Case No. 2020-00027, *Electronic Application of Kentucky-American Water Company to Amend Tariff for the Establishment of Qualified Infrastructure Program Charge* (Ky. PSC June 17, 2020) page 15.

² HVT at 9:51.

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We believe that all any of these projects could improve unaccounted for water losses – depending on the nature of the replacement and the replaced capital, a direct impact on unaccounted for water losses could be probable. This will need to be considered on a case by case basis by the commission in its approval of specific QIP surcharge applications.

WITNESS:

Rob Guttormsen

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4. Explain how the Commission's finding in Case No. 2020-00027, which limits Kentucky-American's QIP Tariff Rider to Mains Replaced/Restored; Mains Unscheduled; and incidental or appurtenance projects necessary to support Mains Replaced/Restored and Mains Unscheduled, impacts Water Service Kentucky's proposed QIP.

RESPONSE:

The Commission's findings in Case No. 2020-00027 appear to be based on the specific projects for which Kentucky-American Water Company sought approval for its initial QIP Rider Surcharge. Those findings do not change WSCK's request for approval of a QIP in its tariff. If the QIP is approved in this case, WSCK will comply with future orders of the Commission addressing WSCK's QIP Rider Surcharge.

WITNESS:

Rob Guttormsen

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5. Provide Water Service Kentucky's water statistical information for the calendar years 2010-2019 using the table below:

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Total Water Produced/Purchased										
Total Water Sales										
Other Water Used:										
Utility/Water Treatment Plant										
Wastewater Plant										
System Flushing										
Fire Department										
Other Water Used:										
Total Other Water Used										
Total Water Loss										
Water Loss Percentage										

RESPONSE:

Please see the attached, "Response to DR Staff 2.5 - Water Statistics".

WITNESS:

Perry Brown, Senior Financial Analyst

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6. Using Water Service Kentucky's response to Item 5 above, provide the following information:

a. A detailed explanation as to how Water Service Kentucky calculated the amounts of each of the category listed as Other Water Used;

b. Copies of all documents Water Service Kentucky relied upon to support the amounts of water usage category listed as Other Water Used; and

c. In the event that any of the usage is estimated, the basis for the Water Service Kentucky's estimates.

RESPONSE:

a. Please see the attached file, "Response to Staff DR 2.06 - Water Statistic Support" for a breakout of other water used.

b. Please see the attached file, "Response to Staff DR 2.06 - Water Statistic Support"

c. No usage is estimated for the data provided.

WITNESS:

Perry Brown, Senior Financial Analyst

CASE NO. 2020-00160
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7. Identify the number of Blue Max tubing service lines that are currently in the Middlesboro service territory and explain if the Blue Max tubing in the Middlesboro service area has a higher failure rate than the other service line types.

RESPONSE:

No Blue Max tubing services lines have been installed. Due to the extreme rocky nature of the soil, only Type K Copper is used in Middlesboro.

WITNESS:

Stephen Vaughn

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8. Identify the number of Blue Max tubing service lines that are currently in the Clinton service territory, and explain whether the Blue Max tubing has a higher failure rate in the Clinton service area than the other service line types.

RESPONSE:

No Blue Max tubing service lines have been installed. Endopure, manufactured by Endot is used for all new service lines. Approximately 1,000-1,200 feet of the Endopure tubing is currently in service.

WITNESS:

Stephen Vaughn

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9. Refer to Water Service Kentucky's response to the June 26, 2020 Order, Appendix B, Item 35. Water Service Kentucky refers to a file attached to its response entitled "Response to Staff DR 1.35a - GUI-WSC-Maintenance Guidelines," item 9. Provide a copy of the referenced file in Excel spreadsheet format with all columns and rows accessible and all formulas unprotected.

RESPONSE:

No such document exists. The attachment provided in response to the June 26, 2020 Order, Appendix B, Item 35 are written guidelines that do not exist in Excel format.

WITNESS:

Rob Guttormsen, FP&A Manager

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10. Refer to Water Service Kentucky's response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma.

a. In prior decisions, the Commission found that Water Service Kentucky failed to demonstrate that the allocated Project Phoenix and JD Edwards costs were reasonable and therefore disallowed rate recovery of the associated depreciation expense.³ Explain in detail the reason Water Service Kentucky is proposing to restate the accumulated depreciation of Project Phoenix and JD Edwards and request rate recovery costs that had been disallowed in prior Commission decisions.

b. Given that the depreciation of its computer investment has been recovered from the ratepayers through the revenues collected in prior periods, explain why the restatement of accumulated depreciation of computer capital costs would not be considered double recovery of depreciation.

c. Given that the depreciation of the computers has been included in net income and retained earnings, explain why the restatement of accumulated depreciation as proposed by Water Service Kentucky will not require it to restate retained earnings.

d. In prior decisions, the Commission has found that the utility should reflect the depreciation life revisions when calculating and reporting depreciation for all reporting periods after the date of the Commission decision; however, it directs the utilities to make no retroactive adjustment to its books to account for the cumulative effect of this change in

³ See Case No. 2008-00563, *Application of Water Service Corporation of Kentucky for an Adjustment of Rates* (Ky. PSC Nov. 9, 2009) page 6; Case No. 2010-00476, *Application of Water Service Corporation of Kentucky for an Adjustment of Rates* (Ky. PSC Nov. 23, 2011) page 13; and Case No. 2013-00237, *Application of Water Service Corporation of Kentucky for an Adjustment of Rates* (Ky. PSC July 24, 2014) page 22.

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accounting estimate. Explain why Water Service Kentucky should be allowed to deviate from this Commission requirement.

e. Provide a detailed description of Water Service Kentucky's computer investments listed in the table below. For each asset in the table, identify the amount allocated to Water Service Kentucky.

	<u>Asset No.</u>	<u>Asset Description</u>	<u>Costs per Books</u>
a.	1012399	Mini Computers Wtr	832,688
b.	5000569	Data Center Relocation Project	732,003
c.	5000570	Data Center Relocation Project	312,941
d.	2019099	Fusion	14,290,000
e.	BI-BE	Bi Publisher Bill Enhancement	242,778
f.	SEW-Ph II	Sew Phase 2 - (Start Stop Automation)	501,000
g.	2019155	Canadian Migration	300,000

f. Recalculate Water Service Kentucky's depreciation of computer equipment and software contained on Tab wp-l-Computers to reflect the elimination of Project Phoenix, JD Edwards, and the accumulated depreciation restatement. Also, revise the Excel workbook Filing Template Pro Forma to reflect the impact of the recalculated computer depreciation.

RESPONSE:

- a. Since the PSC has determined that computer assets last 22.5 years it is appropriate to reflect these useful lives in rates. The PSC has not denied rate recovery of technology assets in the prior two rate cases.
- b. Depreciation expense for all computer assets is currently being recovered from Kentucky rate payers using a 22.5 year life. Since the PSC has determined that computer assets last

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22.5 years, it is appropriate to re-establish net book values of computer assets using the PSC's recommended useful life for these assets in the calculation of WSCK's revenue requirement in order to prevent under recovery of annual depreciation expense for this class of assets.

- c. The restatement of accumulated depreciation for computers is being proposed as a rate making adjustment in this case, WSCK is not proposing to, nor can it, change useful lives on WSC's books. The Company is not required to restate retained earnings to reflect rate making adjustments.
- d. The Company is not proposing to change useful lives for computer assets on its books, it is requesting a rate making adjustment to align computer plant and accumulated depreciation balances with the PSC's contention that these assets last for 22.5 years.
- e. See below:
 - a. A comprehensive IT security system that covers all users, servers and end user computers in the Lower 48. This system monitors email, hyperlinks, server health, unusual computer behaviors, etc. into a unified and comprehensive cyber-security system for all IT related services.
 - b. To cover the upgrade and build-out cost of our Data Center environment while also bringing in-house aspects of data center management that were previously outsourced. For example, replacing a fully outsourced data backup solution to one fully operated by internal IT staff. Included in this project are development costs for Oracle's JD Edwards financial application and Oracle's Customer Care and

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Billing. Development of these applications was in response to greater adaptability and customization required by various state public service commissions.

- c. Please see the response to part b. above.
- d. Please refer to the direct testimony of Company witness Guttormsen, pp. 12-13 for a description of FUSION. Jordon.
- f. Please see the attached file "Response to 2.10(f.) - Filing Template (Remove JDE & Project Phoenix)".

WITNESS:

Rob Guttormsen

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11. a. Explain when Corix Infrastructure Inc. (Corix) began to provide corporate services to Water Service Corporation.
- b. Explain when Water Service Corporation began allocating the corporate services provided by Corix to Water Service Kentucky.
- c. Identify the corporate entity that provided those services to Water Service Kentucky prior to Corix.

RESPONSE:

- a. Corix Infrastructure Inc. (CII) acquired Corix Regulated Utilities (US) Inc. (formerly known as Utilities, Inc.) in 2012. The corporate support services provided by CII have, in certain respects, been provided to support the operations of the Corix Regulated Utilities (US) Inc. operating subsidiaries since the transaction closed.
- b. December of 2018. In December of 2018 a full calendar year of 2018 corporate Corix services were allocated through the two-tier CAM allocation process and recorded on Water Service Kentucky's books.
- c. Prior to Corix, corporate services were provided by a number of entities, including parent corporations and, at certain times, employees of Water Service Corporation.

WITNESS:

Shawn Elicegui

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12. Refer to Water Service Kentucky's response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma, wp-o-Corporate Costs. Provide a similar Excel spreadsheet for the Corix cost allocated in calendar years 2015-2019.

RESPONSE:

Since corporate costs were not allocated to Water Service for years 2015, 2016, and 2017 workpapers are not available for these years. Please see the attached file entitled "Response to Staff DR 2.12 - WSKK Pro Forma CAM Cost Adjustment TTM - 2019.12.31". The Company continues to search for certain 2018 CAM cost removal information which was not maintained by current Corix employees and will update this response as information is discovered.

WITNESS:

Rob Guttormsen

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13. Provide a table comparing the services provided to Water Service Kentucky by Corix to the services provided by Water Service Corporation. In the comparative schedule specify which costs are allocated or direct.

RESPONSE:

Please refer to Exhibit PLB-2 of the Company's application. All costs for services provided by WSC and Corix are allocated; WSC costs are allocated by ERC, Corix costs are allocated through a two-tiered process outlined and discussed in the CAM Manual. Additionally, please refer to the direct testimony of Company witness Shawn Elicegui, Q&A numbers 27 and 28 for a discussion of the services provided by local operations, WSC, and Corix.

WITNESS:

Perry Brown, Senior Financial Analyst

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14. Provide the costs allocated to Water Service Kentucky for calendar years 2014-2015, as well as the costs directly billed to Water Service Corporation.

RESPONSE:

Please see the attached file, "Response to Staff DR 2.14 - WSCKY Allocated & Direct Expenses". The Company assumes that the question is asking for direct costs booked to WSC and costs allocated to WSCK that stem from WSC.

WITNESS:

Perry Brown, Senior Financial Analyst

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15. Since Corix is the parent company of Water Service Kentucky, explain why Corix provides services to Water Service Corporation instead of providing the services to Water Service Kentucky directly.

RESPONSE:

Corix Regulated Utilities (US) Inc. (formerly known as Utilities, Inc.) is the parent corporation of Water Service Corporation of Kentucky. Corix Regulated Utilities (US) Inc. has no employees. Historically, Water Service Corporation served as the service corporation and statutory employer of employees who deliver services to the customers of the operating companies owned by Corix Regulated Utilities (US) Inc., including Water Service Corporation Kentucky. Generally, given the nature of the corporate services – more strategic, enterprise-wide services – the services are provided to Water Service Corporation to ensure consistency and continuity across the Corix Group of Companies.

WITNESS:

Shawn Elicegui

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16. Refer to Application, page 603. Provide a list of the costs incurred to receive information about federal law and requirements.

RESPONSE:

Please see the attached file entitled "Response to Staff DR 2.16 - HSE Costs 2020 Q1 TTM".

WITNESS:

Shawn Elicegui

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RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

17. Provide the cost that Corix charges to Water Service Corporation to provide corporate services.

RESPONSE:

Please see the attached file entitled "Response to Staff DR 2.17 - WSC CAM Costs" which shows the costs Corix charged to WSC for the test year ended March 31, 2020.

WITNESS:

Rob Guttormsen

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18. Explain to whom Corix actually provides services: Water Service Corporation or Water Service Kentucky?

RESPONSE:

Corix corporate services are provided to Water Service Corporation for the benefit of the operating subsidiaries of Corix Regulated Utilities (US) Inc., including Water Service Kentucky.

WITNESS:

Shawn Elicegui

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19. List the Business Development projects Corix provided Water Service Kentucky calendar years 2014-2019 and the test-year. In addition, the costs incurred by Corix for each project.

RESPONSE:

Business Development costs were allocated from Corix to WSC in the tier 1 allocation, however, no Business Development costs were subsequently allocated to Water Service Kentucky in the tier 2 allocation.

WITNESS:

Rob Guttormsen

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20. Provide a copy of the Cost Allocation Manual that outlines where the cost charged from Corix are specified at the allocation rates.

RESPONSE:

Please see the attached file entitled "Response to Staff DR 2.20 - Cost Allocation Manual"

WITNESS:

Rob Guttormsen

Corix Group of Companies

Cost Allocation Manual

For Fiscal Year: 2020

*Updated, reviewed, and approved by:
Corix Finance Team on May 11, 2020*

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Introduction

The purpose of this manual is to provide an explanation of services provided by affiliates within the Corix Group of Companies (“Corix”) and the methods used to allocate costs to the operating businesses. This Cost Allocation Manual (“CAM”) has been prepared consistent with the NARUC Guidelines for Cost Allocations and Affiliate Transactions (“NARUC Guidelines”). The manual is updated annually with organizational changes and approved by the Corix Finance Team.

Direct costs are identified up front in the following ways and are not subject to the discussion of this CAM as they are directly assigned to a business unit:¹

- If an individual spends greater than 85% of their time on an activity/service for a business unit, that individual is directly assigned to that business unit receiving the activity/service.
- “Shared Operating Costs” are costs that are managed centrally for administrative ease, cost savings and have vendor management by dedicated resources. These costs are directly assigned to the business units before the cost allocation process. Some examples of the largest of these costs are employee benefits and business insurance.

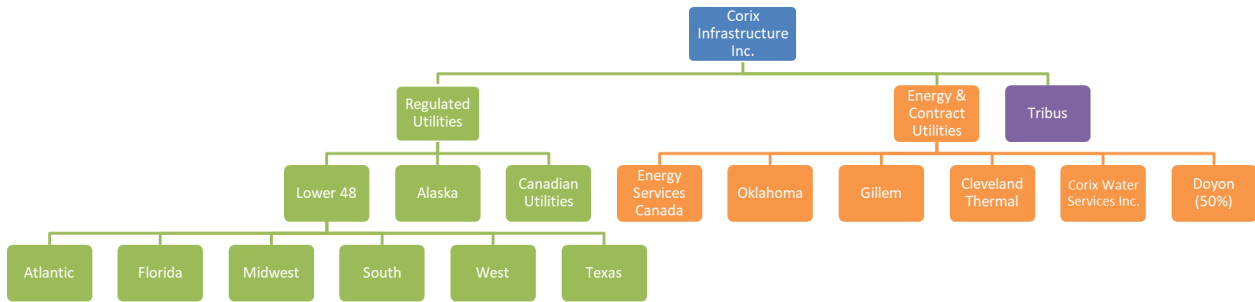
After direct assignment of direct costs, the indirect costs² are subject to the discussion of this CAM.

¹ Direct charges are costs incurred by one company for the exclusive benefit of, or specifically identified with, one or more companies, and which are directly charged to the company or companies that specifically benefited. Under the NARUC Guidelines, “Direct Costs” are defined as “costs which can be specifically identified with a specific service or product.”

² Indirect charges (or allocated costs) are costs incurred by one company that are for the benefit of either (i) all of the Corix companies; or (ii) all of the regulated companies, and which are charged to the benefited companies using a methodology and allocation factors that link cost causation and cost recovery. Under the NARUC Guidelines, “Indirect Costs” are defined as “costs that cannot be identified with a particular service or product. This includes but is not limited to overhead costs, administrative, general, and taxes.”

Simplified Corix Corporate Structure

Figure 1 – Simplified Corix Structure³

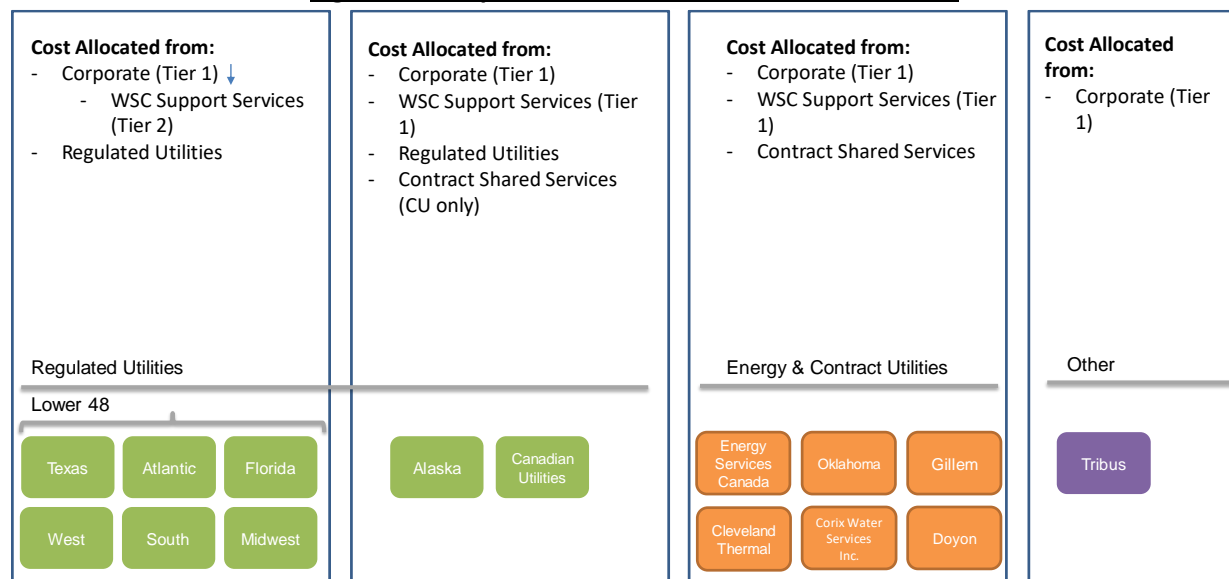


The Corix Cost Distribution Structure

Corix is a leader in the implementation of sustainable water, wastewater, and energy utility infrastructure solutions for small to medium-sized communities across North America. Figure 2 shows a simplified cost distribution structure of Corix to show where the costs being allocated to each affiliate grouping are originating from.

³ This structure reflects the grouping of the affiliates for cost distribution and does not indicate the corporate structure. Corporate holding intermediaries have been removed and Alaska, for example, is a regulated utility but is not owned by the same holding company as the other regulated utilities. In addition, while Doyon is included under Energy and Contract Utilities, Corporate Services are not provided to Doyon which is managed as an investment and, therefore, has a notional allocation of costs from Corporate, WSC Support Services, and Contract Shared Services to represent the organizational complexity arising from asset management.

Figure 2 – Simplified Corix Cost Distribution Structure



Corix Corporate/Cost Structure

- Corix Infrastructure Inc.** (“Corporate”) is the ultimate corporate parent and as a pure play utility business enjoys a wide spectrum of technical and industry expertise in all facets of sustainable water, wastewater and energy systems, including innovative technologies, operating tools, and regulatory resources required to develop sustainable multi—utility services.
- WSC Support Services** – WSC Support Services activities are currently provided to mainly the Lower 48 business units. That said, certain cost centers do provide services to the whole organization. As we execute on strategic consolidation and simplification of our service platform in 2020 and 2021, we expect more, if not all, WSC cost centers to provide services to the entire organization.
- Contract Shared Services** – Contract Shared Services activities are currently provided to the Energy & Contract Utilities and to the Canadian Utilities group in the Regulated Utilities business. As we execute on the consolidation and simplification of our service platform in 2020 and 2021, we would expect these cost centers to be functionally rolled into WSC support services to have one support services organization.
- Tribus** – Tribus Services is a Corix company but managed separately. Tribus receives limited services from the corporate group, which are addressed in more detail later in this manual.
- Regulated Utilities** – Represents the US Regulated Utilities in 18 states, and Canadian Utilities in 2 provinces. There are certain resources which are dedicated to the Regulated Utilities and described in the section titled “Cost Distribution at the Regulated Utilities, Energy & Contract Utilities, President, Vice-President, Regional, State and Operating Company Cost Centers.”.

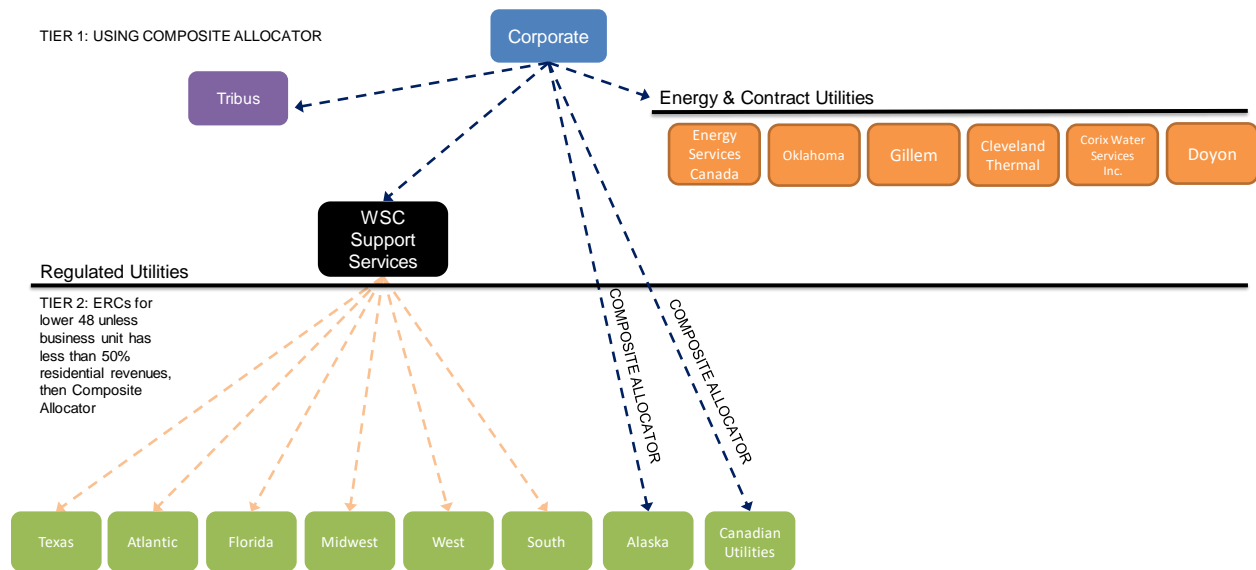
- **Energy and Contract Utilities** – Represents the energy and contract businesses in the Corix group of companies. There are certain resources which are dedicated to the Energy & Contract Utilities and described in the section titled “Cost Distribution at the Regulated Utilities, Energy & Contract Utilities, President, Vice-President, Regional, State and Operating Company Cost Centers.” As noted above, Doyon does not receive the same services as the other affiliates included here and is only 50% owned by Corix. Therefore, for purposes of equitably allocating overhead and shared services, a notional allocation of costs is made to represent a Doyon share.

Allocation of Costs and Scope of Services from Corporate

Allocation of Costs from Corporate

Figure 3 below outlines the various cost flows from Corporate to the various affiliate groups and entities. Below Figure 3 is a narrative which explains the diagram of the various cost flows.

Figure 3 – Corporate Cost Flows



To begin the process, Tribus is allocated a certain percentage of certain costs at the corporate level. This is done to account for the fact that although the Tribus business is not managed through Corix, it does receive limited services from the Corix corporate group. These services include the Corporate Office and Corporate Finance, both of which are discussed in Table 2 of this document. For the 2020 fiscal year Corix allocates 2% of certain Corporate costs to Tribus as this appropriately represents the level of resources and costs associated with the limited services Corix provides to Tribus.

After the allocation of certain costs to Tribus, the remaining costs are allocated to affiliate groups, utility operations and businesses using a two-tiered approach. Figure 3 above shows that corporate costs are subject to a Tier 1 allocation to:

- (i) WSC Support Services
- (ii) Alaska
- (iii) Canadian Utilities
- (iv) Energy and Contract Utilities (except for the notional allocation made to Doyon)

The Tier 1 allocation for corporate costs is based on the composite allocator shown in Table 1 since it best represents the size, scope and complexity of operating business units. The goal is to put businesses on a level standing for comparison purposes.

Table 1 – Composite Allocator

Factor	Weight
Gross Revenue	33.33%
Headcount	33.33%
Gross Property, Plant & Equipment	33.33%
Total	100%

The Canadian Utilities, the Energy & Contract Utilities, and Alaska are all allocated corporate costs down to each operating business/utility via the Tier 1 allocation. The L48 portion of the Regulated Utilities entity (through WSC Support Services) uses a Tier 2 allocator of Equivalent Residential Connections (ERCs) to allocate costs all the way down to the operating businesses since these businesses are largely residential in nature and to conform to the existing affiliate interest agreements in those areas. This Tier 2 allocation to the Lower 48 is done separately and is excluded from the scope of this Cost Allocation Manual.

Scope of Services from Corporate

Corix maintains enterprise-wide standards and support for many functions such as IT, cybersecurity, safety, human resources, and asset management and maintenance providing efficiencies and expertise across the business units. Corix provides financial and strategic management, legal and regulatory compliance oversight, corporate governance, and administrative oversight to WSC Support Services (which, in turn provides support services to the lower 48 Regulated Utilities), Alaska, Canadian Utilities, and the Energy & Contract Utilities. These Corporate Services are necessary for all the affiliates, including the regulated utility subsidiaries, to have access to capital for projects and operations. The use of shared expertise provides each of the affiliates with benefits it could not economically achieve on a stand-alone basis including strategic management advice and access to capital at competitive rates.

The following table shows the scope of services from the corporate office and the Tier 1 allocation method for these costs. The services and categories are as of approval date and are subject to change based on potential changes in the needs of the operating businesses. Notwithstanding these allocation methodologies, if an expense is related solely to a specific business segment, those costs are directly charged to the business for which they are incurred. If organizational restructuring or realignments are implemented, any allocations would be completed based on the composite allocator identified in Table 1 until they are expressly incorporated in an update of the CAM.

Table 2 – Summary of Corporate Scope of Services and Tier 1 Allocation Method⁴

Type of Cost	Tier 1 Allocation Methodology	Rationale	Examples
Corporate Office (CEO)	(i) 2% direct to Tribus; (ii) Then Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for CEO, support staff, etc.; Board of Directors fees; Third party services such as consulting, etc.
Corporate Finance (Includes internal audit, accounting, tax, and treasury)	(i) 2% direct to Tribus; (ii) Then Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for CFO, treasury, internal audit, reporting and consolidation, tax, and strategic finance, etc.; Third party services such as audit, tax, etc.; Computer licenses for corporate performance management tool, etc.
Human Resources Corporate	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs; Recruitment expenses; Third party services such as compensation studies, etc.
Information Technology	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for IT strategy and planning services such as enterprise cyber security program development, maintenance and monitoring, etc.; Third party services such as consulting, etc.
Legal Corporate	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for legal compliance; Third party services such as consulting for general corporate and enterprise matters, etc.
Corporate Health, Safety, and Environmental	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for health, safety and environmental oversight; Safety incentive program; Software

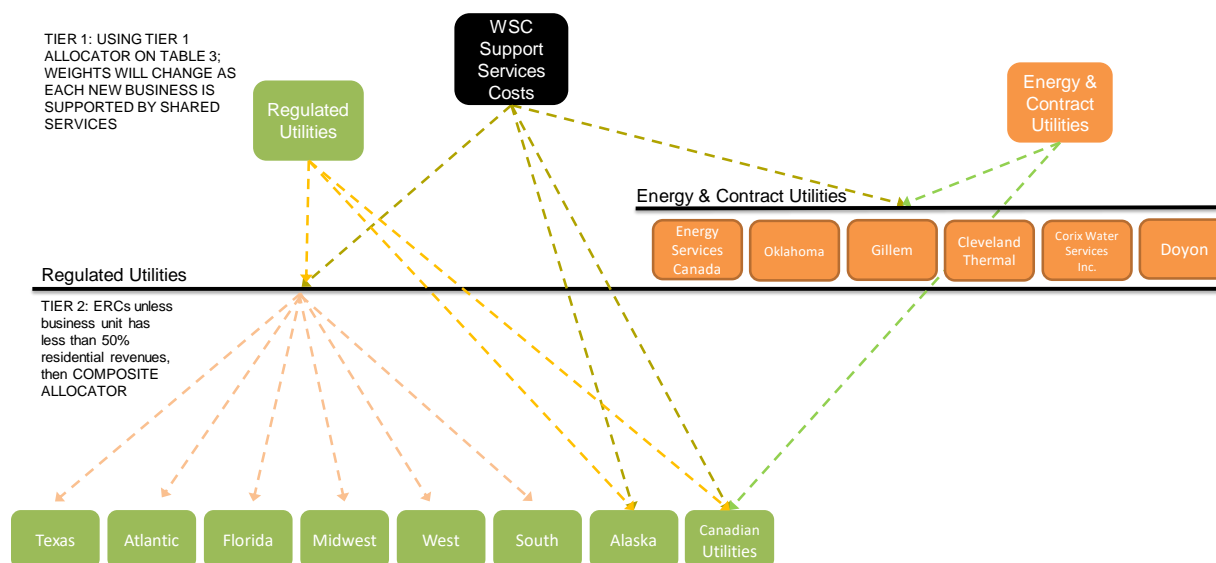
⁴ A more detailed description of the Corporate Services is included in Appendix A.

			licenses costs for health and safety programs; Third party services for safety assessments, surveys, training, and audits
Corporate Communications	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for overall policies guidance on communications, monitoring of media, etc.; Third party services for corporate internet site, video, advertising, and media monitoring
Business Development	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for overall business development oversight; Third party services such as engineering, legal, and accounting to support the evaluation of potential acquisitions
Continuous Improvement	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for continuous improvement; Third party services such as consultants to support evaluation and implementation of initiatives, etc.
Strategy	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for leading the development of the strategy and translating it for employees across functions and business units; Third party services such as consultants to advise Corix on its strategic initiatives, etc.

Scope of Services from WSC Support Services and Allocation of Costs

Please refer to Figure 4 for a diagram of the various flows of costs from Support Services to the operating companies. Below Figure 4 is a narrative which explains the diagram of the various cost flows.

Figure 4 – Support Services Cost Flows



WSC Support Services costs are first subject to a Tier 1 allocation between Regulated Utilities and Energy & Contract Utilities (See Table 3 for details). WSC Support Services activities are currently provided to mainly the Lower 48 business units. That said, certain cost centers do provide services to the whole organization and the plan is for all cost centers to provide services for the whole organization. As such, the weights of the allocators will change as each business is substantially supported by WSC Support Services.

The Canadian Utilities, the Energy & Contract Utilities, and Alaska are all allocated corporate costs down to each operating business/utility via the Tier 1 allocation. The Lower 48 entities (through WSC Support Services) uses a Tier 2 allocator of Equivalent Residential Connections (ERCs) to allocate costs all the way down to the operating businesses since these businesses are largely residential in nature and to conform to the existing affiliate interest agreements in those areas. This Tier 2 allocation to the Lower 48 is done separately and is excluded from the scope of this Cost Allocation Manual.

The following table shows the scope of services from WSC Support Services and the Tier 1 allocation method for these costs. The services and categories are as of the time of this writing and are subject to change based on potential changes in the needs of the operating businesses.

Table 3 – Summary of WSC Support Services Scope of Services and Tier 1 Allocation Method⁵

Type of Cost	Tier 1 Allocation Methodology	Rationale	Examples
Chief Shared Services Office	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for leadership to provide services efficiently and economically; Third party services
Corporate Finance (Includes accounting, accounts payable and tax)	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for corporate finance, bookkeeping, tax determination, financial statement preparation, etc.; Third party services for audit and tax, etc.
Human Resources Support	Headcount	Support costs driven by number of employees	Direct employee labor and non-labor costs for payroll, employee onboarding, employee training, etc.; Third party services
Information Technology Support	Headcount	Support costs driven by number of employees	Direct employee labor and non-labor costs for software and hardware administration, IT support, etc.; Third party services
Computer System Cost	Composite Allocator (See Table 1)	Corporate Complexity	Direct costs and prepaid expense associated with Oracle Cloud system
Billing	Customers	Support costs driven by number of customers	Direct employee labor and non-labor costs for billing support, etc.; Third party services
Customer Service	Call Volume by Operating Business	Support costs driven by call volume	Direct employee labor and non-labor costs for customer correspondence and communication via call center, etc.; Third party services
Health, Safety, and Environmental Support	Headcount	Support costs driven by number of employees	Direct employee labor and non-labor costs for leadership and/or administration of

⁵ Example of an Affiliate Interest Agreement (AIA) provides a more detailed description of services in Appendix B.

			health, safety, and environment best practices; Third party services
Chief Risk Officer	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for legal counsel on various matters across the Corix business; Third party services
External Communications Support	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for external communications to customers, regulators, etc.; Third party services
Continuous Improvement	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for continuous improvement; Third party services such as consultants to support evaluation and implementation of initiatives, etc.
All Other Indirect Capital, Depreciation and Costs	Composite Allocator (See Table 1)	Corporate Complexity	Leasehold improvements, building rent, facility administration

Scope of Services from Contract Shared Service and Allocation of Costs

Please refer to Figure 5 for a diagram of the various flows of costs from Contract Shared Services. Below Figure 5 is a narrative which explains the diagram of the various cost flows.

Figure 5 – Contract Shared Services Cost Flows

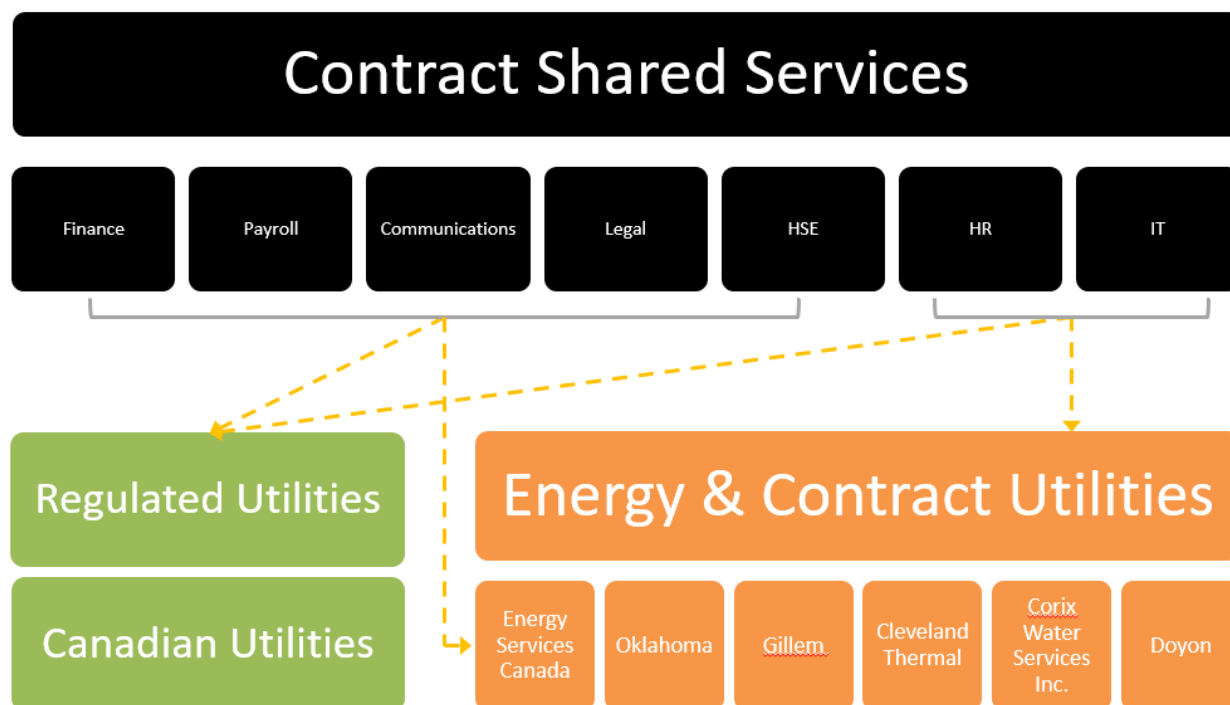


Figure 5 above shows that:

- Only Canadian Utilities within Regulated Utilities is allocated costs from Contract Shared Services
- Energy Services Canada is allocated costs from Contract Shared Services
- Oklahoma, Gillem, Cleveland Thermal, CWSI and Doyon are allocated HR and IT costs from Contract Shared Services, but they are not allocated other Contract Shared Services costs (Finance, Payroll, Communications, Legal, HSE)

Entities currently receiving services from the Contract Shared Services group will not be charged for the same services from WSC Support Services until the Contract Shared Services group is integrated and/or eliminated (in order to ensure avoidance of redundancy). As the WSC Support Services group commences serving the other parts of the business that it currently does not, the weights of the allocators will change with the integration and/or elimination of the Contract Shared Services group.

The following table shows the scope of services from the Contract Shared Services and the Tier 1 allocation method for these costs. The services and categories are as of the time of this writing and are subject to change based on potential changes in the needs of the operating businesses.

Table 4 – Summary of Contract Shared Services Scope of Services and Tier 1 Allocation Method⁶

Type of Cost	Allocation Methodology	Rationale	Examples
Human Resources Support	Headcount	Support costs driven by number of employees	Direct employee labor and non-labor costs; Third party services
Information Technology Support	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs; Third party services
Finance Support	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for accounting and accounts payable; Third party services
Payroll Support	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for payroll support; Third party services
Legal Support	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for legal support; Third party services
External Communications Support	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for external communications to customers; Third party services
Health, Safety, and Environmental Support	Composite Allocator (See Table 1)	Corporate Complexity	Direct employee labor and non-labor costs for leadership and/or administration of health, safety, and environment best practices; Third party services

⁶ A more detailed description of the Contract Shared Services is included in Appendix C.

Cost Distribution at the Regulated Utilities, Energy & Contract Utilities, President, Vice-President, Regional, State and Operating Company Cost Centers

All shared costs which require allocation within a business unit (Regulated Utilities, Energy & Contract Utilities, President, Vice-President, Regional, State, Operating Company Cost Centers, etc.) will be handled similarly as discussed above. Costs are allocated down to each operating utility/business using the current allocation methodology approved by the regulator. These allocation methodologies are outside the scope of this CAM.

Updating Allocation Inputs

The inputs for the allocators are: (i) Gross Revenue; (ii) Headcount; (iii) Gross Property, Plant and Equipment; (iv) Customers; and (v) Call Volume by operating businesses. Due to the constantly changing figures for these inputs, Corix uses a point-in-time approach to calculate the forecast allocation percentages for the following year. This provides stability for budgeting and actual allocations as well as a reference point for year-over-year comparisons. Tier 1 Allocation percentages are updated annually as outlined in Table 5 below.

Table 5 – Tier 1 Allocation Time Periods

Inputs	Reference
Gross Revenue ⁷	Trailing Twelve Months as of June 30th of prior year (i.e. 2021 allocation is based on gross revenue from July 1, 2019 – June 30, 2020)
Headcount	As at June 30th of prior year (i.e. 2021 allocation is based on June 30, 2020 value)
Gross Property, Plant & Equipment ⁸	As at June 30th of prior year (i.e. 2021 allocation is based on June 30, 2020 value)
Customers	As at June 30th of prior year (i.e. 2021 allocation is based on June 30, 2020 value)
Call Volume by Operating Business	As at June 30th of prior year (i.e. 2021 allocation is based on June 30, 2020 value)

June 30th was chosen as the most appropriate point-in-time to allow for the allocation percentages to be determined, and the forecast corporate costs to be allocated to each operating utility/business prior to the completion of the annual budgets.

The allocation percentages will also be updated as the business unit changes how it is receiving support services (i.e. when an Energy & Contract Utilities business unit is serviced by WSC Support Services and not Contract Shared Services).

⁷ Gross Revenue is defined as recorded gross revenue.

⁸ Gross Property, Plant & Equipment is defined as gross property, plant, and equipment independent of the way it has been financed.

The Tier 2 allocation percentages will be updated as per the current allocation methodology approved by the regulator.

Appendices

Appendix A – Description of Corporate Services

This description is designed to demonstrate the nature of services provided by corporate that are required. This description examines each of the corporate areas and provides a narrative of the services provided. Note that as Corix executes on its strategic consolidation of services, costs centers within WSC will work collaboratively with Corporate cost centers and vice versa. Descriptions below will note when this is the case at the beginning of 2020.

Corporate Office

The costs in this group include direct employee labor and non-labor costs for CEO, support staff, etc. Also included are Board of Directors fees and third-party services.

This area represents the Corix Corporate CEO function. The Corix Corporate CEO sets overall direction and corporate strategy, provides guidance to operational leadership to optimize Croix's lines of business and identify complementary aspects of Corix's businesses to achieve synergies where possible for the benefit of multiple stakeholders including the customers of the operating companies, interacts with shareholders to source capital, and at a high-level works with other members of the Corix Corporate Executive Management Team and the corporate debt holders to secure appropriate financing and rates. The Corix Corporate CEO reviews Corix's and its subsidiaries' activities to foster the corporate culture and values of honesty, integrity, transparency and accountability to our customers, our regulators and our shareholder. The Corix Corporate CEO is the main conduit to shareholders on all matters of governance and ensures an appropriate governance structure exists in each operating unit.

Corporate Finance

The costs in this group include direct employee labor and non-labor costs for CFO oversight, accounting support, consolidations, treasury, taxation, internal audit, strategic planning, and full scope corporate reporting, etc. Also included are third party services such as audit and tax along with computer licenses for the corporate performance management tool, etc. Works in collaboration with WSC Support Services cost centers.

Corix's head office finance group ("Finance") provides a comprehensive suite of services to the business units including CFO oversight, accounting support, consolidations, treasury, taxation, strategic planning, and full scope corporate reporting.

The CFO function provides oversight of the financial affairs of the Corix business units including long term strategic planning and financial analysis. This also includes full scope management reporting to the board of director and Corix's shareholder.

Accounting support includes compliance with ASPE, US GAAP, reconciliations, ERP support and transactional support.

Corporate consolidation and controllership provide review and preparation of reports to achieve the “full picture” lens required to access debt and equity financing. In addition, this group oversees all corporate holding companies, accounting for reorganizations and tax planning initiatives, and presents results and budgets to audit committee and the board. Financial reporting policy and research originates from this function.

Internal Audit

Internal audit evaluates a company's internal controls, including its corporate governance and accounting processes. They ensure compliance with laws and regulations, accurate and timely financial reporting and data collection. The business units do not have an internal audit function. This group provides internal audit services based on annual risk analysis of key areas and based on requests from business units who may require assessments of processes, fraud investigations or IT control assessments. Their assessment findings are generally available to all business units unless there is some issue of confidentiality or litigation.

Tax

Tax compliance is a necessary function for any corporation to lawfully operate. Each of the businesses must timely file federal and state tax returns and other corporate filings. The tax group coordinates the tax planning activities for all Corix business units and either undertakes tax compliance activities, directs tax compliance activities taking place in business units or oversees outside tax professionals who may be providing services to individual business units. This group also works with external auditors for annual audit tax provision and reviews of Corix’s consolidated financial statements and tax returns.

Human Resources Corporate

The costs in this group include direct employee labor and non-labor costs, recruitment expenses, and third-party services such as compensation studies, etc.

Corporate HR is responsible for company-wide policies, programs and practices for all aspects of the HR function and general overall guidance and direction. WSC Support Services and Contract Shared Services administers the day-to-day human resource programs and services that are aligned to corporate policies and practices for the business units that it services. Corporate HR sources company-wide vendors to get economies of scale for all aspects of the HR function such as Total Rewards, Talent Management/Succession Planning, Learning Management and HCM systems. The corporate HR group also arranges benefit programs for employees across the entire Corix organization which provides significant economies of scale and risk sharing benefits. The corporate group also undertakes other activities – such as comprehensive compensation reviews, recruitment, and human resources administration of executive positions, reporting to the Board, and company-wide talent management and leadership training program development etc.

Treasury

Corix corporate treasury services include long- and short-term capital needs planning for both debt and equity. Corix Corporate staff interact with the shareholder and the capital markets to arrange, extend, or change terms of financing. This group analyzes the use of private placement versus floating rate versus the use of swaps to find the appropriate stable financing for the entity given its capital and operating needs over the short and long term.

Corix Corporate Services also often arranges financing at the local level but leverages its financing syndicate to optimize the financing rates for the Corix operations. This gives Corix more negotiation leverage to get optimal spreads from prime or Libor which are for the benefit of local ratepayers. We also monitor the use of revolvers and monitor covenant coverage and help to ensure interest spreads relative to coverage ratios are optimized to minimize interest costs to the benefit of ratepayers.

Corporate Information Technology ("IT")

The costs in this group include direct employee labor and non-labor costs for IT strategy and planning services such as enterprise cyber security program development, maintenance and monitoring, and third-party services such as consulting. Corporate IT provides company-wide security breach protocol and response support and expertise on network, security strategy and data center management. For example, Corporate IT constantly monitors for changes in legislation in data privacy, various security requirements for contracts, and provides security awareness training. As part of its enterprise function, the corporate IT group works with representatives of the business units served to share best practices, trends in security management and review organizational KPIs. All of these functions support cybersecurity and data protection that benefit the customer.

WSC Support Services and Contract Shared Services primarily provisions and maintains IT infrastructure and applications, except for some enterprise applications.

Corporate Legal Department

The costs in this group include direct employee labor and non-labor costs for legal compliance. Also included are third party services such as consulting for general corporate and enterprise matters. Works in collaboration with WSC Support Services Chief Risk Officer cost centers.

A significant portion of the legal compliance work is done corporately. This work includes company structuring and maintenance, capital and debt financing documentation, negotiation and management, insurance and risk oversight and corporate governance including board and committee coordination. This work is required to maintain corporate status, enable the corporate and debt and equity structure, and ensure legal compliance so the group of companies can exist and legally own and operate utility systems and provide service to customers. The corporate legal group also drafts and oversees required corporate policies and procedures and supports internal needs including corporate development, information technology, finance and tax, human resources, HSE, corporate communications and transformation project legal needs. Centralized management of legal advice and contract negotiation enables corporate

operations and growth in alignment with corporate strategy and on a more efficient cost basis than would be possible using external legal service providers.

Corporate Health, Safety, and Environmental (“HSE”)

The costs in this group include direct employee labor and non-labor costs for health, safety, and environmental oversight. Also included are costs for the safety incentive program, software licenses costs for health and safety programs, and third-party services for safety assessments, surveys, training, and audits.

Corporate HSE planning includes the review for compliance with all national and federal government mandates, development and deployment of company-wide HSE policies, procedures and training manuals, forms and tools for standardized programs to be used across the business units, compliance programs, assessment programs, industry research, and incident investigation and audits. This group is also involved in developing preventative programs across the Corix group of companies to provide an environment of safety, safe operation and environmental stewardship. WSC Support Services, Contract Shared Services, and BU HSE staff administer the day-to-day HSE programs and services aligned to corporate policies and practices for the Business Units. Within the business units, there may be health and safety staff who focus on familiarity and compliance with local requirements, permits and regulators, and undertake training delivery, monitor compliance, and interactions.

Corporate Communications

The costs in this group include direct employee labor and non-labor costs for overall policies guidance on communications, monitoring of media, etc. and third-party services for corporate internet site, video, advertising, and media monitoring.

This function provides overall policies guidance on both internal and external communications, monitoring of media, maintains the company-wide internet and intranet as well as the associated license and maintenance costs, and provides overall employee communication support as required and as back up support to the business units.

Business Development

The costs in this group include direct employee labor and non-labor costs for overall business development oversight and third-party services such as engineering, legal, and accounting to support the evaluation of potential acquisitions.

Growing the overall business creates economies of scale for the entire organization, with the benefit being that fixed costs are shared over a broader base of assets resulting in lower costs for each business unit compared to what they would otherwise have to pay if they were standalone businesses. The business development group’s mandate is to generate corporate growth consistent with the goals and objectives of the company. Seeking and executing large and/or complex acquisitions and winning project bids that require substantial investments, the business development group facilitates the economies of scale required to share costs across the organization in a meaningful way. Business development will help on

strategy, complex issues that arise, will lend resources to execute a transaction and provide general oversight. Because of the number of opportunities to grow the business with small as well as large opportunities, the business development team is a group of mobile resources with the time to meet prospective sellers. These business development opportunities will ultimately create a bigger customer base over which to spread the costs (thus mitigating the impact of rising costs).

Continuous Improvement

The costs in this group include direct employee labor and non-labor costs for transformation and business betterment. Also included are costs for third party services such as consultants to support evaluation and implementation of initiatives. Works in collaboration with WSC Support Services Continuous Improvement cost centers.

In the interest of continually improving our processes and thereby always providing the best value for customers, we use best practice continuous improvement approaches to gain efficiencies within the organization and identify ways to serve our customers more effectively. Transformational and/or strategic change and management is done at a corporate level.

Strategy

The costs in this group include the direct employee labor and non-labor costs for leading the development of the strategy and translating it for employees across functions and business units. Also includes third party services such as consultants to advise Corix on its strategic initiatives.

Appendix B – Description of WSC Support Services

The attached example of an Affiliate Interest Agreement (AIA) provides a detailed description of the required WSC Support Services. Note as Corix executes on its strategic consolidation of services, costs centers within WSC will work collaboratively with Corporate cost centers and vice versa. Appendix A notes when this is the case at the beginning of 2020.

Appendix C – Description of Contract Shared Services

The descriptions below are designed to demonstrate the nature of services provided by Contract Shared Services that are required. Note as we execute on the consolidation and simplification of our service platform in 2020 and 2021, we would expect these cost centers to be functionally rolled into WSC support services to have one support services organization.

Human Resources (HR) Support

The costs in this group include direct employee labor and non-labor costs associated with the administration of the day-to-day human resource programs and services that are aligned to corporate policies and practices for each business unit. This includes, but is not limited to, recruitment support, employee onboarding and training, and support for performance reviews and employee intervention activities.

Information Technology (IT) Support

The costs in this group include direct employee labor and non-labor costs associated with the provision and maintenance of IT infrastructure and applications as well as IT support for business units within Canada and Oklahoma, Gillem Enclave, Cleveland Thermal and Doyon Notional Allocation. Non-labor costs include third party services where appropriate. These costs exclude costs associated with enterprise applications, which are company-wide and therefore borne at the Corporate level.

Finance (Accounting/Accounts Payable) Support

The costs in this group include direct employee labor and non-labor costs associated with vendor payment functions, tax remittances, financial statement preparation, and audit support at the utility, business unit, and legal entity levels.

Payroll Support

The costs in this group include direct employee labor and non-labor costs associated with the administration of the day-to-day payroll functions for the business units in Canada.

Legal Support

The costs in this group include direct employee labor and non-labor costs associated with contract review and preparation, and the general provision of legal advice on various matters within the business. Where specialized expertise is required, external legal counsel may also be commissioned to support internal staff.

External Communications Support

The costs in this group include direct employee labor and non-labor costs associated with public relations and other communications with both existing customers and the general public.

Health, Safety and Environmental (HSE) Support

The costs in this group include direct employee labor and non-labor costs associated with the administration of the day-to-day HSE programs and services aligned to corporate policies and practices determined by Corporate HSE, for the business units. Training, and ongoing reviews and audits form a major component of Contract Shared Services HSE activities.

EXAMPLE AFFILIATE INTEREST AGREEMENT

AGREEMENT

This Agreement dated November 20, 2019, is between Water Service Corporation, a Delaware corporation (hereinafter called the "Service Company") and Community Utilities of Pennsylvania Inc., a Pennsylvania corporation (hereinafter called the "Operating Company").

WHEREAS, both the Service Company and the Operating Company are subsidiaries of or affiliated with Corix Regulated Utilities (US) Inc. (formerly known as Utilities, Inc.), an Illinois corporation (hereinafter called the "Parent"); and,

WHEREAS, the Service Company maintains an organization which includes among its officers and employees, persons who are familiar with the development, business and property of the Operating Company and are experienced in the conduct, management, financing, construction, accounting and operation of water and sewer systems and are qualified to be of great aid and assistance to the Operating Company through the services to be performed under this Agreement; and

WHEREAS, the Service Company has or proposes to enter into agreements similar to this Agreement with certain affiliate water and/or sewer companies (hereinafter referred to collectively as the "Operating Companies"); and

WHEREAS, the services to be rendered under this Agreement are to be rendered by the Service Company (directly or through use of support services as needed) at cost and without markup to the Operating Company;

NOW, THEREFORE, in consideration of the promises and mutual agreements herein contained, the parties hereto agree as follows:

The Service Company will furnish to the Operating Company, upon the terms and conditions hereinafter set forth, the following services:

- A. **EXECUTIVE:** The Service Company shall provide executive officer and director assistance, including but not limited to that of Presidents, Vice Presidents, Treasurers and Chief Financial and other Chief Officers who will assist and advise the Operating Company in respect to corporate, financial, risk management, strategy, operating, engineering, organization, tax, audit, governance, regulatory and other issues. They will keep themselves informed with respect to the operations, maintenance and financial condition of, and other matters relating to, the Operating Company through contacts with the officers, directors and other representatives of the Operating Company. Such executive assistance will include visiting the property of the Operating Company when necessary to the proper furnishing of the services provided for in this Agreement. They will also supervise the personnel of the Service Company to the end that services under this Agreement shall be performed efficiently, economically and satisfactorily to the Operating Company.
- B. **ENGINEERING:** The Service Company may supply engineering services as requested by the Operating Company in areas including design, construction and management of the Operating Company.
- C. **OPERATING:** The Service Company will furnish competent personnel to perform and/or control all usual operating functions, including pumping, treatment, and distribution as well

as maintenance of equipment and facilities. These responsibilities will include testing and record keeping for compliance with all state and local regulatory agency requirements.

- D. **ACCOUNTING:** The Service Company will provide total accounting service, including bookkeeping, payroll, tax determination, financial statement preparation, budgets, credit, agency annual reports and similar agency support and filings. Periodic analysis will be made for purposes of planning and measurement of efficiency.
- E. **CENTRALIZED CASH MANAGEMENT SERVICES:** The Service Company may provide a centralized cash management system whereby cash receipts and payments are managed by one single central body, WSC, on behalf of all of the Operating Companies. Under this Centralized Cash Management Service bank accounts could be in the name of, and maintained by, the Service Company. Cash transactions would be recorded on the Service Company's books with a corresponding offset on the Operating Company's books. Balancing entries would be recorded in the intercompany accounts of each entity. The Service Company's provision of centralized cash management would offer more efficiently handled cash, increased visibility and control, simplified bank account structure, and reduced overall bank transaction costs and may provide access to financing or funds for capital projects as well as acquisitions.
- F. **LEGAL:** The Service Company will employ general counsel and supporting in house counsel as necessary to advise and assist in the performance of the services herein provided for and to aid the Operating Company in all matters where such assistance may be necessary and/or desired.
- G. **BILLING AND CUSTOMER RELATIONS:** The Service Company will handle all billing and collections. It will serve as the link between the customer and the Operating Company in all areas such as new accounts, deposits, meter reading, inquiries, and complaints.
- H. **CONSTRUCTION:** The Service Company may perform directly or may provide supervising services in construction including customer connections, meter installations, main extensions, plant expansions, or capital additions of any nature as required by the Operating Company.
- I. **CONTINUING IMPROVEMENT:** The Service Company shall provide for continuing improvement of services to the Operating Company which shall include but not be limited to business transformation services including but not limited to software maintenance and upgrades, and other activities related to and that may improve upon efficiency, reliability, or general provision of service to the Operating Company and ultimately improvement of service to the customers of the Operating Company.
- J. **IT:** The Service Company shall provide day-to-day IT services such as general system operations and maintenance, software maintenance, workstation acquisition support and certain network administration, as well as design, implementation, and replacement of enterprise resource planning, oversight of cybersecurity programs, data storage and management, communication networks and development of IT equipment strategies. The Service Company shall provide services to Operating Company to prepare and properly implement enterprise policies relevant to IT. The Service Company shall provide services to the Operating Company to conduct security analyses, monitor and investigate security alerts, conduct security awareness training, and continuously work to improve security in the environment including identifying and implementing best practices to prevent incidents.

- K. **HUMAN RESOURCES:** The Service Company shall provide the Operating Company human resource services for day-to-day personnel matters (such as recruiting, background checks, onboarding training, payroll, human resource complaints, investigations, reviews, assisting employees with various benefit questions and elections, etc.), the creation, update, and compliance framework for personnel policies, support for executives' and employees' compensation plan design, retirement savings, and benefits management. The Service Company shall provide the Operating Company with services for employee and labor relations issues.
- L. **HEALTH SAFETY AND ENVIRONMENTAL:** The Service Company shall provide services to the Operating Company to ensure compliance and familiarity with local requirements, permits, and regulators. The Service Company shall provide services of Health Safety and Environment planning including the review for compliance with all federal government mandates; development and deployment of company-wide HSE policies, procedures, training manuals, forms, and tools for standardized programs to be used across the operating companies; compliance programs; assessment programs; industry research; and incident investigation and audits.
- M. **BUSINESS DEVELOPMENT:** The Service Company shall provide business development services to Operating Company in order to identify, evaluate and execute on opportunities for acquisition of water and sewer systems.
- N. **ALL OTHER SERVICES AS PROVIDED FOR IN APPENDIX A:** In addition to items (A) through (M), the Service Company will employ or provide personnel to perform the attached services, or in the instance of assets, liabilities and associated non-cash items, has incurred costs associated with providing service to the corporate headquarters, regional areas, or to all Operating Companies as a whole. The allocated costs from these services will be for costs attributable to all Operating Companies, costs attributable to the Service Company, or for costs that cannot, without excessive effort and expense, be directly identified and related to services rendered to a particular operating company.

In consideration for the services to be rendered by the Service Company hereunder, the Operating Company agrees to pay to the Service Company the cost of said services. That cost shall not include any markup. In addition, the Operating Company agrees to pay the Service Company its share of the cost of the investment in the Service Company rate base, including depreciation, amortization, interest on debt and a reasonable return on the equity invested.

All costs of the Service Company, including salaries and other expenses, incurred in connection with services rendered by the Service Company for the Operating Companies which can, without excessive effort or expense, be identified and related to services rendered to a particular operating company, shall be charged directly to such company. Examples of such costs to be directly charged include salary and other expenses incurred for specific projects such as construction projects, legal proceedings, etc. Similarly, all such costs which may be identified and related to services rendered to a particular group of the Operating Companies shall be charged directly to such group of the Operating Companies.

All such costs which, because of their nature, cannot, without excessive effort or expense, be identified and related to services rendered to a particular operating company, shall be allocated among all of the Operating Companies, in the manner hereinafter set forth.

First, the allocatable costs shall be distributed on a monthly basis, unless the Parent should elect to make a supplementary analysis for a special purpose.

Second, these costs will be prorated on the basis of the proportion of active Equivalent Residential Customers ("ERCs") served by the Operating Company to the total number of active ERCs served by the Parent and its affiliates (including, without limitation, the Operating Company), determined as of the end of each month. For purposes of this Agreement, the number of ERCs attributable to each water and sewer connection maintained by the Parent and its subsidiaries (including, without limitation, the Operating Company) will be determined by applying the formulae set forth in Appendix B.

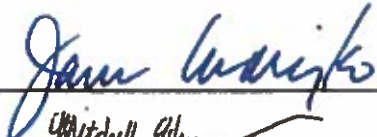

The Service Company will also at any time, upon request of the Operating Company, furnish to it any and all information required by the Operating Company or by any governmental authorities having jurisdiction over the Operating Company with respect to the services rendered by the Service Company hereunder, the cost thereof and the allocation of such cost among the Operating Companies. In the case of services in connection with construction, the Service Company will, to the extent practicable, furnish to Operating Company such information as shall be necessary to permit the allocation of charges for such services to particular work orders.

This Agreement (a) is conditioned upon approval by the Pennsylvania Public Utility Commission (PA PUC) of the acquisition of PA Utility Company by Community Utilities of Pennsylvania, Inc. that was subject to a Joint Application filed by Community Utilities of Pennsylvania, Inc. and PA Utility Company filed October 1, 2018 at PA PUC Docket Nos. A-2018-3005430 and A-2018-3005432 and (b) shall be effective as of the date of such approval by the PA PUC.

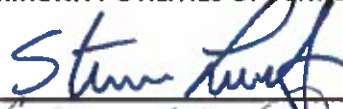
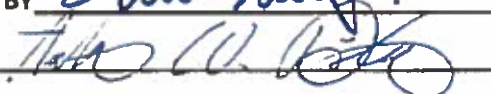
This Agreement shall remain in effect until termination by either of the parties hereto upon 90 days' written notice.

IN WITNESS WHEREOF, the Service Company and the Operating Company have signed in their respective corporate names by their respective Presidents or Vice Presidents, and attest by their respective Secretaries or Assistant Secretaries, all as of the day and year first above written.

WATER SERVICE CORPORATION

BY 
Attest 

COMMUNITY UTILITIES OF PENNSYLVANIA INC.

BY 
Attest 

**AFFILIATE AGREEMENT
APPENDIX A**

The following list includes expense accounts at the Water Service Corporation level which have dollars booked to them and allocated to all Utilities, Inc. operating companies at a business unit level

JDE Object Number	Account Description
5505	Agency Expense
5525	Bill Stock
5530	Billing Computer Supplies
5535	Billing Envelopes
5540	Billing Postage
5545	Customer Service Printing
5623	401K/ESOP Contributions
5630	Dental Premiums
5635	Dental Ins Reimbursements
5640	Emp Pensions & Benefits
5645	Employee Ins Deductions
5650	Health Costs & Other
5655	Health Ins Reimbursements
5660	Other Emp Pensions/Benefits
5665	Pension Contributions
5670	Term Life Ins
5675	Term Life Ins - Opt
5680	Depend Life Ins - Opt
5685	Supplemental Life Ins
5690	Tuition
5700	Insurance - Vehicle
5705	Insurance - Gen Liab
5710	Insurance - Workers Comp
5715	Insurance - Other
5733	Computer Maintenance
5740	Computer Supplies
5745	Computer Amort & Prog Cost
5750	Internet Supplier
5755	Microfilming
5760	Website Development
5785	Advertising/Marketing
5790	Bank Service Charges
5795	Contributions
5800	Letter of Credit Fee
5805	License Fees
5810	Memberships
5815	Penalties/Fines
5820	Training Expense
5825	Other Misc Expense
5835	Answering Service
5855	Answering Service
5860	Cleaning Supplies
5865	Copy Machine
5870	Holiday Events/Parties
5875	Kitchen Supplies
5880	Office Supply Stores
5885	Printing/Blueprints
5890	Publ Subscriptions/Tapes
5895	Shipping Charges
5900	Other Office Expenses
5930	Office Electric
5935	Office Gas
5940	Office Water
5945	Office Telecom
5950	Office Garbage Removal
5955	Office Landscape / Mow / Plow
5960	Office Alarm Sys Phone Exp
5965	Office Maintenance
5970	Office Cleaning Service
5975	Office Machine/Heat&Cool
5980	Other Office Utilities
5985	Telemetering Phone Expense
6005	Accounting Studies
6010	Audit Fees
6015	Employ Funder Fees
6020	Engineering Fees
6025	Legal Fees
6030	Management Fees
6035	Payroll Services
6040	Tax Return Review
6045	Temp Employ - Cleri
6050	Other Outside Serv
6075	Water Resource Conserv Exp
6090	Rent
6105	Salaries - Systems Project
6110	Salaries - Acctg/Finance
6115	Salaries - Admin
6120	Salaries - Officers/Su/hldr
6125	Salaries - HR
6130	Salaries - NIS

The following list includes asset and liability accounts at the Water Service Corporation level which have dollars booked to them and allocated to all Utilities, Inc. operating companies:

JDE Object Number	Subsidiary Number	Account Description
1030		Land & Land Rights Pump
1035		Land & Land Rights Wu Trt
1040		Land & Land Rights Trans Dist
1045		Land & Land Rights Gen Plt
1175		Office Struct & Imprv
1180		Office Furn & Eqpt
1190		Tool Shop & Misc Eqpt
1205		Communication Eqpt
1260		Land & Land Rights Intang Plt
1265		Land & Land Rights Coll Plt
1270		Land & Land Rights Trmnt Plt
1275		Land & Land Rights Reclaim Wip
1280		Land & Land Rights Rel Det Plt
1285		Land & Land Rights Gen Plt
1455		Office Struct & Imprv
1460		Office Furn & Eqpt
1470		Tool Shop & Misc Eqpt
1485		Communication Eqpt
1575		Desktop Computer Wtr
1580		Mainframe Computer Wtr
1585		Minl Computers Wtr
1590		Comp Sys Cost Wtr
1595		Micro Sys Cost Wtr
1605		Desktop Computer Swt
1610		Mainframe Computer Swt
1615		Mini Computer Swt
1620		Comp Sys Cost Swt
1625		Micro Sys Cost Swt
1741		Other Plant In Process History
1745	00301	Wip-Cap Time Office Renovation
1745	00302	Wip-Cap Time Electrical
1745	00303	Wip-Cap Time Lab Expansion
1745	00304	Wip-Cap Time Computer Equipmat
1745	00305	Wip-Cap Time Computer Software
1745	00306	Wip-Cap Time Radio Equipment
1746	00301	Wip - Interest During Constr
1746	00302	Wip - Interest During Constr
1746	00303	Wip - Interest During Constr
1746	00304	Wip - Interest During Constr
1746	00305	Wip - Interest During Constr
1746	00306	Wip - Interest During Constr
1747	00303	Wip - Labor/Installation
1747	00304	Wip - Labor/Installation
1747	00305	Wip - Labor/Installation
1748	00302	Wip - Equipment
1748	00303	Wip - Equipment
1748	00304	Wip - Equipment
1748	00306	Wip - Equipment
1749	00301	Wip - Material
1749	00302	Wip - Material
1749	00303	Wip - Material
1749	00306	Wip - Material
1750	00301	Wip - Electrical
1751	00301	Wip - Site Work
1752	00301	Wip - Contractor/Labor
1752	00302	Wip - Contractor/Labor
1753	00301	Wip - Architect/Designer
1753	00302	Wip - Architect/Designer
1753	00303	Wip - Architect/Designer
1754	00303	Wip - Building Addition
1755	00301	Wip - Furniture
1755	00302	Wip - Furniture
1756	00301	Wip - Heating/Air Condition
1756	00302	Wip - Heating/Air Condition
1757	00301	Wip - Interior Finish
1757	00302	Wip - Interior Finish
1758	00303	Wip - Modification/Convert
1759	00304	Wip - Remodeling
1769	00301	Wip - Transfer To Fixed Assets
1769	00302	Wip - Transfer To Fixed Assets
1769	00303	Wip - Transfer To Fixed Assets
1769	00304	Wip - Transfer To Fixed Assets
1769	00305	Wip - Transfer To Fixed Assets
1769	00306	Wip - Transfer To Fixed Assets
1771		Deferred Plant In Process History
1775	00401	Wip-Cap Time Water Tower Plant
1775	00402	Wip-Cap Time W/S Plt Plant
1775	00403	Wip-Cap Time Water Tank Plant
1775	00404	Wip-Cap Time Clean Sewer Line

**AFFILIATE AGREEMENT
APPENDIX A**

The following list includes expense accounts at the Water Service Corporation level which have dollars booked to them and allocated to all Utilities, Inc. operating companies at a business unit level.

JDE Object Number	Account Description
6135	Salaries - Leadership Ops
6140	Salaries - Regulatory
6145	Salaries - Customer Service
6185	Travel Lodging
6190	Travel Airfare
6195	Travel Transportation
6200	Travel Meals
6205	Travel Entertainment
6207	Travel Other
6355	Deferred Maint Expense
6360	Communication Expense
6365	Equipment Rentals
6385	Uniforms
6390	Weather/Hurricane Costs
6380	Deprec-Office Structure
6381	Deprec-Office Furn/Eqpt
6610	Deprec-Communication Eqpt
6615	Deprec-Misc Equipment
6820	Deprec-Office Structure
6825	Deprec-Office Furn/Eqpt
6830	Deprec-Communication Eqpt
6835	Deprec-Misc Equipment
6920	Deprec-Computer
7510	FICA Expense
7515	Federal Unemployment Tax
7520	State Unemployment Tax
7535	Franchise Tax
7540	Gross Receipts Tax
7545	Personal Property/ICT Tax
7550	Property/Other General Tax
7555	Real Estate Tax
7560	Sales/Use Tax Expense
7565	Special Assessments
7665	Extraordinary Gain/Loss
7670	Extraordinary Deductions
7680	Rental Income
7685	Interest Income
7690	Sale of Equipment

The following list includes asset and liability accounts at the Water Service Corporation level which have dollars booked to them and allocated to all Utilities, Inc. operating companies.

JDE Object Number	Subsidiary Number	Account Description
1030		Land & Land Rights Pump
1775	00405	Wip-Cap Time Chng Filter Media
1775	00406	Wip-Cap Time Tr Sewer Main
1775	00407	Wip-Cap Time Sludge & Hauling
1775	00408	Wip-Cap Time W/S PU Landscape
1776	00401	Wip - Interest During Constr
1776	00402	Wip - Interest During Constr
1776	00403	Wip - Interest During Constr
1776	00404	Wip - Interest During Constr
1776	00405	Wip - Interest During Constr
1776	00406	Wip - Interest During Constr
1776	00407	Wip - Interest During Constr
1776	00408	Wip - Interest During Constr
1777	00408	Wip - Engineering
1778	00401	Wip - Labor/Installation
1779	00401	Wip - Equipment
1779	00404	Wip - Equipment
1779	00406	Wip - Equipment
1780	00401	Wip - Material
1780	00402	Wip - Material
1780	00403	Wip - Material
1780	00404	Wip - Material
1780	00405	Wip - Material
1780	00406	Wip - Material
1780	00407	Wip - Material
1780	00408	Wip - Material
1781	00408	Wip - Site Work
1782	00401	Wip - Contractor/Labor
1782	00402	Wip - Contractor/Labor
1782	00403	Wip - Contractor/Labor
1782	00405	Wip - Contractor/Labor
1782	00406	Wip - Contractor/Labor
1783	00404	Wip - Grouting/Sealing
1784	00404	Wip - Jet Cleaning
1785	00407	Wip - Pump & Haul Sludge
1786	00404	Wip - Rental/Machine
1786	00405	Wip - Rental/Machine
1787	00402	Wip - Repair
1787	00403	Wip - Repair
1799	00401	Wip - Transfer To Fixed Assets
1799	00402	Wip - Transfer To Fixed Assets
1799	00403	Wip - Transfer To Fixed Assets
1799	00404	Wip - Transfer To Fixed Assets
1799	00405	Wip - Transfer To Fixed Assets
1799	00406	Wip - Transfer To Fixed Assets
1799	00407	Wip - Transfer To Fixed Assets
1799	00408	Wip - Transfer To Fixed Assets
1970		Acc Depr-Office Structure
1975		Acc Depr-Office Furn/Eqpt
1985		Acc Depr-Tool Shop & Misc Eqpt
2000		Acc Depr-Communication Eqpt
2215		Acc Depr-Office Structure
2220		Acc Depr-Office Furn/Eqpt
2230		Acc Depr-Tool Shop & Misc Eqpt
2245		Acc Depr-Communication Eqpt
2315		Acc Depr-Desktop Computer Wtr
2320		Acc Depr-Mainframe Comp Wtr
2325		Acc Depr-Mini Comp Wtr
2330		Comp Sys Amortization Wtr
2335		Micro Sys Amortization Wtr
2345		Acc Depr-Desktop Computer Swr
2350		Acc Depr-Mainframe Comp Swr
2355		Acc Depr-Mini Comp Swr
2360		Comp Sys Amortization Swr
2365		Micro Sys Amortization Swr
2950		Def Chgs - Landscaping
2955		Def Chgs - Customer Complaints
2960		Def Chgs - Tank Maint&Rep Wtr
2965		Def Chgs - Relocation Expenses
2970		Def Chgs - Attorney Fee
2975		Def Chgs - Hurricane/Storm Cost
2980		Def Chgs - Emp Fees
2985		Def Chgs - Other
3000		Def Chgs - Other Wtr & Swr
3005		Def Chgs - Vac Testing
3020		Def Chgs - Sludge Hauling
3025		Def Chgs - Pr Wash/Jet Swr Mains
3030		Def Chgs - Tr Sewer Mains
3040		Def Chgs - Tank Maint&Rep Swr
3080		Amort - Landscaping
3090		Amort - Customer Complaints

**AFFILIATE AGREEMENT
APPENDIX A**

The following list includes expense accounts at the Water Service Corporation level which have dollars booked to them and allocated to all Utilities, Inc. operating companies at a business unit level.

JDE Object Number Account Description

The following list includes asset and liability accounts at the Water Service Corporation level which have dollars booked to them and allocated to all Utilities, Inc. operating companies:

<u>JDE Object Number</u>	<u>Subsidiary Number</u>	<u>Account Description</u>
1030		Land & Land Rights Pump
3110		Amort - Tank Maint&Rep Wtr
3120		Amort - Relocation Exp
3125		Amort - Attorney Fee
3130		Amort - Hurricane/Storms
3135		Amort - Employee Fees
3140		Amort - Other
3151		Amort - Other Wtr & Swr
3160		Amort - Vac Testing
3175		Amort - Sludge Hauling
3180		Amort - Pr Wash/let Swr Mains
3185		Amort - Tr Sewer Mains
3195		Amort - Tank Maint&Rep Swr
4367		Accum Def Income Tax-Fed
4369		Def Fed Tax - Clac Pre 1987
4371		Def Fed Tax - Tap Fee Post 2000
4373		Def Fed Tax - Idc
4375		Def Fed Tax - Rate Case
4377		Def Fed Tax - Def Maint
4379		Def Fed Tax - Other Operation
4381		Def Fed Tax - Sold Co
4383		Def Fed Tax - Orign Exp
4385		Def Fed Tax - Bad Debt
4387		Def Fed Tax - Depreciation
4389		Def Fed Tax - Nol
4391		Def Fed Tax - Cont Prop
4393		Def Fed Tax - Amrt
4395		Def Fed Tax - Pre Acct
4397		Def Fed Tax - Res Cap Fee
4417		Accum Def Income Tax - St
4419		Def St Tax - Clac Pre 1987
4421		Def St Tax - Tap Fee Post 2000
4423		Def St Tax - Idc
4425		Def St Tax - Rate Case
4427		Def St Tax - Def Maint
4429		Def St Tax - Other Operation
4431		Def St Tax - Sold Co
4433		Def St Tax - Orign Exp
4435		Def St Tax - Bad Debt
4437		Def St Tax - Depreciation
4439		Def St Tax - Nol
4441		Def St Tax - Cont Prop
4443		Def St Tax - Amrt
4445		Def St Tax - Res Cap Fee

**AFFILIATE AGREEMENT
APPENDIX B**

The formula used to calculate all allocations is as follows:

Expenses:

Active ERC count for business unit/Active ERC count for all UI operating business units

Assets/Liabilities:

Active ERC count for company/Active ERC count for all UI operating companies

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21. Refer to WSCK Responses to PSC initial data request, DR 1.3 Filing Template, Tab wp-o-Corporate Costs, Tier 2 Allocation. For each Corix Cost Center listed on the Tier 2 allocation spreadsheet, provide an itemized list of the costs and services included in column G, the Less: Excluded Costs, and column I, the Net amount to be Allocated.

RESPONSE:

Please see the attached file entitled "Response to Staff DR 2.21 - CAM Cost Removal Notes".

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

22. Refer to Water Service Kentucky's response the Staff's Initial Request for Information (Staff's Initial Request), Excel spreadsheet 1.3, Filing Template Tier 1 calculations.

- a. Provide the Source for the TTM Q1 2020 Actuals.
- b. Provide the source for the Tribus Allocation percentage.
- c. Provide the source for the Tier 1 Allocation percentage Contract Utilities.

In addition, provide the 2020 Tier 1 Allocation percent Contract Utilities.

d. Provide the source for the Tier 1 Allocation Alaska percentage. In addition, provide the 2020 Tier 1 Allocation percent Contract Utilities.

RESPONSE:

Please refer to the attached formulaic workbook entitled "Response to Staff DR 2.22 - WSCK Pro Forma CAM Cost Adjustment TTM - 2020.03.31". Additionally, please refer to the Cost Allocation Manual provided in response to Staff DR 2.20.

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

23. Refer to Water Service Kentucky's response the Staff's Initial Request, Excel spreadsheet 1.3, Filing Template. Provide the calculation used to generate the Amount Allocated to Contract Utilities and the Amount Allocated to Alaska.

RESPONSE:

Please refer to the attachment provided in response to Staff DR 2.22 entitled "Response to Staff DR 2.22 - WSCK Pro Forma CAM Cost Adjustment TTM - 2020.03.31".

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
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24. Explain what Tribus is and why an allocation needs to be calculated.

RESPONSE:

Please refer to pp. 7 of the Cost Allocation Manual provided in response to Staff DR

2.20.

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
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RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

25. Refer to Water Service Kentucky's response the Staff's Initial Request, Excel spreadsheet 1.3, Filing Template Tier 2 calculations. Provide the source for the Tier 2 Allocation percentage to Water Service Kentucky.

RESPONSE:

The Tier 2 Allocation percentage is calculated using WSCCK's percentage of total WSC ERCs as of the test year ended March 31, 2020. Please refer to the formulaic workbook attached to the response to Staff DR 2.22.

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
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26. Refer to the Application, Exhibit 5, Direct Testimony of Robert Guttormsen, (Guttormsen Testimony) pages 18–20.

a. List each business development project in Kentucky that the Water Service Corporation employee Vice President of Regulatory Affairs & Business Development was involved. Quantify the benefits the ratepayers received form these projects.

b. List each business development project in Kentucky that the Water Service Corporation employee Business Development Manager was involved. Quantify the benefits the ratepayers received form these projects.

c. Identify any acquisition project that has been undertaken by Corix or by Water Service Kentucky in the calendar year 2015-2019.

RESPONSE:

a. The Vice President of Regulatory Affairs & Business Development has not been involved in any business development projects through August, 2020.

b. The Business Development Manager briefly evaluated an acquisition to the north of Pineville water in Kentucky but no deal came to fruition.

c. Please see the attached file entitled “Response to Staff DR 2.26(c.) - Acquisitions (2015-2019)”.

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
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27. Refer to the Application, Exhibit 5, Guttormsen Testimony pages 19-21. Identify any major construction project occurring in calendar years 2015-2019 at either Clinton or Middlesboro that would require the involvement of either Water Service Corporation's Director of Engineering & Asset Management or Midwest Project Manager.

RESPONSE:

The Director of Engineering & Asset Management or Midwest Project Manager would be involved in the entire lifecycle of any capital project, from study phase through warranty termination. Projects completed from 2015 to 2019 that would require either position would include the 2015 Plate Settler Replacement project in Middlesboro, the 2019/2020 Queensbury Heights Watermain Replacement project in Middlesboro, and the 2018 Geographic Information Systems (GIS) Conversion project for Clinton and Middlesboro. The Director of Engineering & Asset Management and Midwest Project Manager ensure that execution of capital projects meets the Company's technical standards while maintaining projects on time and on budget and coordinating timing with Operations staff.

The Director of Engineering & Asset Management and Midwest Project Manager will be involved in the execution of the Clinton and Middlesboro tank reconditioning projects. The Director of Engineering & Asset Management directed the development of the technical specifications and the bidding process for both projects. The Director of Engineering & Asset Management and/or Midwest Project Manager will ensure that the Engineer and Contractor complete the projects in compliance with the contract

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RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

documents, meets the Company's technical standards, and with minimal disruption of operations.

WITNESS:

Rob Guttormsen

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28. Refer to the Application, Exhibit 5, Direct Testimony of Stephen R. Vaughn, pages 9-12, and to Water Service Kentucky's response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma, wp-j-Def Maint. Mr. Vaughn refers to the tank-painting projects listed in the table below:

<u>Asset No.</u>	<u>Description</u>	<u>Start Date</u>	<u>Life (Months)</u>	<u>Cost</u>	<u>Amortization</u>
KY12-1	Interior Tank #1 (Middlesboro)	6/30/2020	120	\$ 410,237	\$ 41,024
KY12-2	Interior Tank #2 (Middlesboro)	6/30/2020	120	\$ 431,994	\$ 43,199
KY12-3	Interior Grubbs Tank (Clinton)	6/30/2020	120	\$ 147,976	\$ 14,798
KY12-4	Interior Tank 15K (Middlesboro)	6/30/2020	120	\$ 50,087	\$ 5,009
KY12-5	Exterior/Interior Tank 30K (Clinton)	6/30/2020	120	\$ 22,597	\$ 2,260

- a. State the dates that the tanks were first placed into service.
- b. State the tanks' anticipated remaining lives.
- c. Provide copies of the advertisements for contractor bids to paint the tanks.
- d. Provide a copy of all contractor bids that were received by Water Service Kentucky in response to the bid advertisements.
- e. Indicate which contractor bids have been accepted.
- f. State the dates that the tank paintings are expected to begin and when they are expected to be completed.
- g. State the type of paint used for the interior and exterior paintings.
- h. State the basis for the 10-year amortization period proposed for the tank-painting costs, and explain why Water Service Kentucky believes this amortization period is reasonable.

RESPONSE:

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

- a. Tank 1 was placed in service in 1997, Tank 2 in 1979, the Grubbs tank in 1978, the 15,000 gallon tank was placed in service in 2008, and the 30,000 gallon tank was placed in service in 2005.
- b. The useful service life of a water storage tank depends on several factors, including climate and other environmental factors, maintenance frequency and quality, and water quality. In general, the Company expects a useful service life of 80 years for welded steel tanks (KY12-1, KY12-2, and KY12-3) and 60 years for bolted steel tanks (KY12-4 and KY12-5). Subtracting the current age of each tank from the expected useful service life, the anticipated remaining service lives for each tank are 57, 38, 38, 48, and 45 years for KY12-1, KY12-2, KY12-3, KY12-4, and KY12-5, respectively.
- c. The Notice to Bidders for the Clinton and Middlesboro projects are provided as "Response to Staff DR 2.28c – Clinton" and "Response to Staff DR 2.28c – Middlesboro".
- d. The bid tabulations for the Clinton and Middlesboro projects are provided as "Response to Staff DR 2.28d – Clinton" and "Response to Staff DR 2.28d – Middlesboro".
- e. L&T Painting was the low bidder for both projects. The Company has accepted the bids from L&T Painting and has issued a Notice of Award and signed agreements for both projects.
- f. The Company anticipates the projects will begin in March 2021, as weather allows, and will be complete by the end of June 2021. The Company and L&T

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

Painting will determine the exact sequence of the tank reconditioning depending on operational conditions.

- g. The specifications for the Middlesboro project were provided as Attachment SV-2 with Mr. Vaughn's Direct Testimony. The specifications for the Clinton are provided as "Response to Staff DR 2.28g – Clinton bidding documents". The allowable paint manufacturers, paint systems, and application requirements are provided in the specifications.
- h. The 10-year Amortization period is based on the anticipated frequency of the tank repainting.

WITNESS: Stephen Vaughn, State Operation Manager; Perry Brown, Senior Financial Analyst.

**Water Service Corporation of Kentucky- 200,000 Gallon Reservoir and 30,000 Gallon Standpipe
2020 Water Tower Painting Project -June 25, 2020 - 10:00 a.m.**

	LC United	Seven Brothers	Thomas Industrial	L & T Painting	Viking Industrial
	Sterling Hgts,	Shelby Twp.,	Pevely,	Shelby Twp.,	Omaha,
	MI	MI	MO	MI	PA
200,000 Gallon Standpipe					
Section 03 01 00					
Grout Repair (1)	3,500	2,000		1,500	3,500
Section 05 00 00					
Sidewall Manway (1)	9,500	9,700		8,000	10,500
Fall Prevention Device (2)	3,000	1,300		1,900	2,800
Roof Handrail and Painter's Railing (3)	12,500	18,900		17,340	30,000
Step-off Platform (4)	8,500	7,700		4,900	7,500
Roof Vent (5)	6,000	6,500		5,900	9,500
Cathodic Clips & Couplings (6)	2,500	3,400		2,000	3,000
Total Section 05 (1-6)	42,000	47,500		40,040	63,300
Section 09 97 13					
Wet Interior Repaint (1)	79,500	131,800		72,300	118,000
Section 26 42 23					
Cathodic Protection System-Alternate (1)	17,000	24,800		20,350	25,500
200,000 Gallon Standpipe Project Total	125,000	181,300		113,840	184,800
30,000 Gallon Reservoir					
Section 09 97 13					
Wet Interior Piping Repaint (1)	14,000	20,500		6,000	3,000
Exterior Piping Repaint (2)	11,000	11,900		7,000	13,500
Foundation Sealant (3)	4,000	6,900		1,400	2,000
Total Section 09	29,000	39,300		14,400	18,500
30,000 Gallon Reservoir Project Total	29,000	39,300		14,400	18,500
Project Total	154,000	220,600		128,240	203,300
Bid Bond	10%	10%		10%	10%

**Water Service Corporation of Kentucky- 200,000 Gallon Reservoir and 30,000 Gallon Standpipe
2020 Water Tower Painting Project -June 25, 2020 - 10:00 a.m.**

	TMI Coatings	Central Painting	Currens Construction	Cunningham Sandblast	G&L Tank
	St. Paul, MN	Navarre, OH	Harrodsurg, KY	Joplin, MO	Shelbyville, TN
200,000 Gallon Standpipe					
Section 03 01 00					
Grout Repair (1)	1,000		1,000		1,200
Section 05 00 00					
Sidewall Manway (1)	10,000		6,500		8,200
Fall Prevention Device (2)	3,000		2,700		3,100
Roof Handrail and Painter's Railing (3)	18,000		9,700		17,000
Step-off Platform (4)	9,000		7,800		8,500
Roof Vent (5)	7,000		5,800		6,000
Cathodic Clips & Couplings (6)	2,000		3,000		2,000
Total Section 05 (1-6)	49,000		35,500		44,800
Section 09 97 13					
Wet Interior Repaint (1)	127,600		114,000		87,000
Section 26 42 23					
Cathodic Protection System-Alternate (1)	23,500		22,250		25,000
200,000 Gallon Standpipe Project Total	177,600		150,500		133,000
30,000 Gallon Reservoir					
Section 09 97 13					
Wet Interior Piping Repaint (1)	24,000		19,600		5,000
Exterior Piping Repaint (2)	23,000		14,400		5,000
Foundation Sealant (3)	3,000		3,800		2,000
Total Section 09	50,000		37,800		12,000
30,000 Gallon Reservoir Project Total	50,000		37,800		12,000
Project Total	227,600		188,300		145,000
Bid Bond	10%		10%		5%

SECTION 00 00 30
NOTICE to BIDDERS

Separate sealed Bids are solicited for the following project:

Project Name: **2 – 1,250,000 Gallon Reservoirs**
 Exterior Overcoat
 Wet Interior Repaint
 and Miscellaneous Repairs

15,000 Gallon Standpipe
 Wet Interior Repaint
 And Miscellaneous Repairs

Note: This project name shall be understood to include the entire scope of project as defined and detailed by these specifications.

Separate sealed bids will be received by the Owner and then publicly opened and read aloud at:

Bids Sent To: **Water Service Corporation of Kentucky, 5509 N. Highland Dr.**
 McHenry, IL 60050

Bid Opening Date: **June 5, 2020**

Bid Opening Time: **10:00 A.M. (local time)**

Bid Opening Site: **Water Service Corporation of Kentucky, 5509 N. Highland Dr.**
 McHenry, IL 60050

The SPECIFICATIONS/PLANS may be examined at the following locations:

Builders Exchange	Construction Association	Central Michigan Plan Room
2300 Meadow Dr., Suite 100	43636 Woodward Ave.	2026 Independence Dr.
Louisville, KY 40215	Bloomfield Hills, MI 48302	Mt. Pleasant, MI 48858

At the OFFICE of the ENGINEER.

Printed copies, Electronic copies, or Documents on Flash drives with the Bidding Documents may be obtained from the office of DIXON ENGINEERING, INC., 1104 Third Avenue, Lake Odessa, Michigan, 48849 (Issuing Office) upon payment for handling charge of each set in the respective format. Payment for Bidding Documents should be made to Dixon Engineering, Incorporated. **There will be no refund of handling charge for return of specification packages, or in the digital format.**

Format	Cost
Bidding Documents	\$95.00
Flash Drive containing Bidding Documents in portable document format (PDF)	\$85.00
Electronic download of Bidding Documents by email (PDF)	\$75.00

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders, and if applicable Supplemental Instructions to Bidders, that are included in the Bidding Documents.

Note 1: The Engineer assumes no responsibility to supply Builders Exchanges and similar plan review rooms with all addenda issued. An attempt will be made to do so; however, only registered plan holders will be notified by fax or email of expected addendum with short preparation times.

Note 2: Prequalification of BIDDERS - Dixon Engineering will review qualifications of all Contractors and determine their status. Contractors will be prequalified for different sized tanks and towers based on experience, workmanship, successful Project completions with DIXON and Contractor's financial data. All information shall be submitted on DIXON's Prequalification Form. Any Contractor who has any projects in dispute or unfinished because of Contract problems will be considered NOT prequalified.

CONTRACTORS wishing to be prequalified must submit their latest financial statement and a list of ten (10) similar sized projects using similar coating systems. Failure to submit may result in rejection of bid. A prequalification status may be upgraded or downgraded during the course of the season, and possible during the Bidding period, as a result of new data submitted, resolution or origination of project conflicts. Disqualification will not result in the return of any handling fee for Bidding Documents.

SECTION 00 00 30
NOTICE to BIDDERS

Separate sealed Bids are solicited for the following project:

Project Name: **200,000 Gallon Reservoir
Wet Interior Repaint
and Miscellaneous Repairs**

**30,000 Gallon Standpipe
Exterior Piping Repaint
And Miscellaneous Repairs**

Note: This project name shall be understood to include the entire scope of project as defined and detailed by these specifications.

Separate sealed bids will be received by the Owner and then publicly opened and read aloud at:

Bids Sent To: **Water Service Corporation of Kentucky, 5509 N. Highland Dr.
McHenry, IL 60050**

Bid Opening Date: **June 25, 2020**

Bid Opening Time: **10:00A.M (local time)**

Bid Opening Site: **Water Service Corporation of Kentucky, 5509 N. Highland Dr.
McHenry, IL 60050**

The SPECIFICATIONS/PLANS may be examined at the following locations:

Builders Exchange 2300 Meadow Dr., Suite 100 Louisville, KY 40215	Construction Association 43636 Woodward Ave. Bloomfield Hills, MI 48302	Central Michigan Plan Room 2026 Independence Dr. Mt. Pleasant, MI 48858
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At the OFFICE of the ENGINEER.

Printed copies, Electronic copies, or Documents on Flash drives with the Bidding Documents may be obtained from the office of DIXON ENGINEERING, INC., 1104 Third Avenue, Lake Odessa, Michigan, 48849 (Issuing Office) upon payment for handling charge of each set in the respective format. Payment for Bidding Documents should be made to Dixon Engineering, Incorporated. **There will be no refund of handling charge for return of specification packages, or in the digital format.**

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For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders, and if applicable Supplemental Instructions to Bidders, that are included in the Bidding Documents.

Note 1: The Engineer assumes no responsibility to supply Builders Exchanges and similar plan review rooms with all addenda issued. An attempt will be made to do so; however, only registered plan holders will be notified by fax or email of expected addendum with short preparation times.

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**WATER SERVICE CORPORATION OF
KENTUCKY**

**200,000 GALLON RESERVOIR
WET INTERIOR REPAINT
AND MISCELLANEOUS REPAIRS**

**30,000 GALLON STANDPIPE
EXTERIOR PIPING REPAINT
WET INTERIOR REPAINT
AND MISCELLANEOUS REPAIRS**

**BID DATE: JUNE 25, 2020
BID TIME: 10:00 A.M.**

CONTRACT NO. 17-53-66-01/02-20

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SECTION 00 00 30
NOTICE to BIDDERS

Separate sealed Bids are solicited for the following project:

Project Name: **200,000 Gallon Reservoir
Wet Interior Repaint
and Miscellaneous Repairs**

**30,000 Gallon Standpipe
Exterior Piping Repaint
And Miscellaneous Repairs**

Note: This project name shall be understood to include the entire scope of project as defined and detailed by these specifications.

Separate sealed bids will be received by the Owner and then publicly opened and read aloud at:

Bids Sent To: **Water Service Corporation of Kentucky, 5509 N. Highland Dr.
McHenry, IL 60050**

Bid Opening Date: **June 25, 2020**

Bid Opening Time: **10:00A.M (local time)**

Bid Opening Site: **Water Service Corporation of Kentucky, 5509 N. Highland Dr.
McHenry, IL 60050**

The SPECIFICATIONS/PLANS may be examined at the following locations:

Builders Exchange 2300 Meadow Dr., Suite 100 Louisville, KY 40215	Construction Association 43636 Woodward Ave. Bloomfield Hills, MI 48302	Central Michigan Plan Room 2026 Independence Dr. Mt. Pleasant, MI 48858
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At the OFFICE of the ENGINEER.

Printed copies, Electronic copies, or Documents on Flash drives with the Bidding Documents may be obtained from the office of DIXON ENGINEERING, INC., 1104 Third Avenue, Lake Odessa, Michigan, 48849 (Issuing Office) upon payment for handling charge of each set in the respective format. Payment for Bidding Documents should be made to Dixon Engineering, Incorporated. **There will be no refund of handling charge for return of specification packages, or in the digital format.**

Format	Cost
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Flash Drive containing Bidding Documents in portable document format (PDF)	\$85.00
Electronic download of Bidding Documents by email (PDF)	\$75.00

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders, and if applicable Supplemental Instructions to Bidders, that are included in the Bidding Documents.

Note 1: The Engineer assumes no responsibility to supply Builders Exchanges and similar plan review rooms with all addenda issued. An attempt will be made to do so; however, only registered plan holders will be notified by fax or email of expected addendum with short preparation times.

Note 2: Prequalification of BIDDERS - Dixon Engineering will review qualifications of all Contractors and determine their status. Contractors will be prequalified for different sized tanks and towers based on experience, workmanship, successful Project completions with DIXON and Contractor's financial data. All information shall be submitted on DIXON's Prequalification Form. Any Contractor who has any projects in dispute or unfinished because of Contract problems will be considered NOT prequalified.

CONTRACTORS wishing to be prequalified must submit their latest financial statement and a list of ten (10) similar sized projects using similar coating systems. Failure to submit may result in rejection of bid. A prequalification status may be upgraded or downgraded during the course of the season, and possible during the Bidding period, as a result of new data submitted, resolution or origination of project conflicts. Disqualification will not result in the return of any handling fee for Bidding Documents.

SECTION 00 00 40 **PROJECT SUMMARY**

PART 1 – GENERAL

This Project Summary is an overview of the entire Project. The Project Summary is referred to in the Bid/Agreement Form in a few locations. It is intended to place all project specifics in one location to aid Bidders.

1.01 SCHEDULE, LIQUIDATED DAMAGES and SPECIAL DAMAGES

The Contractor shall abide by the following schedule:

Commence work on or after March 1, 2021.

Work hours are dawn to dusk 7 days a week.

Substantial Completion is June 30, 2021 including cure and disinfection time.

The 200,000 gallon tank may be out-of-service a maximum of 30 days. The 30,000 gallon tank may be out-of-service a maximum of 15 days.

Only one tank can be out-of-service at a time.

For liquidated damages, 30 days out-of-service establishes Substantial Completion date for the 200,000 gallon tank and 15 days for the 30,000 gallon standpipe. Liquidated damages at \$1,250/calendar day shall apply after this date. Ready for Final Payment Date shall be thirty (30) days after date Substantial Completion was scheduled or adjusted by Change Order, or earlier if actual date. Liquidated damages after Ready for Final Payment Date of \$250/day shall apply. Liquidated damages are cumulative if damages from Substantial Completion and Ready for Final Payment overlap. In addition, Special Damages may also apply per Bid/Agreement Form.

1.02 SCOPE of WORK

Tank Information:

200,000 Gallon Standpipe Tank: The structure is a 200,000 gallon standpipe with a 45 ft. 10 in. sidewall height and a 28 ft. diameter located at 118 Pruitt Rd. in Clinton, Kentucky.

30,000 Gallon Reservoir Tank: The structure is a 30,000 gallon reservoir with an estimated 13 ft. sidewall height and an estimated 32 ft. diameter located at 404 Short St. in Clinton, Kentucky.

The work includes:

200,000 Gallon Standpipe Tank:

Wet Interior: Abrasive blast clean to a SSPC-SP10 near-white metal standard and apply a three (3) coat zinc epoxy system.

Foundation: Repair grout.

Cathodic Protection - Alternate: Install an impressed current cathodic protection system.

Repairs:

- 1) Install sidewall manway.
- 2) Replace sidewall manway gaskets.
- 3) Install fill/draw pipe deflector bars.
- 4) Install fall prevention device on the wet interior ladder.
- 5) Install roof handrail with painter's rail.
- 6) Install sidewall step-off platform.
- 7) Replace vent with a frost-free roof vent.
- 8) Install cathodic clips and coupling.

30,000 Gallon Reservoir Tank:

Wet Interior Piping: Abrasive blast clean to a SSPC-SP10 near-white metal standard and apply a three (3) coat zinc epoxy system.

Exterior Piping: Abrasive blast clean to a SSPC-SP6 commercial standard and apply a four (4) coat zinc epoxy urethane system.

Foundation: Caulk the gap between the baseplate and the foundation. Water clean the foundation and apply a two (2) coat epoxy system.

Repairs:

- 1) Replace sidewall manway gasket.

SECTION 00 02 00
INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. Issuing Office – The office from which the Bidding Documents are to be issued, and which registers plan holders.
 - B. Owner’s Office – The office where the bidding procedures are to be administered.

ARTICLE 2 – BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder’s responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Notice to Bidders, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is obvious. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder’s failure to obtain Addenda from a plan room.
- 2.05 Electronic Documents
- A. When the Notice to Bidders Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified. (Sealed master copy of Bid documents held by Owner.
 - 1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version **9.0** or later. It is the intent of DIXON and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and DIXON cannot totally control the transmission and receipt of Electronic Documents nor the Contractor’s means of reproduction of such documents, the Owner and DIXON cannot and do not guarantee that Electronic Documents and

reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.
 - 1. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3 – QUALIFICATIONS/PREQUALIFICATIONS OF BIDDERS

3.01 Coating projects require competent, financially solvent Contractors who complete projects on time. These projects deal with the health and safety of the public, have a short availability time, and include dangerous work; therefore, the Owner will only consider prequalified Contractors. Bidders not prequalified may be considered non-responsive and bids may be returned, unopened or opened. Bidders who are not prequalified may not be awarded the project if there is insufficient time (30 days) to complete a thorough review or may not be awarded at Owner's discretion.

A. Requirements for prequalification are:

- 1. On tanks of 1,000,000 gallons or smaller, successful completion of at least ten projects of like or larger size in the last five years. On tanks larger than 1,000,000 gallons, five projects of like size shall have been successfully completed in the last five years.
 - 2. The experience list shall be based on the type of project being Bid. If project is for a reservoir, then experience list shall contain the required number of projects for reservoirs only; if Project is for an elevated tank, then elevated only; wastewater, wastewater only; clarifier, clarifier only.
 - 3. All projects listed by a Bidder shall have been completed by that bidder under the company name in which they will be bidding this project. If the Bidder has completed the project(s) under a different company name, then the name under which the project(s) was completed shall be noted.
 - 4. Bidders shall furnish proof that they are bondable for the size of the project they are bidding and furnish proof of their bonding company's rating.
- B. DIXON will review submitted data to determine if Bidder meets prequalification requirements. QP1 or QP2 certification by Society of Protective Coatings (SSPC) is an

alternate method of prequalification, except for the experience list. Any information found to be false or incorrect may be ample reason for disqualification.

- C. New Bidders can apply for prequalification; however, they must be able to prove that they are bondable, provide a certified financial statement (most recent fiscal quarter), provide a complete equipment list; and a list of manpower, including work experience and the contractor(s) for whom they have worked. From this information, an evaluation and recommendation will be made by DIXON using economic ratios and comparisons regarding project size, equipment, manpower available, and foreman's experience. A determination will then be made by the Owner as to whether or not the Bidder is qualified to perform the Project.
- D. Any prequalified Contractor (by DIXON or SSPC) who has pending litigation against him for work not completed on a project or for failed work on a project may be subject to disqualification.
- E. In addition, the Owner may make further investigations into the Bidder's prequalification, including compliance with human resource programs, as well as OSHA and environmental histories. The Owner also may review elements of the prequalification and determine if experience is generic to and specific to the project. Furnish the Owner information, data, or certifications requested.

3.02 Disqualification:

- A. Prequalification status may be nullified if a Bidder is disqualified or by other means rejected from bidding in a state or subdivision of a state, or by the federal government.
- B. By submitting their bid, the Bidder certifies that he is not currently disqualified or rejected from submitting bids in the state or political subdivision of the state where the project is located.

3.03 If not Prequalified; to demonstrate Bidder's qualifications to perform the Work, and at least ten (10) days prior to Bid Opening, Bidder shall submit the following information:

- A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
- B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
- C. Bidder's state or other contractor license number, if applicable.
- D. Subcontractor and Supplier qualification information.
- E. A completed Qualification Form (EJCDC 451) and supporting documentation.
- F. Other required information regarding qualifications.
- G. DIXON will review submitted data to determine if Bidder meets prequalification requirements. QP1 or QP2 certification by Society of Protective Coatings (SSPC) is an alternate method of prequalification, except for the experience list and fiscal review. Any information found to be false, incorrect or embellished (sole determination of Owner) will be sufficient reason for disqualification.

- H. A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- I. No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4 – PRE-BID CONFERENCE MOVED TO SUPPLEMENTAL INSTRUCTIONS

ARTICLE 5 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 Site and Other Areas

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 Existing Site Conditions

- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - 1. There are no reports or drawings that contain Technical Data.
 - 2. There are no reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
- B. Underground Facilities – The only known Underground Facilities may be piping pits unless noted in the Supplemental Conditions.
- C. Site-related Documents
- D. No Site-related documents are available.

5.03 Site Visit and Testing by Bidders

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

5.04 Owner's Safety Program

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.05 Other Work at the Site

- A. Reference is made to the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents.

ARTICLE 6 – BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certifications in Bid Form, Agreement

- A. The Bid/Agreement Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will automatically reaffirm representations and certifications when it executes the Bid/Agreement.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.

7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to DIXON in writing. Contact information and submittal procedures for such questions are to be made to the Issuing Office.

7.03 Interpretations or clarifications considered necessary by DIXON in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.

- A. Addenda may be electronically issued within five days of opening of Bids if Addenda is considered clarification only.
- B. The only Addenda issued within three days of the bid will be a notice to reschedule opening of Bids, or to cancel opening of Bids. Bids already in transit will be returned unopened or held unopened if requested by Bidder until new date for opening of Bids.

7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the

Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of ten (10) percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Article 6 of the General Conditions, or in the form of a Certified check made payable to Owner. A check is considered a stopgap measure only, and shall be replaced by a Bid Bond as soon as practical. As an alternate to replacement Contractor must demonstrate that they can procure the required Construction Bonds.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other Conditions Precedent of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security (Conditions Precedent) within 10 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole as a Liquidated Damage.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.
- 8.05 Bid Bonds will not be returned, but allowed to expire sixty-one days after Bid opening, unless notified by Owner.
- 8.06 Bid security in the form of a certified check have in the past been overlooked when following Paragraphs 8.02 –8.04 permit return, without intent, because the Certified checks were kept in a different location than the Bonds. It is the Contractor's responsibility to track the location and secure the return of their check.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement and in Section 00 00 40 Project Summary.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement and in Section 00 00 40 Project Summary.

ARTICLE 10 – SUBSTITUTE AND “OR EQUAL” ITEMS

10.01 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed and the item of Work they are proposed to do.

11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or DIXON, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute.

11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder.

ARTICLE 12 – PREPARATION OF BID

12.01 The Bid/Agreement Form is included with the Bidding Documents. Additional copies are available from the Issuing Office.

A. DIXON has combined the Bid and Agreement Form. While preparing the Bid documents, use caution to remain in the Bid portion and not the Agreement.

B. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

C. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”

12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly

legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture will not be accepted.
- 12.08 All names must be printed legibly in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13 – BASIS OF BID

13.01 Unit Price

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form. Where a quantity is not specified (i.e. exterior paint), consider the quantity as one, or a lump sum line item.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes.

The final quantities and Contract Price will be determined in accordance with the General Conditions.

Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the math corrections. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. See 00 06 00 Schedule of Values for further determinations.

ARTICLE 14 – SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form and Schedule of Values. The unbound copy of the Bid Form and Schedule of Values is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 4 of the Bid Form. If Bidding documents were issued electronically it is the Bidder's responsibility to print the Bid Form and submit as directed above. Bid form is identified herein as Bid/Agreement Form but is only a Bid Form until signed by Owner as an Agreement.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the required Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement. Failure to meet the requirements of this paragraph is sufficient reason to consider the Bid nonresponsive.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and may be returned to the Bidder unopened.

ARTICLE 15 – MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Dependent upon the timing of receipt of such notice, the unopened Bid may be returned to the Bidder. If the Bid is opened then the Bidder must comply with Paragraph 15.03 below. There is no guarantee that Notice is sufficient or timely if sent by text or email.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. If the Project is rebid, the Bidder

who withdraws their bid may be disqualified from submitting a new Bid, at the sole discretion of the Owner.

ARTICLE 16 – OPENING OF BIDS

16.01 Bids will be opened at the time and place indicated in the Notice to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders upon written request to DIXON.

ARTICLE 17 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and allow the Bid security to expire prior to the end of this period.

ARTICLE 18 – EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or DIXON, then Owner will reject the Bid as nonresponsive.

18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

C. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers

proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders including prequalified Bidders, and any proposed Subcontractors or Suppliers. Prequalification by DIXON does not guarantee that Owner after investigation will determine the same Contractor to be qualified. Owner's sole determination will govern.

ARTICLE 19 – BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to Performance and Payment bonds, and other required bonds (if any). The entire section (paragraphs concerning insurance and from Article 7, the Indemnification requirements have been moved to Supplemental Conditions Paragraph 6.02+. When the Successful Bidder delivers the executed Notice of Award to Owner, the signed Award shall be accompanied by required bonds and insurance documentation.

ARTICLE 20 – SIGNING OF AGREEMENT

- 20.01 The Articles of these Instructions as prepared by EJCDC consider a formal "Closing" or contract signing meeting. All references to a Closing, contract signing event, are intended to be deleted. Notice of Award will be issued by Owner, all requirements of Conditions Precedent (bonds and insurance) will be completed by contractor within 10 days after issuance of Notice of Award and forwarded to DIXON who will then compile Contract Documents. Three sets of documents will be sent to Owner for signature and distribution. One executed copy will be retained, one executed copy will be sent to the Contractor and one to DIXON. There will be no meeting for signing unless required by Supplemental Instructions.
- 20.02 This Contract contains a combined Bid/Agreement form. The Bidder signs Article 1 as Bidder. The Owner will issue a Notice of Award and request Bonds and insurance and possibly other items (Conditions Precedent). When the Conditions Precedent are met, the Owner signs Article 2 of the Bid/Agreement making the document an Agreement document.
- 20.02 The executed copy will be accompanied by three copies of signed Notice to Proceed. Within five days of the date on the Notice to Proceed, the Bidder will sign the Notice to Proceed and return a copy to DIXON. If DIXON does not receive the accepted Notice to Proceed in five days, then the Notice to Proceed will be considered accepted by default. The Notice to Proceed will be dated on or around the contract date. The actual contract start date, completion date, etc. will be the same as the Effective Agreement Date, or as noted in the Project Summary.
- 20.03 Notice of Award; Effective Date of Award (Effective Date of Agreement): If the Contract is awarded by Owner, such award shall be effective when the Notice of Award has been delivered to the successful Bidder ("Effective Date of Award"). The Effective Date of Agreement is the date the BID/Agreement is signed by the Owner.

- 20.04 The acknowledgement of the Notice of Award, the submittal of additional requested materials, the Contractor's Certifications, and acceptable certificate(s) of insurance and Performance and Payment Bonds shall be considered Conditions Precedent to the Contract.
- 20.05 Failure to timely execute or submit any of the Conditions Precedent shall be grounds for the imposition of liquidated damages. The liquidated Damages will be equal to the Bid Security. If the submitted documents or any of them fail to comply with these Instructions or Supplemental Instructions to Bidders, Owner may, in its sole discretion, annul the award or allow the successful Bidder an opportunity to correct the deficiencies.
- 20.06 In no event will Owner execute the Agreement until any and all such deficiencies have been cured or Owner has received adequate assurances, as determined by Owner, of complete and prompt performance.
- 20.07 Annulment of Award; Liquidated Damages: The failure or refusal of a successful Bidder to comply with the Conditions Precedent to Closing or to Close shall be just cause for the annulment of the award and the imposition of liquidated damages.
- 20.08 Subsequent Awards: Upon annulment of an award, Owner may accept, and award a Contract based on, any other Bidder's Proposal as Owner, in its sole judgment, deems to be the best or may invite new Proposals or may abandon the bidding process or the Work.

ARTICLE 21 – NON-DISCRIMINATION

- 21.01 Non-Discrimination: Do not discriminate in employment practices.
- 21.02 Bidders shall, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the contract.
- 21.03 Successful Bidders shall, if requested, submit a list of all subcontractors who will perform work on the project and written signed statements from authorized agents of the labor pools with which they will or may deal for employees on the work, together with supporting information to the effect that said labor pools' practices and policies are in conformity with Equal Employment Opportunity, including latest federal and local policies. Labor pools will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under the contract, or a certification as to what efforts have been made to secure such statements when such agents or labor pools have failed or refused to furnish same prior to award of the project.
- 21.04 Successful Bidders shall comply in all respects with the Labor Standards Contract Provisions regarding non-discrimination on this Project.
- 21.05 Bidder agrees that in the hiring of employees for the performance of work under this Agreement or any sub-agreement, neither the Contractor, nor any Subcontractor, nor any person acting on behalf of either, shall by reason of race, creed, or color, discriminate against any citizen in the employment of labor or workers who are qualified and available to perform the work to which the employment relates; nor shall the Contractor, or any Subcontractor, or any person acting on behalf of either, in any manner discriminate against or intimidate any employee hired for the performance of work under this Agreement on account of race, creed, or color.

ARTICLE 22 – NON-COLLUSION

22.01 Collusion between Bidders will be cause for rejection of affected bids and may be cause for rejection of all bids. Multiple bids submitted by one bidder under the same or different names, whether as individual, firm, partnership, corporation, profit or non-profit, affiliate, or association will be cause for rejection of bids. A subcontractor is not a Bidder and he may submit prices to multiple Bidders.

ARTICLE 23 – ALTERNATE BIDS OR RESTRICTIONS ON BIDS

23.01 Items that affect the scope of the project and not addressed by addenda will not be accepted as an alternate bid.

23.02 Alternate bids will automatically be considered non-responsive.

- A. Such bids may be examined prior to project award and may result in bid cancellation, followed by new bids, including the alternate.
- B. Discounts to the Owner for payment within a stipulated period of time will not be considered conditional or qualified bids. Discounts will be accepted, but not considered in bid price evaluation for bid award.
- C. Interest clauses will be considered a qualified bid.

SECTION 00 20 10
SUPPLEMENTAL INSTRUCTIONS to BIDDERS

The following instructions will change on a Project to Project Basis

- 1.01 A pre-bid conference will not be conducted for this Project.
- A. All access to the site must be coordinated through the Owner. Bidder must conduct the site visit during normal working hours.
 - B. Information presented during the site visit does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the visit. Information presented, and statements made at the visit will not be binding or legally effective unless incorporated in an Addendum.
- 1.02 Non-discrimination in Employment is required.

SECTION 00 05 00
BID/AGREEMENT FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid/Agreement Form with initial capital letters have the meanings stated in the Instructions to Bidders, Supplemental Instructions to Bidders (if applicable), the General Conditions, and the Supplementary Conditions.

ARTICLE 1 –BID/AGREEMENT SIGNATURES AND BID

1.01 By signing this Bid Proposal, Contractor acknowledges that this Bid Form becomes an Agreement upon acceptance and signature of Owner below in Article 2.

1.02 Receipt of Addenda – Bidder hereby acknowledges receipt of the following Addenda:
Attach sheet if more rows are needed.

Addendum Number	Addendum Date	SIGNATURE -Addendum Received

1.03 Base Bid – Bidder will complete the Work in accordance with the Contract Documents, including all labor and material, for the following Total price which is the Sum of prices from the Schedule of Values. Section 00 06 00:

_____ \$ _____

Lump Sum Prices are based on the Schedule of Values – Section 00 06 00.

Unit Prices have been computed in accordance with the General Conditions and listed in Schedule of Values.

Bidder acknowledges that estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Bidder acknowledges that Lump Sum bids are actually itemized bids based on the Schedule of Values, and further agrees and acknowledges the alternatives and conditions set forth in the Schedule of Values.

1.04 This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

1.05 BIDDER hereby submits this Bid to:

Owner: Water Service Corporation of Kentucky

Address of Owner: 5509 N. Highland Dr., McHenry, IL 60062

Bidder: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____

Title: _____

Date: _____

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____
(individual's signature)

Name: _____

Title: _____

Date: _____

Address for giving notices:

Bidder's Contact and Agent for Service or Process:

Name: _____

Title: _____

Phone: _____

Email: _____

(Email will be used for Electronic Document Transfer Protocol.)

All Business Entities

Date of Qualification to do business in _____ [State Where Project is Located] is
____________.

ARTICLE 2 – AGREEMENT SIGNATURES

2.01 Owner’s signature as Party to Agreement, Changes Bidder’s Status to Second Party to Agreement, Contractor.

AGREEMENT: IN WITNESS WHEREOF, Contractor has signed this Agreement as Bidder. Owner has signed Agreement in duplicate and one counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf. (a third copy or original has been delivered to DIXON)

This Agreement will be effective on, _____, _____ (which is the Effective Date of the Agreement)

OWNER: _____

By: _____

Title: _____

ARTICLE 3 – BIDDER TO CONTRACTOR

- 3.01 The above signed Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner by Owner signing above and transforming this Document into a combined Bid/Agreement Form and:
- A. Agrees to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
 - B. Agrees to accept all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.
 - C. Bidder accepts all the terms and conditions of the combined Bid/Agreement form. (The Bid/Agreement form is an attempt to shorten the time period between submittal and award.) Bidder’s signature is an acceptance of all terms of the Bid and Agreement sections.

ARTICLE 4 – ATTACHMENTS TO THIS BID

- 4.02 The following documents are submitted with and made a condition of this bid:
- A. Required bid security, including evidence of authority to do business in the state of the project; or a written covenant to obtain such authority within the time for acceptance of bids.
 - B. Contractor's license number as evidence of bidder's state contractor's license or a covenant by bidder to obtain said license within the time for acceptance of bids.
 - C. Bidder qualification statement with supporting data (submitted 10 days prior to bid opening), unless contractor is prequalified.

ARTICLE 5 – TIME OF COMPLETION

- 5.01 Bidder agrees that the Work will be substantially complete and will be completed and Ready for Final Payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in this Bid/ Agreement, or in the Project Summary.
- 5.02 Bidder accepts the provisions of the Agreement as to liquidated damages, Special damages, and Set-offs in the event of failure to complete the Work within the Contract Times, or within Milestone dates or in compliance with the specifications and General Conditions.

ARTICLE 6 – BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 Bidder's Representations
- A. In submitting this Bid, Bidder represents the following:
 - 1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 - 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings, if any.
 - 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work in the State required by the Bidding Documents (Project).
12. Bidder has been prequalified for projects of this design, size, and complexity, or submitted Qualification forms ten (10) days prior to Bid Opening.

6.02 Bidder's Certifications

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

- b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
- c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
- d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

6.03 Affirmations of Bidder Transferred to Contractor

- A. All references to Bidder in Paragraph 6.01 and 6.02 in these affirmations, representations, and certifications will change to the term Contractor if this Bid becomes an Agreement.

ARTICLE 7 – TIME REQUIRED TO EXECUTE AGREEMENT

- 7.01 Time Framework for Award Execution – The Owner will open bids on the bid date. After opening, no bid may be withdrawn or altered for sixty days, unless specifically stated elsewhere. The Owner may negotiate with the low Bidder and mutually both parties may alter bid (i.e. partial award of project).

The Bidder will be notified of award within sixty days of bid date, unless stated elsewhere or mutually extended. Notice of Award form will be sent by fax, mail, or email. Within ten business days of Notice of Award, supply the Engineer with three original sets of separate Payment and Performance Bonds. Supply three original sets of Certificates of Insurance meeting requirements of Supplementary Conditions 5.01 and 5.02. Insurance companies and insurance forms must be standard to the industry and acceptable to the Owner. Failure to submit bonds and/or insurance within the time frame will be considered a default, a failure to perform as required by the Bid Bond. The Owner, at his option, may waive default, delay default, or proceed with capture of the Bid Bond as liquidated damages which will become the Owner's property.

Bonds and insurances are to be submitted to the Engineer for review. The Owner will within twenty days of receipt of approved bonds and insurances from the Engineer execute the Agreement and send a signed copy to the Contractor.

The executed copy will be accompanied by three copies of the Notice to Proceed. Within five days of the date on the Notice to Proceed, the Bidder shall sign the Notice to Proceed

and return a copy to the Engineer. If the Engineer does not receive the accepted Notice to Proceed in five days, then the Notice to Proceed will be considered accepted by default.

The Notice to Proceed will be dated on or around the Effective Date of Agreement.

ARTICLE 8 – BID ACCEPTANCE

8.01 Bid Acceptance:

- A. The above Bid is accepted by the Owner and shall become a Contract Agreement binding on all parties after signing by an authorized representative of the Owner in Article 2 of this Bid/Agreement Form.
- B. All references in the second portion of this form are Agreement terminology. Bidder is now referred to as Contractor. Where appropriate, the term Bidder in the Bid/Agreement form is changed to Contractor.

ARTICLE 9 – ENGINEER

- 9.01 The Owner has retained **DIXON** Engineering, Inc. to act as Owner's representative, assume all duties and responsibilities of Engineer, and RPR, and have the rights, limitations of responsibility, and authority assigned to Engineer in the Contract.

ARTICLE 10 – CONTRACT TIMES

10.01 Time is of the Essence

- A. All time limits for Milestones, if any, Substantial Completion, and completion and Readiness for Final Payment as stated in the Project Summary and these Contract Documents are of the essence of the Contract.
- B. The Work shall be Substantially Completed, and completed and ready for Final Payment on or before the dates or time period as required by the Project Summary 00 00 40.

10.02 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in the Project Summary 00 00 40, plus any extensions thereof allowed in accordance with the General Conditions and approved Change Order. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that Liquidated Damages are for delay (but not as a penalty) and agree to the Liquidated Damages listed in the Project Summary 00 00 40.
- B. If Milestones are identified in the Project Summary 00 00 40 as essential to the proper sequencing/or coordination of work with others, or to the successful compliance with the project Substantial Completion date, Liquidated Damages are identified in the Project Summary.
- C. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are additive, and will be imposed concurrently.

10.03 Special Damages

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in the Project Summary for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), and if necessary to hire other Contractors to complete portions of the Work, until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental, in addition to, any liquidated damages for delayed completion established in this Agreement.

ARTICLE 11 – CONTRACT PRICE

- 11.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Schedule of Values and this Bid/Agreement.
- 11.02 As provided in the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

ARTICLE 12 – PAYMENT PROCEDURES

12.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with the General Conditions. Applications for Payment will be processed by DIXON as provided in the General Conditions.

12.02 Progress Payments; Retainage

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment once each month during performance of the Work as provided in Paragraphs 12.02.A.1 through 12.02.A.7 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established and by protocol as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided in the General Conditions. The following is a protocol used for partial completion of an individually listed lump sum item e.g. wet interior painting. All items may not apply to this Agreement.

1. The wet interior, surface preparation by abrasive blast cleaning will be considered equal to 40 percent of the line item and each coat of paint 20 percent.
 2. The exterior, surface preparation by high pressure cleaning and power tool cleaning will be considered equal to 40 percent of the line item work and cost and each full coat of paint 15 percent. The remainder will be for lettering, demobilization and cleanup.
 3. Repairs will not be broken down. 100 percent completion is required before they will be considered for payment.
 4. Mobilization is included in the surface preparation allotment for the items above.
- C. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated above but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract. Retainage to be held as follows: 10% of the dollar value through 50% completion; 5% of the dollar value through 100% completion.
- D. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 90 percent of the Work completed, less such amounts set off by Owner pursuant to the General Conditions, and less 150 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

12.03 Final Payment, Consent of Surety

- A. Upon final completion and acceptance of the Work in accordance with the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer.
- B. Owner reserves the right to not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release. Determination to require Consent will be based on the Engineer's sole decision as to the level of confidence in Contractor's Work practices, their payment of employees, certified payrolls (when required), or the potential of future claims against the Owner or Contractor.

ARTICLE 13 - CONTRACT DOCUMENTS

13.01 Contents

- A. The Contract Documents consist of the following:
 1. This Bid/Agreement including Sections 00 00 40 Project Summary and 00 06 00 Schedule of Values.
 2. Performance bond.
 3. Payment bond.

4. Maintenance (Warranty) bond
 5. General Conditions,
 6. Supplementary Conditions,
 7. Technical Specifications and Drawings (if any) as listed in the table of contents of the Contract Documents.
 8. Addenda as listed on page 1.
 9. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Order(s).
 - d. Field Orders.
- B. There are no Contract Documents other than those listed above in this Article 13.
- C. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 14 - MISCELLANEOUS

14.01 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

14.02 Successors and Assigns

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

14.03 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

SECTION 00 06 00
SCHEDULE of VALUES

1.01 PART 1

200,000 Gallon Standpipe:

A. Bidder agrees to perform all work in the following sections as described in the Contract Documents, including all labor and material for the following Schedule of Values – Section 03 01 00:

1. GROUT REPAIR – 50 FT.
_____ \$ _____

B. Bidder agrees to perform all work in the following sections as described in the Contract Documents, including all labor and material for the following Schedule of Values – Section 05 00 00:

1. SIDEWALL MANWAY
_____ \$ _____

2. FALL PREVENTION DEVICE
_____ \$ _____

3. ROOF HANDRAIL AND PAINTER’S RAILING
_____ \$ _____

4. STEP-OFF PLATFORM
_____ \$ _____

5. ROOF VENT
_____ \$ _____

6. CATHODIC CLIPS AND COUPLING
_____ \$ _____

TOTAL PRICE SECTION 05 00 00 INCLUDING #1 THROUGH #6:
_____ \$ _____

C. Bidder agrees to perform all work in the following sections as described in the Contract Documents, including all labor and material for the following Schedule of Values – Section 09 97 13:

1. WET INTERIOR REPAINT

_____ \$ _____

D. Bidder agrees to perform all work in the following sections as described in the Contract Documents, including all labor and material for the following Schedule of Values – Section 26 42 23:

1. CATHODIC PROTECTION SYSTEM - ALTERNATE

_____ \$ _____

STANDPIPE TOTAL PRICE SECTION 03 01 00, 05 00 00 AND 09 97 13:

SECTION 03 01 00:	\$ _____
SECTION 05 00 00:	\$ _____
SECTION 09 97 13:	\$ _____
STANDPIPE TOTAL:	\$ _____

30,000 Gallon Reservoir:

A. Bidder agrees to perform all work in the following sections as described in the Contract Documents, including all labor and material for the following Schedule of Values – Section 09 97 13:

1. WET INTERIOR PIPING REPAINT

_____ \$ _____

2. EXTERIOR PIPING REPAINT

_____ \$ _____

3. FOUNDATION SEALANT

_____ \$ _____

TOTAL PRICE SECTION 09 97 13 INCLUDING #1 THROUGH #3:

_____ \$ _____

STANDPIPE TOTAL:	\$ _____
RESERVOIR TOTAL:	\$ _____
PROJECT TOTAL:	\$ _____

1.02 PART 2 - UNIT PRICES – ADJUSTMENT TO BASE BID QUANTITIES

- A. Unit Price Tank #2 – Grout Repair: Cost of concrete preparation and placement of **five 5 lineal foot** of cementitious patching mortar. Add to or deduct from the base bid of **fifty (50) lineal feet**.

\$ _____

1.03 TOTALS

- A. Total Base Bid is to match total Base Bid price supplied in Bid/Agreement form.

1.04 ALTERNATE BIDS

- A. Bidders are required to bid both Base and Alternate.

1.05 MISTAKES

- A. Total of Schedule of Values should equal lump sum bid total. If addition of individual items does not match total, then each individual item will be proportionately changed to reflect total of values to match lump sum bid.
- B. A mistake in addition for schedule items cannot be used to increase lump sum bid. Individual items will be proportionately changed downward to reflect lump sum price.
- C. A mistake in Schedule of Values may be used as evidence of error in any request to withdraw bids because of error. Approval of request to withdraw bids is covered in the prebid information. This section is not intended to conflict any portion of the bid package. This section is only to reflect one of the reasons to withdraw bids. Approval of bid withdrawal will be based solely on the owner's interpretation of the severity of the mistake.

1.06 CHANGES in SCHEDULE of VALUES by OWNER

- A. The owner reserves the right to delete any line item except for base bid painting work, at their sole discretion for any reason, budgetary or other. All contract general costs should be evenly distributed over these items (mobilization, demobilization, bonds, etc.)
- B. The bidder/contractor is advised not to overload any specific deletable line item. It could result in loss of profit if the overload item is deleted.
- C. This deletion of items or not including alternates is an expressly stated reservation (a contractually agreed automatic negotiation. Any deletion of specific line items will be completed before selection of the lowest acceptable bidder. Change will be reflected in the Notice of Award.

1.07 NON-DELETABLE WORK

- A. Bidders are advised that all line items except for base bid painting work may be deleted from the project prior to award.
- B. Any deletion of line items or increase or decrease in unit cost items deemed necessary after the Notice of Award will be completed through the Change Order procedure. Prices used in the Schedule of Values will be used in the Change Order adjustment. If work has begun on an item after the contract is executed, but before being deleted by Change Order, the contractor is entitled to costs incurred.

**STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT
2018 These documents have been modified by DIXON and should no
longer be considered an EJCDC document**

Modified and Supplemented by

Prepared by



Issued and Published Jointly by



This document will be known as General Conditions, 2018 edition.

The original document and formatting is the 2013 version of the EJCDC C-700 version of the General Conditions. DIXON modified these documents because we are a specialized firm in coating and structure repairs. The original documents are for multiple trade projects and the 2018 is even endorsed by NUCA, a Utilities and excavating association. Some terms and paragraphs that are not applicable to our industry were deleted. All Insurance Requirements were moved from Article 6 to SC-Article 6. Other parties are advised against using these General Conditions as they may not be sufficient for your project.

DIXON then added paragraphs in blue to increase the specificity to our projects. All additions were Supplemental DIXON Conditions moved to the General Conditions. If they were written by DIXON they will remain blue. Blue paragraphs are equivalent and will be enforced the same as black paragraphs.

**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

1.02 Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

- A. *Addenda* – Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
- B. *Agreement* – The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
- C. *Application for Payment* – The document prepared by Contractor in a form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
- D. *Bid* – The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
- E. *Bidder* – An individual or entity that submits a Bid to Owner.
- F. *Bidding Documents* – The Bidding Requirements, the proposed Contract Documents, and all Addenda.
- G. *Bidding Requirements* – The Advertisement, Notice, or Invitation to Bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
- H. *Bulletin* – If time permits, a Bulletin is issued prior to a Change Order. A Bulletin is an inquiry of the Contractor of the cost to complete the work described in the Bulletin. It is intended as the basis of a Change Order if all parties reach agreement. A Bulletin may be considered as the same as a Change Proposal except that a Bulletin is generated by the Engineer because it generally requires specifications to be addressed.
- I. *Change Order* – A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
- J. *Change Proposal* – A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a Set-off against payments due; or seeking other relief with respect to the terms of the Contract.
- K. *Claim* – (a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an

adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

- L. *Constituent of Concern* – Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead based paint (as defined by the HUD/EPA standard) hazardous waste, and any substance, product, waste, or other material. Lead, chrome, and other by-products of paint removal, as well as strippers, new coatings, and thinners, are to be included in this definition.
- M. *Contract* – The entire and integrated written contract between the Owner and Contractor concerning the Work.
- N. *Contract Documents* – Those items so designated in the Agreement, and which together comprise the Contract.
- O. *Contract Price* – The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
- P. *Contract Times* – The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
- Q. *Contractor* – The individual or entity with which Owner has contracted for performance of the Work.
- R. *Cost of the Work* – See Paragraph 13.01 for definition.
- S. *Drawings* – The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
- T. *Effective Date of the Contract* – The date, indicated in the Agreement, on which the Contract becomes effective.
- U. *Electronic Document* – Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
- H. *Electronic Means* – Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.
- I. *Engineer* – The individual or entity named as such in the Agreement. The terms Engineer and Project Manager are used interchangeable in these Contract Documents.

- J. *Field Order* – A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
- K. *Hazardous Environmental Condition* – The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
- L. *Hold Point* – A point in the construction sequence when the Contractor is required to stop work on that portion of the project until an inspection has been completed.
- M. *Laws and Regulations; Laws or Regulations* – Any and all applicable laws, statutes, rules, regulations, ordinances, codes, binding decrees and resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
- N. *Liens* – Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
- O. *Milestone* – A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
- P. *Non-Conformance Report (NCR)* – A report written by the Engineer or Resident Project Representative to document the Contractor’s Work that does not meet requirements of the specifications or contract.
- Q. *Notice of Award (NOA)* – The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
- R. *Notice to Proceed (NTP)* – A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
- S. *Owner* – The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
- T. *Performance Specifications* – Specifications that require the manufacturer or supplier of equipment, materials, or systems to design, manufacture, deliver, and install products to achieve specific results under stipulated conditions of operation and in environments described in applicable Specification Sections.
- U. *Preconstruction Conference or Meeting* – are interchangeable terms.
- V. *Progress Schedule* – A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
- W. *Project* – The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
- X. *Project Manual* – This term is deleted in the 2018 edition.
- Y. *Ready for Final Payment* – This term is used to define a time when Liquidated Damages begin, separate from but possibly in addition to Liquidated damages for failure to meet Substantial Completion Date. All punchlist items are to be completed, Site cleaned and restored, and equipment removed within 30 days. Finalize and submit all paperwork for

Final Pay Request within 45 days of Substantial Completion. Failure to meet 30 day and/or 45 day requirements may individually trigger the charge of Liquidated Damages.

- Z. *Resident Project Representative* – The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
- AA. *Samples* – Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
- BB. *Set off* – A contracted remedy for the Owner for minor Contract breaches by the Contractor that results in additional and/or unnecessary costs or fees to the Owner.
- CC. *Schedule of Submittals* – A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
- DD. *Schedule of Values* – A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment. [The Schedule of Values Form is supplied in the Bidding Documents as Section 00 06 00. This Schedule is to be submitted with the Bid. Adjustment of Schedule of Values by Engineer to correct for front loading of bid \(without mathematical error\) will not change the total Bid as calculated by completing the Schedule of Values.](#)
- EE. *Shop Drawings* – All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
- FF. *Site* – Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
- GG. *Specifications* – The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
- HH. *Subcontractor* – An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
- II. *Submittal* – A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
- JJ. *Substantial Completion* – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended.

The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof. On tank projects, date of substantial completion is the date the tank is, or would have been returned to service, except for voluntary delay by Owner. Date of Substantial Completion is after complete cure, disinfection, and testing.

KK. *Successful Bidder* – The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

LL. *Supplementary Conditions* – The part of the Contract that amends or supplements these General Conditions. These EJCDC Documents have been rewritten to merge or relocate Supplemental and General Conditions and are now a product of Dixon Engineering Inc. and not an EJCDC product. The terms Supplemental Conditions used in these General Conditions and Project Specific Supplemental Conditions are to be used interchangeable.

MM. *Supplier* – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

NN. *Technical Data* – Revised

1. Those items, if any, expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
2. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

OO. *Underground Facilities* – All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

PP. *Unit Price Work* – Work to be paid for on the basis of unit prices.

QQ. *Work* – The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

RR. *Work Change Directive* – A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.03 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

1.04 *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
 - d. All work completed that is rejected by an unresolved non-conformance report.

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Contract Price or Contract Times: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. Within ten (10) business days of Notice of Award, supply the Owner with three (3) original sets of separate Payment, Performance, and Maintenance Bonds. Supply three (3) original sets of Certificates of Insurance meeting requirements found herein and with the limits of insurance to be found in the Supplemental General Conditions. Failure to submit bonds and/or insurance within time frame will be considered a default, a failure to perform as required by the Bid Bond. The Owner, at his option, may waive default, delay default, or proceed with capture of the Bid Bond which will become the Owner’s property.
- B. Bonds and insurances are to be submitted to the Engineer for review. The Owner will within twenty (20) days of receipt of approved bonds and insurances from the Engineer execute the agreement and send a signed copy to the Contractor.
- C. *Evidence of Contractor’s Insurance* See Insurance Information for required limits in the Supplemental Conditions.
- D. *Evidence of Owner’s Insurance* Owner will not provide Certificate of Insurance to the Contractor. The Owner will not name Contractor additional insured.
- E. *Correction Requirements of Bonds and Insurance:* Bonds and Certificate of Insurances that fail the initial review and first subsequent review by a DIXON contract administrator will be returned to Contractor. All subsequent returns for insufficient material will be cause for Owner to Setoff DIXON recurring fees. Also failure of Bonds and Certificate of Insurance to meet Contract requirements during review by Owner’s insurance consultant will be cause for Set-off.

2.02 Copies of Documents

- A. Owner will furnish the Contractor one signed copy of the Contract Documents. Additional printed copies will be furnished upon request at the cost of reproduction or an electronic version will be supplied upon request and at cost.

- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer. **This is a copy of the signed document only. The copy to be used for all construction and legal disputes will have been sent after final design and retained by Owner in a sealed, marked envelope in a safe location.**

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Agreement (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and
 3. **Submitted with Bid** - a final Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. The Engineer may schedule a Preconstruction Conference to be attended by Owner, Engineer, and Contractor(s). When no organizational meeting is scheduled, the Contractor, prior to beginning any work, shall meet with the Engineer and, if prior submitted, review Project Schedule for the work. Once the Work has started, the Contractor shall carry the Progress Schedule to completion without delay, making adjustments to Schedule as Work progresses.
- B. Attend a Preconstruction Meeting that may be scheduled by the Owner at a mutually agreeable time after all contract preconditions and other requirements have been met.
- C. A corporate officer or someone with legal authority to obligate the company/corporation, project manager (if different from officer), and the intended foreman shall attend. If project foreman does not attend the meeting, it shall be the Contractor's responsibility to supply the information discussed at the meeting to the field foreman.
- D. The Owner will be represented by the project contact person, and the Engineer by the Project Manager or a senior Contract Administrator.
- E. Submit all required materials prior to the preconstruction meeting.
- F. The Preconstruction Conference will discuss all containment, personal hygiene, and lead control issues required in this contract and review. Be prepared to commit designated "competent person(s)" to responsibilities of confined space, scaffold rigging, lead, etc.

- G. At the Preconstruction Conference Owner and Contractor, each party shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.
- H. The Engineer may prepare Preconstruction Conference minutes and send to all attendees. All parties to the Preconstruction Conference will have five days from the postmarked, or email dated delivery of the minutes to protest any item of the minutes in writing. After five days the minutes will be considered not protested and will become part of the Contract documents per established Electronic Transmittal Protocol (See SC Paragraph 2.06).
- I. Preconstruction Conference minutes may serve to meet some of the “writing” requirements of this Article.

2.05 *Initial Acceptance of Schedules*

- A. All schedules are to be submitted prior to the preconstruction meeting. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor’s full responsibility therefor. Failure to meet Milestone or significant Progress Schedule dates may be cause for rejection of prior accepted Progress schedule and require an additional Progress meeting and new Progress Schedule to put Project back on an acceptable schedule. Cost of meeting, Owner’s and Engineer’s time will be considered the responsibility of the Contractor, subject to Set-off.
 - 2. Contractor’s Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals. All Submittals shall be included with the first submittal package and shall only be submitted by the Contractor and not by Suppliers or Subcontractors. If certain items cannot be submitted with the package, an acceptable Schedule of Submittals must be supplied to the Engineer.
 - 3. Contractor’s Schedule of Values (Section 00 06 00 to be completed and submitted with Bidding Documents) *will be acceptable to Engineer as to form and substance if it provides a reasonable* allocation of the Contract Price to the component parts of the Work. If the Engineer determines the Schedule of Values is not acceptable, the Engineer will use the Contractor’s Schedule to reallocate values. The Engineer’s reallocation will be to maintain sufficient funds for work completed toward the end of the project to avoid frontloading values. The Engineer will assign values high enough to bring in another Contractor to finish work in case of default. The Contractor has five (5) days to appeal this reallocated Schedule of Values. Pay Requests shall be made based on the prices in the Schedule of Values as submitted unless adjusted by the Engineer and in that case the adjusted Schedule of Values.

2.06 *Electronic Transmittals – See Paragraph SC 2.06*

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all. *The Documents shall be given the following preference in order:*
1. *Addenda.*
 2. *Agreement.*
 3. *Special Conditions.*
 4. *Supplemental Conditions.*
 5. *Technical Specifications.*
 6. *Drawings. Figure dimensions shall govern over scaled drawings.*
 7. *General Conditions.*
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern. *If there is a conflict between written copies see Paragraph 2.02 B above.*
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by

implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies:

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof. *Contractor as Bidder was required to visit the site. Visible errors in the specifications, such as number of manholes, pits, etc. will be the responsibility of the Bidder to report.*

B. Resolving Discrepancies:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer

shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

- a. The provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
- b. The provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs) or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 1. Have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 2. Have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times*

- A. The contract times are defined in the Project Summary in Section 00 00 40. A Notice to Proceed will be issued thirty (30) days prior to the start date if time permits. An email or verbal notice may be used to give thirty (30) days notice until all parties can sign the Notice to Proceed.
- B. The effective start date will be indicated in the Notice to Proceed. The start date may exceed sixty (60) days after bid opening. The Contract Dates will be maximum out-of-service time AND/OR the Project Completion Date. The start date may float to give the Contractor more flexibility with scheduling. Out of Service Date starts the maximum out of service time. Out of Service Date is the agreed date the tank or structure was removed from service. If the Contractor delays start so that the out of service date exceeds the Project Completion Date, the Project Completion Date becomes Primary and Out of Service Date is no longer applicable. Liquidated Damages starts then on the Contracted Project Completion Date.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date except as recommended immediately following. Contract time is governed by out-of-service time. The Contractor is encouraged to deliver equipment to the site prior to Contract Start. For tanks the site will be available up to two (2) weeks prior to agreed drainage date. (Out of Service Date)
- B. Contractor is also encouraged to rig the structure, complete containment installation, and complete weld repairs that do not affect the wet interior prior to draining of the tank. The amount of work completed shall have been approved at the preconstruction conference. Since the tank is not out of service these dates do not apply against Out of Service time.
- C. Delaying Work start until the next coating season for the convenience of the Contractor will require Owner to Set-off inflation increased Engineering expenses and Owner's costs against Contractor's Request for Payment.

4.03 *Reference Points N/A*

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process,

except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

C. See Technical Specifications for Scheduling RPR Services Section 00 91 19.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. Abnormal weather conditions: [Abnormal weather conditions are defined as weather conditions that are at variance with the routine or normal weather conditions. An example of the evaluation procedure and of the required Change Proposal follows.](#)
 - a. [Project length: 45 days](#)
 - b. [Substantial completion date: June 30th.](#)
 - c. [Start date: May 16th.](#)
 - d. [Three \(3\) years of data* 2019, 2018, 2017](#)
 - e. [Average number of rain/wind days: 9](#)
 - f. [Actual number rain/wind days**: 12](#)
 - g. [Claim for time extension: 3 days.](#)

[*Submit weather history from nearest weather reporting station for three \(3\) previous years from the same time period. Submit same data for current year. Submit formal, but simple Change Proposal \(use format above\).](#)

[**Rain/wind day is a rain or wind day where either rain and/or wind conditions exceeded safe work conditions or were outside the parameters of good paint](#)

practices. Wind days are winds in excess of 20 mph for over four (4) hours during normal work hours, and rain days having measurable precipitation.

h. Change Proposal Evaluation: Engineer will evaluate Change Proposal and make sole determination as to whether days meet criteria. Engineer will disallow dates where work could have been completed on the interior; dates that result from the Contractor's work practices (i.e. complete wet interior first and then move to outside). Good weather days not used will count against Change Proposal.

i. Claimed rain/wind days that extend beyond the scheduled Substantial Completion date or the extended Substantial Completion date will not be awarded. Days past substantial completion and good weather days that were not used because of sequencing of project work by Contractor will be considered "days within the control of the Contractor."

3. Acts or failures to act of utility owners or other third-party entities (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and checked

4. Acts of war or terrorism.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, and Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- H. The termination of Work during the winter season because of cold weather shall not be taken as entitling Contractor to any extension of Contract Time. If approved by Owner, Liquidated Damages being applied will cease through the winter and will begin again when the tank is removed from service. New Liquidated Damages are cumulative with any Liquidated Damages applied for Fall work.

ARTICLE 5 – SITE, SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage; [including car/paint damage claims](#), or injury claim is made by the Owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13.F, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
 - D. [Failure to continually maintain site or to immediately clean the Site after a complaint or at project completion may result in the Owner completing the cleaning by hire or by the Owner's forces. All cleaning costs are the responsibility of the Contractor, they will be collected by payment or Set off.](#)
 - E. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them. [Bent rails, ladder rungs, etc. occurring as a result of construction loading, shall be restored, or negotiated with Owner.](#)
 - F. [The Contractor shall provide adequate signs, barricades, red lights, and watchmen and take all necessary precautions for the protection of the work and the safety of the public. All barricades and obstructions shall be protected at night by signal from sunset-to-sunrise. Barricades shall be of suitable construction and shall be painted to increase their visibility at night. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist.](#)

- G. The Contractor shall at all times so conduct his work to insure the least obstruction to traffic and inconvenience to the general public and the residences in the vicinity of the work, and to insure the protection of persons and property in a manner satisfactory to the Engineer. No road or street shall be closed to the public except with the permission of the Engineer and proper governmental authorities. The Contractor shall confer with and keep police and fire departments of the municipality fully informed as to streets or alleys which are to be closed to traffic for construction purposes. Live fire hydrants on or adjacent to the work shall be kept accessible to fire fighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the usability of sidewalks and the proper functioning of all street gutters, sewer inlets and drainage ditches.
- H. The Contractor shall have full charge of the premises and work under construction until completion and final acceptance of the Work under the Contract except as noted in the Special Conditions.
- I. The Engineer and Owner shall have full access to the Site and Contractor's personnel and equipment shall be available to the Owner and Engineer/RPR to expedite inspections. The Contractor shall be responsible for all injury to work in process of construction, and for all property or materials stored at the premises that may be damaged or stolen while the work is in his care, and shall make good all such damage or loss without expense to the Owner. The Contractor shall confine the apparatus, the storage of materials, and the operations of his workers to limits indicated by law, ordinance, permits, or direction of the Engineer, and shall not unreasonably encumber the premises with his materials or progression of Work.

5.03 *Subsurface and Physical Conditions*

A. *Coating and Repair Work:*

1. The coating and repair of steel or concrete structures does not involve reports and drawings and what can and cannot be considered Technical Data as an excavation Contract may. All of those General Conditions are deleted.
2. Underground work in the coating industry involves drilling for anchors for containment systems. The painting of pit piping may also be considered underground. For this type of Work the Contractor must rely on Utility Locating Services and not Technical Data from Owner, or in the case of pits, a visual inspection. Contractor shall notify each utility before digging for anchors or for any reason. Before starting, call in advance to 811 or as required by the individual agencies.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* In Paragraph 5.03 it is stated that based on the type of industry, that there would be no subsurface Technical data. Since there is no Technical Data or opinion proffered, it is impossible to have Differing Subsurface Conditions. But if Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site or **Underground Facility**, either is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then Contractor shall, promptly after becoming aware thereof and before further disturbing the physical conditions or performing any Work in connection therewith (except in

an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments:*
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
 2. The Contractor is liable for all subsurface damages, Contractor may be entitled to an equitable adjustment if an unidentified Underground Facility is located but it will be determined on a project by project nature, based on what is known, should have been known or anticipated, since these situations are a rarity.
 3. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding

Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
 - d. **Rough Surfaces in the Wet Interior:** The wet interiors of steel structures are subject to corrosion. Based on the age of the tank, maintenance history of the tank, and other factors, the inside of the tank may be pitted. The degree or severity or extent of this pitting will not be considered a hidden condition. No claim of extra for blasting or coating application will be accepted or reviewed. If pit welding or pit filling is completed, that will be done at the bid unit price or a negotiated price. The Owner and Engineer will determine and authorize the extent of pit filling. There will likely be as many or more, unfilled pits than the number authorized for repair. Contractor cannot rely on pit filling to eliminate some of the application techniques needed for pitted tanks. Back rolling of a spray application may be necessary and will be considered Good Painting Practice and not a Differing Physical Condition.
 - e. The Contractor is also advised that older tanks may have been previously blasted and pit filled. The more difficult blasting also does not qualify as a hidden condition. Reducing blasting requirements and leaving some filler residue in the pit may be reviewed on a case by case basis.
4. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 5. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities:* See Paragraph 5.04

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. complying with applicable state and local utility damage prevention Laws and Regulations;
 - c. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

- d. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
- e. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor:* See Paragraph 5.04

5.06 *Hazardous Environmental Conditions at Site*

- A. There are no known hazardous environmental conditions on-site for exceptions see D below. No reports or drawings related to Hazardous Environmental Conditions are known to the Owner or Engineer. There is the possibility of lead in soils or other Constituents of Concern related to the coating industry from past projects. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work or eventually identified as being caused or created by the Contractor. (i.e. Contractor spills thinner and during the cleanup of the thinner, soil containing lead is also removed, then the Owner pays only for the cleanup that can be cost differentiating, not a cost sharing principle.)
- B. Reports and Drawings: The Supplementary Conditions identify:
 - 1. those reports or drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
 - 2. Technical Data contained in such reports and drawings, and the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
- C. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- D. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Article 14); Engineer or RPR has full authority to STOP Work until the Owner and PM are contacted, and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a

Set-off against payments to account for the associated costs. **Authority to STOP Work in this instance is expanded to include potential environmental contamination.**

- E. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- F. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a Set-off.
- G. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 5.06.H do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Maintenance Bonds (Not Bid Bonds)*

- A. Contractor shall furnish a Performance Bond and a Payment Bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by these General Conditions or Supplementary Conditions or other specific provisions of the Contract.

- B. Supply a Maintenance (Warranty) Bond for two (2) years at 50% of the contract price to ensure any repair work required after the one (1) year Post Construction observation within thirteen (13) months (unless stated elsewhere) under the Maintenance Bond.
1. The Post Construction observation will be completed under the Performance Bond. All required Post Construction repairs shall be completed under the Performance Bond.
 2. If repair scheduling is delayed several months for Contractor's schedule (and agreed to by the Owner) the Performance Bond is extended until all required post construction repairs are completed. This Maintenance Bond is to remain in effect until repairs have been completed and accepted or after two years expiration of Performance Bond.
 3. If repair scheduling is delayed several months for Owner's schedule, then the Performance Bond upon request will be allowed to expire and work will be performed.
 4. Per Technical Specifications, if repairs exceed 10% of any area, then the Warranty period and Maintenance bond shall be extended until inspection and repair work if any is completed.
 5. The maintenance (warranty) bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the General Conditions.
- C. Performance, Payment, and Maintenance bonds shall all be Condition Precedent to Contract award. The Contract will not be signed until all three bonds are submitted, reviewed and included in the Contract Documents.
- D. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond. Use forms acceptable to AIA Industry Standards, or use forms specifically required by the Owner. Supply three (3) original signed and properly executed bonds for each type of bond and documented Power of Attorney for those parties executing Bonds.
- E. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts. Surety Companies must, in addition to State license, be incorporated and originating from within the United States. Offshore companies or internet companies are not acceptable. Supply bonds and insurance from companies with a Class A- VII rating or better (rating listed in latest edition and by A.M. Best Co.).
- F. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where

any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above. **No Pay Requests will be accepted until new Bonding is approved as acceptable per Bond Requirements and Owner's satisfaction.**

- G. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- H. Upon written request, Owner will provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.
- I. Owner is under no obligation to furnish Surety Co with copies of Bids, Change Orders, or Project Status updates.
- J. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

NOTE to OWNER & CONTRACTOR – All paragraphs related to Insurance were moved to Supplemental Condition, so that project specific and general requirements are in one location.

6.02	<i>Insurance – General Provisions</i>	<i>Moved to SC-6.02</i>
6.03	<i>Contractor's Insurance</i>	<i>Moved to SC-6.03</i>
6.04	<i>Builder's Risk and Other Property Insurance</i>	<i>Moved to SC-6.04</i>
6.05	<i>Property Losses; Subrogation</i>	<i>Moved to SC-6.05</i>
6.06	<i>Receipt and Application of Property Insurance Proceeds</i>	<i>Moved to SC-6.06</i>

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Contractor's Means and Methods of Construction

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.
- C. Resident Superintendent shall be fluent in English to the level of competency to complete requirements of 7.01.A and 7.02.A. Superintendent shall also be fluent or have access to a translator for the primary language of the majority of workers. Degree of fluency to be sufficient so that Superintendent can adequately complete his duties under 7.01.A.
- D. No employee of Contractor, Subcontractor, or Supplier may be on the Project Site who cannot be directed by a Superintendent, or translator in regards to work assignments, safety issues, or who cannot understand safety signage.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.
- D. The Owner may revoke any written or verbal consent if Contractor's performance of the Work results in complaints by neighbors.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence

(including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *“Or Equals”*

- A. The majority of material or equipment furnished under these contracts are coating related, or fabricated. Engineer maintains a coating program developed and maintained by Engineer. Coatings which have met or exceeded quality and ASTM parameters are listed in the Technical Specifications. No “or equal” coating products will be reviewed as “or equal.” Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified for noncoating and nonproprietary “or equals”.
- B. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an “or equal” item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - 1. In the exercise of reasonable judgment Engineer determines that:
 - 2. it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 3. it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 4. it has a proven record of performance and availability of responsive service; and
 - 5. it is not objectionable to Owner.
 - 6. Contractor certifies that, if approved and incorporated into the Work:
 - a. there will be no increase in cost to the Owner or increase in Contract Times; and
 - b. it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- C. Contractor’s Expense: Contractor shall provide all data in support of any proposed “or equal” item at Contractor’s expense.
- D. Engineer’s Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each “or-equal” request. Engineer may require Contractor to furnish additional data about the proposed “or-equal” item. Engineer will be the sole judge of acceptability. No “or-equal” item will be ordered, furnished, installed, or utilized until Engineer’s review is complete and Engineer determines that the proposed item is an “or-equal,” which will be evidenced by an approved Shop Drawing or other written

communication. Engineer will advise Contractor in writing of any negative determination.

- E. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- F. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material (**excludes coating**) or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review will be set forth by the Engineer as they decide appropriate for the specific substitution request.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use.
 - a. will identify all variations of the proposed substitute item from that specified, and
 - b. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
 - c. **Additional information required may consist of completing Engineer's vendor checklist, field mock-ups, special samples, pilot testing, or other special requirements that Engineer determines necessary to assess if the item of material or equipment proposed is an acceptable substitute to that named.**
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner (Set-off) for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner (Set-off) for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
1. Engineer's minimum cost for reviewing a substitute will be \$400 (2 hrs. equivalent).
 2. Engineer exceeds two hours for review their rate will be \$200 per hour.
- E. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal but is liable for fee regardless of Engineer's determination.

7.07 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other

- individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
 - G. “Subcontracting” – This project requires prequalification. This prequalification requirement extends to Subcontractors.
 - H. The Contractor agrees not to sublet or assign this work without the written consent of the Owner. Violation of this condition shall be grounds for immediate dismissal of the Subcontractor or Contractor to which the work was sublet or assigned and if a satisfactory (Engineer’s opinion) replacement is not on the site working within forty-eight (48) hours, the violations shall then be grounds for Contract termination and Performance Bond forfeiture.
 - I. Lump sum payments to employees instead of hourly wage will be prima facie evidence of subcontracting. The Owner reserves the right to review payroll records and pay stubs. If subcontracting is approved, no more than 30% of the project may be subcontracted.
 - J. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor’s own acts and omissions.
 - K. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
 - L. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
 - M. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
 - N. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
 - O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others.
- B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner will assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work
- B. [The only permits not included are environmental air quality, and permits from health agencies for interior painting, which the Owner will procure if needed.](#)
- C. [Display all wage requirements and other permits on a temporary board.](#)
- D. [Attach to the Resident Superintendent's copy of the specifications, copies of other permits which do not require display.](#)

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

- resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.
 - D. Claims or Change Proposals made for extra costs resulting from laws and regulations that become effective after the opening of Bids or (EDA), will be reviewed based on the exposure and publication of the law or regulation in advance. There will be no adjustment in Contract Price or Contract Time for environmental or safety regulations, or other laws and regulations with similar public notice and public hearing/review procedures. It is the Contractor's responsibility to be aware of industry specific changes in OSHA or environmental issues.
 - E. Regulations dealing with labor rates have a known expiration date. Everyone can safely assume there will be a cost increase with each new issue. If these rates are scheduled to expire during Contract Time, then increase labor costs in Bid for the expected manhours by local cost-of-living factor. If rates increase more than cost-of-living, a Change Order will be reviewed for difference between cost-of-living and actual inflation adjusted wage of new rate above the adjusted old rate. Copy of payroll will be used to determine increase in wage only, not associated taxes, insurance, and benefits. The Contractor is responsible for requesting extra Change Proposal and supplying documentation establishing extra. All consideration for an increase ends on Substantial Completion, either original or Change Order extended date.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, approved Shop Drawings, and Non-Conformance Reports. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.
- B. Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plans, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operations. Submit a copy of

all OSHA reportable or recordable injuries or illness, and all OSHA citations relative to this project at project completion.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work; all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- C. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- D. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions may identify any Owner's safety programs that are applicable to the Work. Failure to identify specific program does not relieve the Contractor from safety program adherence requirement. If safety requirement is for a program not identified in the Supplemental Condition and is more restrictive than OSHA and it interferes with Contractor's Methods of Operation then Contractor may submit a Change Proposal for Contract Time and/or Contract Price.
- E. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- F. All damage, injury, or loss to any property referred to in Paragraph 7.13.A.1 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- G. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed.
- H. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.
- I. Lead/chrome paint removal, and painting of structures are recognized as very hazardous work, and it is further recognized that the painting industry has extensive safety training programs available.
- J. Monitor and be responsible for all safety on job site. The Engineer and Owner will not monitor safety practices and will not assume any responsibility for safety.
- K. The Owner and Engineer have historically followed the Contractor's safety plan when on the site. There have been occasions where the Contractor's safety plan has proven inadequate. The specifications may require safety features for the Owner and Engineer which are now the Contractor's contractual obligation to provide. These include such items as safety cables suspended from the roof for inspection of the interior roof, and safety clips on the bottom of the bowl for fall protection cables. (Legged tanks only) We encourage the Contractor to modify his fall protection plan and to provide additional cables and fall protection grabs for his personnel. Items such as roof railings are provided for the Owner's safety. Do not rig from the railings – a separate painter's rail is provided for rigging.
- L. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. Contractor's Safety Representative shall have the authority to supersede Contractor's foreman and shall stop work if the Work being completed is in violation of Contractor's or Owner's safety program, or OSHA.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of Safety Data Sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 Submittals

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and

other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance nor approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention

in writing to revisions other than the corrections called for by Engineer on previous submittals.

2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than **two** submittals. Engineer will record Engineer's time for reviewing a **third** or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a Set-off against payments due to Contractor to secure reimbursement for such charges.
 3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a Set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.
 4. **All submittals shall be sent to the Engineer as one package (unless a separate Schedule of Submittals is included and approved by the Engineer). All required resubmittals are also to be resubmitted as one package and any delinquent resubmittal must be identified by a new Schedule of Submittals. Failure to include a Schedule of Submittals for delinquent items will be justification by Engineer to consider submittal complete. Delinquent items will be considered reviewed and rejected.**
 5. **The Engineer's minimum cost for issuing a second request will be \$400 (2 hours equivalent).**
 6. **Engineer's hourly rate and reviews requiring more than 2 hours will be completed at the rate of \$200/hr.**
 7. **Submit all material to Engineer's office in Lake Odessa, MI to allow fastest review time.**
- E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs
1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
 3. [Normal wear and tear does not apply to wet interior coating below the high water line. After one \(1\) year, zero \(0\) failure or deterioration is acceptable.](#)
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. the end of the correction period established in Paragraph 15.08;

8. any inspection, test, or approval by others; or
 9. any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.
- 7.18 *Indemnification Both Paragraphs A and B moved to SG6.07 under the Insurance Requirements*
- 7.19 *Delegation of Professional Design Services This Article rewritten for clarity*
- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
 - B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
 - C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
 - D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
 - E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 1. Checking for conformance with the requirements of this Paragraph 7.19;
 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
 - F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
 - G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8 - OTHER WORK AT THE SITE

8.01 *Other Work* *Some of this Article rewritten for clarity*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor ~~written~~ notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be provided at the Preconstruction Meeting or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and
 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in this Contract, the Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a **Set-off** against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this **Paragraph 8.03.B**.
 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a **Set-off** against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor

shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

- D. If overhead power lines present an unsafe work condition as determined by OSHA, Owner or Utility; Contractor at his expense and coordination, shall have the Utility temporarily relocate, move, or cover lines, eliminating the hazard. Contractor will determine problems with utility lines during his prebid site visit and include anticipated costs in his bid.
- E. Unless stated differently in Contract Documents, protect all antennas, controls, cables, and associated property of Owner's or Telecommunication Carrier's equipment or material on, in, or near the structure during work. Design construction procedures to maintain operation of antenna system.

ARTICLE 9 - OWNER'S RESPONSIBILITIES

9.01 Communications to Contractor

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 Replacement of Resident Project Representative

- A. Owner may at its discretion replace Resident Project Representative (RPR) with another RPR. The replacement RPR status under the Contract Documents shall be that of the former RPR.
- B. Contractor may request replacement of RPR for failure to perform safely, timely and /or professionally by submitting a complaint to Dixon that clearly delineates how the RPR failed to perform. Removal is the discretion of the Engineer or the Owner. If requested removal is because of disputes with Contractor, Owner may remove RPR and/or Contractor's Resident Superintendent. If an RPR is removed, they will be replaced with another RPR from DIXON.
- C. Project Manager may request removal of Resident Superintendent or any crew member for unprofessional performance and/or confrontational and /or aggressive attitude.
- D. The Contractor's Safety Representative can be removed but is not relieved of his responsibilities until a new Safety Representative is on Site.

9.03 Furnish Data

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

- 9.04 *Pay When Due*
- A. Owner will make payments to Contractor when they are due as provided in the Agreement.
- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Article 5.
- 9.06 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.07 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.08 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.09 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.10 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 - ENGINEER'S STATUS DURING CONSTRUCTION

- 10.01 *Owner's Representative*
- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in their Contract.
- 10.02 *Visits to Site*
- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed

toward providing for Owner a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work, and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07.

10.03 Resident Project Representative

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as directed by Engineer, and limitations on the responsibilities thereof will be as provided in Paragraph 10.07.
- B. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.
- C. **Moved from SC. Verbiage is all EJCDC.** The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
 - 1. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 - 2. Safety Compliance: Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
 - 3. Liaison
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
 - 4. Review of Work; Defective Work
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

5. Payment Requests: Review Applications for Payment with Contractor.
 6. Completion
 - a. Participate in Engineer's visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 7. Authorize Owner to occupy the Project in whole or in part.

10.04 Engineer's Authority

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.
- E. Engineer's authority as to Applications for Payment is set forth in Article 15.
- F. Engineer/RPR shall have the authority to stop work in the event continuation of Work is under a noncompliance situation, such as incomplete containment, which may result in the violation of environmental laws, or which may result in the covering of defective or unaccepted work product. Authority transfers back to the Owner after the Owner has been notified and returns to the Site.

10.05 Determinations for Unit Price Work

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 Determinations on Requirements of Contract Documents and Acceptability of Work

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 Limitations on Engineer's Authority and Responsibilities

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, **will** create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for, or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents. **Any plan or method of accomplishing the work suggested to the Contractor by the Engineer or other representative of the Owner, but not specified or required, may be used but shall be used at the Contractor's own risk and responsibility. The Owner and Engineer assume no responsibility.**
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 shall also apply to the Resident Project Representative, if any.

10.08 Compliance with Safety Program

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 --CHANGES TO THE CONTRACT

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11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

11.02 Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.
- C. If Owner and Contractor are unable to agree on a price for Change Order work, do not proceed with Work unless ordered in writing by the Engineer or Owner as a Work Change Directive.
- D. If work involved is not essential to the scope of the project and/or there is sufficient time, a Bulletin will be issued and recommended by the Engineer. The Bulletin will request a price for proposed work, and/or any adjustment in Contract Times. If the

price as offered or as later negotiated is acceptable, the Bulletin will become the basis of the Change Order. By Owner acceptance and signing, the Bulletin offered by the Contractor may become a combined document: Bulletin #___/Change Order #___, or a new separate Change Order may be prepared.

11.03 *Work Change Directives:*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Time or Contract Price is necessary, then Owner shall submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders:*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.
- C. A Field Order is written by the Engineer and issued to the Contractor, copied to Owner. If the Contractor, or Owner does not object to the Field Order within three days of issuance and delivery, the Field Order is automatically accepted.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document,

Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents.

- C. Nothing in paragraph 11.05 shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.
- D. Owner authorized changes in the Work that do not require review of the Engineer would be things like i.e. forgiveness of some ground level punchlist item. The Owner shall advise the Engineer of such changes, the Contractor's notification will not be accepted.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 - 1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 - 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.7 or
 - 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
 - 1. a mutually acceptable fixed fee; or
 - 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 10 percent;

- b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.05. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05
- C. *A delay from one season to the next (Fall to Spring) may only be changed by Change Order. All additional charges generated are a Set off to the Contract Price.*

11.09 *Change Proposal*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall

specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. Change Proposal Procedures

1. **Submittal:** Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. **Supporting Data:** The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. **Engineer's Initial Review:** Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. **Engineer's Full Review and Action on the Change Proposal:** Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor.

If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. **Binding Decision:** Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

- C. Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the

parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

- D. **Post-Completion:** Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change
- B. **Acceptance of Bonds tendered by Contractor to Owner neither creates nor does Owner accept any and all obligations that the Bonding Company may attempt to transfer to Owner even if specified by Bonding Company as a Condition of the Bond. The Contractor is advised he will be assuming any responsibility that the Contractor's Surety tries to impose on the Owner.**

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. **Claims Process:** The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. **Submittal of Claim:** The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full **and fair** amount to which Contractor is entitled.
- C. **Review and Resolution:** The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim

through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation:*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – Cost of the Work; Allowances; Unit Price Work

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled

only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- d. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- e. Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
- f. With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price (“changed Work”), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor’s fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.

- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - c. When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

d. When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2. Contractor's Fee:

E. Documentation and Audit: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract

Price. Payments to Contractor for Unit Price Work will be based on actual quantities. The Schedule of Values may refer to unknown quantities as “Estimated Figures.”

1. Claims made because of reduction of over 25% of estimated quantity of pit filling, or pit sealing, or roof seam sealing will be limited to reasonable (<25% cost of material) material restocking charge.
 2. Claims made because of reduction of over 25% of estimated quantity of pit welding, seam welding, or repairs will not be accepted if mobilization of welder for other repairs was required. Claims for reduction where repair was limited to reduced item will be limited to remaining percentage of mobilization costs.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor’s overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer’s preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer’s written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Adjustments in Unit Price
1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor’s unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
 2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor’s costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
 3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK, STOP WORK

14.01 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide the **Owner and Engineer and Resident Project Representative**, proper and safe conditions and equipment for such access and advise them of Contractor’s safety procedures and programs so that they may comply therewith as applicable. **Reasonable times means at times that would not burden the**

Contractor with an entire workforce, waiting to go back to work. Between job functions, at scheduled times, or Contractor breaks are reasonable times.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. **Correction of Failed Inspections, Non-Conformance Reports**
 - 1. **Non-Conformance Reports (NCR):** The Engineer/RPR will issue a Non-Conformance Report for every performance item, material, or equipment supplied, and/or environmental situation that fails to meet requirements of the specifications.
 - 2. **Correct all work in Non-conformance before proceeding.**
 - 3. **Immediately correct all environmental non-conformance to prevent accidents. If an incident has already occurred, contact the proper governmental environmental agency and conduct an immediate clean-up per their direction. Notify Engineer/RPR of environmental release and of the environmental agency's requirements for cleanup.**

4. If issued non-conformance reports are not corrected, the failure will be considered a breach of contract by the Contractor entitling the Owner to damages as follows, items listed in Paragraph 14.02.E.4.b will be treated as Set off:
 - a. Work in non-conformance: If the Contractor refuses to correct, the bonding company will be notified to finish the project. At that point, payment to the Contractor for all completed work will stop until the bonding company authorizes payment, or payment may be made to the bonding company after they have proven assumption of the contract. This clause does not give either party rights to a greater payment than detailed elsewhere in these documents.
 - b. Equipment specified but never supplied, or broken equipment not repaired or replaced: 125% of the rental value of equipment in non-conformance (i.e. non-working decontamination trailer, hand wash facilities, air filtration units, etc.). Environmental issues: 125% of the estimate of compliance. *The cost of items 4.a. above is calculated by damage estimates. The cost of equipment will be the rental charge from a reputable local dealer with 35% extra, being for operation cost. Cost of environmental compliance is the estimated cost of compliance. In no situation will the Owner assume liability.
- F. Costs of failed inspections as defined in the Technical Specifications, are the responsibility of the Contractor. Owner will pay Engineer and recover costs by Set-off to the Contractor.
- G. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- H. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense. (See Hold Points in Specifications.)

14.03 Defective Work

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective. **With coatings it is recognized that removing topcoat will damage underlying coats. Repair and recoat per written directive of Engineer.**

- E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable Set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the **coating**, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable Set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.
- D. Article 14.05 will be used only where applicable, such as insulation over fill pipe, work that can be viewed after it is uncovered. These paragraphs do not apply to coating because “uncovering” the topcoat will subsequently damage the underlying coatings. With coating removal, all work will be considered defective and Paragraph Article 14.05.C.1 shall apply. Article 14.05.C.2 shall not be used with coating removal.

14.06 *Owner, Engineer/RPR May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.
- B. Engineer/RPR may stop work if continued Work would result in the Contractor covering defective Work, or if continued operations will result in an environmental release. Engineer/RPR’s authority to stop Work ceases after notification of Owner and sufficient time for Owner to issue directives or to appear on site. (See 14.06 A)

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor’s services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner’s representatives, agents and employees, Owner’s other contractors, and Engineer and Engineer’s consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as Set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work

of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work [Engineer's fees and Owner's expenses](#).

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 2. [Engineer will consider that material stored on-site has no value until properly applied. Engineer will not recommend payment for materials in storage.](#)
 3. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.4.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. [If Contractor fails to submit required documentation material with application for payment, Engineer will notify Contractor of missing documents. If after second submittal material is still missing, Engineer may submit pay application to Owner withholding all moneys relative to missing data, or to contact](#)

Contractor again. Contractor is responsible for all increased engineering costs to the Owner as a Set-off after second submittal.

3. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
4. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
5. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
6. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.3.

7. Engineer will recommend reductions in payment (Set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
 - f. Reasonable evidence that the work cannot be completed for the unpaid balance of the contract sum;
 - g. Reasonable evidence that the work cannot be completed within the contract time, or;
 - h. Damage to Owner or another Contractor;
 - i. Persistent failure to carry out the work in accordance with the Contract Documents;
 - j. Amount withheld to complete work calculated at cost of hiring another Contractor to complete work in case of default;
 - k. Legal claims have been made, or Engineer has reasonable knowledge of anticipated claims;

D. *Payment Becomes Due:*

1. Thirty days, or Owner's normal check processing schedule, after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

1. In addition to any reductions in payment (Set-offs) recommended by Engineer, Owner is entitled to impose a Set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

- c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits [to complete field observations that were determined to be a failed observation](#);
 - f. the Work is defective, requiring correction or replacement including additional inspection costs;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any Set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion.

- Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. On tank projects, date of Substantial Completion is the date the tank is, or would have been returned to service, except for voluntary delay by Owner. Date of Substantial Completion is after complete cure, disinfection, and testing. A voluntary delay by Owner in filling the tank does not extend the Substantial Completion Date.
 - C. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
 - 1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable Set-off against payments due under this Article 15.
 - D. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
 - E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
 - F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its

intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through F for that part of the Work.
2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto. **Note: If an item on the punchlist interferes with return of structure to service then the structure cannot be considered Substantially Complete.**

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
- e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- f. A complete Submittal of Application for Final Payment fulfills all requirements and terminates the Liquidated Damages that may be assessed against Ready for Final Payment date.

B. *Engineer's Review of Application and Acceptance:*

- 1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any Set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. Contractor is responsible for security, safety, etc. on the site until all his equipment is removed and all keys are returned.

Final Payment Becomes Due: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall Set-off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to Set-offs for liquidated damages and Set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, Set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within **thirteen months** after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
1. correct the defective repairs to the Site or such other adjacent areas;
 2. correct such defective Work;
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay. **Notice of Claim may also be made to the bonding company, and will include requirement that the Maintenance Bond remain in effect.**
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
 5. [When, in the opinion of the Engineer, the Non-Conformance Reports and daily reports indicate the Contractor is unable or unwilling to complete the contract within the terms of the contract.](#)
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable Performance Bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of

the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any Payment Bond or Performance Bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a Performance Bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.
- H. Because of health, safety, and security concerns, this contract requires prequalification of Contractors. Termination procedures in this General Conditions are part of this contract. The bonding surety when taking over this Contract is required to complete work with another prequalified Contractor.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner

and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.
 4. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

ARTICLE 18 - MISCELLANEOUS

18.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.
3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is

due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Modified by



DIXON C-800 (2018), SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

This document was prepared using the guidelines for Supplemental Conditions prepared by the EJCDC (Document Committee). They have been edited to supplement General Conditions prepared by DIXON and are referred to as DIXON General Conditions 2018. In those documents DIXON merged all applicable supplemental conditions with the general conditions where appropriate. Issues that may change on a project to project basis were removed from the general conditions and placed in their entirety in the Supplementals. Items like Insurance where the Owner has to approve all of the Insurance paragraphs, not just those usually located in the supplemental. Electronic Document Transmittal (EDT) was also moved to the Supplemental.

**SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION
CONTRACT**

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement DIXON 2019 Standard General Conditions of the Construction Contract Section 00 07 00. The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, “Paragraph SC-4.05.”

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

No suggested Supplementary Conditions in this Article.

ARTICLE 2 - PRELIMINARY MATTERS

SC 2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

A. The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol (“EDP” or “Protocol”) for exchange of electronic transmittals. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. *Electronic Documents Protocol*

Delete paragraphs 2.06.B through 2.06.D from the General Conditions

1. *Basic Requirements - Include Project Engineer in this Protocol*

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.
- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.

- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.
 - 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is ten (10) MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
- c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.

- d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
- e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.
- h. The Owner will operate a Project information management system (also referred to in this EDP as “Project Website”) for use of Owner, Engineer and Contractor during the Project for exchange and storage of Project-related communications and information. Except as otherwise provided in this EDP or the General Conditions, use of the Project Website by the parties as described in this Paragraph will be mandatory for exchange of Project documents, communications, submittals, and other Project-related information. The following conditions and standards will govern use of the Project Website:
 - 1) Describe the period of time during which the Project Website will be operated and be available for reliance by the parties;
 - 2) Provide any minimum system infrastructure, software licensing and security standards for access to and use of the Project Website;
 - 3) Describe the types and extent of services to be provided at the Project Website (such as large file transfer, email, communication and document archives, etc.); and
 - 4) Include any other Project Website attributes that may be pertinent to Contractor’s use of the facility and pricing of such use. If a Contractor creates a Website the Owner is not required to participate. If Owner, or

Engineer at Owner's request, creates a Project specific Website, Protocol will be established at the Preconstruction Meeting.

C. Software Requirements for Electronic Document Exchange; Limitations

1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.
 - a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the following requirements, including software versions, if listed:

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contactors Submittals (Shop Drawings, "or equal" requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner's and Engineer's responses to Contractor's Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	

a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version 9.0 or later			
DWG	Autodesk® AutoCAD .dwg format Version 2013			
DOC	Microsoft® Word .docx format Version 2010			
EXC	Microsoft® Excel .xls or .xml format Version 2010			
DB	Microsoft® Access .mdb format Version 2010			

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. Requests by Contractor for Electronic Documents in Other Formats

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor (“Request”) in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner’s response to the Request, and to the following conditions to which Contractor agrees:
 - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer’s purposes solely, and is being provided to Contractor on an “AS IS” basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor’s application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications,

undocumented intermediate revisions, and other devices that may affect subsequent reuse.

- b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
 - c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
 - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at \$150 per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

ARTICLE 5 – SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 *Subsurface and Physical Conditions*

- A. There are no known Technical data or Drawings available for this site.

SC-5.06 *Hazardous Environmental Conditions*

- A. There are no known reports or site conditions which would or could indicate that the site is a hazardous environmental site.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.02 *Insurance—General Provisions*

- A. Contractor shall obtain and maintain insurance as required in this Article of the Supplementary Conditions.

- B. All insurance required by the Contract to be purchased and maintained by Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. All companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better. Insurance Companies must, in addition to State license, be incorporated and originating from within the United States. Offshore companies or internet companies are not acceptable. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract.
- D. Contractor shall deliver to Owner, with copies to each named insured and additional insured, minimum three (3) copies (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner to demand such certificates or other evidence of the Contractor's full compliance with these insurance requirements, or failure of Owner to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the Contractor's obligation to obtain and maintain such insurance.
- F. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- G. If Contractor does not purchase or maintain all of the insurance at the specified level by the Contract, Contractor shall notify Owner in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- H. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16 of the General Conditions.

- I. Without prejudice to any other right or remedy, if Contractor has failed to obtain required insurance, Owner may elect to obtain equivalent insurance to protect Owner's interests at the expense of the Contractor who was required to provide such coverage, and the Contract Price shall be adjusted accordingly with a set off.
- J. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and DIXON (and any other individuals or entities identified in these Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- K. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- L. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability, or that of its subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract.
- M. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the Contractor. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.
- N. All policies apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable

SC-6.03 Contractor's Insurance

- A. Required Insurance: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions
 - 1. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, stop-gap employer's liability coverage for monopolistic state, claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees.

Workers' Compensation and Related Policies	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Bodily injury by accident—each accident	Statutory

2. *Commercial General Liability*

- a. *Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for
- 1) Damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employee
 - 2) Damages insured by reasonably available personal injury liability coverage, and
 - 3) Damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- b. *Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
- 1) Products and completed operations coverage.
 - Such insurance must be maintained for three years after final payment.
 - Contractor shall furnish Owner and each other additional insured (as identified in these Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter. Insurance shall remain in place as specified but delivery of Certificates of Insurance submittal for three years only required if specified here in the Supplemental Conditions.
- c. *Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
- Any modification of the standard definition of "insured contract"
 - Any exclusion for water intrusion or water damage.
 - Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01
 - Any exclusion of coverage relating to earth subsidence or movement.
 - Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation)
 - Any limitation or exclusion based on the nature of Contractor's work

3. *Automobile Liability*: Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	Policy limits of not less than:
Bodily Injury	
Each Person	\$1,000,000
Each Accident	\$1,000,000
Property Damage	
Each Accident	\$1,000,000
[or]	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000

4. *Umbrella or Excess Liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	Policy limits of not less than:
Each Occurrence	\$5,000,000
General Aggregate	\$5,000,000

- *Using umbrella or excess liability insurance to meet cgl and other policy limit requirements*: contractor may meet the policy limits specified for employer’s liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy’s policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of the specified amount after accounting for partial attribution of its limits to underlying policies, as allowed above.

- B. *Additional Insureds*: The Contractor’s commercial general liability, automobile liability, employer’s liability, umbrella or excess, and unmanned aerial vehicle liability policies, if required by this Contract, must:
1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);
4. not seek contribution from insurance maintained by the additional insured; and
5. As to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

SC-6.04 Builder's Risk and Other Property Insurance

- A. **Builder's Risk:** Unless otherwise provided in these Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. **Property Insurance for Facilities of Owner Where Work Will Occur:** Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined.
- C. The builder's risk insurance must be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work. Material in storage or transit is at risk and protected as Contractor determines. The Owner does not take responsibility for storage, transit or while on site until installed. The policy may or the Contractor may self-insure for vandalism and malicious mischief; debris removal; and water damage (other than that caused by flood).
 - a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
 - b. Policy shall allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
 - c. Allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
 - d. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first
 - e. Either insure or self-insure for all "soft cost" losses, the Owner is not responsible for Soft Losses which result from an insurable event.

SC-6.05 Property Losses; Subrogation

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its

consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

- B. Contractor waives all rights against Owner and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

SC-6.06 *Receipt and Application of Property Insurance Proceeds*

If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

SC- 6.07 *Indemnification (moved from GC-7.18)*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual

or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph SC 6.07.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 7 – CONTRACTOR’S RESPONSIBILITIES

ARTICLE 8 – OTHER WORK AT THE SITE

- 8.02 *Coordination* – If there is other Work to be completed it will be discussed in Section 00 00 40 Project Explanation of the Specifications.

ARTICLE 9 – OWNER’S RESPONSIBILITIES

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

ARTICLE 11 – CHANGES TO THE CONTRACT

ARTICLE 12 – CLAIMS

ARTICLE 13 – COST OF WORK; ALLOWANCES, UNIT PRICE WORK

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

ARTICLE 15 – PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

ARTICLE 17 – FINAL RESOLUTIONS OF DISPUTES

ARTICLE 18 – MISCELLANEOUS

SECTION 00 91 18
DEFINITIONS for TECHNICAL SPECIFICATIONS

PART 1 – GENERAL

1.01 DEFINITIONS FOR TECHNICAL SPECIFICATIONS

- A. Wet Interior: Internal surfaces, excluding inaccessible areas, to the roof, shell, bottom, accessories, and appurtenances that are exposed to the stored water or its vapor. Examples are the interior of the roof, sidewall, floor.
- B. Exterior: External surfaces, excluding inaccessible areas, of the roof, sidewall, accessories, and appurtenances that are exposed to the elemental atmosphere.
- C. Inaccessible Areas: Areas of the finished structure that, by virtue of the configuration of the completed structure, cannot be accessed to perform surface preparation or coating application (with or without the use of scaffolding, rigging, or staging). Inaccessible areas include such areas as the contact surfaces of roof plate lap joints, underside of roof plates where they cross supporting members, top surface of rafters directly supporting roof plates, contact surfaces of bolted connections, underside of column baseplates, contact surfaces of mating parts not intended to be removed or disassembled during routine operation or maintenance of the structure, and underside of the floor plate for ground supported flat bottom tanks.
- D. Sidewall: Vertical walls to the weld seam of the roof.
- E. Roof: Very top of the structure, including top seam of sidewall.
- F. Floor: Lower area of the tank proper shaped like a flat plate.

SECTION 00 91 19.01
ADDITIONS to GENERAL CONDITIONS
SCHEDULING for RPR SERVICES

PART 1 - COMMUNICATION

1.00 RESIDENT PROJECT REPRESENTATIVE (RPR) SERVICES

- A. DIXON provides three types of RPR services or any combination of the three:
1. Hold Point Site Visits (sometimes called Critical Phase Visits) where RPR Services are for defined Hold Point, where Work stops until that portion of Work is reviewed on Site by a professional RPR.
 2. Full Time RPR is a professional RPR staying in lodging away from home and living on per diem expenses.
 3. Daily RPR is a professional RPR living at home and traveling to Site on a daily basis.
 4. Based on the type of project the RPR services may change from Daily or Full Time to Hold Point or from Hold Point to Daily or Full Time.
 5. Intended Beneficiary: The onsite observation services for this project are for the benefit of the Owner. There are no intended benefits to the contractor, or any other third parties. Contractor still provides quality control (QC).

1.01 HOLD POINT OBSERVATIONS and MEETINGS

- A. Each hold point requires an onsite visit for Observation. If the contractor coats over or otherwise makes work inaccessible for Observation, the Work will be considered failed. Remove Work and recoat in accordance with this specification. At least two (2) new hold points, surface preparation and coating, may be created when Work fails after the primer has been applied.
- B. Stop Work and schedule Observation times for the following Hold Points as a minimum. Additional Hold Points may be determined at the Preconstruction Meeting. Each Hold Point requires a Site visit and observation. Schedule of Hold Points – Preliminary:
1. Hold Point Meeting: The Preconstruction Meeting is included because it is a meeting but also the primary hold Point. The Preconstruction Meeting will not be scheduled until five (5) days after all required submittals are received and reviewed by the Engineer and no exceptions are taken to the shop drawings.
 2. Hold Point - Prior to draining tank:
 - a. To ensure all Section of 01 50 00 and 01 53 43 environmental requirements are met.
 - b. To ensure all containment, ventilation, decontamination, and blasting equipment are on-site and in working order.
 3. Hold Points – Section 03 01 00.01 – Concrete Foundation Repairs.
 - a. To locate or quantify repairs as necessary.
 - b. To review surface preparation prior to concrete or grout installation and review all products prior to installation.
 - c. After concrete or grout application is complete for quality assurance.
 4. Hold Points – Section 05 00 00 – Metal Repairs:

- a. To locate or quantify repairs as necessary.
- b. To review surface preparation prior to welding and review all products prior to installation.
- c. After welding is complete for quality assurance.
- 5. Hold Points – Sections 09 97 13 – Steel Coating and 09 97 13.10 Steel Coating Surface Preparation:
 - a. After completed erection of containment if applicable.
 - b. Prior to surface preparation to set the standard.
 - c. Prior to primer application to verify cleanliness, profile, thoroughness, and ambient conditions for coating application.
 - d. Prior to application of each successive coat for quality assurance and ambient conditions for the next coat.
 - e. Prior to final coat to verify all non-conformance issues have been resolved.
 - f. Scheduled pre-final Observation: Allow engineer access to all locations so a complete punch list can be prepared. Final coat on ladders or other access points can be delayed until after this Observation and included as a punch list item.
 - g. Scheduled final Observation: After ALL punch list items have been completed (including painting ladders), provide access to all items on the punch list.

1.02 SCHEDULING for RPR SERVICES for HOLD POINT OBSERVATIONS

- A. Prior to First Observation 48 hours advance Notice is required
- B. All Subsequent Hold Points shall be scheduled 12 Hours (previous Day) in advance.
 - 1. Scheduling with a Central Contract Administrator.
 - a. The Contract Administrator in charge of Scheduling for all projects is:
Aaron Eckert (269)-838-0622
 - b. Second Contract Administrator scheduling for all projects is:
Craig Springer (630)-417-6769
- C. The Contract Administrator may be contacted by cell phone. If no answer a voice mail may be left with all details of RPR request included, or
- D. The Contract Administrator may be contacted by text to their cell phone.
- E. If the Contract Administrator is not available DIXON's base office for the Project may be contacted during regular working hours.
- F. Contacting a Project Manager for assistance shall be the last alternative.
- G. Scheduling through an RPR is not an alternative for Hold Point Observation.

1.03 SCHEDULING FOR RPR SERVICES for FULL TIME of DAILY OBSERVATIONS

- A. Productive Work
 - 1. Do not start, continue, or complete any Productive Work if RPR is not present on the project site.
 - 2. Productive Work includes, but is not limited to, all elements of abrasive blast cleaning, power washing, high pressure water jetting or high/low pressure water cleaning, power tool cleaning, rigging, painting, punch list, and clean-up.

3. Preparation, mobilization, and containment erection, and other non-productive work does not require observation if completed before the structure is removed from service, nor does demobilization after tank is returned to service.
4. But if containment erection is completed while other productive work progresses, an RPR is required.
5. If welding is completed for contracted work (antenna rails, painter's rails, ladders, etc.) during containment erection welding, then contracted work is considered Productive Work and an RPR shall be present. Any spot painting during containment erection is also considered Productive Work.
6. After the project has been completed and after all punch list items have been completed, cure time and site clean-up, excluding any waste coating or abrasive issues, are not considered Productive Work.
7. After the Project has been completed; complaints from Owner or neighbors concerning health, environmental, or damage issues, or if there are still waste coating or waste abrasive issues, these are considered Productive Work requiring an RPR even after the structure is returned to service.
8. Essentially all work completed between out-of-service date and Substantial Completion Date, excluding cure and disinfection, is considered Productive Work and requires the presence of an RPR.

1.04 SCHEDULING WITH A CENTRAL CONTRACT ADMINISTRATOR

- A. The Contract Administrator in charge of Scheduling for all projects is: Aaron Eckert (269)-838-0622
- B. Second Contract Administrator scheduling for all projects is: Craig Springer (630)-417-6769
- C. The Contract Administrator may be contacted by cell phone. If no answer a voice mail may be left with all details of RPR request included or
- D. The Contract Administrator may be contacted by text to their cell phone.
- E. If the Contract Administrator is not available DIXON's base office for the Project may be contacted during regular working hours.
- F. Scheduling through a Project Manager is not an alternative.

1.05 SCHEDULING THROUGH ONSITE RPR

- A. Scheduling through on site RPR completing Full Time or Daily RPR Services may be considered a properly completed Request if completed by the foreman and RPR before leaving site. If not completed on site then schedule through the Central Contract Administrator.

1.06 SUMMARY OF SCHEDULING HOLD POINT OBSERVATIONS

- A. Aaron Eckert (269)-838-0622
 1. by phone
 2. by text
 3. by voice mail
- B. Craig Springer (630)-417-6769
 1. by phone

- 2. by text
- 3. by voice mail
- C. Base Office during work hours
 - 1. by phone
 - 2. NO voicemail
- D. Project Manager
 - 1. by phone

1.07 SUMMARY OF SCHEDULING FOR FULL TIME OR DAILY OBSERVATIONS

- A. Aaron Eckert (269)-838-0622
 - 1. by phone
 - 2. by text
 - 3. by voice mail
- B. Craig Springer (630)-417-6769
 - 1. by phone
 - 2. by text
 - 3. by voice mail
- C. Base Office during work hours
 - 1. by phone
 - 2. NO voicemail
- D. RPR on site
- E. Do NOT contact Project Manager

1.08 CONTRACTOR'S RESPONSIBILITIES

- A. The Engineer and Owner shall have full access to the Site at reasonable times for their Observation, testing, and Contractor's personnel and equipment shall be available to the Owner and Engineer/RPR to expedite Observations. Provide Owner, Engineer/RPR proper and safe conditions for such access, including rigging, and advise them of contractor's site safety procedures and programs so that they may comply as applicable.
- B. Contractor is responsible for all of Contractor's manpower needs and scheduling and Work to be completed. RPR is to be available to expedite the project and complete their services with minimal interference of the Contractor's Work. Successful project completion is dependent on Contractor's proper scheduling and use of RPR services.
- C. Contractor is financially responsible for efficient scheduling of RPR services, See Section 00 91 19.02.

1.09 DELAY in ARRIVAL of RPR

- A. RPRs for Hold Point, Full – Time or Daily observations may be delayed by traffic or other reason from arriving at the scheduled time. Contractor shall contact Contract Administrator immediately if the RPR has not arrived at the scheduled time.
- B. The Contract Administrator will locate the missing RPR, return to the Contractor with a revised arrival time, and discuss with Contractor what other Work can be completed until RPR arrives for Observation.

1.10 REJECTED DEFECTIVE WORK

- A. All Productive Work completed without an RPR present shall be considered Defective Work and rejected per the General Conditions. This includes Work completed:
 - 1. Without proper scheduling an RPR
 - 2. Prior to the scheduled arrival of the RPR
 - 3. When Day has been scheduled as a No Workday
 - 4. When RPR is delayed and Contract Administrator has not been notified.

1.11 NON-CONFORMANCE REPORTS (NCR)

- A. The RPR will issue a non-conformance report for every performance item, material, or equipment supplied, and/or environmental situation that fails to meet requirements of the specifications.
- B. All Work in non-conformance will be considered Defective Work to be replaced, repaired per terms of the General Conditions.
- C. Do not start Work until all required equipment and RPR is on-site.
- D. Immediately correct all environmental non-conformance to prevent an accident. If an incident has already occurred, contact the proper governmental environmental agency and conduct an immediate clean-up per their direction.
- E. If the Nonconformance is issued because of equipment specified but not delivered, repaired or replaced then the financial Set-off will be 140% * of the rental value of equipment in non-conformance (i.e. non-working decontamination trailer, hand wash facilities, are filtration units, etc.).
- F. If the Nonconformance issued is because of noncompliance with environmental equipment or practices the Set-off will be 140%* of the estimated cost of compliance.
*The costs of items E. and F. above are damage estimates. The cost of equipment will be the rental charge from a reputable local dealer with 40% extra being for operation cost. Cost of environmental compliance is the estimated cost of compliance. The extra 40% is potential risk to the owner for non-conformance. In no situation will the Owner assume liability.
- G. All additional Engineering/RPR expenses incurred because of a nonconformance report is subject to Set off by Owner.

SECTION 00 91 19 .02

ADDITIONS to GENERAL CONDITIONS

CONTRACTOR'S FINANCIAL RESPONSIBILITY FOR RPR

PART 1 - PROGRESS SCHEDULE and RPR SCHEDULE

1.00 Contractor is Financially Responsible for the Proper and Efficient use of RPR Services

1.01 Progress Schedule

- A. Per the General Conditions a Progress Schedule is required to be submitted. At the Preconstruction meeting the Contractor shall submit a preliminary Progress Schedule. This General Conditions of this contract as-bid restricts Work to 40 hours/ 8 hours per day, 5 days per week. If the Owner has prior approved a more open schedule it is noted in the Project Summary. Either prior approved in the Project Summary or not; a Progress Schedule more aggressive than Monday through Friday, regular working hours, will require submittal and discussion, at Preconstruction Meeting.
- B. Once the Owner, at the Preconstruction meeting accepts a more aggressive schedule the Contractor is responsible for all of the Contractor's manpower scheduling and Critical Path Work to maintain the Schedule.
- C. Contractor shall complete a minimum 8 hours per day of Productive Work, which should be calculated into the Schedule.

1.02 Contractor is Responsible for Proper and Efficient use of Hold Point RPR Services

- A. Fees for Hold Point RPR Services are contracted with the Owner at a Unit Price and are calculated to include the following: travel time to and from Site, reimbursable expenses, observation and report time. Time required for Contractor to repair or redo small areas that failed Observation, are not included in the unit price. Failure may be minimal compared to all Work observed, but failed Work still must be observed before proceeding. For minor failures that can be quickly repaired, the Contractor may entirely at their option:
 - 1. Accept a Non-Conformance for failed Observation
 - 2. Request, the RPR wait for a reasonable period while repairs are completed.
 - 3. Proceed with the next phase for all areas which have not failed, and "work around" failed areas. The failed areas would then be observed at the next Hold Point.
- B. The Fee for extended onsite time, or a new Hold Point is the responsibility of the Contractor.

1.02.1 Contractor's Responsibility for Proper and Efficient Use of Full Time or Daily RPR Services

- A. It is the intention of the Owner, that the RPR fees be used to observe Productive Work. Productive Work is defined in previous Section 00 91 19 .01 Scheduling for RPR Services, with examples. The Owner will pay for all RPR service fees generated observing Productive Work that meets specification requirements. Normally this will

- be the first time for most observations. But if Observation fails, then the Owner pays for second observation, if it passes.
- B. The Contractor will pay all RPR and/or Engineer fees generated by failed Observations of Productive Work.
 - C. Availability of RPR and RPR's ability to timely perform the required Services are dependent on Contractor's communication. RPR is to be available to meet the Progress Schedule demands and complete RPR services with minimal interference of the Contractor's Work, if Contractor properly scheduled RPR Services.

1.02.2 Contractor is Responsible for Proper and Efficient Use of Daily or Full Time RPR Services

- A. Contractor Pays for RPR or Engineering Services resulting from:
 - 1. Productive Work on a Holiday
 - 2. Failed or Improper Scheduling,
 - 3. Failure to Request Observation per Section 00 91 19 .01,
 - 4. Less than 8 hours per day or On-Call Time as a result of:
 - a. Premature Request for RPR Services,
 - b. No show or late start,
 - c. Rejection of Work and/or Non-Conformance reports,
 - d. Equipment failure, insufficient manpower, materials or equipment
 - e. Weather reasons per 1.04.B.03

1.03 RPR Fee Calculation for Failed Observations

- A. The basis for Fees assessed to Contractor is based on the Owner/DIXON contract. Fees will be calculated in the same manner as in Owner/Engineer Agreement, i.e. if the RPR is working at an overtime rate for Owner, then fee for unproductive services will be documented at the same rate
 - 1. Hold Point for Welding or Coating Observation, or extra Progress Meetings
 - a. The same Unit Price Fee as would be charged to Owner for each respective Observation or meeting. Note the fee will be determined by the Contract and may vary between types of Hold Point services.
 - b. Extended time at site charged at Regular Rate (See definition below)
 - 2. Daily Observation shall be the same fee as charged to Owner from the Owner/DIXON contract.
 - a. Minimum workday is 8 hours plus travel time
 - b. reimbursable mileage
 - 3. Fulltime Observation Fee shall be the same as charged to Owner for the same Service.
 - a. Minimum workday is 8 hours
 - b. Minimum work week is 40 hours
 - c. Reimbursable expenses/ Per Diem
 - 4. Fees common to Full Time, Daily and Hold Points with extended stays, and On-Call Time
 - a. Regular Pay for RPR is charged at the rate matching the RPR's experience and qualifications.
 - b. Overtime Rate is 1.5 times Regular Rate

- i. For all time worked on the actual holiday
 - ii. Weekend work by RPR
 - iii. For time over 40 hours. (The standard work week for overtime (over 40) begins on Monday as Sunday is already paid at overtime rate.)
- B. Fees of misused or unnecessary Engineer/RPR Services will be documented and submitted to the Owner for Set off.
- C. The right to Set-off is a contracted right of Owner per the General Conditions, or Additions to General Conditions, and the right to enforce those rights are at the Owner's discretion.

1.04 On-Call Time

- A. RPR's are professional personnel that get paid a minimum of 8 hours per day even though the Contractor's operations or methods results in less than an 8 hour day.
- B. If the Contractor has scheduled a Workday, and if RPR is not free to spend the day at RPR's discretion or to be reassigned; then the RPR will be considered On-Call.
 - 1. The RPR will be considered, if scheduled, on-call every morning and day unless work is cancelled per Section 00 19 91.01.
 - 2. For Daily observation the On - Call time will not exceed 8 hours, any travel time should occur within that 8 hours.
 - a. Late Starts - Agreed start time will be scheduled with the Contract Administrator at the Preconstruction Meeting.
 - b. The RPR's on-call time starts at the agreed start time, if RPR is on Site and available to Work, and On Call time continues until Work starts.
 - 3. For weather reasons
 - a. 8 hours if adverse weather conditions were clearly forecast
 - b. Two hours plus time worked up to 8 hours or actual time worked if greater; if forecast was less than 20% weather meeting definition of a weather day.
 - 4. For reasons other than weather, eight (8) hours will be considered minimum On-Call Time. This includes, but is not limited to, equipment failure, insufficient materials, damaged containment, etc.
- C. Actual charged on-call time will be eight (8) hours, minus the number of hours actually worked.
- D. Overtime, Weekend, Holiday pay requirements apply to all on-call time pay. On-call hours will count towards forty (40) hour week triggering overtime at forty (40) hours.
- E. If Work is cancelled per requirements in Section 00 19 91.01 (by prior night) in advance and RPR is notified in advance, there is no on call time.
- F. If contractor schedules days off per Scheduling requirements, the inspector will return to his/her home base and there will be no show time charges. Based on the Contract the RPR may be entitled to Mobilization or Demobilization.

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SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES and UTILITIES

PART 1 – GENERAL

1.01 SUMMARY

- A. The Contractor is fully responsible to provide and maintain temporary facilities and utilities required for construction as described herein, and to remove the same upon completion of work.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. National Fire Protection Association (NFPA): NFPA No. 70-93.
 - 2. National Electrical Code (NEC) and local amendments thereto.
 - 3. Comply with any and all federal, state, and local codes and regulations, and utility company requirements.

PART 2 – PRODUCTS

2.01 TEMPORARY ELECTRICITY and LIGHTING

- A. Supply temporary lighting sufficient to enable contractor to safely access all work areas.
- B. Electrical requirements shall be the responsibility of the contractor. No service available to contractor.
- C. Provide, maintain, and remove temporary electric service facilities.
- D. Facilities exposed to weather shall be weatherproof-type and electrical equipment enclosure locked to prevent access by unauthorized personnel.
- E. Contractor is to pay for and arrange for the installation of temporary services.
- F. Patch affected surfaces and structures after temporary services have been removed.
- G. Provide explosion-proof lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and small power tools.

2.02 WATER for CONSTRUCTION

- A. Owner will provide water required for cleaning and other purposes.
- B. Water use shall not exceed usage that might endanger the owner's water system's integrity.

2.03 SANITARY FACILITIES

- A. Provide temporary sanitary toilet facilities conforming to state and local health and sanitation regulations, in sufficient number for use by contractor's employees.

- B. Maintain in sanitary condition and properly supply with toilet paper.
- C. Remove from site before final acceptance of work.

2.04 TEMPORARY FIRE PROTECTION

- A. Provide and maintain in working order a minimum of two (2) fire extinguishers and such other fire protective equipment and devices as would be reasonably effective in extinguishing fires.

2.05 DAMAGE to EXISTING PROPERTY

- A. Contractor is responsible for replacing or repairing damage to existing buildings, sidewalks, roads, parking lot surfacing, and other existing assets.
- B. Owner has the option of contracting for such work and having cost deducted from contract amount if the contractor is not qualified to complete repairs or fails to act in a timely manner.

2.06 SECURITY

- A. Security is not provided by owner.
- B. Contractor shall be responsible for loss or injury to persons or property where work is involved and shall provide security and take precautionary measures to protect contractor's and owner's interests.

2.07 TEMPORARY PARKING

- A. Parking for equipment and Contractor employees shall be designated and approved by owner.
- B. Make arrangements for parking area for employees' vehicles.
- C. Any costs involved in obtaining parking area shall be borne by the contractor.

PART 3 – EXECUTION

3.01 GENERAL

- A. Contractor shall maintain and operate all temporary systems to ensure continuous service.
- B. Contractor shall modify and extend systems as work progress requires.

3.02 REMOVAL

- A. Completely remove temporary material and equipment when no longer required.
- B. Clean and repair damage caused by temporary installation or use of temporary facilities.
- C. Restore existing or permanent facilities used for temporary services to specified, or original condition.

3.03 BARRIERS and ENCLOSURES

- A. The contractor shall furnish, install, and maintain as long as necessary, adequate barriers, warning signs or lights at all dangerous points throughout the work for protection of property, workers, and the public. The contractor shall hold the owner harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the work under the contract.

SECTION 01 53 43
PROTECTION of ENVIRONMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Contractor in executing work shall maintain work areas, on-and-off site, free from environmental pollution that would be in violation of federal, state, or local regulations.
- B. The Contractor is responsible for any and all clean-up that may be necessary and all applicable costs for the same.

1.02 LAWS and REGULATIONS –

- A. Environmental regulations may be met with different available technologies. It is the Contractor's sole responsibility to comply with these and all applicable environmental regulations.
- B. If a contamination occurs work will stop until cleanup is complete.

1.03 PROTECTION of SEWERS

- A. Take adequate measures to prevent impairment of operation of existing sewer system. Prevent construction material, pavement, concrete, earth, or other debris from entering sewer or sewer structure.

1.04 PROTECTION of WATERWAYS

- A. Observe rules and regulations of local and state agencies, and agencies of U.S. government prohibiting pollution of any lake, stream, river, or wetland by dumping of refuse, rubbish, dredge material, or debris therein.
- B. Provide containment that will divert flows, including storm flows and flows created by construction activity, to prevent loss of residues and excessive silting of waterways or flooding damage to property.
- C. Comply with procedures outlined in U.S. EPA manuals entitled "Guidelines for Erosion and Sedimentation Control Planning and Implementation," Manual EPA-72-015 and "Processes, Procedures, and Methods to Control Pollution Resulting from all Construction Activity," Manual EPA 43019-73-007.

1.05 DISPOSAL of EXCESS EXCAVATED and OTHER WASTE MATERIALS

- A. Dispose waste material in accordance with federal and state codes, and local zoning ordinances.

- B. Unacceptable disposal sites include, but are not limited to, sites within wetland or critical habitat, and sites where disposal will have detrimental effect on surface water or groundwater quality.
- C. Make arrangements for disposal subject to submission of proof to engineer that owner(s) of proposed site(s) has valid fill permit issued by appropriate government agency and submission of haul route plan, including map of proposed route(s).
- D. Provide watertight conveyance for liquid, semi-liquid, or saturated solids that have potential to leak during transport. Liquid loss from transported materials is not permitted, whether being delivered to construction site or hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at selected disposal site.
- E. Waste generated by abrasive blast cleaning is detailed in Section 09 97 13.

1.06 PROTECTION of AIR QUALITY

- A. Contain paint aerosols and VOCs by acceptable work practices.
- B. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment used by contractor, and encouraging shutdown of motorized equipment not actually in use.
- C. Trash burning not permitted on construction site.
- D. If temporary heating devices are necessary for protection of work, they shall not cause air pollution.

1.07 PROTECTION from FUEL and SOLVENTS

- A. Protect the ground from spills of fuel, oils, petroleum distillates, or solvents by use of containment system.
- B. Total paint, thinner, oils, and fuel delivered to and stored on-site cannot exceed supplied capacity of spill containment provided (i.e. fuel and oil to be sized to exceed possible spill).
- C. Provide proper containment unit under fuel tank and oil reservoirs for all equipment and fuel storage tanks.
- D. Barrels of solvents, even for cleaning, are prohibited. Do not deliver paint thinners in containers greater than five (5) gallons.
- E. Disposal of waste fluids shall be in conformance with federal, state, and local laws and regulations.

1.08 USE of CHEMICALS

- A. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of U.S. EPA, U.S. Department of Agriculture, state, or other applicable regulatory agency.

- B. Use of such chemicals and disposal of residues shall be in conformance with manufacturer's written instructions and applicable regulatory requirements.

1.09 NOISE CONTROL

- A. Conduct operations to cause least annoyance to residents in vicinity of work, and comply with applicable local ordinances.
- B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
- C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
- D. Route vehicles carrying materials over such streets as will cause least annoyance to public and do not operate on public streets between hours of 6:00 P.M. and 7:00 A.M., or on Saturdays, Sundays, or legal holidays unless approved by owner.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 HAZARDOUS MATERIALS PROJECT PROCEDURES

- A. Applicable Regulations:
 - 1. RCRA, 1976 – Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage and disposal of hazardous wastes nationally.
- B. Use the Uniform Hazardous Waste Manifest (shipping paper) to use an off-site hazardous waste disposal facility.
- C. Federal, State and local laws and regulations may apply to the storage, handling and disposal of hazardous materials and waste.

SECTION 03 01 00
FOUNDATION REPAIRS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Repair of grout.

1.02 REFERENCES

- A. Codes, specifications, and standards referred to by number or title shall form a part of this specification to the extent required by the references thereto. Latest revisions shall apply in all cases.
 - 1. “Building Code Requirements for Structural Concrete (ACI 318) and Commentary (ACI 318R),” American Concrete Institute.

1.03 PRODUCT DELIVERY, STORAGE and HANDLING

- A. The contractor shall be responsible for the delivery, storage, and handling of products.
- B. Deliver in accordance with ASTM C94.
- C. Promptly remove damaged or unsuitable products from the job site. Replace products with undamaged, suitable products.

1.04 WORK INCLUDED

200,000 Gallon Standpipe Tank:

- A. Application of grout.

1.05 UNIT PRICES

- A. Work of this Section is per unit prices specified in Section 00 43 73 Schedule of Values.
 - 1. Unit prices apply to authorized work covered by estimated quantities.
 - 2. Unit prices apply to authorized additions to and deletions from the Work as authorized by Change Orders.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Apply all repair material within manufacturer’s guidelines.

1.07 COORDINATION and SCHEDULING

- A. Contractor shall notify engineer a minimum of twenty-four hours before placing concrete or grout repair material.

- B. Do not place any repair material until surface preparation has been reviewed and approved by engineer.

1.08 SUBMITTALS

- A. Submit the following ten (10) days prior to the preconstruction meeting:
 - 1. Safety Data Sheets (SDS) and Product Data Sheets:
 - a. Furnish from all suppliers Safety Data Sheets and product data sheets for all applicable materials including, but not limited to, concrete, grouts admixtures, sealers.
 - b. Provide for employees one (1) copy of all data sheets at the job site for employee access.
 - c. Provide one (1) hard copy and an electronic copy to the engineer.
 - d. No work may commence without the complete filing. All SDS shall conform to requirements of SARA (EPCRA) Right-to-Know Act.

PART 2 – PRODUCTS

2.01 GROUT REPAIR

- A. The standard to fill holes is a grout Sika 212 Grout as manufactured by Sika Corporation.
- B. Where backer rod is required, use ITP standard closed cell polyethylene foam manufactured by Industrial Thero Polymers, Ltd., 2316 Delaware Ave., Suite 216, Buffalo, NY 14216, 1-800-387-3847.

PART 3 – EXECUTION

3.01 GROUT REPAIR

- A. Remove all loose, soft, or mottled grout from the between the baseplate(s) and tops of the foundations. Removal of grout shall be hand, hammer, or chisel.
- B. Pressure wash the grout using a minimum nozzle tip pressure of 2,000 psi. All surfaces shall be free of all standing water or frost in accordance with the manufacturer's recommendations. Surface to be Saturated Surface Dry (SSD)
- C. Properly and thoroughly mix the grout in accordance with the manufacturer's recommendations as a dry mix.
- D. Place and tamp the grouting material between the baseplate and the foundation to ensure there are no voids. Make vertically flush with the baseplate.
- E. Payment is a separate line item "Grout Repair" based on the quantity of 50 lineal feet which the owner reserves the right to increase, decrease or delete.

SECTION 05 00 00 **METAL REPAIRS**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Steel Repair.

1.02 REFERENCES

- A. AWWA D100 Weld Standard
- B. AWS Weld Standard
- C. API 650 Standard

1.03 OMISSIONS

- A. The specifications include all work and materials necessary for completion of the work. Any incidental item(s) of material, labor, or detail(s) required for the proper execution and completion of the work are included.

1.04 DEFINITIONS

- A. Ground Flush: Ground even with adjacent metal with no transition. This preparation is intended for all removed items.
- B. Ground Smooth: Ground welds to the point that no cuts or scratches occur when rubbing your hand over the weld. Rebuild with weld any concavity discovered during grinding. This preparation is intended for all newly added steel.

1.05 WORK INCLUDED

200,000 Gallon Standpipe Tank:

- A. Install sidewall manway.
- B. Replace sidewall manway gaskets.
- C. Install fill/draw pipe deflector bars.
- D. Install fall prevention device on the wet interior ladder.
- E. Install roof handrail with painter's rail.
- F. Install sidewall step-off platform.
- G. Replace vent with a frost-free roof vent.
- H. Install cathodic clips and coupling.

30,000 Gallon Reservoir Tank:

- A. Replace sidewall manway gasket.

1.06 WORKMANSHIP

- A. Provide material and workmanship necessary to produce a first-class job.

- B. All weld spatter is to be removed.
- C. All removed items are to be ground flush with surrounding surface. All new welds are to be ground smooth.

1.07 WELDER QUALIFICATIONS

- A. Certified for type and position of weld specified.
- B. The welder shall be specialized in industrial or heavy commercial welding and experienced in rigging and elevated work.

1.08 SUBMITTALS

- A. Safety Data Sheets (SDS) – for all items as required by law.
- B. Welder’s certification.
- C. Submit materials at least one (1) week prior to preconstruction meeting.

1.09 WORK SEQUENCING

- A. The following is NOT a ways-and-means decision of the Contractor. It is accepted and good painting practice and shall be completed by the Contractor in this specified fashion:
 - 1. Complete ahead of all cutting and welding all surface preparation, such as removal of heavy metal bearing coating in the immediate area.
 - 2. Complete all welding repairs prior to commencement of any power washing or abrasive blast cleaning.
 - 3. Do not install non-painted items (i.e. vents, fall prevention devices, etc.) or store on or in the tank until after painting has been completed.
 - 4. Remove existing items that are not to be painted after water cleaning, store in a secure location.
 - 5. Disassemble appurtenances with mating surfaces (i.e. vent flange, etc.), surface prepare and coat mating surfaces and reassemble after topcoat is dry.

PART 2 – PRODUCTS

2.01 STEEL PLATING and OTHER STRUCTURAL SHAPES

- A. General: ASTM – A36.
- B. Rebar for ladder rungs: A706 Weldable Rebar.

2.02 BOLTS and NUTS

- A. Stainless Steel
 - 1. ASTM F594G – 316 Stainless Steel Bolts.
 - 2. ASTM F594G – 316 Stainless Steel Nuts.
- B. Galvanized Steel

1. ASTM A307 Grade A zinc coated Steel Bolts.
2. ASTM A307 Grade A zinc coated Nuts.

2.03 WELDS

- A. Final – E70XX Electrodes.
- B. Root – E60XX Electrodes.
- C. Wire – ER70S Electrodes.

2.04 VENT SCREEN

- A. Aluminum wire 24 mesh with minimum diameter of 0.014 inches.

2.05 FALL PREVENTION DEVICE

- A. Cable-Type system as manufactured by DBI Sala, supplied by ITI Resources (941) 894-0564.
 1. System: Lad-Saf Model and all connecting clips, etc.
 - a. Cable to be 3/8 in. galvanized steel #6106XXX.
 - b. Top and Bottom Bracket System:
Rung, 4 User Galvanized #6116614 for ladders ending at an obstruction.
 - c. Cable Guides #6100400.

2.06 CATHODIC CLIPS and COUPLING

- A. Corpro clips and coupling for interior, buoyant-type cathodic protection system 1-866-CORRPRO.

2.07 SWING GATE

- A. Universal Swing Gate as manufactured by SafeRack of Sumter, SC 866-761-7225.

PART 3 - EXECUTION

3.01 SIDEWALL MANWAY – STANDPIPE

- A. Install a 30 in. diameter manway in the sidewall.
- B. Install 3/8 in. flat neoprene gasket material between the flange and cover. Gaskets to meet ASTM D2000-86E, Type BC with a 70A durometer rating and black color.
- C. Surface prepare and coat in accordance with Sections 09 97 13 and 09 97 13.10.
- D. See Drawing 01a-01b.
- E. Payment is a separate line item “Sidewall Manway” which the Owner reserves the right to delete.

3.02 MANWAY GASKETS – BOTH TANKS

- A. Replace the sidewall manway gaskets with new 3/8 in. flat neoprene gasket material.

- B. Gaskets to meet ASTM D2000-86E, Type BC with a 70A durometer rating and black color.
- C. Payment is incidental to wet interior painting.

3.03 FILL AND DRAW PIPE DEFLECTOR BARS - STANDPIPE

- A. Furnish and install deflector bars over the fill pipe and draw pipe.
- B. Surface prepare and coat in accordance with Sections 09 97 13 and 09 97 13.10.
- C. See Drawing 02.
- D. Payment is incidental to the project.

3.04 FALL PREVENTION DEVICE - STANDPIPE

- A. Furnish and install a cable-type fall prevention device on the wet interior ladder.
Device to be installed after topcoat is dry to the touch. Use temporary safety lines during construction.
- A. Begin installation of the device at the base of the ladder and extend to the roof.
- B. Install cable guides every 15 ft. on center.
- C. Payment is a separate line item "Fall Prevention Device" which the Owner reserves the right to delete.

3.05 ROOF HANDRAIL and PAINTER'S RAILING

- A. Install a 20 ft. diameter handrail, and a 23 ft. diameter painter's railing on the roof.
Field verify dimensions prior to fabrication. The intention is that the painter's railing diameter be 3-4 ft. larger than the handrail around the entire circumference.
- B. All butt weld sections on the painters railing to be at a brace.
- C. Install 2 ½ in. diameter couplings with brass plugs for safety lines during wet interior work. Threading to be per NPT standard. Locate at every other painter's railing brace. Caulk the underside of the coupling. All threaded fittings to be coated with pipe joint compound.
- D. Surface prepare and coat in accordance with Sections 09 97 13 and 09 97 13.10.
- E. See Drawing 03a-03b.
- F. Payment is a separate line item "Roof Handrail and Painter's Railing" which the Owner reserves the right to delete.

3.06 SIDEWALL STEP-OFF PLATFORM - STANDPIPE

- A. Install a step-off platform at the top of the sidewall.
- B. Remove existing roof ladder. Ladder to become property of the Contractor. Cut all braces and lugs. Grind all lugs flush with adjacent base metal. In the event the base metal is gouged by cutting of the ladder, build-up affected areas to original steel thickness. Grind all re-welding flush with adjacent surfaces.

- C. Install handrail sections along the edge of the roof and up to the circular section of railing. Install steps up to the center of the roof.
- D. Install a safety gate at the opening between the ladder and handrail on the platform, install per manufacturers recommendations.
- E. Trim the existing sidewall ladder cage to accommodate the new step-off platform. Weld the cage to the new platform handrail.
- F. Surface prepare and coat in accordance with Sections 09 97 13 and 09 97 13.10.
- G. See Drawing 04a-04c.
- H. Payment is a separate line item "Step-off Platform" which the Owner reserves the right to delete.

3.07 FROST-FREE ROOF VENT

- A. Remove the existing roof vent. Vent to become property of the Contractor for proper disposal.
- B. Furnish and install a new frost-free roof vent on the existing bolted flange that has been cut and constructed as shown on the drawings.
- C. See Drawings 05a-05d.
- D. Payment is a separate line item "Roof Vent" which the Owner reserves the right to delete.

3.08 CATHODIC CLIPS and COUPLING

- A. Weld clips and pressure fitting for a cathodic protection system (future installation by others).
- B. Supply recommended quantity of clips and locate as directed by the supplier.
- C. Weld clips with ¼ in. fillet welds all around. No area may be left that may be susceptible to crevice corrosion.
- D. Weld a 3,000 psi coupling inside and outside with a ¼ in. fillet weld all around, and cap fitting as directed by supplier.
- E. Surface prepare and coat in accordance with Sections 09 97 13 and 09 97 13.10.
- F. Payment is a separate line item "Cathodic Clips and Coupling" which the Owner reserves the right to delete.

PART 4 – SPECIAL PROVISIONS

4.01 STEEL REPLACEMENT COATING

- A. All large pieces of steel to be shop primed using the specified prime coat over a SSPC-SP10 near white surface preparation.
- B. Do not prime 3 in. from area to be welded.
- C. After installation, spot clean welded areas to a SSPC-SP11 and apply coating as specified.

- D. Use only one manufacturer for repair coating.
- E. Payment is incidental to metal repairs.

4.02 WELD PREPARATION PRIOR to COATING

- A. Prepare all new welds per NACE RPO 0178 prior to coating application. Grind welds to category D.

4.03 COATING REPAIRS – EXTERIOR - STANDPIPE

- A. Complete all welding and cutting prior to any surface preparation for painting to avoid contamination of surfaces.
- B. Remove any residue and weld smoke by solvent cleaning.
- C. Power tool clean to a SSPC-SP11 finish all areas damaged by welding.
- D. Use 3M Scotch-Brite Clean'n Strip Discs.
- E. Feather edges of adjacent coating a minimum of ½ in. from exposed steel.
- F. Apply repair system at 2.0 to 3.0 mils as follows:

<u>Manufacturer</u>	<u>System</u>
Tnemec	N69 (spot)/N69/1074/1074UV.
Induron	PE-70 (spot)/PE-70/I-6600/I-6600
PPG	Amerlock 2(spot)/Amerlock 2/Pitthane Ultra/Pitthane Ultra
Sherwin Williams	646PW(spot)/646PW/Acrolon Ultra/Acrolon Ultra

- G. Contractor to follow the relevant items from Sections 09 97 13 and 09 97 13.10.
- H. Payment is incidental to weld repairs.

3/4"φ (42) GALVANIZED STEEL BOLTS IN 7/8" HOLES WITH NUTS AND WASHERS ON EACH SIDE MIN. (2) THREADS EXPOSED WHEN TIGHTENED

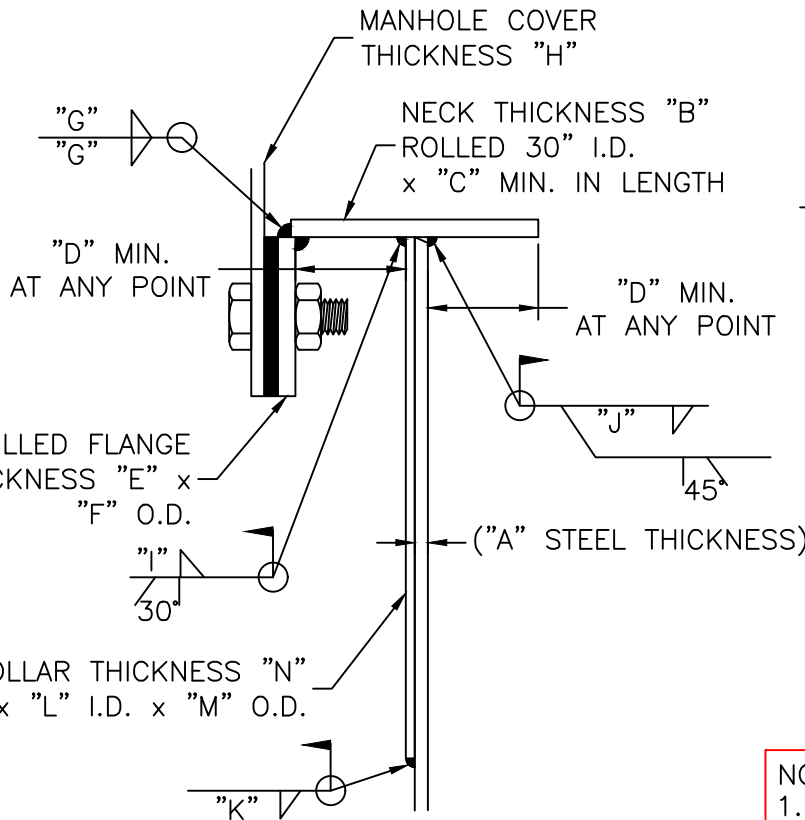
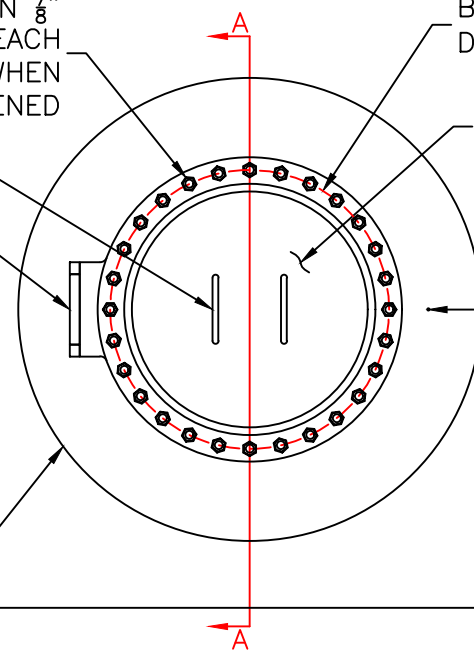
BOLT HOLE PATTERN DIAMETER IS "P"

COVER PLATE THICKNESS "H" WITH "F" O.D.

ONE 1/4" TELLTALE HOLE PER SECTION IN REINFORCING PLATE ON CENTERLINE. DRILL, TAP, AND PLACE BRASS PLUG IN HOLE AFTER WELDING REINFORCING PLATE TO SHELL.

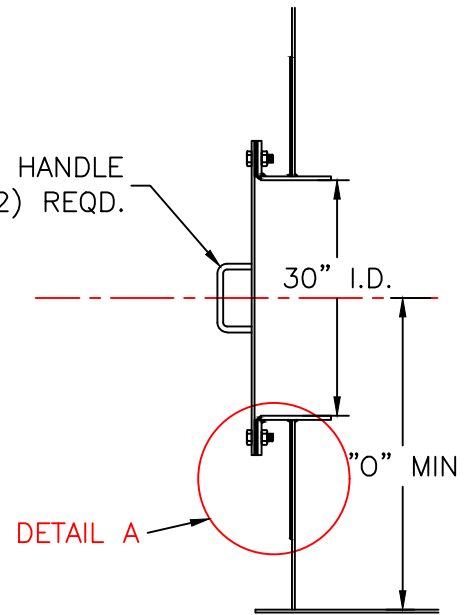
COLLAR REINFORCEMENT THICKNESS "N" WITH "L" I.D. x "M" O.D. ROLLED TO TANK RADIUS

3/4"φ HANDLE TYP OF (2) REQD.
HINGE SEE DWG. 01c



DETAIL A

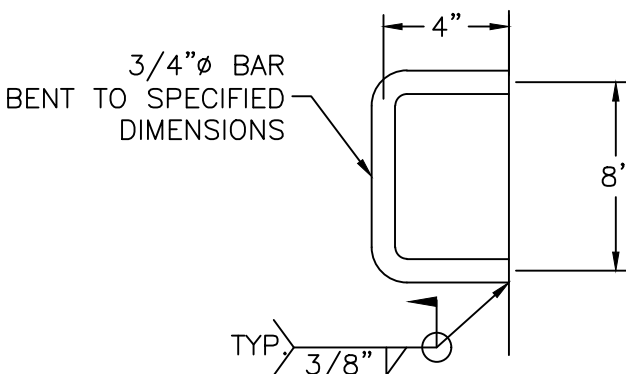
3/4"φ HANDLE TYP OF (2) REQD.



SECTION A-A

- NOTES:
1. SEE SHEET 01b FOR SIZING TABLE
 2. 3/8" NEOPRENE GASKET MATERIAL IS REQUIRED BETWEEN BOLTED HATCH AND FLANGE.
 3. MANHOLE IS TO BE CLEAR OF TANK LAP SEAMS.
 4. ROUND AND GRIND SMOOTH ALL SHARP CORNERS.

Note: Drawing Not to Scale.



COVER HANDLE



Water Service Corp. Standpipe	
30" Bolted Manway	
File Name: a-Manway.dwg	
Drawn By: TMF	Date: 05/17/20
Checked By: JVR	DWG: 01a

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
EXISTING STEEL THICKNESS	NECK THICKNESS	NECK LENGTH	NECK PROTRUSION IN & OUT	MILLED FLANGE THICKNESS	FLANGE & COVER O.D.	FLANGE TO NECK WELD	COVER THICKNESS	NECK TO COLLAR OR OUTSIDE TANK WELD	NECK TO INSIDE TANK WELD	COLLAR O.D. WELD	COLLAR I.D.	COLLAR O.D.	COLLAR THICKNESS	EDGE TO CENTER OF MANWAY	BOLT HOLE LOCATION
1/2"	3/4"	14"	4"	5/8"	38.75"	1/2"	5/8"	1/4"	1/4"	1/4"	31 1/2"	56"	1/4"	36"	35.75"

Note: Drawing Not to Scale.



Water Service Corp. Standpipe

30" Bolted Manway Chart

File Name: b-Manway Chart.dwg

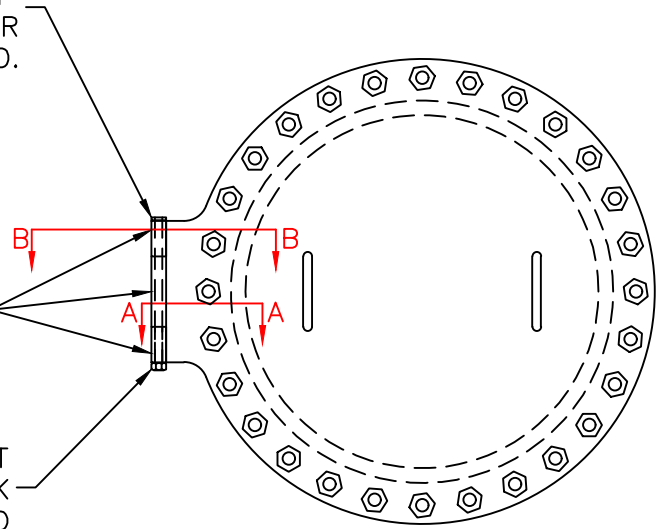
Drawn By: TMF Date: 05/17/20

Checked By: JVR DWG: 01b

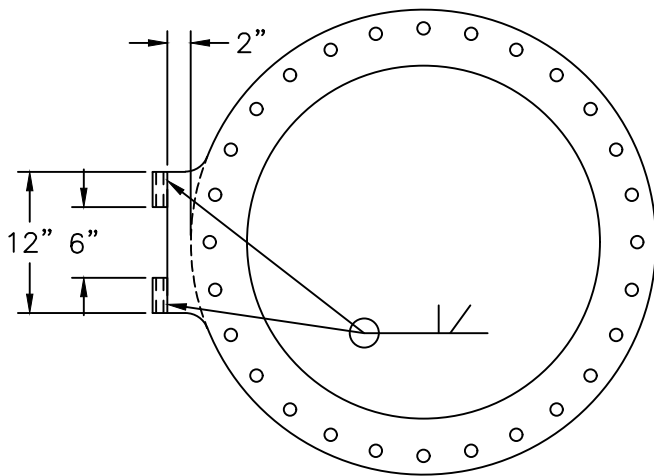
1" ϕ S.S. ROD X
13 1/2" LG. W/ 1/4"
S.S. PLATE WASHER
WELDED TO UPPER END.

2" ϕ S.S. BARS
WITH 1 1/32" ϕ HOLES
DRILLED & REAMED
SMOOTH, ADJUST
HOLE SIZE IF
REQUIRED

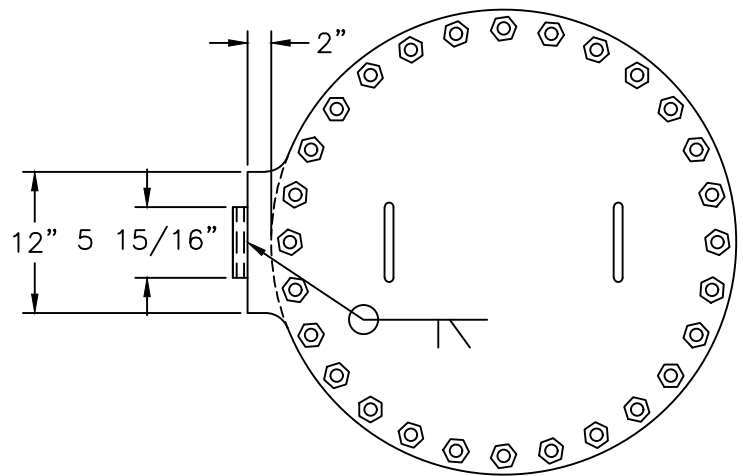
1" ϕ S.S. NUT
AND WASHER, TANK
WELDED IN THE FIELD



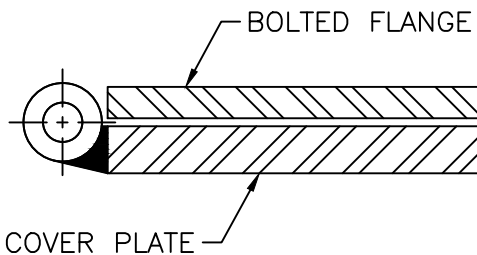
MANWAY HINGE



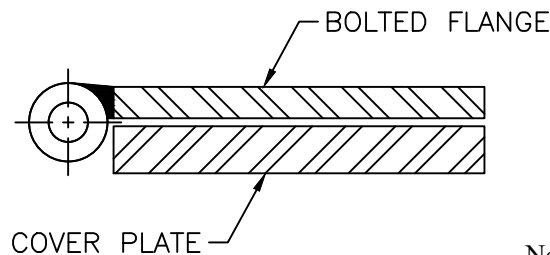
BOLTING FLANGE



COVER PLATE



SECTION A-A



SECTION B-B

Note: Drawing Not to Scale.



Water Service Corp. Standpipe

Manway Hinge Details

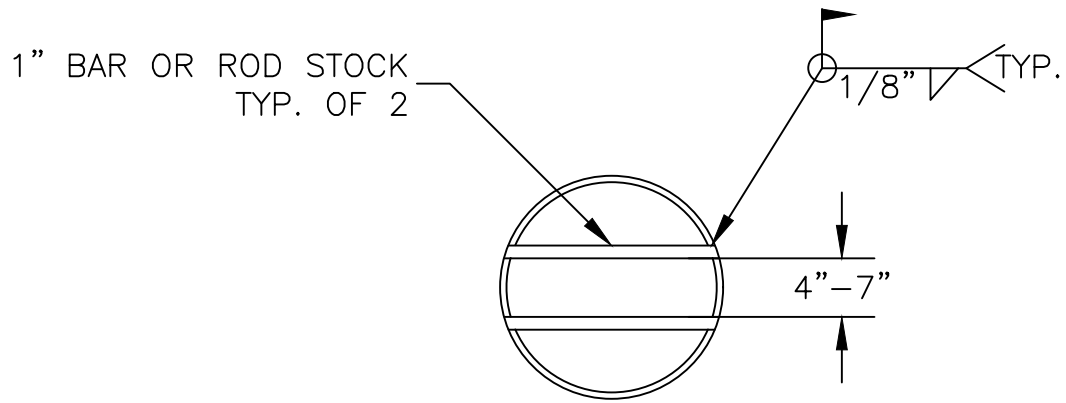
File Name: c-Manway Hinge.dwg

Drawn By: TMF Date: 05/17/20

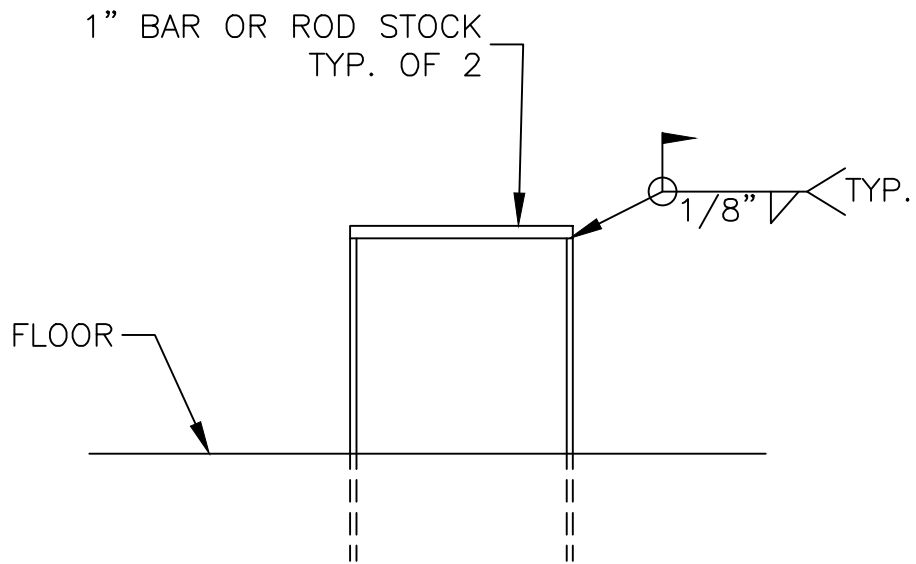
Checked By: JVR DWG: 01c

NOTES:

1. GRIND SMOOTH ALL SHARP CORNERS.
2. COVER NOT TO SAG GREATER THAN 1/2" AND TO CLOSE EVENLY.




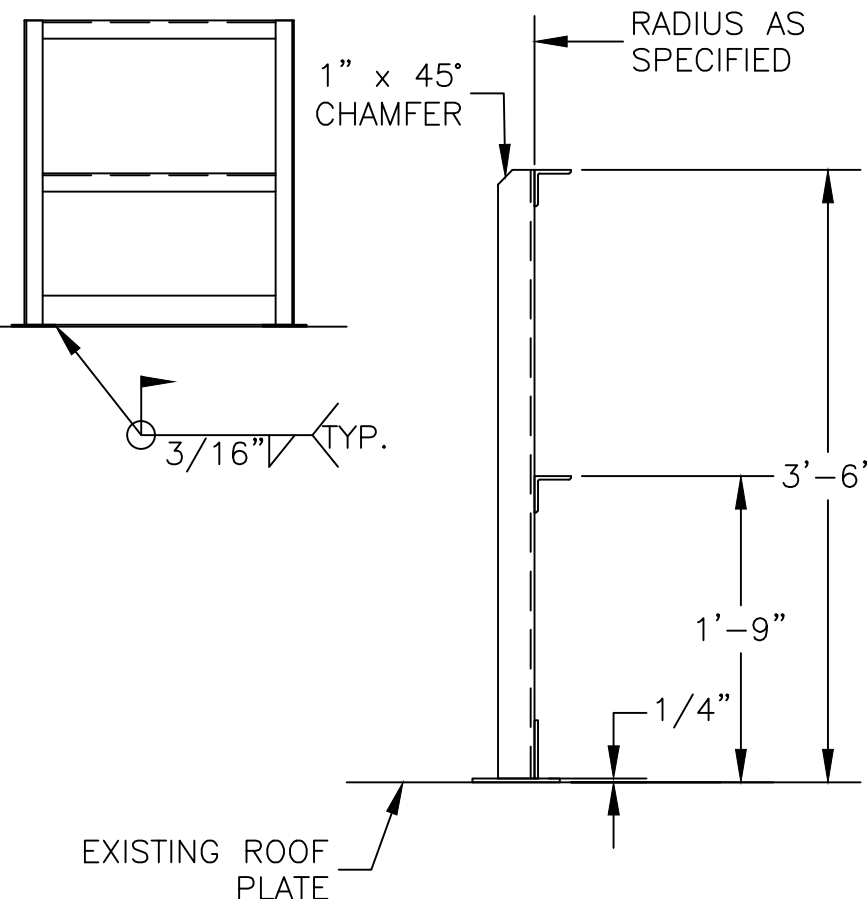
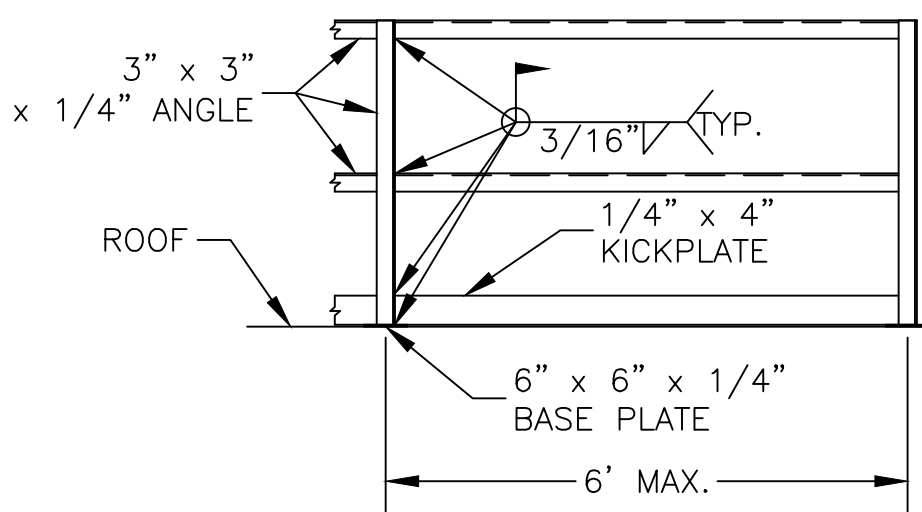
PLAN VIEW



SIDE VIEW

Note: Drawing not to scale.

	
Water Service Corp. Standpipe	
Fill/Draw Pipe Deflector Bar	
File Name: Deflector Bar.dwg	
Drawn By: TMF	Date: 05/17/20
Checked By: JVR	DWG: 02

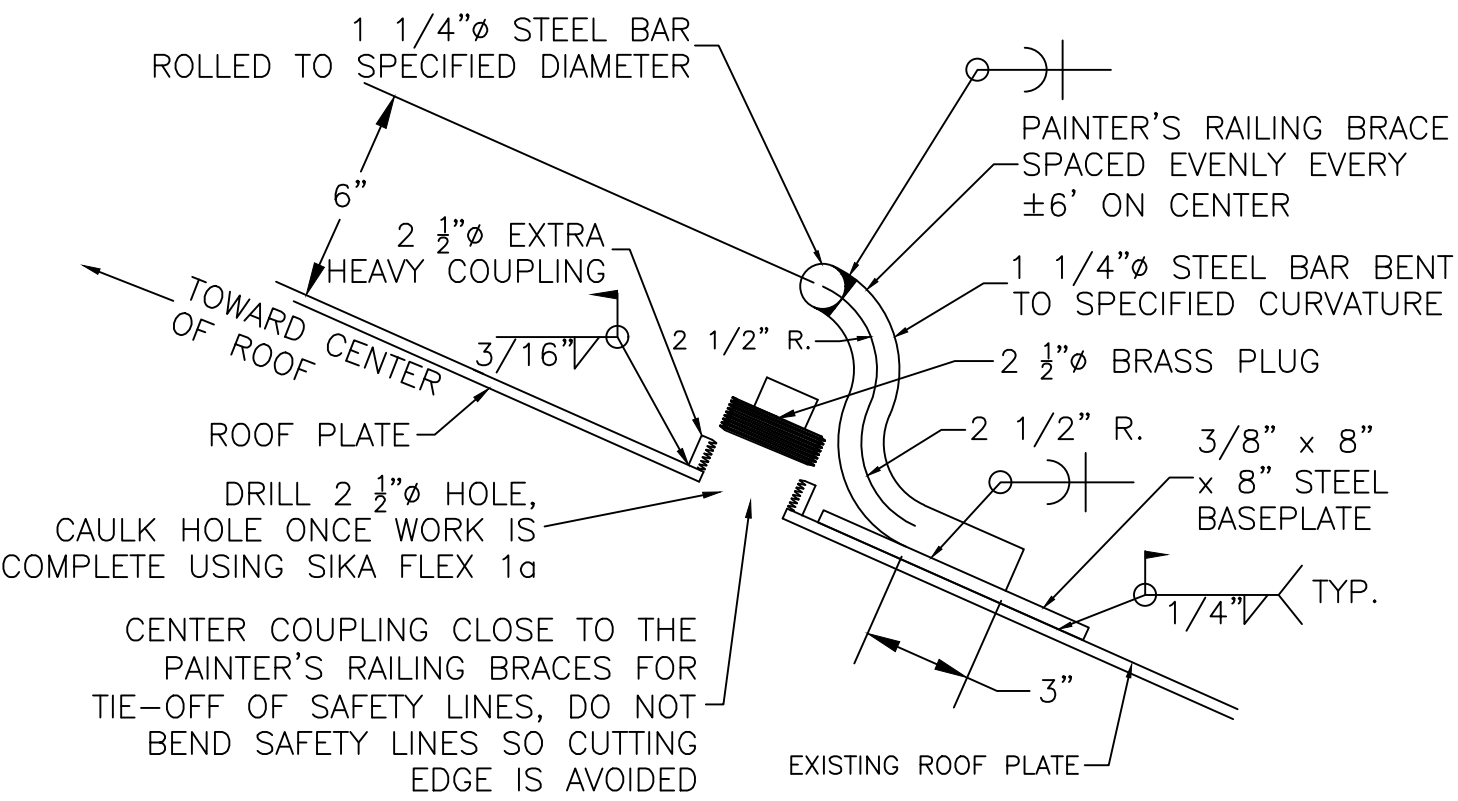


- NOTES:
1. HANDRAIL AND POST ARE TO BE CONSTRUCTED OF 3" x 3" x 1/4" STRUCTURAL STEEL ANGLE. POST BASE PLATES SHALL BE 6" x 6" x 1/4" STEEL PLATE. MIDRAIL SHALL BE 3" x 3" x 1/4" STRUCTURAL STEEL ANGLE. ALL WELDS SHALL BE 3/16" CONTINUOUS FILLET WELDS; ALL AROUND.
 2. SPACING BETWEEN MOUNTING PADS SHALL NOT EXCEED 6'. IT MAY BE NECESSARY TO USE MORE THAN THE NUMBER OF PADS SHOWN.
 3. AN OPENING SHALL BE MADE IN THE HANDRAIL IN THE FIELD FOR THE ROOF PLATFORM ACCESS. CONSTRUCT THE HANDRAIL IN THE SHOP THEN MODIFY IN THE FIELD.

HANDRAIL

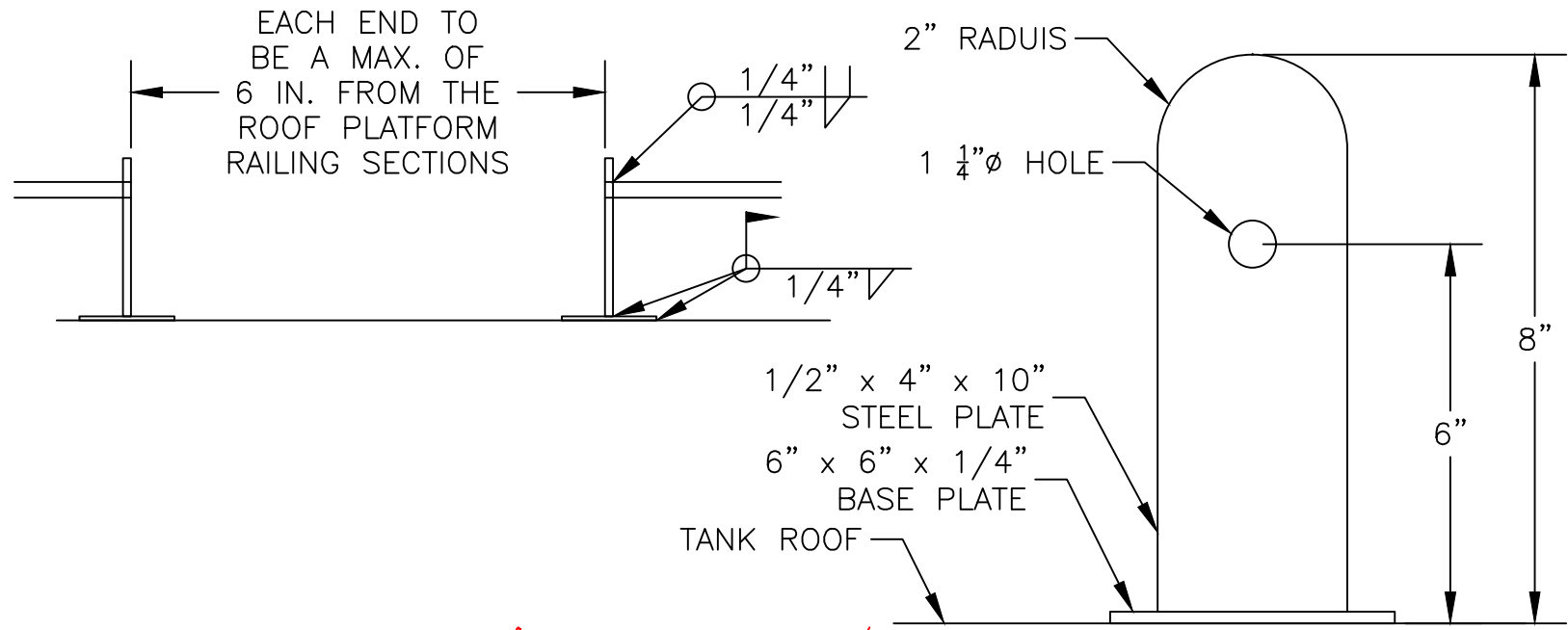
Note: Drawing not to scale.

DIXON ENGINEERING, INC.	
Water Service Corp. Standpipe	
Roof Handrail	
File Name: handrail.dwg	
Drawn By: TMF	Date: 05/29/20
Checked By: JVR	DWG: 03a



NOTE:

1. PROVIDE COUPLING AT PAINTER'S RAIL BRACES (ONE AT EVERY OTHER BRACE).
2. ALL WELDED CONNECTION POINTS FOR THE 1 1/4" ROLLED STEEL BAR MUST BE COMPLETED AT A BENT BAR BRACE.
3. THREADED CONNECTIONS ARE TO BE SEALED WITH PIPE JOINT COMPOUND (OATEY GREAT WHITE OR APPROVED EQUAL).



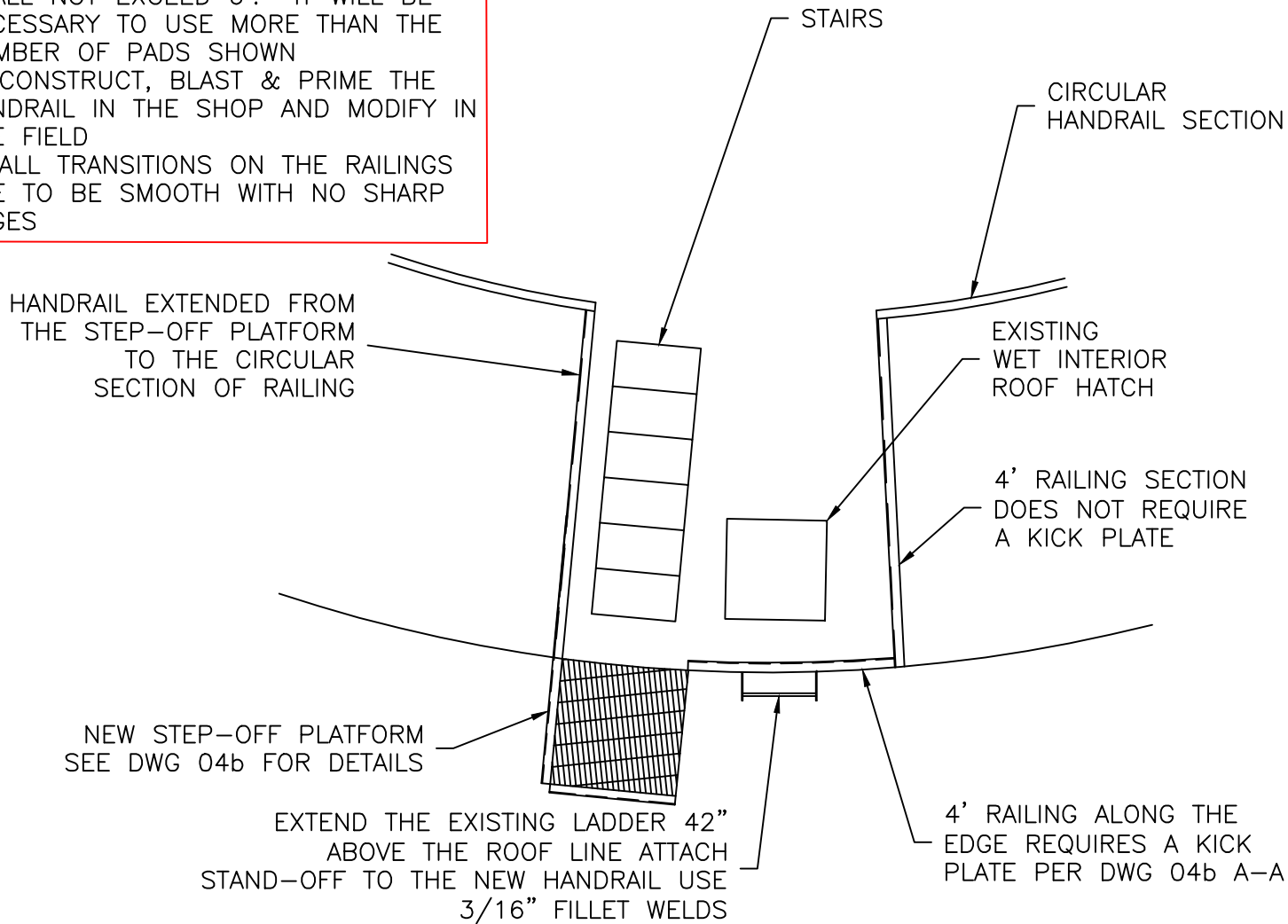
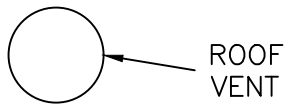
ROOF PAINTER'S RAIL W/ RIGGING COUPLINGS

Note: Drawing not to scale.

DIXON ENGINEERING, INC.	
Water Service Corp. Standpipe Painter's Rail	
File Name: painter_rail.dwg	
Drawn By: TMF	Date: 05/29/20
Checked By: JVR	DWG: 03b

NOTES:

1. HANDRAIL AND POSTS ARE TO BE CONSTRUCTED OF 3" x 3" x 1/4" STRUCTURAL STEEL ANGLE. POST BASE PLATES SHALL BE 6" x 6" x 1/4" PLATE STEEL. MIDRAIL SHALL BE 3" x 3" x 1/4" STRUCTURAL STEEL ANGLE. ALL WELDS SHALL BE 3/16" CONTINUOUS FILLET WELDS; ALL AROUND
2. SPACING BETWEEN MOUNTING PADS SHALL NOT EXCEED 6'. IT WILL BE NECESSARY TO USE MORE THAN THE NUMBER OF PADS SHOWN
3. CONSTRUCT, BLAST & PRIME THE HANDRAIL IN THE SHOP AND MODIFY IN THE FIELD
4. ALL TRANSITIONS ON THE RAILINGS ARE TO BE SMOOTH WITH NO SHARP EDGES



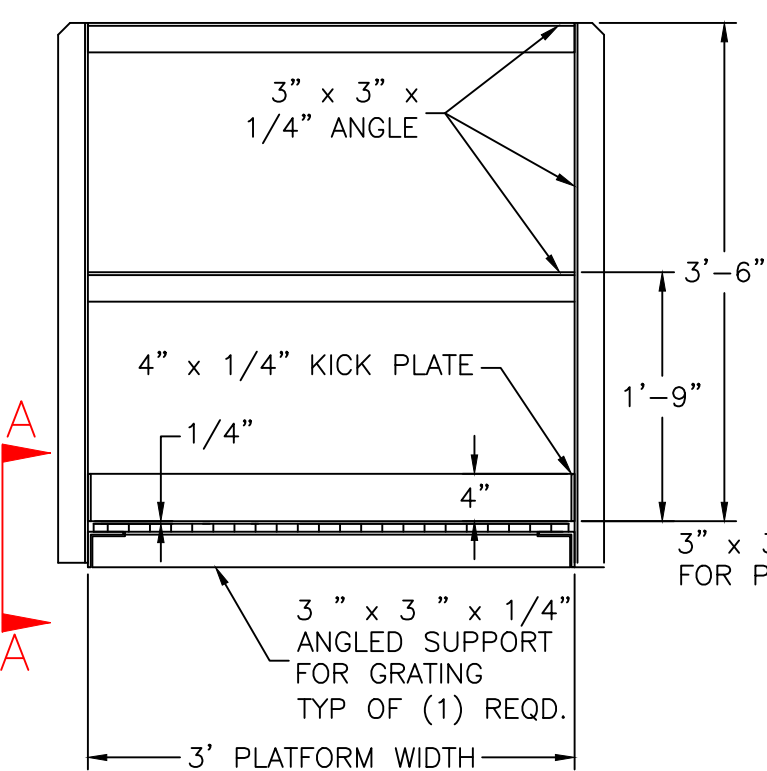
Water Service Corp. Standpipe

Step-off Platform

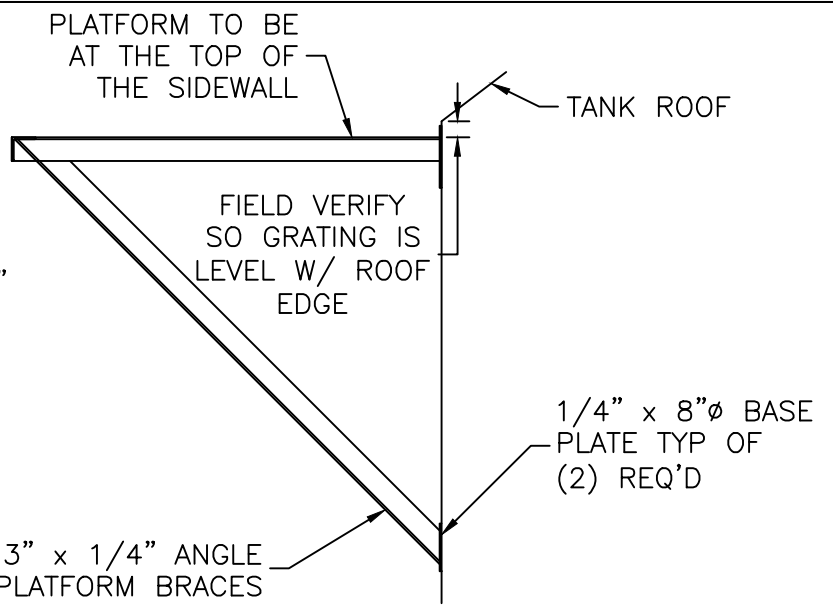
File Name: roofrailandplatform.dwg

Drawn By: TMF Date: 05/17/20

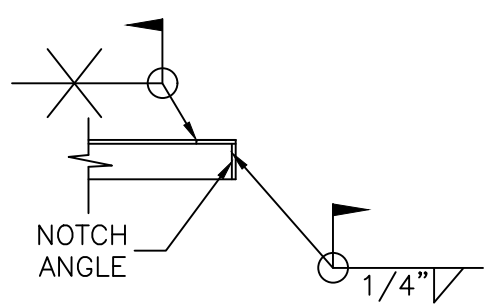
Checked By: JVR DWG: 04a



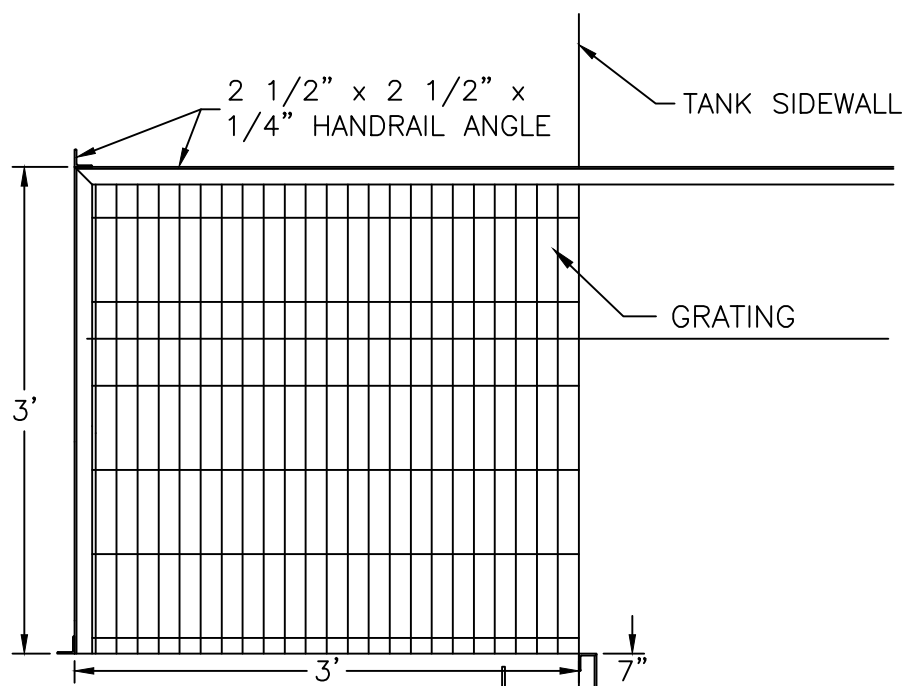
A-A



SIDE VIEW



C-C



PLAN VIEW

3"x1/4" PLATE FOR SWING GATE STOP, FIELD DETERMINE LENGTH SO GATE IS PARALLEL WITH THE PLATFORM WHEN CLOSED. ROUND OFF THE CORNERS ON THE STOP

EXTEND NEW LADDER TO TOP OF THE RAILING

NEW RAILING SECTION WITH KICK PLATE

Note: Drawing Not to Scale.

GRATING:

1. ALL GRATING TO BE GALVANIZED STEEL 1" x 3/16"; BAND SPACING TO BE 4" x 1 3/16"
2. INDUSTRY STANDARD IS McNICHOLS SERIES GW-100 GALVANIZED STEEL GRATING
3. CONTRACTOR TO FIELD VERIFY ALL GRATING SIZES (GRATING TO BE ONE CONTINUOUS PIECE)
4. MOUNT GRATING USING 4 'M' FASTENERS, ONE AT EACH CORNER

NOTES:

1. ALL WELDING TO BE 3/16" CONTINUOUS FILLET WELD UNLESS OTHERWISE NOTED.
2. THE MID-RAIL MAY NEED TO BE ROTATED TO ACCOMMODATE THE SWING GATE.

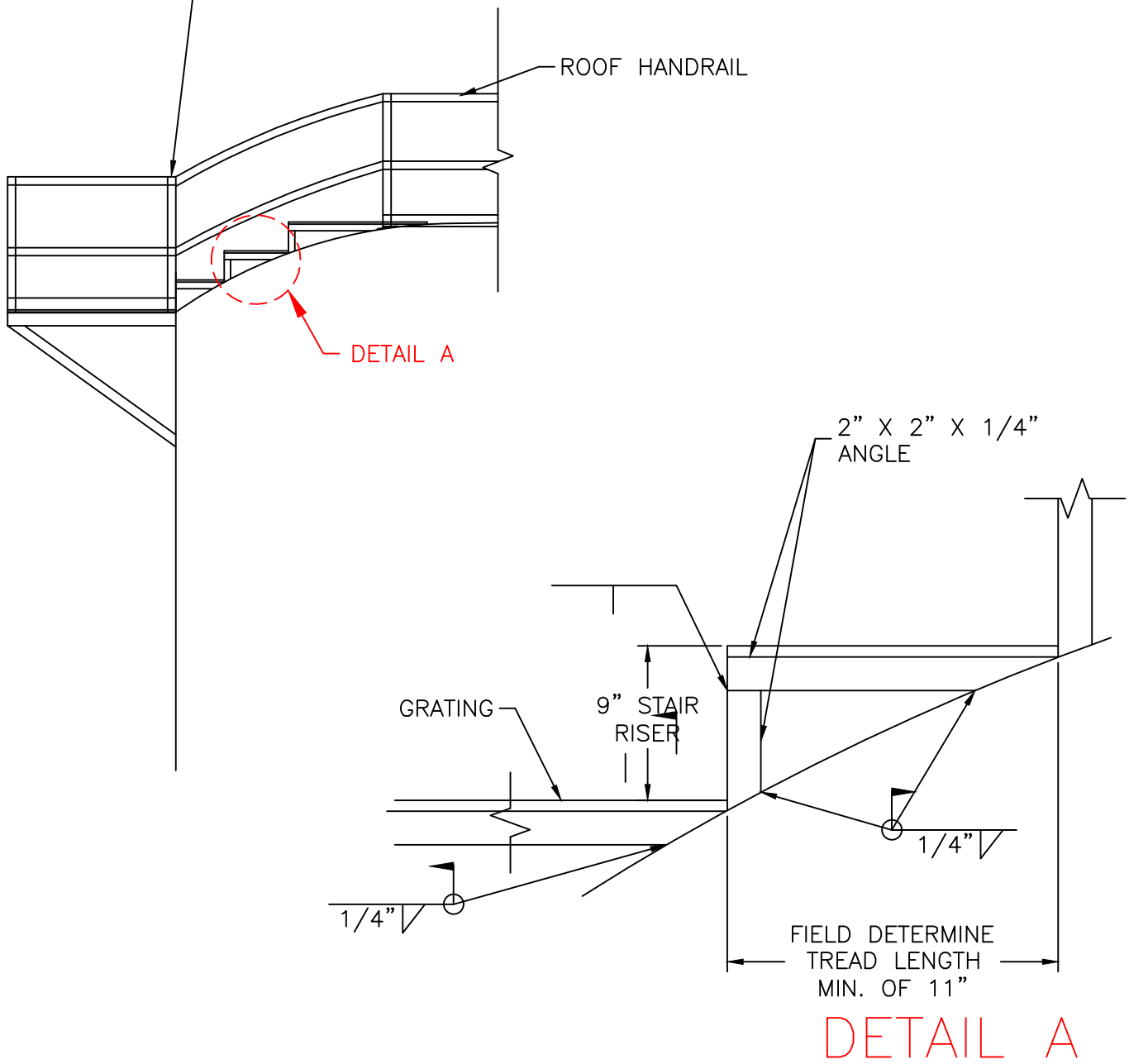
DIXON ENGINEERING, INC.

Water Service Corp. Standpipe
Step-off Platform Details

File Name: b-step-off_platform.dwg

Drawn By: TMF	Date: 05/17/20
Checked By: JVR	DWG: 04b

CONTRACTOR TO ENSURE THERE IS
A SMOOTH TRANSITION FROM
PLATFORM HANDRAIL TO STAIR
RAIL AND FROM STAIR RAIL TO
ROOF RAILING



GRATING:

1. INDUSTRY STANDARD IS McNICHOLS SERIES GW-100 GALVANIZED STEEL GRATING
2. CONTRACTOR TO FIELD VERIFY ALL GRATING SIZES (GRATING TO BE NO MORE THAN TWO PIECES FOR THE PLATFORM AND MUST BE ONE CONTINUOUS PIECE FOR EACH STAIR SECTION.)
3. MOUNT GRATING EVERY 24" WITH TYPE M FASTENERS. MIN. OF 4 PER GRATING SECTION

Note: Drawing Not to Scale.



Water Service Corp. Standpipe

Stair Details

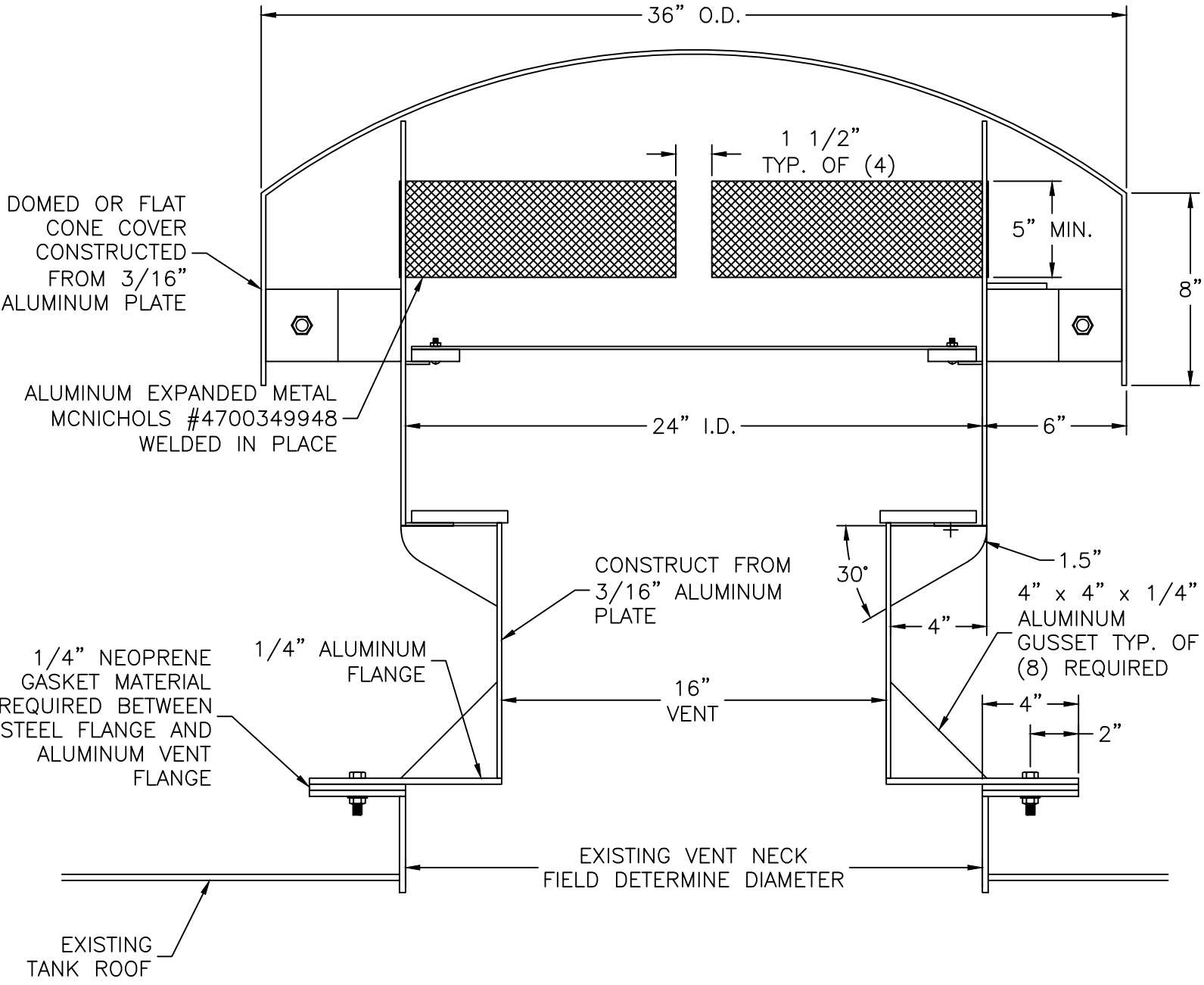
File Name: c-platand stairdetails.dwg

Drawn By: TMF

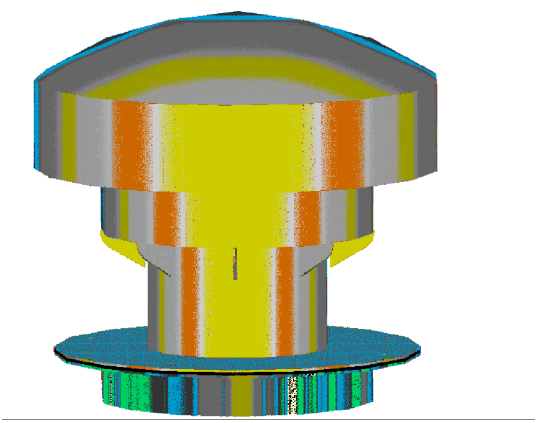
Date: 05/17/20

Checked By: JVR

DWG: 04c



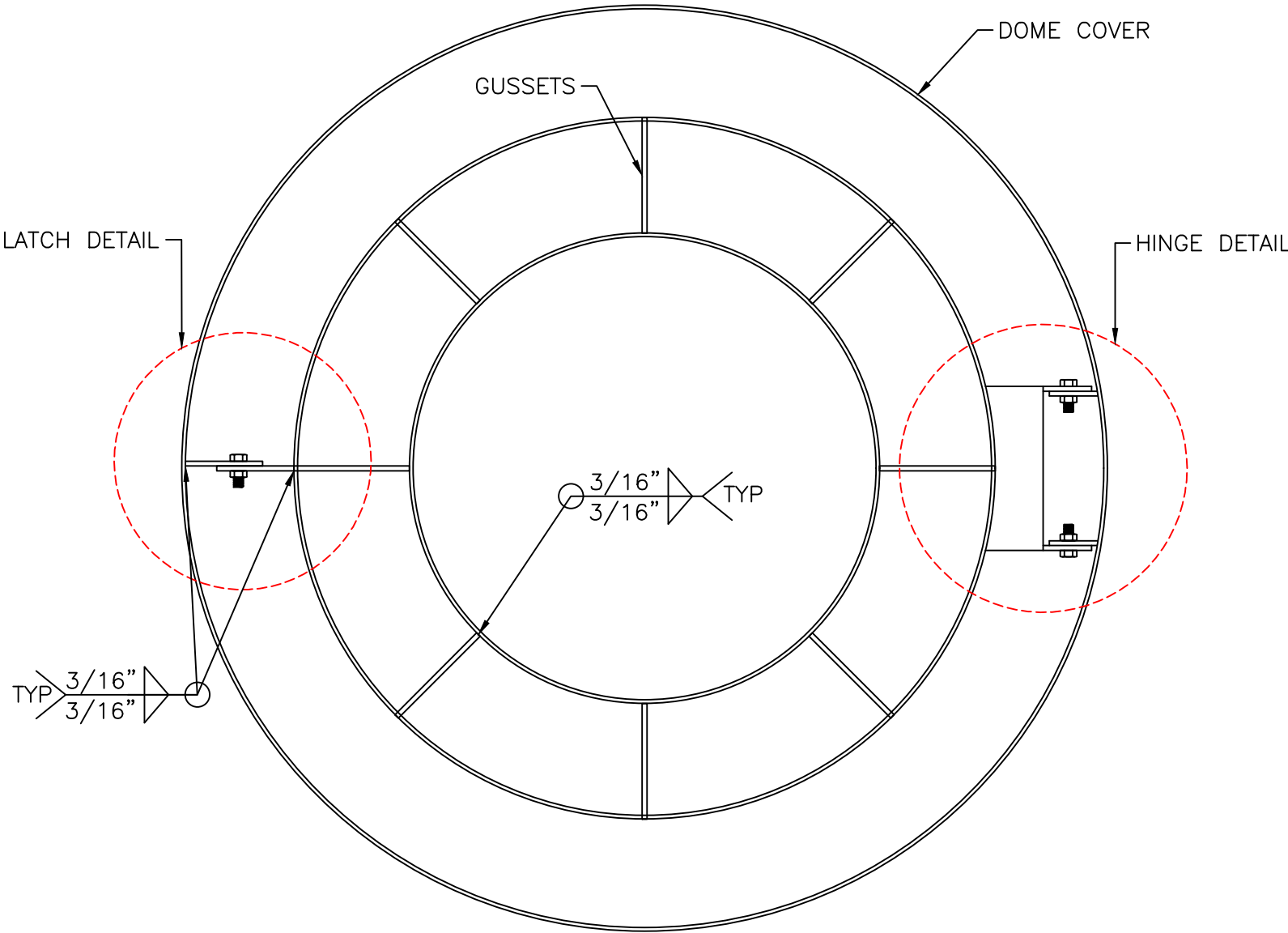
FROST FREE ROOF VENT on EXISTING PAINTER'S HATCH



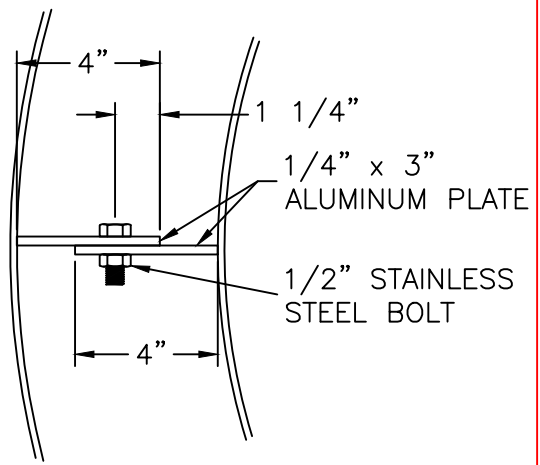
ISO VIEW

Note: Drawing Not to Scale

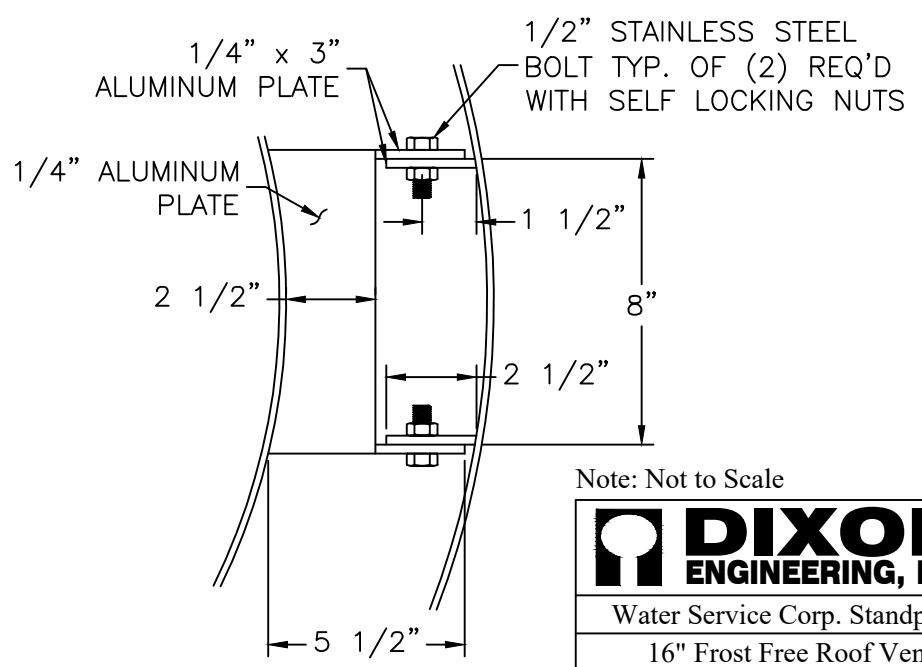
DIXON ENGINEERING, INC.	
Water Service Corp. Standpipe	
16" Frost Free Roof Vent w/ Painter's Hatch	
File Name: a_vent.dwg	
Drawn By: TMF	Date: 05/17/20
Checked By: JVR	DWG: 05a



PLAN VIEW



LATCH DETAIL

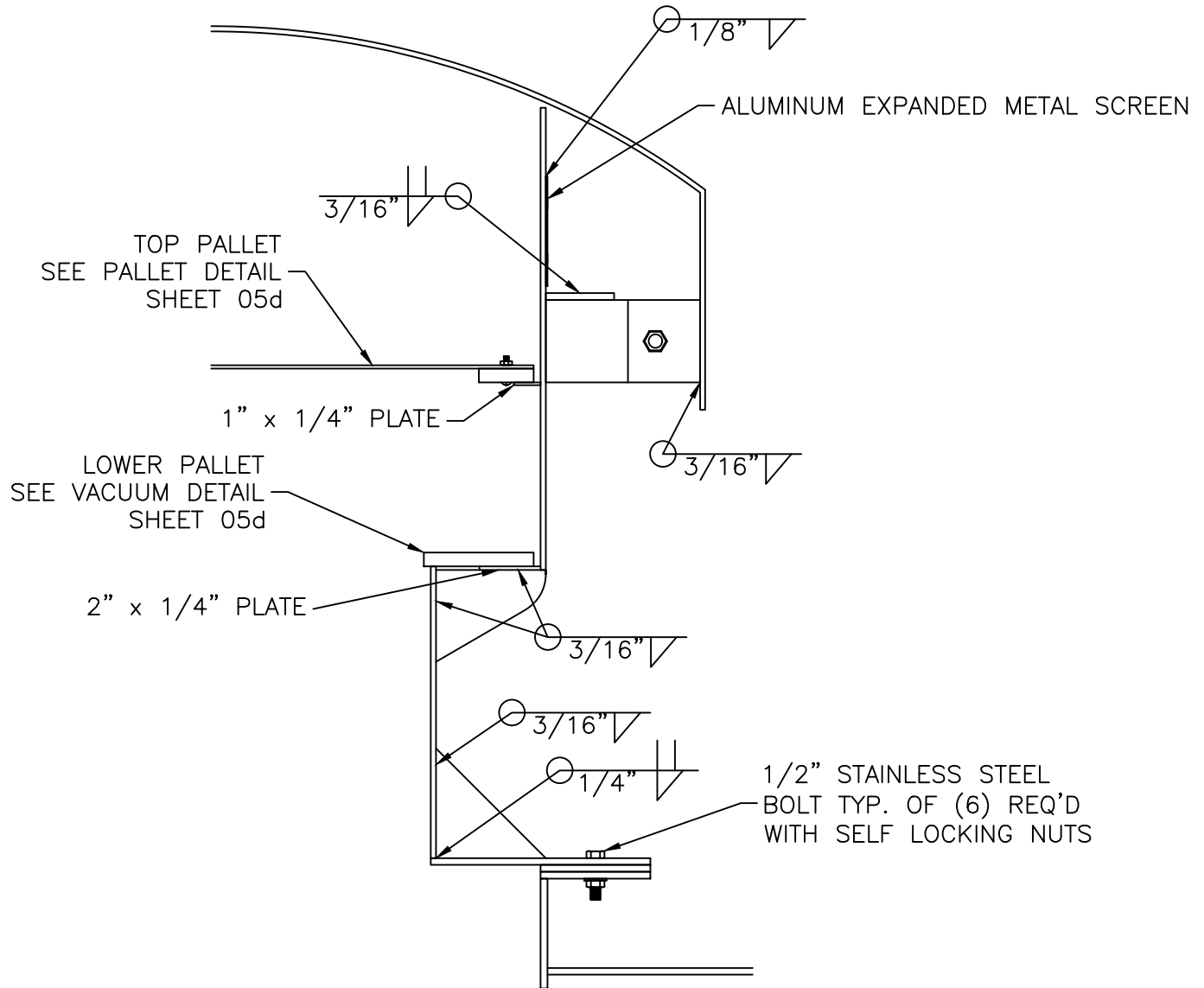


Note: Not to Scale



Water Service Corp. Standpipe	
16" Frost Free Roof Vent	
File Name: b_vent.dwg	
Drawn By: TMF	Date: 05/17/20
Checked By: JVR	DWG: 05b

HINGE DETAIL



WELDING DETAIL

Note: Drawing Not to Scale



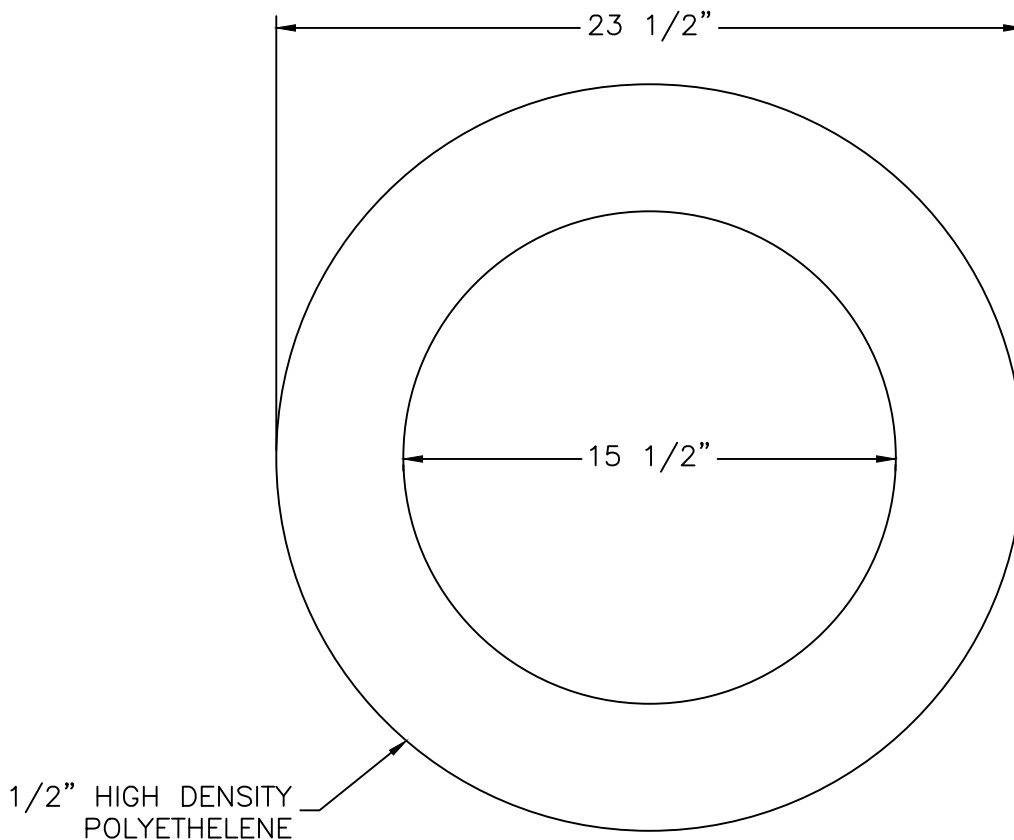
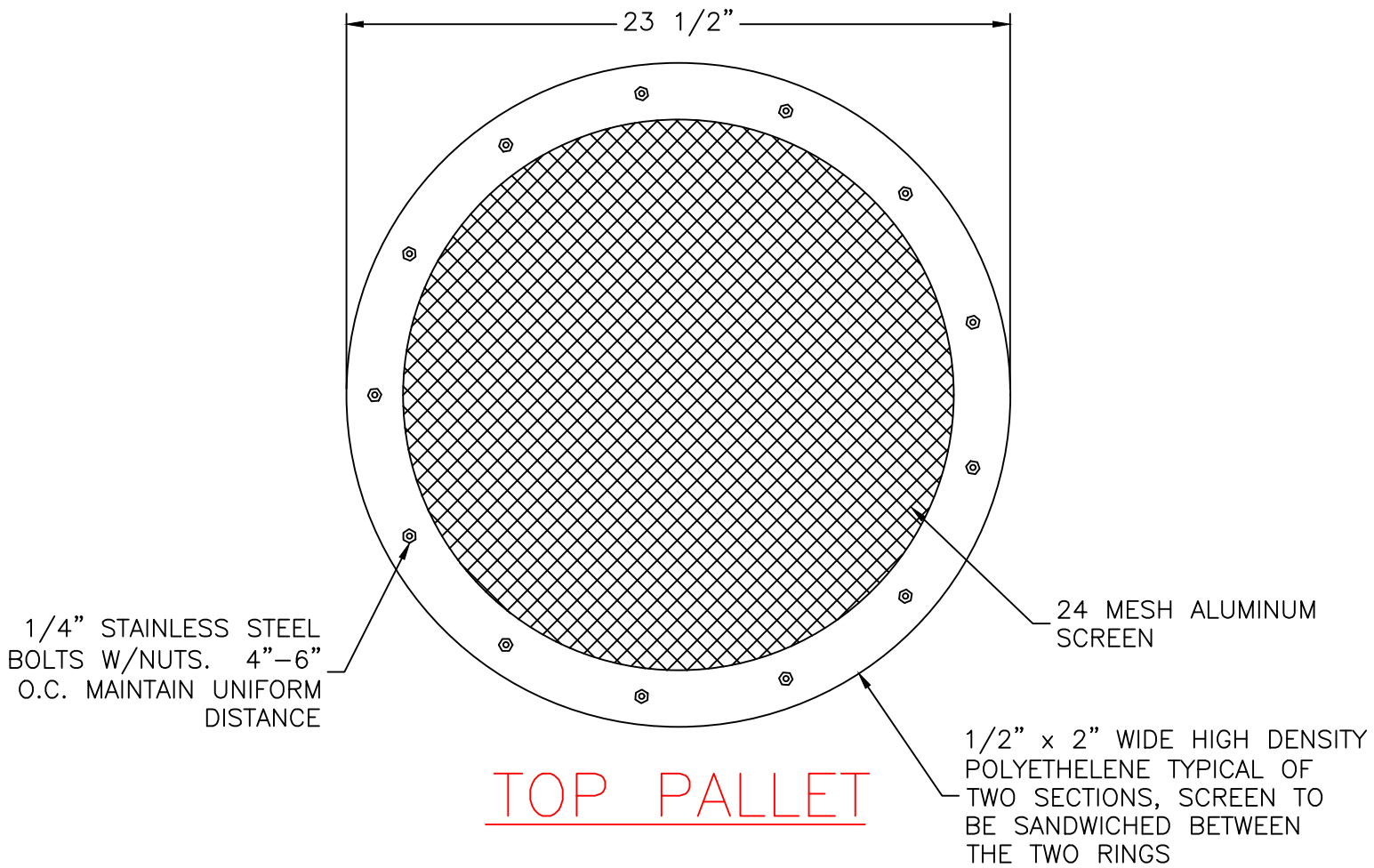
Water Service Corp. Standpipe

16" Frost Free Roof Vent

File Name: c_vent.dwg

Drawn By: TMF Date: 05/17/20

Checked By: JVR DWG: 05c



Note: Drawing Not to Scale



Water Service Corp. Standpipe

16" Frost Free Roof Vent

File Name: d_vent.dwg

Drawn By: TMF

Date: 05/17/20

Checked By: JVR

DWG: 05d

SECTION 09 97 13 **STEEL COATING**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Painting of steel structures.
- B. Interior cleaning and disinfection.

1.02 REFERENCES

- A. AWWA Standards:
 - 1. D102 – 17 Painting Steel Water Storage Tanks.
 - 2. C652 – Disinfection of Water Storage Facilities.

1.03 WORK INCLUDED

200,000 Gallon Reservoir:

- A. Wet Interior: Apply a three (3) coat zinc epoxy system.

30,000 Gallon Standpipe:

- A. Wet Interior Piping: Apply a three (3) coat zinc epoxy system.
- B. Exterior Piping: Apply a four (4) coat zinc epoxy urethane system.

1.04 EXISTING CONDITIONS

200,000 Gallon Standpipe

- A. Exterior: Urethane system tested for lead at 0.22% and 1.5% chromium by weight.
- B. Wet Interior: Presumed to be an epoxy system.

30,000 Gallon Reservoir

- A. Exterior: Glass lined tank with piping coated in an unknown system.
- B. Wet Interior: Glass lined tank with piping coated in an unknown system.

1.05 OMISSIONS or INCIDENTAL ITEMS

- A. It is the intent of these specifications to coat the structure for the purpose of corrosion protection on wet interior surfaces. It is the intent to coat the exterior for corrosion protection and aesthetics.
- B. Any small or incidental items not specifically detailed in the schedule, but obviously a part of the work are included in the work at no additional cost to the owner.
- C. Engineer, as interpreter of the specifications, will determine if disputed items fall under this category. Prevailing custom and trade practices will be considered in this determination.

1.06 SUBMITTALS

- A. Submit the following with your annual prequalification:
 - 1. Occupational Safety and Health Programs and certification that all site personnel have been trained as required by law.
- B. Submit the following ten (10) days prior to the preconstruction meeting:
 - 1. Safety Data Sheets (SDS) and Product Data Sheets:
 - a. Furnish from all suppliers Safety Data Sheets and product data sheets for all applicable materials including, but not limited to, paints, thinners, cleaners, degreasers, and abrasive materials.
 - b. Provide for employees one (1) copy of all data sheets at the job site for employee access.
 - c. Provide one (1) hard copy and an electronic copy to the engineer.
 - d. No work may commence without the complete filing. All SDS shall conform to requirements of SARA (EPCRA) Right-to-Know Act.
 - 2. Ventilation Design Plan. Include airflow calculations and model, and number of fans.
 - 3. Dehumidification/Heat Design Plan. Include airflow calculations, model, number of units used, connection details, and power source.
 - 4. Fall Prevention Plan and Site Specific Fall Hazard Evaluation:
 - a. Site specific plan to contain a generic drawing of the existing structure and appurtenances of this structure and reflect safety changes specified for this project.
 - b. Certifications for all spiders, scaffolding, stages, etc. to be used on the project. All certifications to be current, less than one year old.
- C. Submit the following at the preconstruction meeting:
 - 1. Designated OSHA Competent Person and qualifications, if not previously submitted.
- D. Submit the following within two (2) weeks of project completion with final pay request:
 - 1. Waste manifest, waste hauler and disposal facility. Required only if waste is hazardous.
 - 2. Waivers of lien.
 - 3. Copies of any formal worker safety or environmental citations received on the project.

1.07 OWNER RESPONSIBILITY

- A. Drain the structure with seven (7) days notice, after contractor meets all precedent conditions of the contract.

- B. Fill the tank and draw samples and test after chlorination; responsibility of good results remains with the contractor. Poor test results could result in added costs to contractor, including rechlorination, cost of water, plus possible liquidated damages.

1.08 DELIVERY and STORAGE of MATERIAL

- A. Submit manufacturer's invoice, with or without paint cost, to the engineer for review. This submittal will be used to identify the quantity of paint recommended by the manufacturer for a job of this size and design, and will be used to check the quantity actually delivered to the project.
- B. Cover bulk materials subject to deterioration because of dampness, weather, or contamination, and protect while in storage.
- C. Maintain materials in original, sealed containers, unopened and with labels plainly indicating the manufacturer's name, brand, type, grade of material, and batch numbers.
- D. Remove from the work site containers that are broken, opened, water marked, and/or contain caked, lumpy, or otherwise damaged materials. They are unacceptable.
- E. Store the material in a climate controlled designated area where the temperature will not exceed the manufacturer's storage recommendations. Heat the storage area to the manufacturer's recommended minimum mixing temperature.
- F. Keep equipment stored outdoors from contact with the ground, away from areas subject to flooding, and covered with weatherproof plastic sheeting or tarpaulins.
- G. Store all painting materials in a location outside the structure.
- H. Do not store or have on-site unapproved material, material from different manufacturers, or materials from different projects.

1.09 ACCESS and INSPECTOR SAFETY

- A. Provide access to all portions of the project where work is being completed. Access must be close enough and secure enough to allow inspector to use inspection equipment without extensions.
- B. Provide personnel to assist with access and to ensure contractor's access equipment is safely used.
- C. Provide separate fall protection devices and safety lines for the owner and inspectors. Limit fall to 5 ft. vertically.
- D. New safety tie-off points have been added as part of this project, see Section 05 00 00 Metal Repairs. Tie-off points are located on the roof of the standpipe for interior safety. Do not rig equipment from these points. Provide separate fall protection cables and safety grabs for each tie-off point.
- E. These specifications require the contractor to supply a separate fall protection cable and safety grab for each tie-off point for the inspector's use. The contractor is encouraged to provide a separate cable and tie-off for each worker. The cables may

be connected to the same tie-off point as the inspector's, but a separate cable and safety grab are required for each user.

1.10 INSPECTION and TESTING

- A. Prior to the scheduled inspection, remove all dust, spent abrasive, and foreign material from the surface to be coated.
- B. The contractor is to furnish an instrument for measuring the wet film thickness, and also a calibrated instrument for measuring dry film thickness of each field coat of paint. The dry film thickness testing gauge shall be the magnetic type as manufactured by Elcometer Co., or the Nordson Gauge Co.; spring loaded model with two percent (2%) accuracy margin over a range of one-to-twenty-one (1-21) mils or equal.
- C. The engineer will furnish and operate inspection equipment for their own use as quality assurance.
- D. Certify to the owner that the specified paint has been applied at the paint manufacturer's recommended coverage, and to the specified thickness required. Also, certify that the paint has been applied in accordance with this contract.
- E. Take all necessary steps, including dry striping by brush or roller, to ensure a holiday-free coating system.
- F. The owner reserves the right to perform low voltage holiday tests on all areas including the exterior. The wet interior coatings are subject to low voltage holiday testing.
- G. The owner and engineer reserve the right to perform destructive testing under conditions deemed necessary. Testing may include, but is not limited to, the Tooke thickness test and adhesion testing. Any damage caused by these tests will be corrected to specifications at the contractor's expense.

1.11 CLIMATIC CONDITIONS

- A. Do not apply paint when the temperature, as measured in the shade, is below the manufacturer's required ambient and surface temperatures.
- B. Do not apply paint to wet or damp surfaces, or during rain, snow, or fog.
- C. Do not apply paint when it is expected the relative humidity will exceed 85%, or the surface temperature is less than 5° above dew point, or the air temperature will drop below the manufacturer's requirements for proper cure. Anticipate dew or moisture condensation, and if such conditions are prevalent, delay painting until the inspector is satisfied the surfaces are dry.

1.12 APPLICATION

- A. Complete all painting and surface preparation in strict accordance with these specifications, approved paint manufacturer's specifications, and good painting practices per SSPC.
- B. Apply each coating at the rate and in the manner specified by the manufacturer. Check the wet film thickness every 200 sq. ft. to ensure each coat applied meets the dry film thickness range requirements.
- C. Allow sufficient time for each coat of paint to dry and cure. Allow a minimum of twenty-four (24) hours between coats, unless product requirements have a maximum time less than 24 hours.
- D. Apply exterior coating by brush and roller only. Spray application is not permitted without prior approval of the engineer. Even with prior approval, responsibility for damage still remains with the contractor.
- E. Painting may be delayed because of poor coverage or the potential damage from overspray and/or dry spray. In all cases, responsibility for damages rests with the contractor.
- F. The contractor is responsible for the appearance of the finished project, and is warned to prevent contact with any freshly applied coating. Removal of rigging shall be completed so not to mar or damage the coating.
- G. Coatings shall be applied using methods to eliminate roller or spray marks in the finished product on the exterior.
- H. Stripe the wet interior prior to application of final coat.
- I. Additional coats required for coverage or to eliminate roller marks, spray marks and to repair dry spray and overspray are the responsibility of the contractor at no additional cost to the owner.
- J. Use of pole extension on spray guns is prohibited for all paint application.
- K. Mixing of partial kits is not permitted. All partial cans of coating must be removed from the site.
- L. Mixing blades to be clean. The engineer has the right to reject mixing blades based on cleanliness or paint build-up. Do not use the same mixing blade for different coatings (i.e. epoxy and urethane coatings).

PART 2 – PRODUCTS

2.01 COLOR

- A. Exterior Coatings:
 - 1. Supply the engineer with a color chart to allow the owner ample time for the exterior topcoat color selection. The coating is to match the existing tank.

2. Factory tint the intermediate coat(s) for all areas of the structure if similar to the finish coat. Tinting shall be sufficient to allow visibility of the dissimilar color from 1 ft., and from 100 ft.
- B. Wet Interior Coatings:
1. The color is to be a different tint between coats. Tinting to be performed in the factory.

2.02 SUBSTITUTIONS

- A. All coatings specified and approved herein have met or exceeded a specified list of ASTM standards. The materials specified are the standard to which all others shall be compared.
- B. The purpose is to establish a standard of design and quality, and not to limit competition.
- C. Other manufacturers wishing to have their products approved have also had their coatings tested using the same representative of Dixon Engineering, Inc., and the same test methods.
- D. Approval by ANSI/NSF Standard 61 is also a requirement for potable water contact coatings.
- E. The selection of coatings also has taken into consideration the manufacturer's current and past performance on availability, stocking, and shipping capabilities, ability to resolve disputes, and any applicable warranties.

2.03 DEHUMIDIFICATION and HEATING – WET INTERIOR - STANDPIPE

- A. Supply dehumidification/heating units capable of maintaining dew point temperature lower than 15° below surface temperature during blasting and lower than 5° during coating application and cure, and steel temperature maintained above the manufacturer's printed requirements.
- B. Supply a dehumidifier designed with a solid desiccant having a single rotary desiccant bed capable of continuous operation, with full automatic operation. Do not use liquid desiccant, granular, or loose lithium chloride drying systems. Refrigerant systems may be used in conjunction with desiccant units.
- C. Plumbing, noise control, insulation, venting, and all incidental items needed to provide proper ambient conditions shall be included as one package.
- D. Supply and maintain a power source for the dehumidifier and heater, unless otherwise specified.

2.04 DUST COLLECTORS – AIR FILTRATION UNITS – BOTH TANKS

- A. Furnish and use a dust collector during all blasting work.

- B. Units to be equal in filtration capacity to Eagle Industries dust collectors. Other units may be used, but their substitution will be evaluated on efficiency at 0.5 micron size and airflow movement.
- C. Use 20,000 CFM minimum for wet interior work.
- D. Substitution of steel grit blasting may decrease the requirements above. New requirements will be defined by the engineer based on the efficiency of the contractor's equipment.
- E. Furnish HEPA filters for dust collection.
- F. Number of dust collectors shall be sufficient to supply a 50 ft./minute downward draft at most areas. An average may be considered. Determination of actual containment plan will be the deciding factor. Calculations of airflow shall be included in the containment submittal.
- G. Use only new filters or filters certified clean.

2.05 EQUIPMENT COVERING

- A. Use material that is 8 – 10 mils thick, and 100% impermeable to all vulnerable equipment.
- B. Use material resistant to tear and/or rip by mechanical action from abrasive blasting during blasting operations.
- C. Make coverings airtight by use of duct tape at the openings, or other suitable measures.
- D. Meet with representative of equipment owner to verify covering will not damage equipment. Damage is the contractor's responsibility. This includes not only the owner's equipment, but also telecommunication antennas, cables, buildings, controls, etc.

2.06 AIR DRYER for COMPRESSOR

- A. Use air dryers sufficient to remove 98% of the moisture from the compressed air. Size the dryers on total cfm using manufacturer supplied charts. Upon request, supply charts to engineer for verification.
- B. If the dryer fan is not operable, cease all blasting until the dryer is replaced or repaired.
- C. Supply air dryer with an air draw-off valve to check air for dryness, oil contamination, and cleanliness on the outlet side of the air dryer.
- D. For cleaning operations, draw clean air from the outlet side of the air dryer.

PART 3 – EXECUTION

3.01 DISINFECTION

- A. Disinfect the completely painted structure in accordance with AWWA Standard C652 Chlorination Method No. 3.
- B. Furnish the material and labor necessary to disinfect the structure in the required manner. Assist owner during filling.
- C. Do not allow water to enter the distribution system until satisfactory bacteriological test results are received.
- D. Owner is responsible to collect two consecutive bacteriological samples, 24 hours apart, following disinfection. Satisfactory results are required before the tank can be returned to service.
- E. Water vented to waste may not contain any substances in concentrations that can adversely affect the natural environment. No total residual chlorine may be measured in water discharged to surface water.
- F. Pay all additional expenses if it is necessary to repeat the testing and disinfection procedure as a result of defective work.

3.02 PROTECTION of NON-WORK AREAS

- A. Protect all non-blasted/painted surfaces prior to all abrasive blast cleaning/painting.
- B. Thoroughly cover the fill/drain pipe, overflow pipe, and all other openings. Do not permit abrasive or paint chips to enter into the piping or distribution system. Use watertight seals on the pipes.
- C. Protect and seal all controls and electrical components (even if they are not in the immediate work area) that are in danger from the project. Coordinate with the owner so all controls are shut down and/or vented if necessary.

3.03 DEHUMIDIFICATION/HEATING - STANDPIPE

- A. Control the environment with dehumidification equipment twenty-four (24) hours a day during blast cleaning, coating operations, and 48 hours after the topcoat (including holiday touch-ups and repairs are performed) as a minimum to maintain ambient conditions until cure completion.
- B. Supply sufficient dry air to assure the air adjacent to surfaces to be abrasive blast cleaned or coated does not exceed minimum required humidity at any time during the blasting, coating, or curing cycle.
- C. Monitor and record ambient conditions twenty-four (24) hours a day throughout abrasive blast cleaning and painting work (use Polygon Exact Aire, DRYCO ClimaTrack, DH Tech HOB0U30 data logger, or approved equal). Monitor to be capable of being programmed with condition parameters and of alerting contractor, engineer and owner via phone or e-mail of condition or equipment failures.

- D. Contractor to manually test interior ambient conditions three (3) times a day, or more often with rapid weather changes. Record daily readings. Adjust or add equipment as required to maintain steel temperatures, dew point, and humidity. (This is in addition to the monitor with recorder noted above).
- E. Use a minimum 2,000 CFM dehumidification capacity for all wet interior work.
- F. The contractor may subdivide the interior into smaller sections to reduce dehumidification capacity.
- G. Surround the units with noise suppressant enclosures, unless units are sound attenuated or have noise suppressants. More extensive enclosure requirements are required in residential areas where the machines must run all night. Noise suppressant level needed will depend on the size of the dehumidification units, their efficiency, and their locations. Provide noise suppressant enclosures of sufficient height and thickness to lower noise to an acceptable level for neighbors. Also provide noise suppressant enclosures for generators.
- H. Auxiliary heaters may be necessary to maintain the surface temperature at a level acceptable to the coating manufacturer's application parameters. The auxiliary equipment must be approved for use by the manufacturer of the dehumidification equipment and shall meet the following requirements. Auxiliary ventilation equipment and/or dust collection equipment can affect the exchange rate.
 - 1. Heaters shall be installed in the process air supply duct between the dehumidifier and the work, as close to the work as possible. Air heaters are not acceptable as a substitute for dehumidification without approval.
 - 2. Use only electric or indirect gas fired auxiliary heaters. No direct fired space heaters will be allowed during blasting, coating, or curing phase.
- I. Seal off the work, allowing air to escape at the bottom of the space away from the point where the dehumidified air is being introduced. Maintain a slight positive pressure in the work unless the dust from the blasting operation is hazardous.
- J. Where necessary to filter the air escaping the space, design the filtration system to match the air volume of the dehumidification equipment in such a way that it will not interfere with the dehumidification equipment's capacity to control the space as described herein. Do not re-circulate the air from the work or from filtration equipment back through the dehumidifier when coating or solvent vapors are present. Outside air is to be used during those periods.
- K. Securely attach duct work to the equipment and work to minimize air loss. Design hoses with sufficient capacity and minimal bends to reduce friction loss.
- L. Dehumidification and its operating power source are incidental to the respective painting project (wet or dry interior).
- M. Set-up and operate equipment twenty-four (24) hours (or earlier) prior to start of blasting.

3.04 DUST CONTAINMENT – INTERIOR

- A. Do everything within the contractor's power to minimize dust as a nuisance.
- B. No visible dust release is allowed from roof openings and other access openings. Seal or close all openings prior to blasting (see ventilation requirements).
- C. Connect the air filtration unit directly to a manhole extension.
- D. Design the manhole extension to allow access of hoses through a side exit that is sealable after hoses are in-place. Install the air filtration unit directly to the end of the extension.
- E. Seal of the side exit will be tested by holding a smoke agent 6 in. outside the seal with the air filtration unit operating. If smoke is drawn to the seal area, additional sealing will be necessary.
- F. The contractor may reverse this operation by connecting the air filtration unit to the roof manhole and sealing around the hose. Also seal the roof vent. A sealed semi-rigid structure also may be used where employees have access through a side door. 90% of the air draw must be from the tank proper.
- G. Construct the semi-rigid structure from 8 ft. x 8 ft. x 6 ft. high scaffold framing and cover with tarps, with all edges lapped 2 ft. minimum and an overlapped entranceway.

3.05 VENTILATION REQUIREMENTS - BOTH TANKS

- A. Supply mechanical ventilation sufficient to change air in the tank six (6) times each hour.
- B. In calculating air exchange, the dust collector air capacity can be considered a part of the air being changed up to 50% of ventilation requirements.
- C. Use the roof or sidewall manways with fans to move the required air.
- D. Ventilate wet interior areas a minimum of seven (7) days after completion of painting, or longer until the wet interior coating has fully cured. Maintain ventilation at the rate of two (2) complete air changes per hour. The owner reserves the right to perform a MEK Solvent Double Rub Test per ASTM D 4752 to verify the cure of the coating film prior to returning the tank to service.
- E. Cost of ventilation is incidental to the project.
- F. Additional ventilation openings may have to be installed by the contractor. Submit size, details, and location(s) for approval by the owner prior to cutting any opening. All costs associated with repairs by a certified welder are incidental.
- G. Connect the air filtration unit per this Section, Dust Containment – Interior. All fans on the roof and sidewalls must blow in. If all openings are not needed for ventilation, seal them. Zero release to the atmosphere will be permitted.

3.06 HAND WASH FACILITY

- A. Provide OSHA approved hand wash facility with running water. Hot water is not required.
- B. Stock facility with soap and towels, and keep supply replenished.
- C. Test water and dispose of properly after job is completed.

3.07 LIGHTING of WORKSPACE

- A. Provide durable lighting fixtures designed for the intended work environment for use during blasting, painting, and during all inspections.
- B. Encase portable lamps in a non-conductive, shatterproof material. Use only heavily insulated cable with an abrasive resistant casing.
- C. Install all temporary electrical items in accordance with all local, state, and federal codes, including OSHA.
- D. Protect from paint overspray and damage from abrasive materials.
- E. Measure required illumination during surface preparation and coating application at the work surface. Supply 20 ft. candles minimum illumination during blasting and painting, and 30 ft. candles minimum prior to and during inspection, per SSPC-Guide 12. Inspect the prepared surface at the higher illumination prior to calling for inspection. All work must conform to specification requirements prior to the scheduled inspection.
- F. Measure the illumination at the work surface in the plane of the work.

PART 4 – SPECIAL PROVISIONS

4.01 SCHEDULING

- A. Complete all welding and any other work that damages the coating before paint operations begin, including surface preparation. The exception is paint removal in the weld area.
- B. If contractor wants a variance in this schedule, request the change and give reason in writing to the owner. The project manager will reply with a written Field Order if change is approved. Engineer reserves the right to put further restrictions in Field Order. If contractor objects to restrictions, he may revert to the original specifications.

4.02 GRASS RESTORATION

- A. The contractor is to report any damaged ground at the construction site in writing prior to mobilization of equipment, otherwise all repairs to the damaged ground will be the responsibility of the contractor.
- B. Refill all holes, ruts etc. with clean topsoil, and level area around the construction site to the original grade.

- C. Fill material to be clean soil, no gravel, rocks or construction debris is to be used as fill material without the owners consent.
- D. Bring soil to a friable condition by disking, harrowing, or otherwise loosening and mixing to a depth of 3 in. – 4 in. Thoroughly break all lumps and clods.
- E. Rake area to be seeded. Sow seed at a minimum rate of 220 lbs/acre. Use seed intended for the climate.
- F. Work to be completed to the owner's satisfaction.
- G. Cost is incidental to exterior painting.

SECTION 09 97 13.10

STEEL COATING SURFACE PREPARATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Full Field Abrasive Blasting.

1.02 REFERENCES

- A. AWWA Standards:
 - 1. D102-17 Painting Steel Water Storage Tanks.
- B. SSPC and NACE Standards:
 - 1. SP6/NACE No. 3 – Commercial Abrasive Blast.
 - 2. SP10/NACE No. 2 – Near-White Metal Abrasive Blast.
 - 3. VIS 1 (Visual standard for abrasive blasted metal).

1.03 WORK INCLUDED – SURFACE PREPARATION

200,000 Gallon Reservoir:

- A. Wet Interior: Abrasive blast clean to a SSPC-SP10 near-white metal standard.

30,000 Gallon Standpipe:

- A. Wet Interior Piping: Abrasive blast clean to a SSPC-SP10 near-white metal standard.
- B. Exterior Piping: Abrasive blast clean to a SSPC-SP6 commercial standard.

1.04 WASTE SAMPLING

- A. Sample waste from each portion of the project and keep waste segregated. Send to a NLLAP certified lab and test for TCLP for eight (8) metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver).
- B. The owner reserves the right to collect samples and to send them to their selected lab. This will be determined at the preconstruction meeting.
- C. Pay all lab fees for eight (8) metals TCLP analysis on waste samples and any subsequent testing if clean-up is warranted.

PART 2 – PRODUCTS

2.01 ABRASIVE – COAL SLAG

- A. The coal slag shall be 20-40 grade, or 30-60 grade.
- B. The abrasive shall be free of moisture, water soluble contaminants, dust, and oil.
- C. The abrasive shall be stored and covered to prevent moisture contamination.
- D. All leaking or spilling bags shall be removed, and affected areas properly cleaned.

- E. All slag abrasive shall meet the requirements of SSPC-AB1 “Mineral and Slag Abrasive” June 1, 1991-Grade 3.
- F. The use of silica sand, flint sand, and glass beads is prohibited.
- G. All abrasive and grit material used, and all equipment supplied shall be subject to approval of the engineer. The abrasive or grit shall be sharp enough and hard enough to remove the mill scale, rust, and paint.

2.02 RECYCLABLE STEEL GRIT – CONTRACTORS OPTION

- A. Use recyclable steel grit size G-25 or G-50.
- B. The abrasive is to be free of moisture, water soluble contaminants, dust, and oil.
- C. The abrasive is to be stored and covered to prevent moisture contamination.
- D. All leaking or spilling containers are to be removed, and affected areas properly cleaned.
- E. All recyclable steel grit shall meet requirements of SSPC-AB1 “Metallic Abrasive” June 1, 1991.
- F. All abrasive and grit material used, and all equipment supplied shall be subject to approval of the engineer. The abrasive or grit shall be sharp enough and hard enough to remove the mill scale, rust, and paint.

PART 3 – EXECUTION

3.01 PRE-SURFACE PREPARATION – WET INTERIOR – BOTH TANKS

- A. Low pressure water clean at 4,000 psi all surfaces and appurtenances to remove sediment, minerals, soot, and other contaminants.
- B. Staining may remain in place prior to abrasive blast cleaning, engineer to approve cleanliness.

3.02 NEAR-WHITE METAL (SSPC-SP10) DRY BLAST – WET INTERIOR – FULL FOR THE 200,000 GALLON STANDPIPE, PIPING ON THE 30,000 RESERVOIR

- A. Abrasive blast clean all surfaces and appurtenances to a near-white metal finish (SSPC-SP10), latest edition thereof.
- B. Maintain a profile of 2.0 – 3.0 mils on abrasive blast cleaned surfaces.
- C. All interior abrasive blast cleaning is to be completed and all spent abrasive removed, and surfaces thoroughly cleaned prior to any primer application.
- D. Once an area is acceptable for painting, apply all coats and allow coating to cure to touch prior to resumption of blasting or blast the entire tank before painting, use dehumidification to hold the blast. It is the contractor’s discretion and responsibility to determine if the entire tank is to be blasted, or what size is to be blasted and coated (all coats).

- E. The contractor is responsible for supplying heat and dehumidification to maintain blast conditions.

3.03 COMMERCIAL BLAST (SSPC-SP6) – EXTERIOR PIPING - RESERVOIR

- A. Abrasive blast clean all surfaces and appurtenances to a commercial finish (SSPC-SP6), latest edition thereof.
- B. Maintain a profile of 1.0 – 2.0 mils on abrasive blast cleaned surfaces.

3.04 WASTE DISPOSAL – NON-HAZARDOUS

- A. If after testing of the spent abrasive material the TCLP tests indicate the abrasive is not a hazardous waste, dispose the abrasive in a waste disposal facility.
- B. All waste shall be handled by a licensed hauler. Supply the owner with all proper documentation of the final disposal site. The actual bill of lading and all manifests will be required prior to any payment.
- C. Payment for non-hazardous waste disposal is incidental to interior or exterior painting.

3.05 WASTE DOCUMENTATION

- A. Supply proper documentation of storage, transportation, and treatment, or disposal of the waste to the owner. The owner will retain sufficient funds from the contractor to pay for hazardous waste transportation, treatment, and any possible fines until all documentation has been received. This retainage will be held, even if the waste has tested non-hazardous.

3.06 TESTING and CLEAN-UP of WASTE

- A. Daily collect all spent abrasive from the ground tarps and dispose in the required receptacles. Prior to receiving test results, spent abrasive shall be stored on ground tarps. The spent abrasive is to be covered and weighted down so no dust can be released.
- B. Furnish containers with proper labels for storage of the spent debris. Containers shall meet requirements of the EPA (or their local counterpart) for hazardous waste disposal. The spent abrasive will be moved directly from the tank into the waste containers. The containers will remain until final test results have been received. Furnishing containers with covers will be incidental to respective repaint, and will not be affected by the owner's final selection of respective interior or exterior disposal.
- C. Waste to remain on-site in covered receptacles until waste test results are received.

SECTION 09 97 13.13.16

WET INTERIOR STEEL COATING – THREE COAT ZINC EPOXY

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Painting the wet interior the entire 200,000 gallon standpipe and the piping in the 30,000 gallon reservoir.

1.02 REFERENCES

- A. SSPC and NACE Standards:
 - 1. PA1 – Paint Application.
 - 2. PA2 – Measurements and Calibration.
 - 3. NACE RP 0178 Surface Finish Requirements.

1.03 WORK INCLUDED

- A. Application of a three (3) coat zinc epoxy system.

PART 2 – PRODUCTS

2.01 ZINC EPOXY – 3 COAT SYSTEM

- A. Three (3) coat zinc epoxy system meeting all National Sanitation Foundation certification standards for potable water contact.
- B. Approved suppliers and system for the sidewall and floor.

<u>Manufacturer</u>	<u>System</u>
Tnemec	94H ₂ O/N140/N140(stripe)/N140
Induron	PE-70/PE-70/PE-70(stripe)/PE-70
PPG	Amercoat 68HS/Amerlock 2/Amerlock 2(stripe)/Amerlock 2
Sherwin Williams	Corothane I galvapak/646PW/646PW(stripe)/646PW

PART 3 – EXECUTION

3.01 ZINC EPOXY – 3 COAT SYSTEM

- A. Apply a three (3) coat high build epoxy paint system to all prepared surfaces.
- B. Abrasive blast cleaning and paint requirements have been previously defined in Section 09 97 13.10.

C. Apply each coat at the following rates for the sidewall and floor.

<u>Coat</u>	Minimum <u>D.F.T. (mils)</u>	Maximum <u>D.F.T. (mils)</u>
Primer	2.5	3.5
Intermediate	4.0	6.0
Stripe Coat	1.5	2.5
Topcoat	<u>4.0</u>	<u>6.0</u>
Total	10.5*	15.5*

*Total does not include stripe coat.

- D. Stripe coat to be applied to all welds, angles, and sharp edges throughout the structure, including above the high water line and all roof beams, etc.
- E. Each full coat to be a different color from the previous coat and is to be approved by the engineer. No color bleed through should occur if proper application rates are observed.
- F. Apply all coats in uniform color and sheen without streaks, laps, runs, sags, cloudy, or missed areas. Correct all defects before application of the successive coat.
- G. Allow a minimum of twenty-four (24) hours between coats (including stripe coat). Additional time may be necessary if low temperatures require an increase in the necessary cure time.
- H. MAINTAIN FORCED VENTILATION A MINIMUM OF SEVEN (7) DAYS AFTER TOPCOAT APPLICATION, time required for cure is dependent on the coating manufacturer and temperature. Record variations of the standard procedures (roof hatch closure because of rain, etc.), and submit to the engineer. Heat is required if, in the opinion of the engineer, the integrity of the coating is endangered by cold weather, or if additional cure time will delay the project beyond the substantial completion date.

3.02 SCHEDULE of WORK

- A. Complete all exterior and interior welding prior to surface preparation.

SECTION 09 97 13.22.01 **EXTERIOR CAULKING**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Caulk application at the 30,000 gallon reservoir baseplate.

1.02 REFERENCES

- A. SSPC and NACE Standards:
 - 1. PA1 – Paint Application.

1.03 WORK INCLUDED

- A. Application of a polyurethane elastomeric seam sealer.

PART 2 – PRODUCTS

2.02 FOUNDATION/BASEPLATE SEALANT

- A. Sikaflex 1a for joints a maximum of 1 in. deep as manufactured by Sika Corporation.
- B. Sikaflex 2c for joints of depths greater than 1 in. as manufactured by Sika Corporation.
- C. Backer rod, where required, use ITP standard closed cell polyethylene foam manufactured by Industrial Thermo Polymers, Ltd., 2316 Delaware Ave., Suite 216, Buffalo, NY 14216, 1-800-387-3847.

PART 3 – EXECUTION

3.02 BASEPLATE/FOUNDATION SEALANT REPAIR

- A. Remove all loose sealant, felt, dirt, and all foreign material from between the baseplate and the concrete foundation by hand and/or low pressure water cleaning at 4,000 psi.
- B. Apply sealant into the gap and tool by hand to make smooth.
- C. Use backer rod if the gap is more than ½ in. deep.
- D. Sealant is to be applied around the entire circumference of the tank's baseplate.
- E. Do not apply coating over the caulking.
- F. Payment is a separate line item "Foundation Sealant" which the Owner reserves the right to delete.

SECTION 09 97 13.23.08

**EXTERIOR STEEL COATING – FOUR COAT ZINC EPOXY URETHANE
REPAINT**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Painting on the exterior piping on the 30,000 gallon reservoir.

1.02 REFERENCES

A. SSPC and NACE Standards:

- 1. PA1 – Paint Application.
- 2. PA2 – Measurements and Calibration.
- 3. NACE RP 0178 Surface Finish Requirements.

1.03 WORK INCLUDED

- A. Application of a four (4) coat zinc epoxy urethane system.

PART 2 – PRODUCTS

2.01 ZINC EPOXY URETHANE - 4 COAT SYSTEM

- A. The coating shall be an epoxy urethane system.
- B. The contractor is advised to follow all rules for safety while using isocyanates.
- C. Ultraviolet protection additives mixed at factory only. There will be no tinting or addition of any material other than the manufacturer's thinners.
- D. Approved suppliers and systems:

<u>Manufacturer</u>	<u>System</u>
Tnemec	90-97/N69/1074/1074UV
Induron	Indurazinc MC-67/PE-70/I-6600 Plus/I-6600 Plus
Sherwin Williams	Corothane I galvapak/646PW/Acrolon Ultra/Acrolon Ultra
PPG	Amercoat 68HS/Amercoat 2/Pitthane Ultra/Pitthane Ultra

PART 3 – EXECUTION

3.01 ZINC EPOXY URETHANE - 4 COAT SYSTEM

- A. Apply to all prepared surfaces and appurtenances a four (4) coat zinc epoxy urethane system.
- B. Surface preparation and paint requirements have been previously defined in Section 09 97 13.10. Apply all coatings by brush and roller. Spray application is prohibited.

- | C. <u>Coat</u> | Minimum | Maximum |
|-----------------------|----------------------|----------------------|
| | <u>D.F.T. (mils)</u> | <u>D.F.T. (mils)</u> |
| Primer | 2.5 | 3.5 |
| Epoxy Intermediate | 2.0 | 3.0 |
| Urethane Intermediate | 2.0 | 3.0 |
| Topcoat | <u>2.0</u> | <u>3.0</u> |
| Total | 8.5 | 12.5 |
- D. Each full coat to be a different color from the previous coat and is to be approved by the engineer. No color bleedthrough should occur if proper application rates are observed.
- E. Apply all coats in uniform color and sheen without streaks, laps, runs, sags, cloudy, or missed areas. Correct all defects before application of the successive coat.
- F. Allow a minimum of twenty-four (24) hours between coats. Additional time may be necessary if low temperatures require an increase in the necessary cure time.
- G. The contractor should be advised that Dixon Engineering, Inc. will take mil readings on the exterior per SSPC-PA2 which requires gauge adjustment from magnetic plane to peak plane.

3.02 SCHEDULE of WORK

- A. Complete all exterior and interior welding prior to surface preparation.

SECTION 09 97 23.23.03

CONCRETE FOUNDATION COATING – TWO COAT EPOXY

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Painting of the concrete foundations on the two 1,250,000 gallon tanks.

1.02 REFERENCES

- A. SSPC and NACE Standards:
 - 1. PA1 – Paint Application.
 - 2. PA2 – Measurements and Calibration.

1.03 WORK INCLUDED

- A. Application of a two (2) coat epoxy system.

PART 2 – PRODUCTS

2.01 EPOXY – 2 COAT SYSTEM

- A. Two (2) coat epoxy system.
- B. Approved suppliers and manufacturers:

<u>Manufacturer</u>	<u>System</u>
Tnemec	N69/N69
Induron	PE-70/PE-70
PPG	Amerlock 2/Amerlock 2
Sherwin Williams	646PW/646PW

PART 3 – EXECUTION

3.01 EPOXY – 2 COAT EPOXY

- A. Apply to all prepared areas a two (2) coat epoxy system.
- B. Remove dirt 3” below grade around the entire foundation prior to coating, backfill once topcoat is dry to the touch.
- C. Foundations to be water cleaned at 3,500 to 5,000 psi to remove all contaminants.
- D. In lieu of water cleaning contractor has the option to abrasive blast clean to a SSPC-SP13/NACE 6 Standard to create a profile per ICRI – CSP3.

E. Apply each coat at the following rates:

<u>Coat</u>	<u>Min. D.F.T. (mils)</u>	<u>Max. D.F.T. (mils)</u>
Primer	3.5	5.5
Topcoat	<u>3.5</u>	<u>5.5</u>
Total	7.0	10.0

F. Allow the manufacturer's minimum time between coatings.

G. Cost is incidental to exterior painting.

SECTION 26 42 23

IMPRESSED CURRENT CATHODIC PROTECTION for STEEL RESERVOIRS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. **SCOPE:** Furnish and install a complete automatic controlled impressed current cathodic protection system to prevent corrosion on the submerged interior surfaces of the 200,000 gallon water storage tank. All work and material are to meet the standards established in AWWA D104-11-Automatically Controlled Impressed-Current Cathodic Protection for the Interior of Steel Water Tanks.
- B. **CONFLICTS:** Requirements contained in these specifications apply to and govern the work under this section. All General Condition items and Information for Bidder items applicable or contained in these specifications apply. This Technical Specification is intended to expand the General Conditions and/or other Technical Specifications and is not intended to conflict or override any items unless specifically stated. If a conflict is noted, the engineer will review prior to proceeding with the project. If a conflict does exist, the Technical Specifications govern over any General Conditions or Information for Bidders.

1.02 QUALIFICATIONS of CATHODIC PROTECTION MANUFACTURER

- A. The bidder is to have a minimum of five (5) continuous years of successful experience in the manufacture, installation and servicing of automatic cathodic protection systems for water storage tanks. The bidder is to have a permanent service organization located within three hundred (300) miles of the tank location. The contractor (manufacturer) is to have a minimum of twenty-five (25) successful units installed in water storage tanks. The manufacturer and/or his subcontractor must own and maintain or lease the equipment necessary for installation and have proper training in regard to the safety requirements.
- B. New firms may also bid this project; however, they will be subjected to thorough review based on individual experiences of staff, proof of the continuation with firm (i.e. stock ownership, etc.) and financial stability of the firm. Essentially, they will be required to provide sufficient documentation to convince the owner they will be available throughout the ten (10) years to service the system, if needed.

1.03 SHOP DRAWINGS

- A. Submit detailed shop drawings ten (10) days prior to the preconstruction meeting.
 - 1. Provide for employees one (1) copy at the job site for employee access.
 - 2. Provide one (1) hard copy and an electronic copy to the engineer.

- B. At the preconstruction meeting submit three (3) sets of Operation/Maintenance Manuals directly to the owner.

1.04 GUARANTEE

- A. Guarantee the cathodic protection system against all defects in materials and workmanship and further guarantee to prevent corrosion, when maintained in a continuous operation in accordance with the contractor's instructions, as evidence by the absence of pitting (or additional pitting) below the high waterline in the tank for a period of one (1) year. The requirement of a maintenance contract may be beneficial, but cannot be made a precondition to this warranty. In the event corrosion is not prevented, the contractor is to readjust, repair, or replace the system. Guarantee the reference anodes for five (5) years. It is the intention of the owner to inspect the tank, as necessary, to review the performance of the cathodic protection system.

1.05 DESIGN and PERFORMANCE REQUIREMENTS

A. DESIGN CRITERIA:

1. Each tank is a 1,250,000 gallon steel reservoir. It is approximately 38 ft. 8 in. to high water line and has a diameter of approximately 75 ft.
 2. Design tank-to-water potential is to be -900 mv with units capable of adjustment from -850 mv to -1050 mv. The design potential is to be IR drop-free (type A) and based on a copper/copper sulfate reference anode.
 3. Minimum current density is to be 0.5 MA/sq. ft. of the bare surface area.
 4. The minimum design anode system life is to be ten (10) years.
- B. The intent of these specifications is to procure a quality product by an established manufacturer of the latest design. Cost of the equipment is to include all royalty costs arising from patents and licenses associated with furnishing the specified equipment. Design all material to withstand the stresses created under ice conditions. Use the latest state-of-the-art "permanent" system which is designed to be ice-free and designed for use in tanks with ice conditions. Use corrosion resistant materials for all equipment, or protect with corrosion resistant industrial coating approved by the engineer.

PART 2 – PRODUCTS

2.01 CATHODIC PROTECTION SYSTEM

- A. Provide a cathodic protection system (ice-free) that is to be a suspended or floating ring-type system. Furnish all items, as necessary, for the complete operating system.

2.02 MATERIALS

- A. Furnish materials for the best quality, regularly used in commercial practice and conforming to the following specifications. Specifically design the cathodic protection system for operation in icing conditions and protect against damage from ice.
- B. Supply only material for use inside the wet interior (i.e. all material in contact with water shall meet NSF 61 Standards and bears the NSF or UL label verifying compliance).
- C. Mount the power unit as directed in Part 3 – Execution in a stainless steel, waterproof cabinet suitable for outdoor use, adequately ventilated with stainless steel screens, and with provision for locking. Secure cabinet by using mounting brackets. If mounted on steel, electrically isolate from steel with non-conductive insulator.
- D. Use an electrical insulating material having suitable thickness and mechanical strength for the mounting board. Mount accurate D.C. meters with a D.C. voltmeter on the panel board for indicating output of rectifier.
- E. Include a potential indicating voltmeter on the panel board. This voltmeter is to be part of the sensing circuit, and is to continuously indicate the structure potential value that the control system is maintaining.
- F. Panel Board is to contain the following equipment:
 1. Power Unit: The power unit is to have the necessary circuit breakers, transformer, selenium or silicon rectifying elements, voltmeter(s), ammeter(s), lightning, surge, overload protection, wiring and appurtenances of adequate capacity to meet the requirements established by the Engineering Survey for each corrosion problem. Provide a power unit with voltage adjustments to regulate the current required for corrosion control. The unit is to be adjustable over the entire range of 0-100% of rated capacity. Design the power unit for Single Phase, 60 Hz, 110-120 volt A.C. rated to operate at an ambient temperature of 45° Centigrade. Include a circuit breaker for the A.C. and an overload relay in the D.C. circuit. The entire power unit is to be fully field serviceable. The overall efficiency of the power unit is to exceed 65%, and the power factor is to exceed 90% of full load and rated voltage to the power unit, in the conversion of A.C. to D.C. The power factor is to be greater than 85% at outputs exceeding 25% of the rated capacity.
 2. Automatic Controller: House the controller integrally with the rectifier unit. The automatic controller is to be completely solid state design having no moving parts and capable of automatically maintaining the tank-to-water potential at (-)900 millivolts with respect to a copper-copper sulphate reference electrode within an accuracy of 25 millivolts. The tank-to-water potential measured and maintained by the controller is to be free of “IR” drop error (Type A).

3. Rectifier: Use non-aging tri-amp selenium or silicon rectifiers of the approved selenium type, as manufactured by General Instrument Corporations or equal for rectifier stacks. The rectifier stacks are to have adequate cooling fins so their normal temperature rise at rated capacity will not exceed that specified by the N.E.M.A. and by the manufacturer of the rectifier stacks for cathodic protection service. Use air-cooled rectifier stacks.

Design the transformer for use in cathodic protection rectifiers having separate primary and secondary copper windings. The rectifiers are to be capable of automatically adjusting output to maintain potential within +/- 25mv of -900mv, and to be adjustable over 0-100% of its rated capacity.

4. Tank-to-Water Potential Meter: Equip the controller with a calibrated potential monitoring and display circuit having an integral impedance exceeding 1000 megohms which is to be so connected to read from the system reference cell the tank-to-water potential being maintained by the cathodic protection system.

This voltage reading is to be free of "IR" drop error.

NOTE: If digital readout is provided, provide access to all readings required above.

- G. Run positive wires from the power unit to the anode circuits in rigid steel conduits, as established by the National Electrical Code for the allowable current-carrying capacity. Use rigid, galvanized steel conduit. Use state code for underground wire. Use HMWPE (High Moly) wire from the rectifier to and in the tank.
- H. Equip the system with copper-copper sulfate reference electrode designed for a minimum five (5) year life. Install two (2) electrodes on opposite sides of the bowl. If either electrode fails within five (5) years, replace as often as necessary, free of charge to the owner.
- I. Design the anode system for a minimum life of ten (10) years and securely attach to the tank to prevent damage from ice conditions. Include all labor and material for installation of the anodes, and use submerged floating anodes. The anode system uses mixed metal oxide wire anodes. Attach the anodes to a buoyant submerged structure that is maintained in a totally submerged condition, down to the minimum water level by flexible attachment to the interior tank walls or columns. Connections to the floor are required in tanks subject to heavy icing. Anode and reference electrode lead wires are to enter the tank below the minimum water level through pressure tight fittings. Use 3,000 lb. couplings for fitting. Use a separate cord to encircle the supporting cord approximately 8 in. greater radius and design the cord to relieve tension in the loading. Use $\frac{5}{16}$ in. polyester or nylon rope.

- J. Protect all units, lightning arresters, surge protectors, and automatic overload protection in all modes and comply with all FCC regulations. All patent requirements are the responsibility of the contractor.

2.03 ALARM and TELEMETRY CONTROLS

- A. The alarm and telemetry circuits are to be a secondary system designed to read controls and not to interfere in any manner with the primary controls. Use four-to-twenty (4-20) milliamp sensors to read voltage, amperage and potential of both circuits. One alarm light shall be furnished on the cover of the rectifier box. The light shall be activated by a change in amperage, voltage or potential that would signal a possible system failure.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. The cathodic protection system is to be installed by full-time employees of the supplier of the system who are specifically trained to install and service water tank cathodic protection systems. Subcontractors who are specialized tank personnel may install the cathodic protection system under direct, on-site supervision by a responsible employee of the manufacturer.
- B. Install clips, pressure fittings, mounting supports, and brackets prior to abrasive blasting.

3.02 CLIPS AND PRESSURE FITTING

- A. Use existing clips and pressure fitting if possible. If needed furnish and install new attachment clips and pressure fitting.
- B. Clips to be installed using ¼ in. fillet welds all around. No area may be left which would be susceptible to crevice corrosion.
- C. Weld the pressure fitting with ¼ in. fillet continuous welds all around on both the tank's wet interior and exterior.

3.03 INSTRUCTIONS

- A. After installation is complete, energize the system and adjust for optimum operations. After the unit is adjusted, take tank-to-water potential measurements using a copper-copper sulfate reference electrode. Submit a report to the engineer, including all the test results obtained.
- B. After supervising of inspection and start-up operations, provide one (1) additional day for training of the owner and/or his representative. The training is to include minor troubleshooting practices, recordkeeping, and methods used to determine the

effectiveness of the system. The training period is at the owner's discretion within one (1) year of start-up.

3.05 MOUNTING PANEL

- A. Locate waterproof cabinet rectifier at the base of the sidewall at location approved by the owner.
- B. Mounting plate to be constructed of minimum of 3/16 inch steel. Bend plate to create a mounting face that is a minimum of 20 inches wide and 20 inches tall. Set mounting panel 5 ft. on center above grade.
- C. Drill four 11/32 inch holes and bolt onto the panel using stainless steel bolts. Verify hole size and location.
- D. Surface prepare and coat the mounting plate prior to installation of the rectifier.

3.06 OPERATION of SYSTEM

- A. The owner reserves the right to leave the cathodic protection system out-of-service for one (1) full year.
- B. Complete item 3.03 – Instructions when scheduled by the owner (within 13 months).
- C. Extend one (1) year warranty of cathodic protection system one (1) year beyond date of energizing.

3.07 ELECTRICAL SUPPLY

- A. There is/ a 120 volt power available next to the reservoirs.
- B. Coordinate with owner and connect electrical source to cathodic protection controls.
- C. Bury all exterior wiring underground from electrical source to cathodic protection controls.

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	LC United	Seven Brothers	Kountoupes Painting	Thomas Industrial Coat.	L&T Painting
	Sterling Hgts,	Shelby Twp.,	Farmington Hills,	Pevely,	Shelby Twp.,
	MI	MI	MI	MO	MI
Tank #1					
Section 05 00 00					
Swing Gate (1)	1,500.00	1,200.00		3,125.00	1,300.00
Cathodic Clips & Couplings (2)	2,500.00	2,700.00		4,175.00	2,000.00
Roof Stiffener Replacement (3)	15,000.00	7,500.00		25,000.00	8,500.00
Total Section 05 (1-3)	19,000.00	11,400.00		32,300.00	11,800.00
Section 09 97 13					
Wet Interior Repaint (1)	226,000.00	195,700.00		448,998.00	194,000.00
Exterior Overcoat (2)	71,000.00	61,900.00		101,500.00	79,100.00
Exterior Overcoat-Alt. (3)	86,000.00	77,800.00		118,092.00	90,000.00
Total Section 09 (1-2)	297,000.00	257,600.00		550,498.00	273,100.00
Section 26 42 23					
Cathodic Protection System (1)	18,000.00	25,100.00		20,312.00	19,800.00
Project Total	334,000.00	294,100.00		603,110.00	304,700.00
Antennas & Cables	100.00	1,500.00		0.00	500.00
Bid Bond	10%	10%		10%	

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	Clearcreek Coatings	A & N Construction	Viking Industrial Painting	G & L Tank	D & M Painting
	New Carlisle,	Napolean,	Omaha,	Shelbyville,	Washington,
	OH	OH	NE	TN	PA
Tank #1					
Section 05 00 00					
Swing Gate (1)	1,100.00		2,500.00	2,500.00	1,600.00
Cathodic Clips & Couplings (2)	1,500.00		2,500.00	4,000.00	1,800.00
Roof Stiffener Replacement (3)	9,000.00		30,000.00	20,000.00	4,000.00
Total Section 05 (1-3)	11,600.00		35,000.00	26,500.00	7,400.00
Section 09 97 13					
Wet Interior Repaint (1)	232,048.00		200,000.00	197,000.00	449,300.00
Exterior Overcoat (2)	97,790.00		118,600.00	115,000.00	236,070.00
Exterior Overcoat-Alt. (3)	118,415.00		141,600.00	145,000.00	262,840.00
Total Section 09 (1-2)	329,838.00		318,600.00	312,000.00	685,370.00
Section 26 42 23					
Cathodic Protection System (1)	17,000.00		25,400.00	32,000.00	21,000.00
Project Total	358,438.00		379,000.00	370,500.00	713,770.00
Antennas & Cables	2,500.00		3,000.00	5,000.00	4,000.00
Bid Bond	10%		10%	10%	10%

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	Utility Service	Currens Construction Ser.	Champion Specialty Ser.	American Suncraft	Southern Road & Bridge
	Perry,	Harrodsburg,	Fort Lauderdale,	Medway,	Tarpon Springs,
	GA	KY	FL	OH	FL
Tank #1					
Section 05 00 00					
Swing Gate (1)		2,800.00	1,350.00		
Cathodic Clips & Couplings (2)		6,600.00	12,690.00		
Roof Stiffener Replacement (3)		3,000.00	51,300.00		
Total Section 05 (1-3)		12,400.00	65,340.00		
Section 09 97 13					
Wet Interior Repaint (1)		242,200.00	263,000.00		
Exterior Overcoat (2)		119,900.00	81,000.00		
Exterior Overcoat-Alt. (3)		143,860.00	108,000.00		
Total Section 09 (1-2)		362,100.00	344,000.00		
Section 26 42 23					
Cathodic Protection System (1)		20,300.00	10,000.00		
Project Total		394,800.00	419,340.00		
Antennas & Cables		2,000.00	1,000.00		
Bid Bond		10%	10%		
			Corrected Amount		

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	TMI Coatings
	St. Paul,
	MN
Tank #1	
Section 05 00 00	
Swing Gate (1)	1,000.00
Cathodic Clips & Couplings (2)	2,000.00
Roof Stiffener Replacement (3)	18,000.00
Total Section 05 (1-3)	21,000.00
Section 09 97 13	
Wet Interior Repaint (1)	297,000.00
Exterior Overcoat (2)	103,000.00
Exterior Overcoat-Alt. (3)	154,000.00
Total Section 09 (1-2)	400,000.00
Section 26 42 23	
Cathodic Protection System (1)	22,000.00
Project Total	443,000.00
Antennas & Cables	3,000.00
Bid Bond	10%

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	LC United	Seven Brothers	Kountoupes Painting	Thomas Industrial Coat.	L&T Painting
	Sterling Hgts,	Shelby Twp.,	Farmington Hills,	Pevely,	Shelby Twp.,
	MI	MI	MI	MO	MI
Tank #2					
Section 03 01 00					
Spall Repair (1)	500.00	500.00		380.00	500.00
Grout Repair (2)	3,200.00	2,000.00		2,100.00	3,000.00
Total Section 03 (1-2)	3,700.00	2,500.00		2,480.00	3,500.00
Section 05 00 00					
Swing Gate (1)	1,500.00	1,200.00		3,125.00	1,300.00
Cathodic Clips & Couplings (2)	2,500.00	2,700.00		4,175.00	2,000.00
Roof Stiffener Replacement (3)	15,000.00	7,500.00		25,000.00	8,500.00
Sidewall Manway (4)	11,000.00	9,900.00		10,000.00	9,000.00
Roof Handrail (5)	6,500.00	5,400.00		15,000.00	14,000.00
Total Section 05 (1-5)	36,500.00	26,700.00		57,300.00	34,800.00
Section 09 97 13					
Wet Interior Repaint (1)	226,000.00	199,200.00		458,214.00	191,000.00
Exterior Overcoat (2)	71,000.00	63,500.00		106,200.00	76,350.00
Exterior Overcoat-Alt. (3)	86,000.00	81,800.00		121,793.00	87,500.00
Total Section 09 (1-2)	297,000.00	262,700.00		564,414.00	267,350.00
Section 26 42 23					
Cathodic Protection System (1)	18,000.00	25,100.00		20,312.00	19,800.00
Project Total	355,200.00	317,000.00		644,506.00	325,450.00
Bid Bond	10%	10%			10%

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	Clearcreek Coatings	A & N Construction	Viking Industrial Painting	G & L Tank	D & M Painting
	New Carlisle,	Napolean,	Omaha,	Shelbyville,	Washington,
	OH	OH	NE	TN	PA
Tank #2					
Section 03 01 00					
Spall Repair (1)	150.00		5,000.00	500.00	900.00
Grout Repair (2)	1,600.00		4,000.00	3,500.00	3,200.00
Total Section 03 (1-2)	1,750.00		9,000.00	4,000.00	4,100.00
Section 05 00 00					
Swing Gate (1)	1,100.00		2,500.00	2,500.00	2,400.00
Cathodic Clips & Couplings (2)	1,500.00		2,500.00	4,000.00	1,800.00
Roof Stiffener Replacement (3)	9,000.00		30,000.00	20,000.00	4,400.00
Sidewall Manway (4)	6,500.00		9,000.00	6,000.00	4,200.00
Roof Handrail (5)	15,000.00		20,000.00	11,000.00	6,400.00
Total Section 05 (1-5)	33,100.00		64,000.00	43,500.00	19,200.00
Section 09 97 13					
Wet Interior Repaint (1)	232,543.00		208,000.00	197,000.00	287,000.00
Exterior Overcoat (2)	99,309.00		121,300.00	115,000.00	120,900.00
Exterior Overcoat-Alt. (3)	119,909.00		141,300.00	145,000.00	140,840.00
Total Section 09 (1-2)	331,852.00		329,300.00	312,000.00	407,900.00
Section 26 42 23					
Cathodic Protection System (1)	17,000.00		25,400.00	32,000.00	24,200.00
Project Total	383,702.00		427,700.00	391,500.00	455,400.00
Bid Bond	10%		10%	10%	10%

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	Utility Service	Currens Construction Ser.	Champion Specialty Ser.	American Suncraft	Southern Road & Bridge
	Perry,	Harrodsburg,	Fort Lauderdale,	Medway,	Tarpon Springs,
	GA	KY	FL	OH	FL
Tank #2					
Section 03 01 00					
Spall Repair (1)		600.00	101.25		
Grout Repair (2)		3,200.00	189.00		
Total Section 03 (1-2)		3,800.00	290.25		
Section 05 00 00					
Swing Gate (1)		2,800.00	1,350.00		
Cathodic Clips & Couplings (2)		6,600.00	12,690.00		
Roof Stiffener Replacement (3)		3,000.00	51,300.00		
Sidewall Manway (4)		5,800.00	12,960.00		
Roof Handrail (5)		9,000.00	23,760.00		
Total Section 05 (1-5)		27,200.00	102,060.00		
Section 09 97 13					
Wet Interior Repaint (1)		246,900.00	263,000.00		
Exterior Overcoat (2)		121,600.00	81,000.00		
Exterior Overcoat-Alt. (3)		144,400.00	108,000.00		
Total Section 09 (1-2)		368,500.00	452,000.00		
Section 26 42 23					
Cathodic Protection System (1)		20,300.00	10,000.00		
Project Total		419,800.00	564,350.25		
Bid Bond			10%		

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	TMI Coatings
	St. Paul,
	MN
Tank #2	
Section 03 01 00	
Spall Repair (1)	1,000.00
Grout Repair (2)	3,000.00
Total Section 03 (1-2)	4,000.00
Section 05 00 00	
Swing Gate (1)	1,000.00
Cathodic Clips & Couplings (2)	2,000.00
Roof Stiffener Replacement (3)	18,000.00
Sidewall Manway (4)	10,000.00
Roof Handrail (5)	23,000.00
Total Section 05 (1-5)	54,000.00
Section 09 97 13	
Wet Interior Repaint (1)	297,000.00
Exterior Overcoat (2)	103,000.00
Exterior Overcoat-Alt. (3)	154,000.00
Total Section 09 (1-2)	400,000.00
Section 26 42 23	
Cathodic Protection System (1)	22,000.00
Project Total	480,000.00
Bid Bond	10%

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	LC United	Seven Brothers	Kountoupes Painting	Thomas Industrial Coat.	L&T Painting
	Sterling Hgts,	Shelby Twp.,	Farmington Hills,	Pevely,	Shelby Twp.,
	MI	MI	MI	MO	MI
Standpipe					
Section 03 01 00					
Concrete Slab Replacement (1)	8,000.00	5,500.00		12,200.00	3,000.00
Section 05 00 00					
Roof Vent (1)	5,000.00	6,800.00		8,750.00	5,800.00
Level Indicator Repair (2)	2,000.00	1,000.00		3,750.00	2,200.00
Total Section 05 (1-2)	7,000.00	7,800.00		12,500.00	8,000.00
Section 09 97 13					
Wet Interior Repaint (1)	27,000.00	47,900.00		67,797.00	9,900.00
Pit Piping Repaint (2)	7,000.00	3,500.00		9,240.00	6,000.00
Total Section 09 (1-2)	34,000.00	51,400.00		77,037.00	15,900.00
Project Total	49,000.00	64,700.00		101,737.00	26,900.00
Tank #1 Total	334,000.00	294,100.00		603,110.00	304,700.00
Tank #2 Total	355,200.00	317,000.00		644,506.00	325,450.00
Standpipe Total	49,000.00	64,700.00		101,737.00	26,900.00
Project Total	738,200.00	675,800.00		1,349,353.00	657,050.00
Bid Bond	10%	10%		10%	10%

Corrected Amount

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	Clearcreek Coatings	A & N Construction	Viking Industrial Painting	G & L Tank	D & M Painting
	New Carlisle,	Napolean,	Omaha,	Shelbyville,	Washington,
	OH	OH	NE	TN	PA
Standpipe					
Section 03 01 00					
Concrete Slab Replacement (1)	4,500.00		4,000.00	15,000.00	4,200.00
Section 05 00 00					
Roof Vent (1)	5,500.00		5,000.00	6,000.00	7,200.00
Level Indicator Repair (2)	1,500.00		2,000.00	2,200.00	1,800.00
Total Section 05 (1-2)	7,000.00		7,000.00	8,200.00	9,000.00
Section 09 97 13					
Wet Interior Repaint (1)	26,330.00		25,400.00	27,000.00	27,040.00
Pit Piping Repaint (2)	4,000.00		5,000.00	3,800.00	4,800.00
Total Section 09 (1-2)	30,330.00		30,400.00	30,800.00	31,840.00
Project Total	41,830.00		41,400.00	54,000.00	45,040.00
Tank #1 Total	358,438.00		379,000.00	370,500.00	713,770.00
Tank #2 Total	383,702.00		427,700.00	391,500.00	455,400.00
Standpipe Total	41,830.00		41,400.00	54,000.00	45,040.00
Project Total	783,970.00		848,100.00	816,000.00	1,214,210.00
Bid Bond	10%		10%	10%	10%

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	Utility Service	Currens Construction Ser.	Champion Specialty Ser.	American Suncraft	Southern Road & Bridge
	Perry,	Harrodsburg,	Fort Lauderdale,	Medway,	Tarpon Springs,
	GA	KY	FL	OH	FL
Standpipe					
Section 03 01 00					
Concrete Slab Replacement (1)		19,100.00	14,309.00		
Section 05 00 00					
Roof Vent (1)		4,600.00	5,940.00		
Level Indicator Repair (2)		3,100.00	1,620.00		
Total Section 05 (1-2)		7,700.00	7,560.00		
Section 09 97 13					
Wet Interior Repaint (1)		28,800.00	49,158.06		
Pit Piping Repaint (2)		6,700.00	5,000.00		
Total Section 09 (1-2)		35,500.00	54,158.06		
Project Total		62,300.00	76,027.00		
Tank #1 Total		394,800.00	419,340.00		
Tank #2 Total		419,800.00	564,350.25		
Standpipe Total		62,300.00	76,027.06		
Project Total		876,900.00	1,059,717.31		
Bid Bond		10%	10%		
			Corrected Amount		

**Water Service Corporation of Kentucky - 2-1,250,000 Gallon Reservoirs 15,000 Gallon Standpipe
2020 Water Tower Painting Project -June 5, 2020 10:00 a.m.**

	TMI Coatings
	St. Paul,
	MN
Standpipe	
Section 03 01 00	
Concrete Slab Replacement (1)	10,000.00
Section 05 00 00	
Roof Vent (1)	8,000.00
Level Indicator Repair (2)	4,000.00
Total Section 05 (1-2)	12,000.00
Section 09 97 13	
Wet Interior Repaint (1)	39,000.00
Pit Piping Repaint (2)	2,000.00
Total Section 09 (1-2)	41,000.00
Project Total	63,000.00
Tank #1 Total	443,000.00
Tank #2 Total	480,000.00
Standpipe Total	63,000.00
Project Total	986,000.00
Bid Bond	10%

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29. Refer to the Application, Exhibit 5, the Direct Testimony of Perry Brown (Brown Testimony), page 3. Mr. Brown explains that in preparing his salary analysis Mr. Brown sampled 25 water utility companies, similar in size and operating within Kentucky, and used 2012-2018 historical data that was reported in Kentucky Annual Reports to project 2019 and 2020 salary levels.

a. Explain if the information used by Mr. Brown to prepare his salary analysis was obtained strictly from the Annual Reports on file with the Commission or did he contact the individual utilities.

b. Explain if Mr. Brown factored into his analysis any changes in staffing levels that might have occurred at the water utilities.

c. Provide a completed description of the methodology employed by Mr. Brown to project the 2019 and 2020 salary levels for the water utilities used in his salary analysis.

d. Explain whether, prior to making any adjustments to wages, salaries, benefits, and other compensation in the base rate case; Water Service Kentucky, through an outside consultant or otherwise, performed a study or survey to compare its wages, salaries, benefits and other compensation to other local or regional enterprises.

(1) If comparisons were made, provide and discuss the results of such comparisons. Include the results of the study or survey with your response, including all workpapers.

(2) If comparisons were not made, explain why such comparisons were not performed.

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RESPONSE:

- a. The information was gathered from annual reports downloaded from the Public Utility Commission website.
- b. The Study does not factor in staffing levels for WSCK or the proxy group. The Company factored in utility size for the proxy group.
- c. The Company calculated the annual average increase/decrease in customer counts and average increase/decreases in labor cost for each utility. The outputs were applied to the 2018 labor cost to project the data for 2019 and 2020.
- d. Yes. Please refer to the direct testimony and exhibits of Company Witness Baryenbruch for a detailed salary analysis comparing labor cost to other local or regional enterprises.

WITNESS: Perry Brown, Senior Financial Analyst

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30. Refer to the Application, Exhibit 5, Brown Testimony, Exhibit PB-2. Provide copies of the Water Service Kentucky's salary analysis schedules in an Excel spreadsheet format with all columns and rows accessible and all formulas unprotected.

RESPONSE:

Please see the attached file, "Response to Staff DR 2.30 - Salary Study Excel Exhibit".

WITNESS:

Perry Brown, Senior Financial Analyst

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31. Explain whether, prior to making any adjustments to wages, salaries, benefits, and other compensation in the base rate case; Water Service Kentucky, through an outside consultant or otherwise, performed a study or survey to compare its wages, salaries, benefits and other compensation to other local or regional businesses that are not utilities.

a. If comparisons were made, provide and discuss the results of such comparisons. Include the results of the study or survey with your response, including all workpapers.

b. If comparisons were not made, explain why such comparisons were not performed.

RESPONSE:

Yes. Please refer to the direct testimony and exhibits of Company Witness Baryenbruch for a detailed salary analysis comparing labor cost to other local or regional enterprises.

WITNESS:

Perry Brown, Senior Financial Analyst

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32. Refer to Water Service Kentucky's 2016 through 2018 Annual Reports⁴ and to Water Service Kentucky's Response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma, Tab: wp.a-uncoll. Provide a detailed explanation for the test-year increase in uncollectible accounts expense over the 3 previous calendar years⁵. Also, provide an explanation of the basis used to compute Water Service Kentucky's test-year uncollectible accounts expense and provide an aging of receivables analysis as of test-year end.

RESPONSE:

Please see the attached response, "Response to Staff DR 2.32 - Bad Debt". The increase in bad debts is driven by the write-off of the Ambleside Hydrant charges of \$53,617 in September 2019. This amount impacts both calendar year 2019 and the March 31, 2020 test year end.

WITNESS:

Perry Brown, Senior Financial Analyst

4 Annual Report of Water Service Corporation of Kentucky to the Public Service Commission for the Calendar Year Ended December 31, 2016 at pp. 55 of 73; Annual Report of Water Service Corporation of Kentucky to the Public Service Commission for the Calendar Year Ended December 31, 2017 at pp. 55 of 72; and Annual Report of Water Service Corporation of Kentucky to the Public Service Commission for the Calendar Year Ended December 31, 2018 at pp. 55 of 74.

⁵ 2016 - \$28,238; 2017 - \$45,687; 2018 - \$48,619; Test Year - \$65,664

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33. Identify the methodology Water Service Kentucky used to calculate its test-year uncollectible accounts expense. State if Water Service Kentucky changed its methodology during the period of Calendar Year 2016 through the test-year, and if so, explain the reason for the change in methodologies.

RESPONSE:

The Company uncollectible expense is mostly comprised of actual accounts that are written off along with an accrual of estimated write-offs based on the Company's accounts receivable aging report. The Company has not had a change in uncollectible methodology from calendar year through the test-year end.

WITNESS:

Perry Brown, Senior Financial Analyst

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34. Generally, the Commission seeks to determine a normal percentage relationship between uncollectibles accounts expense and water revenues to determine a reasonable amount of bad debt expense for ratemaking purposes. Provide any support for including the test-period actual relationship for ratemaking purposes rather than a normalized amount.

RESPONSE:

Please see the attached file, "Response to Staff DR 2.34 - Historical Uncollectible Rate"

WITNESS:

Perry Brown, Senior Financial Analyst

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35. Refer to Water Service Kentucky's Response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma, Tab: wp.a-uncoll and to Case No. 2018-00208.⁶ In this current case Water Service Kentucky calculates its uncollectible accounts expense using a rate of 2.35 percent. However, in Case No. 2018-00208 Water Service Kentucky reported an uncollectible rate of 1.63 percent.

- a. State the reason(s) for the increase in uncollectibles.
- b. Explain why it is appropriate and reasonable for the Commission to use an uncollectibles rate in this case that is significantly higher than the rate used in WSKY's last rate case proceeding.

RESPONSE:

- a. Please refer to the response to Staff request 2.33.
- b. The Company recommends the Commission authorize an uncollectible rate that is reflective of a rate year level of bad debts as a proportion of the authorized revenue using the most recent actual rate. Assuming historical rates to be most appropriate and reasonable may not be the most effective ratemaking practice as it may not factor continuously changing environment.

WITNESS:

Perry Brown, Senior Financial Analyst

⁶ Case No. 2018-0028, *Electronic Application of Water Service Corporation of Kentucky for a General Adjustment in Existing Rates* (Ky. PSC Feb. 11, 2019; Order on Rehearing June 18, 2019).

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36. For each Water Service subsidiary that provides retail water service, provide for the calendar year ended December 31,2020:

- a. The subsidiary's total uncollectibles;
- b. The subsidiary's total water sales; and
- c. The subsidiary's uncollectibles stated as a percentage of total water sales.

RESPONSE:

Please see the attached file "Response to Staff DR 2.36 - Uncollectible Rate by Subsidiary".

WITNESS:

Perry Brown, Senior Financial Analyst

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37. Provide the total uncollectable rate for all of Utilities Incorporated (Utilities) operating companies for the calendar year ended December 31, 2020.

RESPONSE:

Please see the attached file "Response to Staff DR 2.36 - Uncollectible Rate by Subsidiary".

WITNESS:

Perry Brown, Senior Financial Analyst

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38. Refer to Water Service Kentucky's Response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma, Tab: Sch.B-I.S, and to Case No. 2018-00208, Water Service Kentucky's Response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma, Tab: Sch.B-I.S. Provide a detailed description of the differences noted between the actual operating expenses reported by Water Service Kentucky for the 12 months ending December 31, 2017, to the actual expenses reported for the 12 months ending March 31, 2020.

Expense Category	Expense Account	12/31/17	Differences		03/31/20
		Test Year Actual	Dollar	Percentage	Test Year Actual
a. Maintenance Exp.	Salaries and Wages	\$ 653,429	\$ 98,351	15.052%	\$ 751,780
b. Maintenance Exp.	Purchased Power	\$ 101,367	\$ 20,415	20.140%	\$ 121,782
c. Maintenance Exp.	Maintenance and Repair	\$ 127,934	\$ 54,408	42.528%	\$ 182,342
d. Maintenance Exp.	Transportation	\$ 28,507	\$ 9,557	33.525%	\$ 38,064
e. Maintenance Exp.	Outside Services - Other	\$ 39,770	\$ 143,941	361.934%	\$ 183,711
f. General Exp.	Salaries and Wages	\$ 137,409	\$ 28,120	20.464%	\$ 165,529
g. General Exp.	Office Supplies & Other Office Exp.	\$ 63,578	\$ 33,688	52.987%	\$ 97,266
h. General Exp.	Pension & Other Benefits	\$ 183,280	\$ 47,971	26.174%	\$ 231,250
i. General Exp.	Rent	\$ 12,269	\$ 23,248	189.480%	\$ 35,517

RESPONSE:

- a. The Company has experienced increases in headcount with the additions of a Compliance Manager, GIS Analyst, and a Field Technician since the December 3, 2017 test year.
- b. The Company has seen increase in energy prices from its supplier with a rate increase in 2019.
- c. The increase in maintenance and repair expenses are driven by the additional cost related to the equipment rental for backhoes.
- d. Rising fuel cost and additional fleet driving cost increase
- e. Increase related to corporate cost allocated from the Company's parent Corix Infrastructures.
- f. Increase driven by additional headcount and merit increases from 2017-2019
- g. This is driven by a switch from the Company's billing costs being allocated to being directly charged to WSCK.
- h. Additional salary expense and increase headcount drives additional employee pension and benefits.

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- i. Rent expense is related to the WSC Chicago office lease as well as the railroad management lease.

WITNESS:

Perry Brown, Senior Financial Analyst

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39. In Case No. 2012-00133, the Commission Ordered that in order “To provide a forum for customers to communicate with utility management, Corix Utilities and Utilities, Inc. shall host annual public meetings in Clinton and Middlesboro, Kentucky, at which the senior officers from the regional office of Utilities, Inc. that oversees Water Service Corporation’s operations will attend and participate.”⁷

a. For the annual meetings occurring in Middlesboro during the period from calendar years 2015 through 2019 provide (1) the date the meeting occurred; (2) a list of the participants Croix Utilities, Utilities, and Water Service Kentucky; (3) a list on the Middlesboro customers in attendance; and (4) the written transcript of the meeting.

b. For the annual meetings occurring in Clinton during calendar years 2015 through 2019 provide (1) the date the meeting occurred; (2) a list of the participants Croix Utilities, Utilities, and Water Service Kentucky; (3) a list on the Clinton customers in attendance; and (4) the written transcript of the meeting.

RESPONSE:

a. Company annual participants include the Vice President, State Operations manager, and the Regional Manager. The Company does not have a list of customers that participated nor a written transcript of the meeting.

7/16/2015

7/21/2016

7/13/2017

6/4/2018

6/27/2019

⁷ See Case No. 2012-00133, *Joint Application Of Corix Utilities (Illinois) LLC; Hydro Star, LLC; Utilities, Inc.; and Water Service Corporation of Kentucky for the Transfer and Acquisition of Control Pursuant to KRS 278.020* (Ky. PSC Aug. 13, 2012) page 11, Ordering Paragraph 20.

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- b. Company annual participants include the Vice President, State Operations manager, and the Regional Manager. The Company does not have a list of customers that participated nor a written transcript of the meeting.

6/9/2015

6/22/2016

6/13/2017

7/16/2018

7/23/2019

WITNESS:

Stephen Vaughn, State Operations Manager

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40. A common thread in the public comments submitted by the ratepayers of Water Service Kentucky is their inability to talk to a Water Service Corporation customer service representative.⁸ Provide the following annual information for the calendar years 2015 through 2019 for the Water Service Kentucky customers:

- a. The customer service center locations;
- b. The number of service representatives at each location that are responsible for the calls from Water Service Kentucky's service territory;
- c. The average call hold time;
- d. The number of dropped calls; and
- e. The number of ratepayer complaints received regarding their difficulty in reaching a customer service representative.

RESPONSE:

- a. The representatives are spread through Illinois, North Carolina, and Florida.
- b. Our Contact Center is currently staffed with 28 Customer service representatives. All 28 Customer service representatives are responsible for accepting and handling calls from Kentucky customers.
- c. Please see the attached file, "Response to Staff DR 2.40 – Customer Service Call Info.
- d. Please see the attached file, "Response to Staff DR 2.40 – Customer Service Call Info".
- e. No such report exists.

WITNESS:

Perry Brown, Senior Financial Analyst

⁸ See July 29, 2020 Public Comment of A.C. Vanover; July 27, 2020 Public Comment of Pauline Partin; July 27, 2020 Public Comment of Gwen Wilson; July 24, 2020 Public Comment of Sandra Gross; and July 20, 2020 Public Comment of Judy Byrd.

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41. Refer to the Application, Exhibit 5, the Direct Testimony of Andrew Dickson (Dickson Testimony) page 6. Mr. Dickson states that Water Service Kentucky has taken note of the policies of other investor-owned utilities in the state and proposes to make a change in its current leak adjustment policy. Provide the other investor-owned utilities that Water Service Kentucky examined in modeling their proposed leak adjustment policy after.

RESPONSE:

Kentucky American. Please refer to the attached file entitled "Response to Staff DR 2.41 - KY American Hidden Leak Adjustment".

WITNESS:

Andy Dickson

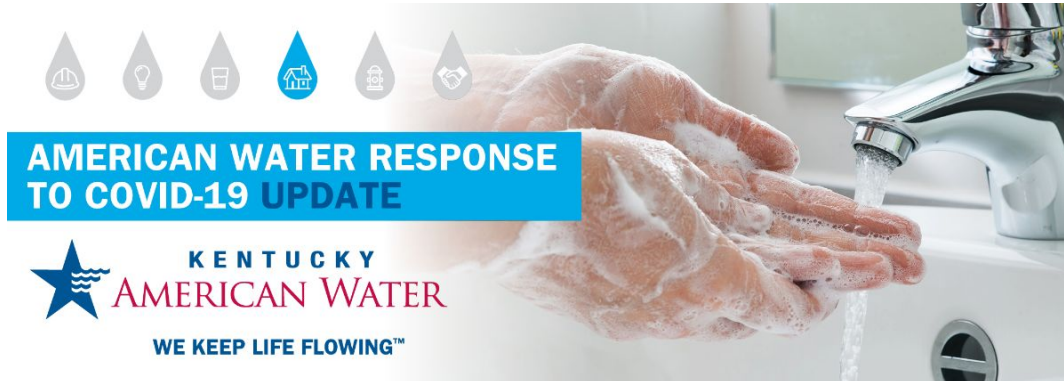


Customer Service & Billing
(<https://amwater.com/kyaw/customer-service-billing>)

Water Quality
(<https://amwater.com/kyaw/water-quality>)

Water Information
(<https://amwater.com/kyaw/water-information>)

About Us
(<https://amwater.com/us>)



PLEASE SCROLL DOWN TO ACCESS MAIN WEBSITE CONTENT AND ACCESS YOUR ACCOUNT

AN UPDATE TO OUR RESPONSE ABOUT COVID-19

At Kentucky American Water, we remain committed to keeping you informed as we continue our work to deliver clean, safe and reliable water service to you during the COVID-19 public health emergency.

WE HAVE A PLAN

Kentucky American Water has activated our business continuity plan to strengthen our ability to continue to provide reliable, high-quality service to our customers. We continue delivering drinking water service that meets water quality standards, providing wastewater services and protecting our employees and customers during this public health emergency. We are confident that our preparedness efforts and the extraordinary efforts of our employees will enable us to successfully continue operations.

The current health emergency is a rapidly developing and changing situation. We are working to provide our customers and communities with water and wastewater services during this time, all while protecting the health and safety of our employees. Many of our employees are working double duty, not only taking care of you, our customers, but their own families as well. They are dedicated and know the essential service that they provide plays a critical role, given the importance of personal hygiene in preventing the spread of the coronavirus.

WE KEEP SERVICE FLOWING

Over time, you may see Kentucky American Water field service representatives and crews performing needed tasks to keep our operations running. However, for the safety of our employees and our customers, we have suspended and/or scaled back other non-emergency work for the time being. Kentucky American Water continues to conduct its work in coordination and compliance with all federal, state and local agencies and directives. As evolving conditions necessitate changes to our work practices and procedures, we will do so in a way so that we are able to continue to provide water and wastewater services.

Below are the actions we have taken to continue to help our customers and communities through this crisis:

KEEPING THE WATER ON – Given the importance of personal hygiene in preventing the spread of the coronavirus, we have suspended billing-related service shutoffs. We will continue to evaluate this suspension period and remain in compliance with state orders. Please note that your water service may be temporarily interrupted for planned and unplanned work that may be performed in your area.

TURNED WATER SERVICE BACK ON – For customers who were previously shutoff for non-payment, we've reinstated water service. This includes customers whose water service was turned off for non-payment of sewer service, even if Kentucky American Water is not the sewer service provider.

SUSPENDED LATE FEES – We have suspended late fees until further notice. If you're experiencing a financial hardship, please call 1-800-678-6301 to discuss your eligibility to enter into a payment arrangement.

IMPLEMENTED SOCIAL DISTANCING – As mentioned above, you may see our employees and crews performing work. For your safety and the safety of our employees, we ask that you do not approach our employees. We request that you follow social distancing recommendations issued by the [Centers for Disease Control and Prevention](#).

PROTECTING YOU – We have suspended shutoffs during this public health emergency. If you are contacted by a person claiming to represent Kentucky American Water and they are threatening to shut off your service, then please hang up. You can call us back directly at 1-800-678-6301.

HELPING OUR COMMUNITIES – American Water and the American Water Charitable Foundation announced a \$100,000 contribution to Feeding America to support food banks across the country. The Foundation will also match employee donations to Feeding America, or other eligible organizations, up to \$1,000 per employee, in accordance with its matching gift guidelines.

UPDATING YOUR CONTACT INFORMATION – Many customers have visited our [MyWater customer portal](#) to update their emergency contact

information. If you have not done so, please take a moment to ensure your information is accurate.

DON'T FLUSH WIPES! – With hand hygiene at the top of everyone's minds and toilet paper in high demand, many households are increasing their use of sanitizing wipes and "flushable" wipes. Please do not flush wipes down the toilet. Flushing wipes, paper towels, or other paper products not intended for use in wastewater systems down the toilet can lead to sewer backups and in-home plumbing issues which may be expensive to repair. Even wipes labeled as "flushable" or "biodegradable" can cause backups for sewer utilities and headaches for homeowners. Watch this **"12 Things That Should Never Go Down Your Drain" video** .

ADDITIONAL WATER & WASTEWATER SAFETY INFORMATION

For additional information about the coronavirus and drinking water and wastewater, please visit:

- Environmental Protection Agency - Americans can continue to use and drink water from their tap as usual**
- World Health Organization - Water treatment practices effective against COVID-19, WHO says**

ADDITIONAL CORONAVIRUS INFORMATION

For additional information about the coronavirus, please visit:

- Centers for Disease Control and Prevention**
- World Health Organization**

We will keep you updated on our actions as this national public health emergency evolves. For more information on our pandemic preparedness and response, as well as customer service options, visit www.kentuckyamwater.com .

Stay healthy and safe. Thank you.

< Customer Service & Billing (<https://amwater.com/kyaw/customer-service-billing>)

[Billing & Payment Info \(<https://amwater.com/kyaw/customer-service-billing/billing-payment-info>\)](https://amwater.com/kyaw/customer-service-billing/billing-payment-info).

[For New Customers \(<https://amwater.com/kyaw/customer-service-billing/for-new-customers>\)](https://amwater.com/kyaw/customer-service-billing/for-new-customers).

[Your Water Rates \(<https://amwater.com/kyaw/customer-service-billing/your-water-rates>\)](https://amwater.com/kyaw/customer-service-billing/your-water-rates).

[Rights & Responsibilities \(<https://amwater.com/kyaw/customer-service-billing/rights-responsibilities>\)](https://amwater.com/kyaw/customer-service-billing/rights-responsibilities).

[Turn Service On/Off \(<https://amwater.com/kyaw/customer-service-billing/turn-service-on-off>\)](https://amwater.com/kyaw/customer-service-billing/turn-service-on-off).

[Hidden Leak Adjustment \(<https://amwater.com/kyaw/customer-service-billing/hidden-leak-adjustment>\)](https://amwater.com/kyaw/customer-service-billing/hidden-leak-adjustment)

[Low Income Program \(<https://amwater.com/kyaw/customer-service-billing/low-income-program>\)](https://amwater.com/kyaw/customer-service-billing/low-income-program).

[W9 Tax Form \(<https://dnrnh3ght4blob.core.windows.net/portals/0/W9/Kentucky%20W-9%20Tax%20Form.pdf?si=&s=1NNDj1w1a2arPolicy&sig=7B3kLud4kTluOxHJ0Nulq%20Bst0v4%20Cw%3D>\)](https://dnrnh3ght4blob.core.windows.net/portals/0/W9/Kentucky%20W-9%20Tax%20Form.pdf?si=&s=1NNDj1w1a2arPolicy&sig=7B3kLud4kTluOxHJ0Nulq%20Bst0v4%20Cw%3D).

HIDDEN LEAK ADJUSTMENT

[FAQs \(<https://www.amwater.com/corp/faqs>\)](https://www.amwater.com/corp/faqs)

A hidden leak adjustment rate is available to the entire service territory of Kentucky American Water. The hidden leak adjustment rate is available for residential and commercial customers.

[Contact Us \(<https://amwater.com/kyaw/contact-us>\)](https://amwater.com/kyaw/contact-us).

Rates

A charge of 25% of the applicable tariff will be applied to all water usage determined to be the result of a hidden underground leak.

Terms and Conditions

- A hidden underground leak is defined as a leak in the customer service line between the meter and the premises.
- Hidden underground leak adjustments will be granted to residential and commercial customers.
- The customer must provide a plumber's statement or list of materials showing that the leak has been repaired.
- After verification of repairs by the water company, the bill will be adjusted by comparing the usage during the leak billing period to the average usage for the past six billing periods.
- A reasonable estimate will be used in cases when six prior periods of information do not exist.
- The excess usage will be billed at the rate specified above.
- During the lifetime of a water service line only two leak adjustments will be permitted. Each adjustment may cover a maximum of two billing periods.
- Before a third adjustment can be considered, the entire water service line from the meter box to the premises must be replaced.
- Plastic pipe for repair of underground water service lines must be certified to withstand a working pressure of 160 pounds per square inch or greater.

Hidden Leak Adjustment

Name on Account *

First Name Last Name

Account Number *

Full address of where you receive service *

Street Address

Street Address Line 2

City State / Province

Postal / Zip Code

Number of Occupants *

ex: 23

Do you rent or own? *

Rent

Other (Specify)

Phone Number *

-

Area Code Phone Number

Mobile Number


-

Area Code Phone Number

E-mail *

ex: myname@example.com

Date leak/high use repaired *

mm-dd-yyyy 

Date

Provide detailed reason for request and specific action taken to correct the issue *

Evidence, such as a plumber's statement or list of materials showing that the leak has been repaired, must be submitted with request to be considered for a leak adjustment.

Date

mm-dd-yyyy 

Date

I hereby acknowledge the information submitted is true. I also understand submission of this form does not guarantee adjustment issuance.

[Submit Form](#)

[Click here to download the Leak Adjustment Request Form.](https://dnnh3qht4.blob.core.windows.net/portals/8/Custom%20Service%20and%20Billing/KYsr=b&si=DNNFileManagerPolicy&sig=bKzZ7CgRlc9VV%2BLZjdZOUKgYb9ri%2FgyqC081Eno%2B)
 [\(https://dnnh3qht4.blob.core.windows.net/portals/8/Custom%20Service%20and%20Billing/KYsr=b&si=DNNFileManagerPolicy&sig=bKzZ7CgRlc9VV%2BLZjdZOUKgYb9ri%2FgyqC081Eno%2B\)](https://dnnh3qht4.blob.core.windows.net/portals/8/Custom%20Service%20and%20Billing/KYsr=b&si=DNNFileManagerPolicy&sig=bKzZ7CgRlc9VV%2BLZjdZOUKgYb9ri%2FgyqC081Eno%2B)

The form should be completed, printed, signed and submitted to one of the following:

Fax: (859) 268-6315

Email: kawc - customeradvocacy@amwater.com (mailto:KAWC - CustomerAdvocacy@amwater.com).

Or

Mail:

Kentucky American Water
ATTN: Customer Advocacy
2300 Richmond Road
Lexington, KY 40502

Please note that this request must include a plumber's statement or list of materials showing that the leak has been repaired to be considered for a leak adjustment.



(/myaccount)

MyWater (/myaccount)

Log in to MyWater to pay your bill online, set up emergency notifications, and manage your account

On MyWater you can also:

- Pay your bill
- Check your account balance
- Turn your service on/off
- Sign up for alerts
- View your water usage
- Set up paperless billing

Log In to MyWater (/myaccount)



(/page/contact-us)

Contact Us (/kyaw/contact-us)

Phone: 1-800-678-6301

Call 24/7 for any emergency. Water emergencies don't keep business hours. For non-emergencies, call M-F 7am-7pm.



(/careers/Speed-Bump?url=https://dnnh3qht4.evoqondemand.com/corp/careers)

Careers (<https://www.amwater.com/corp/careers>)

At American Water, our employees have more than a job. They have a calling.

Search Openings (<https://career4.successfactors.com/career?company=amwater>)

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[.https://www.youtube.com/user/kyamwater](https://www.youtube.com/user/kyamwater)

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42. Explain why Water Service Kentucky does not currently have a leak adjustment policy listed in its tariff.

RESPONSE:

WSCK does not have a leak adjustment policy listed in its tariff because it has not yet gained PSC approval for such a policy.

WITNESS:

Rob Guttormsen

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43. State whether Water Service Corporation's other subsidiaries currently have leak adjustment policies. Provide the subsidiary, the policy, and a statement to whether it is similar to what Water Service Kentucky is proposing.

RESPONSE:

Yes, Utilities Inc. of Florida has a leak adjustment policy. Please see the attached file entitled "Response to Staff DR 2.43 - UIF Courtesy Leak Adjustment Policy". The spirit of the policies are the same however UIF's policy is more restrictive in that it does not give credits for less than \$50.00.

WITNESS:

Rob Guttormsen



Utilities Inc. of Florida (UIF)

Courtesy Leak Adjustment Policy

Purpose: The purpose of this policy is to provide a methodology that UIF staff will follow in consideration of a request for adjustment to the water account balance of a residential customer who has experienced excessive or abnormal consumption of metered water. The excessive use of metered water must have occurred because of conditions beyond the normal and reasonable control of the customer or other parties responsible for the use, care and maintenance of fixtures and devices that are a part of the customer's water system.

Although there is no obligation on the part of UIF to adjust accounts when water consumption has been accurately metered, it is the desire of UIF to encourage customers to make prompt and permanent repairs as needed and to show consideration for unusual circumstances by making allowance when abnormal billing charges occur.

Customer Responsibility: It is the customer's responsibility to manage the use of water on their premises and to take prompt action to stop the unintended use of water. In addition, the customer is responsible for making arrangements to repair, or have repaired, the fixture or device causing the water loss in an expedient manner.

The customer must submit the completed Courtesy Leak Adjustment Request Form to UIF that documents and validates the abnormal situation or circumstance that resulted in the loss of water. The customer must describe the cause of the water loss, when the problem was discovered, what action was taken to stop the loss of water, and the arrangements made for repairs.

When the repair is completed, the customer must provide a copy of the plumber's bill, or if the repair was performed by the customer, a statement of materials purchased and a copy of the receipt for those materials.

No adjustment will be made to the quantity of water consumed, as the customer is responsible for all water that passes through the meter, but adjustments may be made to the rate applied to the unexpected water loss in accordance with this policy.

Condition: UIF will consider a leak adjustment request using the following criteria:

- 1. Requested adjustment amounts must be \$50.00 or greater. No adjustments will be made for less than \$50.00**
2. Only significant leaks will be eligible for a leak adjustment. A "significant leak" is defined as a leak that results in a loss of gallons estimated to be a minimum of two times the average monthly gallons consumed as calculated under the section entitled "Adjustment Procedure" found below.

3. The customer account must be paid in full and kept current until the leak adjustment is reviewed and a decision is made. If necessary, the customer may contact a Customer Service Representative to make a payment arrangement.
 4. The customer must submit a completed Courtesy Leak Adjustment Request Form provided by UIF.
 5. The billing period adjustment shall be limited to one (1) month in cases of adjustments for malfunctioning toilets, indoor faucets and other visible, easily accessible fixtures. If leaks such as from an irrigation system or other exterior leak occurred over two months, UIF will consider a two-month leak adjustment based on the circumstances of the leak and particularly how and when the leak was discovered and how quickly the leak was repaired.
 6. **Not more than one (1) such adjustment will be made for any given twenty-four (24) month period per account at that location.**
 7. No adjustment shall be made when the request for the adjustment is received more than ninety (90) days after the billing date of the bill to be adjusted.
 8. Adjustments will not normally be allowed for water loss arising from carelessness, negligence or lack of due diligence on the part of the customer, as it is the customer's responsibility to promptly discover and stop the loss of water. Non-eligible requests include unoccupied dwellings, "seasonal occupancy" * and any new construction of a residence or business within one year of completion which offers recourse under a warranty.
 - "Seasonal occupancy" is defined as an account that has had a minimum of two (2) months of no consumption on the account and the water meter is fully functional.
 9. Only accounts that are individually metered are eligible for an adjustment.
 10. In the event the customer seeks additional relief through the filing of a complaint with the Florida Public Service Commission and/or the Office of Public Counsel, the proffered courtesy leak adjustment will be withdrawn.
-

Adjustment Procedure:

For Water Accounts

1. Adjustments will apply only to the third tier billing rate in effect at the time of the adjustment request. No adjustments will be considered for consumption in the first and second tiers. Third tier consumption, beyond the average monthly usage, will be calculated at the second tier rate for consideration as the adjustment amount.
2. A leak adjustment will be calculated by determining the average monthly consumption based on the prior twelve months usage.
3. The average monthly consumption will then be subtracted from the billed monthly consumption covering the period of the leak. The resulting quantity is referred to as the "overage amount."
4. The overage in gallons (leaked water over the average monthly usage) will be applied to the second tier rate.

5. The resulting amount will be a courtesy leak adjustment and credited to the customer's account.
6. If a twelve-month average is not available such as with a new customer, the average consumption will be based on the 12-month history for service provided at that location.
7. For seasonal customers, the adjustment will be calculated based upon the corresponding month(s) from the year immediately preceding, where no water loss or meter malfunction was recorded during the corresponding month(s).

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44. In developing its proposed leak adjustment policy, explain in detail whether Water Service Kentucky discussed the proposed policy with persons not employed by the utility (e.g., Kentucky Rural Water Association officials, a professional engineer, or Kentucky Division of Water officials). If so, state the input or influence of the outside source.

RESPONSE:

The Company did not discuss the proposed policy with persons not employed with the utility.

WITNESS:

Rob Guttormsen

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45. Describe what actions, if any, Water Service Kentucky took to investigate potential customer interest in the proposed leak adjustment policy.

RESPONSE:

Water Service Kentucky did not take action to investigate customer interest in its proposed leak adjustment policy before proposing the policy in this rate case.

WITNESS:

Rob Guttormsen

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46. Provide the minutes of each meeting of the Water Service Kentucky Executive Board, from the 18 months prior to the filing of the rate application, in which the proposed leak adjustment policy was discussed.

RESPONSE:

No Executive Board meeting minutes exists in which the proposed leak adjustment policy was discussed.

WITNESS:

Rob Guttormsen

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47. Explain whether any Water Service Kentucky customers requested a policy similar to the proposed leak adjustment policy. If so, state the number of customers who have requested such a policy and provide copies of all documents (such as correspondence, internal memos, minutes of meetings, or employee notes) in which these requests are discussed.

RESPONSE:

No WSCK customers formally requested a policy similar to the proposed leak adjustment policy in this rate case.

WITNESS:

Rob Guttormsen

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48. Provide the number and dollar amounts of annual leak adjustments that Water Service Kentucky allowed in the prior five-year period.

RESPONSE:

Please see the attached file entitled "Response to Staff DR 2.48 - Leak Adjustments 2015-2019".

WITNESS:

Rob Guttormsen

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49. Provide a detailed example and sample bill of how Water Service Kentucky's proposed leak adjustment policy would be applied.

RESPONSE:

Please see the attached file entitled "Response to Staff DR 2.49 - Leak Adjustment Example".

WITNESS:

Rob Guttormsen

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50. Provide supporting documentation that 25 percent of the applicable rate for leak adjustments is enough to fully recover the cost of water that Water Service Kentucky purchases.

RESPONSE:

No such documentation exists, WSCK modeled its policy after KAWC's leak adjustment policy.

WITNESS:

Rob Guttormsen

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51. Refer to the Application, Exhibit 5, Dickson Testimony, Exhibits AD-1 through AD-8. Provide copies of each of these Exhibits in an Excel spreadsheet format with all columns and rows accessible and all formulas unprotected.

RESPONSE:

Please see the attached file entitled "Response to Staff DR 2.51 – Excel Exhibits Dickson" for the spreadsheet format of these exhibits with all columns and rows accessible and all formulas unprotected.

WITNESS:

Andy Dickson, Senior Financial Analyst

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52. Provide Exhibit AD-7, Schedule F, Revenues at Proposed Rates without the low-income rate included.

RESPONSE:

Please see the attached file "Response to DR 2.52 – AD-7 No Low Income Rate".

WITNESS:

Andy Dickson, Senior Financial Analyst

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53. Explain why Water Service Kentucky did not perform a cost of service study in order to examine the cost allocation and calculation of its proposed rates.

RESPONSE:

WSCK elected not to perform a cost of service study for this rate case for several reasons. Performing a study imposes additional rate case expense that customers will be the ultimate payer of, which the company is sensitive to. In particular, we are aware of subsets of our customers who are particularly sensitive to increases in rates, and in that spirit, we have elected for an across-the-board foundation for our increase to rates, with the notable exception of our proposed low-income rate. Additionally, our last cost of service study was completed recently, in our 2018 case, where the commission approved unitized rates across all of our Kentucky service areas, so the Company believes the merits of an additional study did not outweigh the additional rate case expense. Thus, an across-the-board increase is appropriate. Our cost for the cost of service study in the 2018 case was approximately \$18,000, which is an expense that our customers have been spared the burden of as a result of our approach for this case.

WITNESS:

Andy Dickson, Senior Financial Analyst

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54. Refer to the Application, Exhibit 5, Dickson Testimony, page 6. Water Service Kentucky states that it is proposing a wholesale rate of \$2.214 due to the presence of an interconnect with the city of Pineville.

a. State the last known time that this interconnect was used to sell water to the city of Pineville and the rate that was being charged.

b. Provide the most recent 12-months sales in gallons that were sold to the city of Pineville using this interconnect.

RESPONSE:

a. April 16, 2020, \$2.00 per thousand

b. 604,848 gallons

WITNESS:

Stephen Vaughn

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55. State whether or not the city of Pineville has approached Water Service Kentucky about the use of this interconnect in order to purchase water from Water Service Kentucky. If so, provide copies of all documents, such as, correspondence, internal memos, minutes of meetings, or employee notes, in which the use of the interconnect is discussed. Explain why Water Service Kentucky is proposing this wholesale rate if they are not expected to use the interconnect to sell water to the city of Pineville.

RESPONSE:

On April 14, 2020, Stephen Vaughn received a phone call from Russell Greene, Pineville Utilities Commission employee, regarding purchasing water from WSCK due to a power outage. Pineville Utilities Commission does not have a backup generator at the water treatment plant, and had been advised by Kentucky Utilities that it would take quite a while before they could have power restored. Previously, PUC had purchased water from WSCK from 1/24/12 through 2/17/12, when they lost half of their treatment capacity of their plant.

WITNESS:

Stephen Vaughn

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56. In Case No. 2004-00103,⁹ Kentucky-American proposed a low-income rate discount for customers whose annual income was equal to or below the federal poverty level. In its final Order the Commission stated:

Based upon our review of the proposed discount, we find insufficient support to establish a new customer class based solely on customer income. None of the proponents of the proposed discount have provided any convincing empirical data to demonstrate that Kentucky-American's cost of providing water service to residential customers whose annual income is equal to or less than the national poverty level. Discount proponents have also failed to provide any statutory or decisional authority for the proposition that customer income levels may constitute a reasonable basis to distinguish customer for cost-of-service purposes. In the absence of both empirical evidence and statutory or decisional legal authority, we must conclude the proposed discount is a unreasonable preference or advantage to a class of customers for "a like and contemporary service under the same or substantially the same conditions" and is one that KRS 278.170(1) prohibits.

Based on the Commission's previous ruling in this case, explain in detail why Water Service Kentucky should be granted a low-income rate discount.

RESPONSE:

WSCK is not seeking the establishment of a new customer class, but instead seeking an intraclass identifier with which we can ensure that our customers are able to afford water service. We are not making the argument that our cost to provide water service to these customers is lower, but instead that the burden imposed on these customers is disproportional to that of our average customers. The U.S. EPA has published some information surrounding the affordability of water and sewer service, which the AWWA

⁹ See Case No. 2004-00103, *Adjustment of the Rates of Kentucky-American Water Company* (Ky. PSC Feb. 28, 2005) page 82.

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has expounded upon in their Affordability Assessment Tool. The below links will bring you to those resources, and we have attached a .pdf of the AWWA's Affordability Assessment Tool (entitled "Response to Staff DR 2.56 – AWWA Affordability Assessment Tool"):

<https://www.epa.gov/sustainable-water-infrastructure/pricing-and-affordability-water-services>
<https://www.awwa.org/Portals/0/AWWA/ETS/Resources/AffordabilityAssessmentTool.pdf>

The values presented in the Affordability Assessment Tool can be paraphrased as: no water bill should exceed 2.5% of median household income in a service area if that bill is to be considered affordable.

The nature of this metric is that, as median household income changes, so does the perceived affordability of services. An area with higher median household income can withstand a higher cost to serve. Beyond this, the median metric is used to represent the typical customer served. We are aware of a subset of our customers for whom water service is proportionally less affordable – they are easily identifiable by using federal poverty level thresholds. We know that the same bill for a household making under \$30,000 is more onerous than the same bill for a household making \$100,000. Dr. Manuel Teodoro further expounds on bills for similar service can disproportionately impact customer groups by measuring affordability with the metric of hours worked at minimum wage. We have attached a .pdf of Teodoro's work (entitled "Response to Staff DR 2.56 – M. Teodoro"), which can also be found at the below link:

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<http://mannyteodoro.com/wp-content/uploads/2014/03/Teodoro-JAWWA-2018-affordability-methology.pdf>

Our proposed low income rate is not for a luxury good – we have limited the lower rate to our estimate of essential indoor usage, at 3,000 gallons per month. These are not individuals who are watering their yards during peak hours, or who are filling pools – they are families working to sustain themselves. As a provider of essential service, we take our responsibility to our community seriously. We were one of the first private utilities to voluntarily halt all disconnects during the COVID-19 pandemic, and our low income rate is a continuation of our commitment to our customers.

The spirit of cost of service is to develop fair, just, and equitable rates. It is reasonable to conclude that a fair rate considers a customer's ability to pay. WSCK's proposed low income rate maintains the financial health of our system, and enhances the ability of our customers to pay “without unreasonable prejudice or disadvantage”, as dictated by KRS 278.170(1).

There are a number of regulatory bodies that have made such decisions, and provide evidence of statutory of decisional legal authority. The attached piece from the Office of Legislative Research of Connecticut goes through the discount rate programs in several states. We have attached a .pdf to our response for ease of access (entitled “Response to Staff DR 2.56 – OLR CT”), in addition to the below link:

<https://www.cga.ct.gov/2018/rpt/pdf/2018-R-0051.pdf>

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Further, the federal government has produced programs such as LiHEAP (low income home energy assistance program) for the very purpose of improving the equitability of utility rates for low income households. This is not seen as an “unreasonable preference or advantage to a class of customers”, and nor should our proposed low income rate.

Below is a link to the LiHEAP website for reference:

<https://www.acf.hhs.gov/ocs/programs/liheap>

WITNESS:

Andy Dickson, Senior Financial Analyst

Affordability Assessment Tool for Federal Water Mandates



Prepared for

The United States Conference of Mayors

The American Water Works Association

The Water Environment Federation

by

Stratus Consulting, Boulder, Colorado

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and Water Environment Federation.

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Chapter 1: Assessing the Affordability of Federal Water Mandates provides an overview and critique of EPA's current approach to assessing affordability and points toward a number of alternative ways to consider the issue.

Chapter 2: Guidance for Developing EPA's Residential Indicator provides detailed guidance for completing EPA's preliminary screening analysis for affordability.

Chapter 3: Primary Data Sources for Developing Alternative Measures of Household Affordability describes the data sources that can be used to develop alternative indicators and measures of household affordability for individual communities.

Chapter 4: Guidance for Analyzing Socioeconomic Indicators of Household Affordability for Your Community focuses on the analysis of socioeconomic indicators that can help to provide a more complete picture of economic need within your community.

Chapter 5: Guidance for Developing Alternative Measures of Household Affordability provides guidance for developing specific household affordability metrics.

Chapter 6: Guidance for Assessing Utility Financial Capability: EPA's Secondary Screening Analysis and Alternative Measures provides specific guidance for analyzing utility financial capability, including EPA-suggested metrics and alternative approaches.

Bibliography

Workbook 1: EPA Guidance for Estimating the RI

Workbook 2: Accessing ACS Data at the Community, National, and Census-Tract Levels

Workbook 3: Socioeconomic Indicators

Workbook 4: Developing Alternative Metrics

Workbook 5: EPA's Secondary Screening Analysis

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List of Acronyms and Abbreviations

ACCRA	American Chamber of Commerce Research Association
ACS	American Community Survey
AFF	American Fact Finder
AWWA	American Water Works Association
BLS	Bureau of Labor Statistics
CES	Consumer Expenditure Survey
COLI	Cost of Living Index
CSO	Combined Sewer Overflow
CPH	cost per household
CPI	consumer price index
CWA	Clean Water Act
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
FCI	Financial Capability Indicators
FMPV	fair market property value
GIS	geographic information systems
GO	general obligation
IPMS	Integrated Public Use Microdata Series
IPPP	Integrated Planning and Permit Policy
LAUS	Local Area Unemployment Statistics
MHI	median household income
MOE	margin of error
O&M	operations and maintenance
PUMA	Public Use Microdata Area
RI	Residential Indicator
SDWA	Safe Drinking Water Act
SPM	Supplemental Poverty Measure
USCM	U.S. Conference of Mayors
WEF	Water Environment Federation
WQS	water quality standards
WWT	wastewater

Chapter 1

Assessing the Affordability of Federal Water Mandates

Communities and the water agencies that serve them have limited resources, so the investments they make need to address the most important risks to public health and the environment and deliver maximum benefits at a cost that is affordable. This Water Mandates Affordability Assessment Tool (Assessment Tool) is the result of a collaborative effort by the United States Conference of Mayors (USCM), the American Water Works Association (AWWA), and the Water Environment Federation (WEF). Its purpose is to raise issues, provoke discussion and provide alternative ways to view the affordability of federal water mandates in any given community. It does not represent the official policy of the sponsoring organizations or their members.

This chapter summarizes the U.S. Environmental Protection Agency's (EPA's) methods for analyzing the affordability of federal mandates stemming from the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA). It describes the Agency's current policies, offers a critique, and identifies a number of alternatives that might be more suitable for analyzing the affordability of water and wastewater mandates on American communities. Finally, this chapter notes the importance of weighing benefits as well as costs when considering federal water mandates. As the reader will note, the term "water" is used throughout the Assessment Tool to mean drinking water, wastewater, and stormwater, unless otherwise noted.

Background

Investment to meet federal water and wastewater requirements can impose significant financial hardships on households, businesses, and the broader communities in which they are located. When communities face large—and sometimes multiple—federal water mandates, the combined impact of the required expenditures can be extremely expensive for everyone in that community who pays a water or wastewater bill (most consumers get one combined bill for water and wastewater services). For the utility, the cumulative suite of required investments not

only strains fiscal capacity but may also displace other important investments, including critical but nonmandatory capital improvement and infrastructure renewal projects. For the greater community, mandatory investments may also squeeze out other important priorities, such as social safety net programs and economic development efforts. For the residents and businesses in affected communities, the capital and operating expenses associated with federal mandates are often reflected in water and wastewater bills that must grow faster than household incomes and the general rate of inflation. Very significant affordability challenges are often created, particularly for lower-income households.

With the intention of providing a mechanism for relieving undue economic stress in the face of wastewater-related mandates, EPA has developed "affordability" criteria to indicate when such mandates would cause substantial and widespread economic distress in the community. In the case of undue economic stress caused by wastewater requirements, the Agency might be willing to exercise some flexibility in the mandate by allowing a longer timeframe to achieve compliance or by relaxing compliance standards. The affordability of drinking water requirements is handled differently and can—at least in theory and case-by-case—affect the kind of technology that must be deployed in some small communities.

If EPA affordability criteria functioned properly, the economic hardship imposed on lower-income households might be alleviated in many communities. Unfortunately, there are several critical limitations to how EPA defines affordability and applies its assessment criteria. This is due in part to EPA's reliance on metrics such as median household income (MHI), which is highly misleading as an indicator of a community's ability to pay. As a result, regulatory relief is not provided in many communities where substantial and widespread economic hardships are indeed being created.

EPA's Two-level Affordability Screening Analysis for Wastewater and Combined Sewer Overflow (CSO) Controls

In 1995, EPA published its first set of affordability-related guidelines: The Interim Economic Guidance for Water Quality Standards. The 1995 Guidance contains a detailed discussion of the analyses a municipality should undertake to evaluate the economic impact of complying with water quality standards (WQS) under the CWA. In 1997, EPA published Guidance for Financial Capability Assessment and Schedule Development using a nearly identical approach to assess whether an extended compliance schedule might be granted to a community facing affordability problems. The analyses put forth in these guidance documents are divided into two parts:

1. The preliminary screen examines affordability using a factor called the Residential Indicator (RI). The RI weighs the average per household cost of wastewater bills relative to median household income in the service area. Ultimately, an RI of 2% or greater is deemed to signal a “large economic impact” on residents, meaning that the community is likely to experience economic hardship in complying with federal water quality standards.

2. A secondary screen examines metrics related to the financial capability of the impacted community. This screen applies a Financial Capability Indicator (FCI) reflecting the average of six economic indicators. Those indicators include the community’s bond rating, its net debt, its MHI, the local unemployment rate, the service area’s property tax burden, and its property tax collection rate. Each indicator is assigned a score of 1 to 3, based on EPA-established benchmarks. Lower FCI scores imply weaker economic conditions and thus an increased likelihood the mandate would cause substantial and widespread economic impact on the community or service area.

The results of the RI and the FCI are ultimately combined into an overall rating based on EPA’s Financial Capability Matrix. This rating is intended to demonstrate the overall level of financial burden imposed on a community by compliance with CWA mandates.

EPA's Assessment of Affordability for Drinking Water Regulations

Whereas EPA’s consideration of affordability for wastewater and CSO compliance is aimed at assessing an individual community’s ability to comply with regulatory mandates and schedules, EPA’s consideration of affordability in the context of potable water supply is limited to assessing the national-level affordability of regulatory options for small communities. EPA does not consider the affordability of

drinking water requirements in any manner that pertains to individual utilities (even small ones), or to the category of medium and large utilities.

EPA has stated that it would consider a National Primary Drinking Water Regulation to be unaffordable to small communities (those with populations under 10,000) if the standard would result in a household drinking water bill in excess of 2.5% of the national MHI in such communities. In this context, MHI is evaluated based on all small community water systems collectively (i.e., MHI is not considered for any individual utility, but for all small utilities lumped together). To date, EPA has never determined that a drinking water regulation is unaffordable for small systems. If EPA were to make such a finding, it would be required to identify technologies for small systems that might not result in meeting a particular drinking water standard but are found to protect public health. Then, on a case-by-case basis, states may approve the use of such affordable small system technologies (called a variance) or approve an extended deadline for compliance (called an exemption). States cannot approve both a variance and an exemption for the same standard in the same community. Variances are subject to review and approval by EPA. States have allowed very few variances and exemptions because they can be difficult and expensive to issue.

EPA’s stated view on potable water—that it is affordable if it costs less than 2.5% of small community MHI—influences the perceived affordability of combined water and wastewater bills. Specifically, it is commonly inferred that EPA would consider a combined annual water and wastewater bill of less than 4.5% of MHI to be affordable (2.5% for water, plus 2% for wastewater services and CSO controls).

Limitations of EPA's Preliminary Screening Approach

A central issue in assessing affordability of federal water mandates is the reasonableness of community-wide MHI as a primary yardstick. MHI can be a highly misleading indicator of a community’s ability to pay for several reasons.

- MHI is a poor indicator of economic distress and bears little relationship to poverty or other measures of economic need within a community. For example, consider an analysis of MHI and poverty data for the 100 largest cities in the United States. It shows that for 21 cities identified as having an MHI within \$3,000 of the 2010 national MHI (\$50,046), there is no discernible relationship between MHI and the incidence of poverty. Statistical analysis confirms that the correlation between MHI and poverty among these cities is not meaningful, with a correlation coefficient (r) of 0.024. Indeed, within these 21 cities, the poverty rate ranges from a low of 14.1% to a high of 23.3%.

- MHI does not capture impacts across diverse populations. In many cities, income levels are not clustered around the median, but are spread over a wide income range or concentrated at either end of the income spectrum. This tendency for the income distribution to spread away from the middle has been increasing and may well continue to increase in the future, making MHI an even less meaningful metric. In addition, income distribution and other economic measures can vary widely across different districts and neighborhoods within a city. Thus, the economic hardship associated with increasing water and wastewater bills can be concentrated in a few lower-income neighborhoods. This will compound the economic hardship within the community and may raise issues of environmental justice (EJ). These impacts are not captured with the use of service area MHI as a sole indicator.

- MHI provides a “snapshot” that does not account for the historical and future trends of a community’s economic, demographic, and/or social conditions. This is particularly relevant in areas that may be experiencing economic declines or population losses (which will result in the costs of water and wastewater programs being spread across fewer residents). Without consideration of these and other economic and demographic trends, the affordability determination will overestimate the ability of residents to tolerate rate increases over time.

- MHI does not capture impacts to landlords and public housing agencies. Many renters do not receive water bills because water and wastewater service is included in the cost of rent. The same is true of many residents in public housing. In cities with a high percentage of renters and/or public housing residents, use of MHI and RI does not capture impacts to landlords and public housing agencies, which must often absorb the cost of increased water and wastewater bills. In many cases, higher water bills mean that public housing authorities will be required to reduce the number of needy renters they serve, unless there can be offsetting increases in public housing budgets.

- The RI does not fully capture household economic burdens. Economic burdens are commonly measured by comparing the costs of particular necessities to available household income. The RI is such a measure in that it is used to evaluate the economic burden from water bills by comparing those bills to MHI. However, there can be situations where the economic burdens in a community are substantially different from those typically associated with its RI. For example, a community may experience unusually high costs of basic necessities or may have a distribution of household income that differs significantly from that in most communities. In these cases, the standard application

of EPA’s RI would be insufficient on its own to distinguish between higher and lower levels of economic impact.

Alternative Household Affordability Metrics: Moving Beyond EPA’s Criteria

Given the limitations of the RI, and in particular the use of MHI as a primary indicator of household affordability, it is important to consider the use of alternative metrics to gauge the affordability of federal water, wastewater, and stormwater-related mandates. For example, impacts on customer bills can be assessed as follows:

- Across the income distribution. Given the relatively large percentage of households in the lower portions of the income distribution in many cities, it is important to examine the effect of rising water bills across the entire income distribution—and especially at the lower end—rather than simply at the median. For example, a key indicator could include the analysis of average water and wastewater bills as a percentage of the household income for each income quintile. Table 1-1 demonstrates that this percentage would be much higher for lower income quintiles in Atlanta compared to national levels (e.g., the income level that defines the upper end of the lowest quintile—lowest 20% of income earners—in Atlanta is \$12,294; this compares to \$20,585 nationally).

Table 1-1 Household Income Quintile Upper Limits in Atlanta, Georgia, and the United States (2011\$)

	Atlanta, Ga.	United States
Lowest quintile	12,294	20,585
Second quintile	31,873	39,466
Third quintile	59,043	63,001
Fourth quintile	104,233	101,685
Lower limit of top 5%	246,335	187,087

Source: U.S. Census Bureau American Community Survey, 2012.

EPA’s “Guidance for Preparing Economic Analyses” (240-R-00-003) recognizes the legitimacy of assessing impacts to all households across the income distribution, though EPA has not provided information on how such analyses have been conducted in the past or how they’ve been used in enforcement actions.

- Across household types. Average water and wastewater bills can be examined as a percentage of income for potentially vulnerable populations (e.g., renters and elderly households).

- Across neighborhoods or similar geographic units, such as Census tracts, or Public Use Microdata Areas (PUMAs). Poverty rates and households located in poverty areas can be considered to identify portions of communities that are economically at risk. Alternative measures of poverty, such as the Supplemental Poverty Measure (SPM) recently developed by the U.S. Census Bureau, can be especially useful in this respect. The analysis could capture affordability issues in particular parts of a community or service area that may be masked when looking at the area as a whole.

Other indicators of economic need and widespread impacts can also be considered for the community or parts of the community². These might include:

- The unemployment rate.
- The percentage of households receiving public assistance such as food stamps or living below the poverty level.
- The percentage of households meeting Home Energy Assistance Program requirements.
- The percentage of customers eligible for water affordability programs.
- The percentage of households paying high housing costs—for example the percentage of households with housing costs in excess of 35% of income.
- Other household cost burdens such as nondiscretionary spending as a percentage of household income for households within each income quintile (Rubin 2003).

EPA's Secondary Screening Analysis: Limitations and Alternative Indicators

Just as the RI falls short of its intended purpose, so too does the FCI. The FCI that makes up EPA's secondary screening analysis does not adequately reflect a community's ability to finance investments associated with federal water mandates. This measure fails to fully capture financial capability because:

- EPA uses property tax revenues as a percentage of full market property value (FMPV) as its sole measure of local tax effort. Focusing solely on property taxes—while ignoring income, sales, business taxes, and user fees typically charged for city services—inevitably understates the tax

effort in cities that rely on multiple forms of taxation. As an alternative, EPA should allow municipalities to use total local tax and fee revenues as a percentage of gross taxable resources. This would provide a better measure of the extent to which a municipality is already using the full range of its taxable resources.

- The secondary screening analysis includes measures of local MHI and unemployment levels compared to the national average. By focusing on how these measures compare with national levels, EPA fails to acknowledge the profound impact of the absolute levels themselves. For example, if the national unemployment rate is 9%, a community with an unemployment rate of 10% is considered by EPA as having only a “mid-range” unemployment problem. In fact, a community with a 10% unemployment rate is all-but-certain to be experiencing significant distress, regardless of the national average.

o In addition to supplemental measures for MHI (as previously described), EPA should consider a metric that compares a municipality's current unemployment rate with the long-term state and national average (the national average was 5.8% between 1991 and 2010). Use of the long-term state and national averages as a benchmark would provide a more insightful socioeconomic indicator than a single current number. A community's long-term unemployment rate (for example, the share of the labor force continuously unemployed for one-half year or more) could also be evaluated.

o In addition to broadening the range of labor market indicators it considers in assessing local financial capabilities, EPA should consider other measures of local economic distress, such as foreclosure rates. At the national level, foreclosure rates rose from 5.8 per 1,000 households in 2006 to 22.2 per 1,000 in 2010 (Office of the State Comptroller, 2011). In many communities, high foreclosure rates have had a significant impact on the financial condition of local governments and their ability to finance capital improvements.

- The FCI does not take into account the recent deterioration of many local governments' ability to finance major capital improvements, as evidenced in municipal capital markets. EPA should consider adding a measure of local government revenue growth or decline to the FCI matrix,

The SPM includes changes in the measure of available household resources (e.g., using after-tax income instead of pretax income and taking into account income received through food stamps and other forms of public assistance) and also recognizes some nondiscretionary expenses that such households bear. The SPM also adjusts for different housing status (e.g., renters versus owners). Additional details can be found in the U.S. Census Bureau's Supplemental Poverty Measure (2011a).

² EPA's 1995 Interim Economic Guidance for Water Quality Standards provides a good list of these indicators, and also includes economic losses, impacts on property values, decreases in tax revenues, and potential for future job losses, among others.

with a decline in real revenues over some period taken as a sign of weakened financial capacity.

- EPA's methodology for assessing municipalities' financial capabilities takes into account formal debt burden, but it does not consider what for many cities is an even greater liability: unfunded pension and health care commitments to retirees. These are generally not reflected in formal debt.
- Community or utility revenues are not considered in the secondary screening analysis. This creates a significant weakness, especially in areas that are experiencing economic difficulties, delinquency in water and wastewater payments, declining water usage, shrinking revenues, or a growing number of older customers on fixed or declining incomes. EPA should consider the addition of more appropriate measures of revenue collection, such as current delinquency rates, the agency's ability to enforce collection, and its likelihood of recovering these costs.
- EPA's secondary screening analysis does not take into account the fact that many communities have a legal debt ceiling. Debt limitations have the potential to severely limit a community's ability to finance unfunded mandates absent an extended schedule.
- Finally, EPA does not consider the longer-term needs facing many municipalities for reinvestment and renewal of water and wastewater infrastructure due to the current system's age and condition. As documented by AWWA's Buried No Longer report (covering buried drinking water infrastructure only), these needs add up to at least \$1 trillion over the next 25 years. Wastewater needs are at least as great, not counting CSO costs. The need for this investment is real and urgent.

Weighing the Benefits of Additional Mandate-Driven Expenditures

Federal Clean Water Act and the Safe Drinking Water Act mandates are intended to provide better public health protection, water quality enhancements, and other benefits. However, not all drinking water and wastewater mandates are the same. Some provide greater benefits than others, or provide benefits sooner than others, or generate benefits to different groups of people or ecosystems.

When communities face expensive water mandates and associated deadlines, the impact of the required expenditures can be extremely difficult for all who pay water bills, but particularly for those with lower incomes. In such communities, the expected benefits of the mandate should be carefully weighed against:

- Compliance deadlines (which might be amended)
- Permit limits (which might be adjusted)
- Required compliance technologies and strategies (some of which are more expensive than others)
- Other factors that influence the magnitude and timing of required investments

When the costs of meeting a regulatory mandate are high, the affordability implications and the benefit of the activity should each be evaluated in concert with the other. The most important questions include:

1. Are the added benefits of more rapid and/or stringent mandates warranted given the added costs and adverse impacts on affordability, when compared to less stringent, perhaps less expensive alternatives?
2. Are projects with lower public health or environmental benefits driving out projects that might be of greater value to the community or the nation?
3. Are the households that will realize most of the benefits different than those who will bear most of the costs?
4. Are those bearing the greatest burden economically disadvantaged and thus worthy of environmental justice consideration?

EPA's proposed Integrated Planning and Permit Policy (IPPP) provides one potential avenue by which the costs and benefits of all federal water mandates could be addressed. The IPPP process could be used to set priorities, make adjustments in requirements, and set reasonable timetables. Such adjustments would help ensure that local resources are used to secure the greatest public health and environmental benefits at an affordable cost. Moving the IPPP process forward as suggested offers important potential advantages:

- Comparing the environmental, social, and financial benefits of all water-related obligations would allow municipalities to develop priorities that reflect the totality of trade-offs and commitments facing the community.
- Considering all water-related obligations together, and assessing financial capability in light of total water-related obligations, would focus local resources where the community will get the greatest total environmental, public health, and other benefits.

It should be noted that EPA does not include drinking water mandates in the Integrated Municipal Stormwater and

Wastewater Planning process, even though drinking water investments must be carried on the same customer bill as investments needed to comply with wastewater and CSO mandates. The USCM, AWWA, and WEF have recommended that EPA include consideration of drinking water investments in the Integrated Planning and Permit Program. The program should also consider necessary but nonmandatory investments in the ongoing rehabilitation of water and wastewater infrastructure.

Chapter 2

Guidance for Developing EPA's Residential Indicator

This chapter provides an overview of the methods outlined in EPA's 1997 Guidance for Financial Capability Assessment and Schedule Development (U.S. EPA, 1997), which EPA uses for completing the preliminary screening analysis (i.e., calculating the RI). More specific instructions and worksheets developed by EPA for this purpose are included in this Assessment Tool as Workbook 1, an Excel spreadsheet.

EPA's RI is intended to provide a measure of the financial impact of current and proposed wastewater treatment (WWT) and CSO controls on residential users. The calculation of the RI involves the following steps:

- Determine the average annual cost per household (CPH) associated with WWT- and CSO-related programs and services in a given community. CPH is based on the total costs for these programs, the percentage of wastewater flow attributable to residential users, and the number of households in the service area, as further explained below.
- Determine the MHI for the service-area based on data from the U.S. Census Bureau.
- Divide the CPH by the service area MHI to calculate the RI.
- Compare the RI to financial impact ranges established by EPA to determine whether unfunded mandates will produce a possible high, mid-range, or low financial impact on residential users.

It is important to note that although EPA's 1997 Guidance was developed within the context WWT and CSO controls, this Assessment Tool is focused on the affordability of both water supply and WWT (including CSO and stormwater) programs. For comparison purposes, water and wastewater utilities can calculate the average annual CPH for both types of services using the methodology outlined below.

Step 1: Develop the CPH Estimate

In its 1997 Guidance, EPA outlines the following steps for determining the average annual CPH of existing and proposed WWT and CSO control costs:

- Determine total WWT and CSO (and stormwater) costs by adding together the current costs for existing WWT operations and projected costs for any proposed controls.
 - Current WWT costs are defined as “current annual wastewater operating and maintenance (O&M) expenses (excluding depreciation) plus current annual debt service (principal and interest)” (1997 Guidance, p. 12).
 - EPA Guidance states that O&M expenses and debt service costs should also be estimated for all proposed projects and adjusted to current year dollars (i.e., deflated) using the average annual national Consumer Price Index (CPI) inflation rate for the last five years. Workbook 1 includes specific instructions for applying the CPI and determining annualized debt service costs.
- Calculate the residential share of the total WWT and CSO costs.
 - The residential share of total costs is computed by multiplying the percent of total wastewater flow (including infiltration and inflow) attributable to residential users by the total costs.
- Calculate the CPH by dividing the residential share of the total WWT and CSO costs by the number of households within the service area.

The sources of data necessary for calculating CPH will vary somewhat by utility/municipality. Table 2-1 provides a summary of typical data sources.

Step 2: Determine Service-area MHI

The second step in developing the RI is to determine MHI for your service area (or general service area boundaries if the service area does not exactly follow Census-designated areas). In its 1997 Guidance, EPA recommends using the MHI from the latest census year and adjusting it to current year dollars using the average CPI inflation rate. However, the Decennial Census no longer includes MHI as a statistic. MHI is reported annually as part of the U.S. Census Bureau American Community Survey (ACS), which can be accessed via the American FactFinder (AFF) website at factfinder.

Table 2-1 Typical data sources for calculating EPA's Cost per Household

Component of CPH	Data source
Current annual WWT, CSO, or stormwater costs	Utility/municipality financial reports (in some states these are available from central records kept by the state auditor or other state offices)
Projected annual WWT, CSO, or stormwater costs	Utility/municipal planning documents
CPI	Bureau of Labor Statistics (USDOL BLS, 2012)
Percent of total wastewater flow attributable to residential users	Utility billing data
Number of households in service area	Utility/municipal planning documents, U.S. Census Bureau ACS single-year estimates for most recent year ^a

aU.S. Census Bureau ACS data can be used if service area boundaries follow Census divisions (e.g., county, city, Census tracts, metropolitan statistical areas). Chapter 5 provides additional detail on ACS data.

census.gov/faces/nav/jsf/pages/index.xhtml. Additional detail and instructions for accessing ACS data are included in chapter 5, as well as in Workbooks 2, 3, and 4 that are included with this Assessment Tool.

EPA's 1997 Guidance also states that if the service area includes more than one jurisdiction, a weighted MHI should be developed based on the number of households within each area. In addition, if MHI is unavailable for a specific service area or jurisdiction, EPA suggests that the surrounding county's MHI may be sufficient.

Step 3: Calculate and Analyze the RI

To calculate the RI, the annual CPH is divided by the MHI of the service area. The RI indicator is then compared to financial impact ranges established by EPA to determine whether unfunded mandates will produce a possible high,

mid-range, or low financial impact on residential users. In the context of wastewater, CSO, and stormwater controls, the RI is categorized as low if it is less than 1%, mid-range if it is between 1% and 2%, and high if it is greater than 2%. For drinking water, an RI of greater than 2.5% is considered to represent a high financial impact.

In its 1997 Guidance, EPA suggests that if the wastewater RI is classified as "mid-range" or "high", then the community should perform a secondary screening analysis (i.e., calculate the FCI) to assess the utility's financial capability to afford additional programs. Results from the preliminary and secondary screening analyses are ultimately combined into EPA's Financial Capability Matrix to determine whether a community should be granted a longer compliance schedule for meeting regulatory obligations, or provided another form of relief.

Chapter 3

Primary Data Sources for Developing Alternative Measures of Household Affordability

This chapter provides an overview of the data sources that can be used to develop the metrics outlined in the subsequent chapters (4 and 5), including:

1. U.S. Census Bureau American Community Survey (ACS, the primary data source)
2. U.S. Census Bureau Integrated Public Use Microdata Series (IPUMS)
3. Additional national, state, and local sources.

Use these data sources to develop alternative measures of household affordability (i.e., beyond EPA's RI). Such alternative measures include a series of socioeconomic indicators, such as income distribution and poverty rates within a community, as well as specific affordability metrics for different household types.

Workbooks 2 and 3 provide more information and step-by-step instructions for accessing and analyzing this data.

U.S. Census Bureau ACS

The U.S. Census Bureau ACS serves as the primary source of data used to develop the affordability measures recommended in this Assessment Tool. The ACS is a household survey conducted by the U.S. Census Bureau with a current annual sample size of approximately 3.5 million households. The ACS replaced sample (long-form) data from the Census and is now the only source of data on income, poverty status, education, employment, and most housing characteristics. ACS estimates are released annually (for geographic areas with a population of 65,000 or more), as a three-year average (for geographic areas with a population of 20,000 or more), and as a five-year average (for all geographies, down to the Census Block Group level). The ACS is considered the most reliable source of detailed socioeconomic data currently available, and is the only source of data available for small geographies.

ACS datasets can be used to access socioeconomic data that will allow better examination of economic need within a community, including:

- Income levels and income distribution
- Poverty rates
- Unemployment rates
- Households receiving public assistance
- Some information on housing costs and housing burden

ACS data are also used in this Assessment Tool to develop specific affordability metrics, such as comparing average household water and wastewater bills to the MHI for each income quintile, and examining EPA's RI at the census tract level to identify potentially vulnerable communities.

ACS data are available on the U.S. Census Bureau's American FactFinder website. One-year estimates are typically released for the previous year every September, three-year estimates in October, and five-year estimates in December. As of December 1, 2012, the U.S. Census Bureau has released one-year estimates for 2011 and three-year estimates for 2009-2011. Five-year average estimates are scheduled for release on December 6, 2012.

Throughout this Assessment Tool, USCM, AWWA, and WEF recommend using the ACS to collect socioeconomic data at the city (or service area) level (i.e., using single-year or three-year average ACS estimates), as well as at smaller geographic scales (e.g., at the Census tract level, using five-year average ACS estimates). Analysis of these data on a smaller-scale (such as a Census tract or neighborhood) can help to identify vulnerable populations and assess potential EJ concerns.

Workbooks 2 and 3 provide additional information and step-by-step instructions for accessing, reporting, and mapping both one-year and five-year average ACS estimates. This includes guidance on navigating the AFF website, specific source tables for socioeconomic data, and selecting the correct geographic area (e.g., place within a state, county, metropolitan service area) for your service area.

U.S. Census Bureau IPUMS

In addition to ACS data, more in-depth analyses can be performed using the U.S. Census Bureau's IPUMS. IPUMS can be used to analyze socioeconomic characteristics across different types of households (e.g., renter-occupied versus owner-occupied households, multi-family versus single-family) or to run queries or cross tabs at the city- or PUMA-level. PUMAs are statistical geographic areas that have been defined for the tabulation and dissemination of IPUMS data. PUMAs are made up of clusters of Census tracts and have a population of at least 100,000.

IPUMS consists of more than 50 high-precision samples of the American population drawn from 15 federal Censuses and 2000–2010 ACS data. IPUMS is composed of microdata, meaning that each record is a person. In most samples, persons are organized into households, making it possible to study the characteristics of people in the context of their families or other co-residents. Because IPUMS uses census results from individuals, it is possible to drill down into much deeper detail than possible with ACS summaries. For example, IPUMS data can be used to determine the percentage of people at certain income levels in different areas of a city or community (e.g., the percentage of residents with incomes greater than the 2% affordability threshold income).

The use of PUMS data presents several obstacles for water and wastewater utilities. Most importantly, because the data are individuals and not tables, researchers must use advanced statistical packages (such as SPSS, SAS, S-plus, or R software programs) to analyze the millions of records in the database. In addition, the large size of the PUMAs (100,000 people) is a potential problem for smaller cities. Further, because PUMAs must include 100,000 people, some PUMA boundaries are arbitrary and do not always follow political or common geographical delineations.

For these reasons, this Assessment Tool does not provide in-depth detail on how to access and analyze IPUMS data. However, the use of these data by water and wastewater

utilities may be performed in-house or by consultants with relevant knowledge. More information on IPUMS can be found at www.census.gov/acs/www/data_documentation/public_use_microdata_sample/.

Throughout the remainder of this Assessment Tool, places where IPUMS data would serve to augment household affordability assessments are noted; however, the Assessment Tool and analyses focus on more accessible and user-friendly data sources.

Supplemental Data Sources

In addition to U.S. Census Bureau surveys, state and local data sources can also provide a wealth of relevant information. The availability of these sources will vary across utilities/municipalities and may include information from states' labor departments (e.g., particularly for unemployment data), economic development and local government agencies, and other local agencies and organizations.

Another source of supplemental data may include datasets that provide information on nondiscretionary spending and housing costs within a city compared to the national average, or some other benchmark. This information can help to demonstrate the burden that these costs place on different types of households and can provide insight into the potential effects of water and wastewater rate increases. For example, in larger communities where the cost of living is high and incomes are commensurate with the national average, the American Chamber of Commerce Research Association (ACCRA) Cost of Living Index (COLI) database might serve as an important measure of existing household burdens. The ACCRA COLI database provides a measure of differences in the cost of living among urban areas in the United States relative to price levels for consumer goods and services in participating areas. Data from the BLS Consumer Expenditure Survey (CES) can also be used to assess economic burdens within different types of communities, including both urban and rural communities. More information on the ACCRA COLI is available at www.coli.org/.

Chapter 4

Guidance for Analyzing Socioeconomic Indicators of Household Affordability for Your Community

There is no single piece of information that can definitively indicate whether a community is at risk of being unable to afford increased water and wastewater costs. However, relevant socioeconomic indicators can help to provide a more complete picture of a community's economic and social characteristics (and thus, its ability to afford rate increases associated with unfunded mandates). This Assessment Tool (and associated templates) focuses on the following indicators of social and economic need¹:

- Income levels
- Income distribution
- Poverty rates
- Household economic burdens and nondiscretionary spending
- Supplemental indicators, including households receiving public assistance and unemployment rates within a community.

The following sections provide an overview of the socioeconomic indicators described above, as well as general guidance for accessing and analyzing specific socioeconomic data. We do not propose specific affordability thresholds for these indicators, rather, they are intended to provide context and to help “build the case” for why a community may merit additional consideration for regulatory relief.

Throughout this Assessment Tool, graphs and tables for specific indicators are presented, drawing upon data from various U.S. cities as examples. Workbook 2, “Assessing American Community Survey Data at the Community,

National, and Census-Tract Levels,” includes step-by-step instructions for accessing the ACS data necessary for analyzing each indicator. Workbook 3 provides templates for developing specific analyses for your community².

Income Levels

Although not useful as a sole indicator of household affordability, MHI data will serve as an important component of your household affordability assessment. In addition to providing an indication of economic need, MHI data will be used to develop specific affordability measures (e.g., evaluating water and wastewater rates as a percentage of MHI by Census tract or within each income quintile).

The first order of business is to document MHI for your community for the most recent year available, compared to the national MHI for the same year (in 2011, the MHI in the United States was \$50,502). Citywide or service area-wide income data are easily obtained via American FactFinder (AFF) using the ACS single-year, three-year average, or five-year average dataset, depending on the size of your community. See Workbooks 2 and 3 with this Assessment Tool.

To identify specific areas in your community with high concentrations of low-income households, MHI data should also be analyzed at the Census tract level. These data will be based on five-year average estimates from the ACS because single-year data are not available at this smaller geographic scale (5-year average estimates are available for all geographies). These data should be downloaded via AFF into Excel spreadsheets for further analysis.

¹ There are other indicators that localities and utilities may want to consider, particularly those listed in the EPA 1995 Interim Economic Guidance for Water Quality Standards Workbook as part of the widespread economic impact analysis; these indicators include: losses to local economy; increases in unemployment; impacts on property values or community development potential; decreases in tax revenues; loss of future jobs or personal income. See this EPA guidance for a complete list.

² ACS estimates are released annually (for geographic areas with a population of 65,000 or more), as a three-year average (for geographic areas with a population of 20,000 or more), and as a five-year average (for all geographies, down to the Census Block Group level).

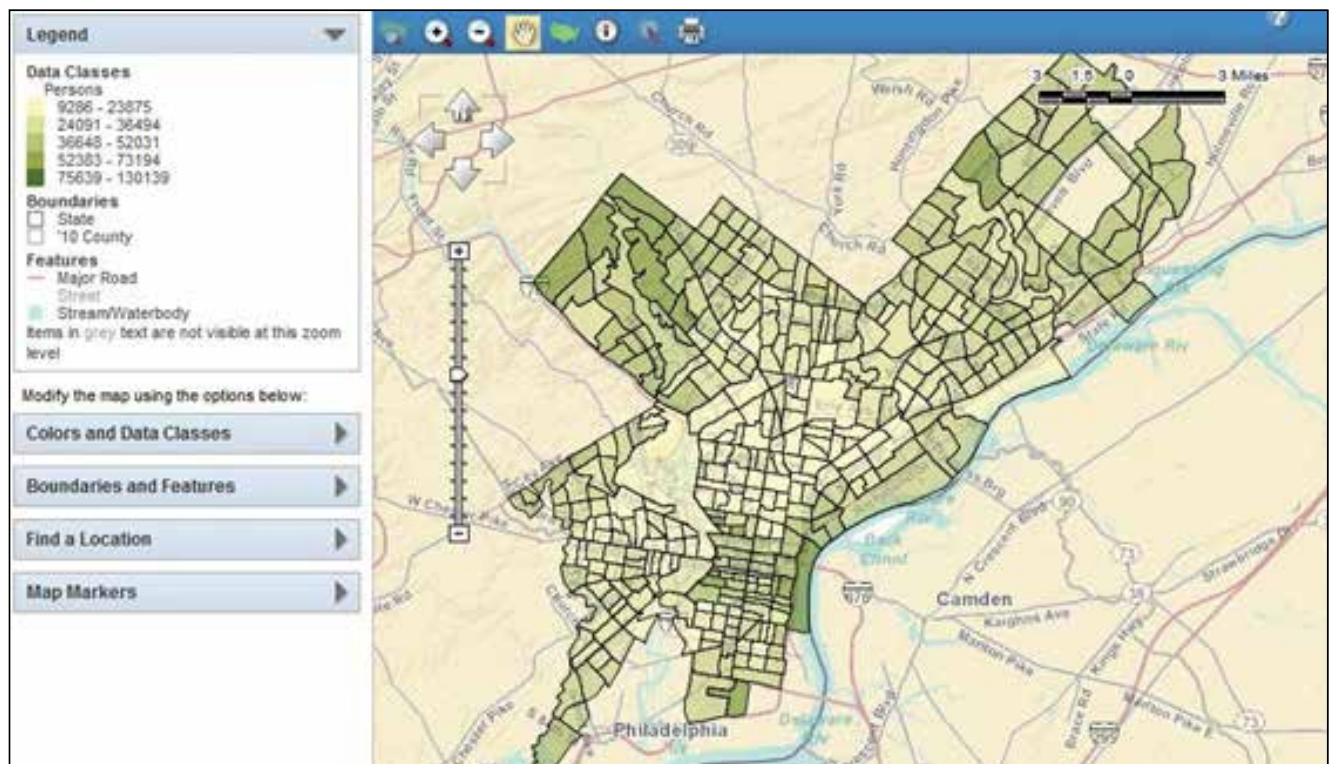


Figure 4-1 MHI by Census tract, 2011, developed using American Fact Finder website

Source: U.S. Census Bureau ACS, 2011a, 2006–2010 five-year average estimates

The AFF website provides options for developing maps of income and other socioeconomic data by Census tract. Tract-level data can also be analyzed and mapped using geographic information systems (GIS), depending on the resources and capabilities within your utility. With the use of GIS, utilities have the options for further analyzing the data and conducting more in-depth analyses (e.g., developing maps showing Census tracts where the average household water and wastewater costs exceed specific percentages of MHI). Workbook 3, “Socioeconomic Indicators” provides specific instructions for accessing Census tract-level data and developing the corresponding maps.

Figures 4-1 and 4-2 provide examples of Census tract MHI maps for the City of Philadelphia developed on the AFF website and using GIS, respectively. These maps demonstrate significant variation across census tracts, in terms of MHI. Workbook 2 includes specific instructions for downloading and mapping Census tract level data.

To identify potentially vulnerable populations, income levels should also be analyzed across different types of households. For example, in some communities there may be considerable differences between income levels for renter-occupied and owner-occupied households, as well as between multi-family and single-family households, or between elderly and non-elderly households. Income data for renter and owner-occupied households and for elderly

residents can be downloaded from the 2011 (or relevant year) ACS single-year dataset. However, income data for multi-family and single-family households can only be accessed through IPUMS.

Table 4-1 shows how MHI can vary significantly across different types of households, using Kansas City, Kansas as an example.

In addition, in recent years income levels in many cities have been declining. Where this happens it has important affordability implications because it means that increases in water and wastewater bills will not be offset by similar increases in incomes. Income data can be downloaded from single-year ACS databases from 2005 through the current year. When comparing MHI across years, it is important to adjust for inflation (using the CPI) so that all data points are compared using the same year value. For smaller communities, it will be necessary to look at changes in three-year or five-year average ACS estimates.

Continuing with Kansas City as an example, Figure 4-3 presents a graph of citywide MHI for 2005 through 2011. As shown, Kansas City has followed the trend of many cities in the United States, with real MHI declining by about \$1,150 from 2005 to 2011. When compared to average increasing annual household water and wastewater costs, this graph can serve as a useful tool to show how increasing water and wastewater bills are outpacing real increases in household

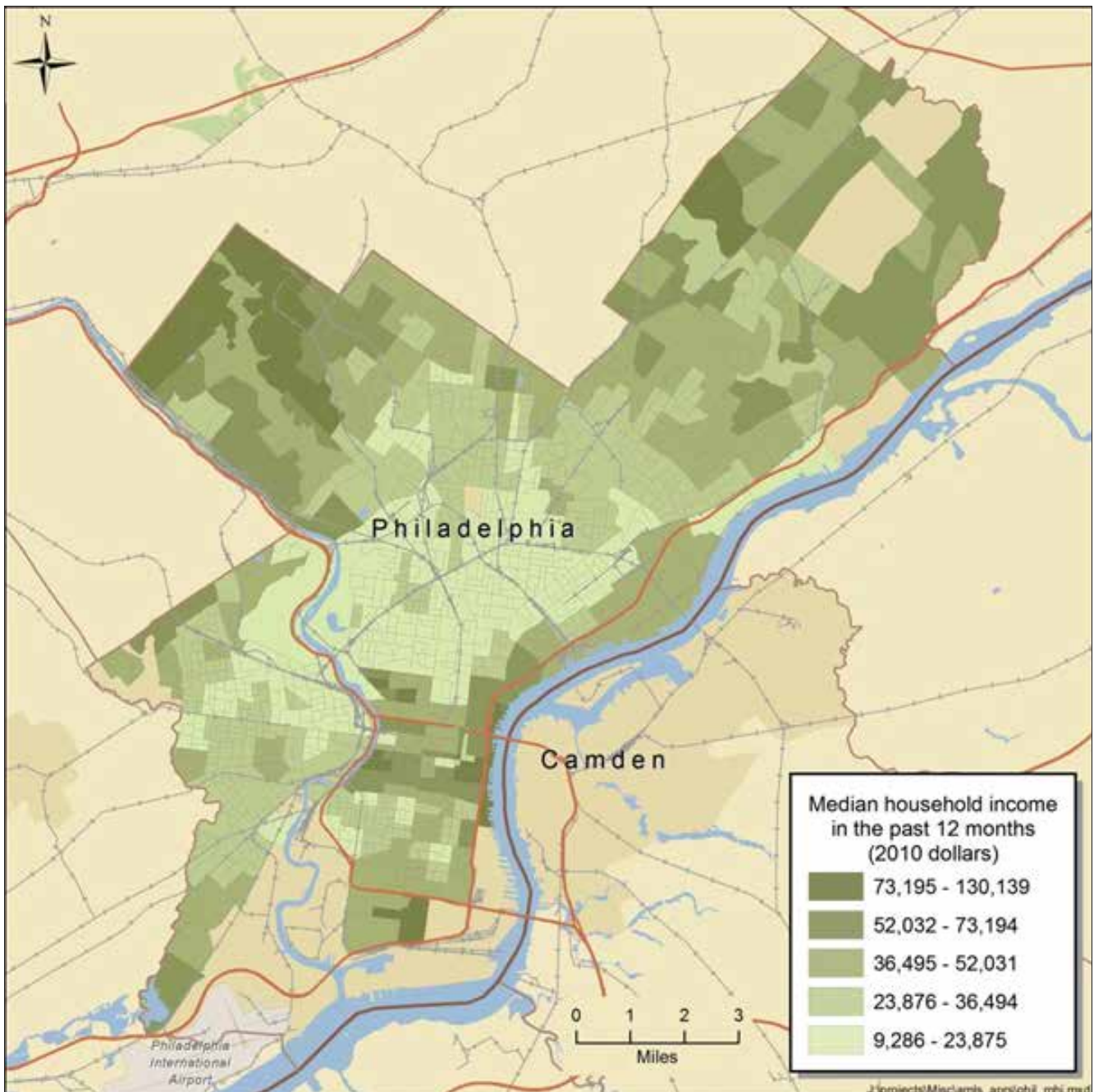


Figure 4-2 MHI by Census tract, 2011, developed using in-house GIS capabilities

Source: U.S. Census Bureau ACS, 2011a, 2006–2010 five-year average estimates

incomes (e.g., annual average household water and wastewater costs can be graphed on the secondary y axis).

Table 4-1 MHI by household type, Kansas City, Kansas

Household type	MHI (2011\$)
All households	37,036
Elderly households	27,955
Renter-occupied	24,898
Owner-occupied	47,272

Source: U.S. Census Bureau ACS, 2012, 2011 single-year estimates

Workbook 3 (an Excel spreadsheet) provides the specific ACS data tables you will need to obtain the information presented above for your community. The spreadsheet also provides templates for presenting these indicators as graphs and tables (see spreadsheet tabs MHI, MHI_HHType, and ServiceArea_MHI_2005-2011).

Income Distribution

In many cities, incomes are less centered on the median compared to incomes in the United States as a whole. This has important implications for affordability because



Figure 4-3 Kansas City MHI, 2005–2011, adjusted to 2011 dollars using CPI

Sources: U.S. Census Bureau ACS, 2006, 2007, 2008, 2009, 2010, 2011b, 2012 (2006-2010 single-year estimates).

it means that a higher percentage of households within these communities may be adversely impacted by water and wastewater rate increases compared to what might be expected under a more equal distribution of income. Although this is the case in many larger urban communities, Rubin (2001b) shows that this is also the case for many rural/nonmetropolitan communities, which tend to have a higher percentage of households in lower-income categories compared to the national average.

Income distribution can be examined with ACS data in different ways, including by income quintile, as well as by 10- and 16-category distributions. Table 4-2 shows the upper limits of household income quintiles for Atlanta, Georgia, compared to the United States as a whole. As shown, the lowest-income quintiles in Atlanta are substantially lower than those for the United States. This indicates that a greater percentage of Atlanta households are at the lower end of the income spectrum compared to the national average (e.g., the upper limits for the lowest quintile

indicate that in the United States, the lowest 20% of households earn less than \$20,585 per year, while in Atlanta, the lowest 20% of households earn less than \$12,294 per year). Conversely, the lower limits for the upper quintiles are greater in Atlanta than for the United States overall.

Table 4-2 Household income quintile upper limits, Atlanta, Georgia and the United States (2011\$)

	Atlanta, GA	United States
Lowest quintile	12,294	20,585
Second quintile	31,873	39,466
Third quintile	59,043	63,001
Fourth quintile	104,233	101,685
Lower limit of top 5%	246,335	187,087

Source: U.S. Census Bureau ACS, 2012.

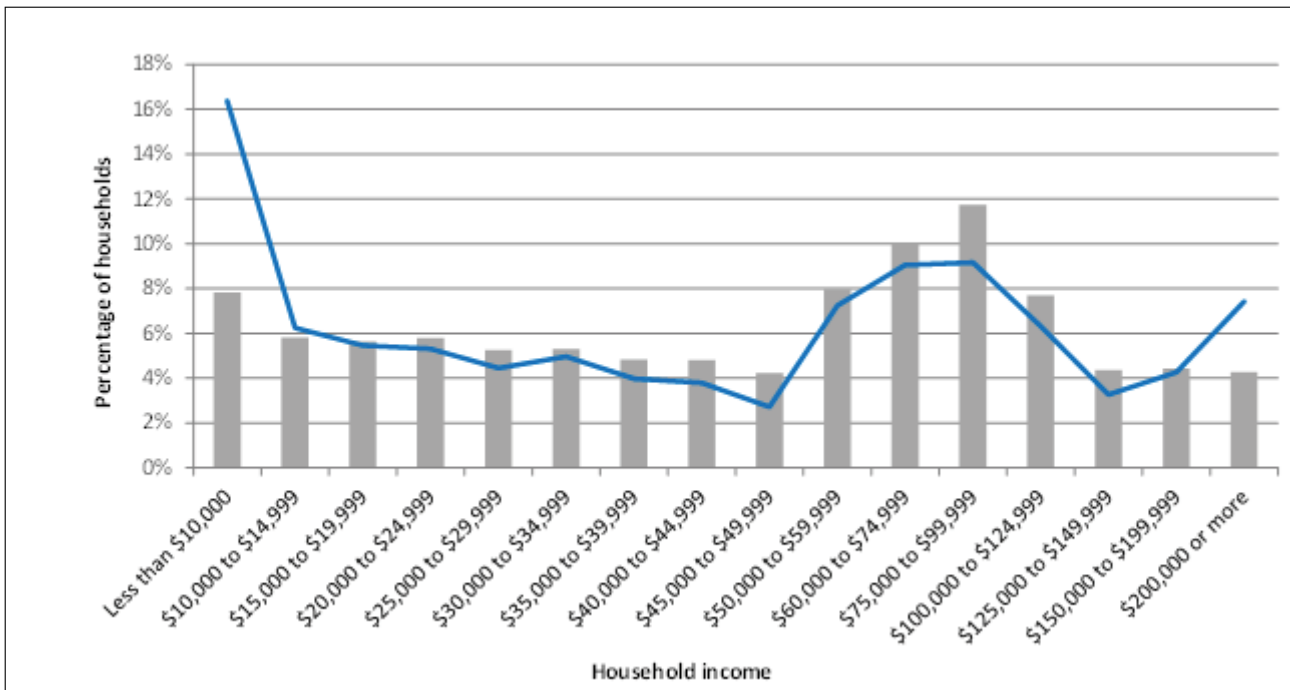


Figure 4-4 Income distribution in Atlanta, Georgia and the United States

Source: U.S. Census Bureau ACS, 2012 (2011 single-year estimates).

Figure 4-4 graphically portrays that the income levels in Atlanta are more concentrated toward the ends of the income spectrum compared to the national average. Indeed, the figure reveals that the income bracket containing Atlanta’s MHI (\$43,903 in 2011) is one of the least-populated income classes in the entire city. Thus, it is evident that in Atlanta (and in many other cities in the United States), citywide MHI does not reflect a “typical” household. Further, a much higher percentage of residents would be adversely impacted by increased water and wastewater bills compared to communities with a more equal and centrally clustered income distribution.

The evaluation of income distribution across different household types can help to identify vulnerable populations within a community. Continuing with Atlanta, Georgia, as an example, Figure 4-5 shows the income distribution across elderly households (i.e., the head of the household is 65 years or older) compared to the income distribution citywide. As shown, the majority of elderly households

(52%) have a reported income of less than \$25,000. This compares to about 33% of households citywide.

As demonstrated in Table 4-1, a second population of potentially vulnerable households includes renter-occupied households, which often have lower incomes than owner-occupied households. Figure 4-6 shows the income distribution for renter- and owner-occupied households in Atlanta, Georgia, where 55% of all households are renter occupied. As shown, there is a much higher percentage of renter-occupied households in the lower-income categories, with close to 40% of all renters earning less than \$20,000 per year.

Workbook 3 provides the specific ACS data tables that you will need to obtain income distribution data for your community. The spreadsheet also provides templates for presenting these indicators as graphs and tables (see spreadsheet tabs Inc._quintiles; Inc._dist; Elderly_Inc_dist;, and Renter_Owner_Inc_dist).

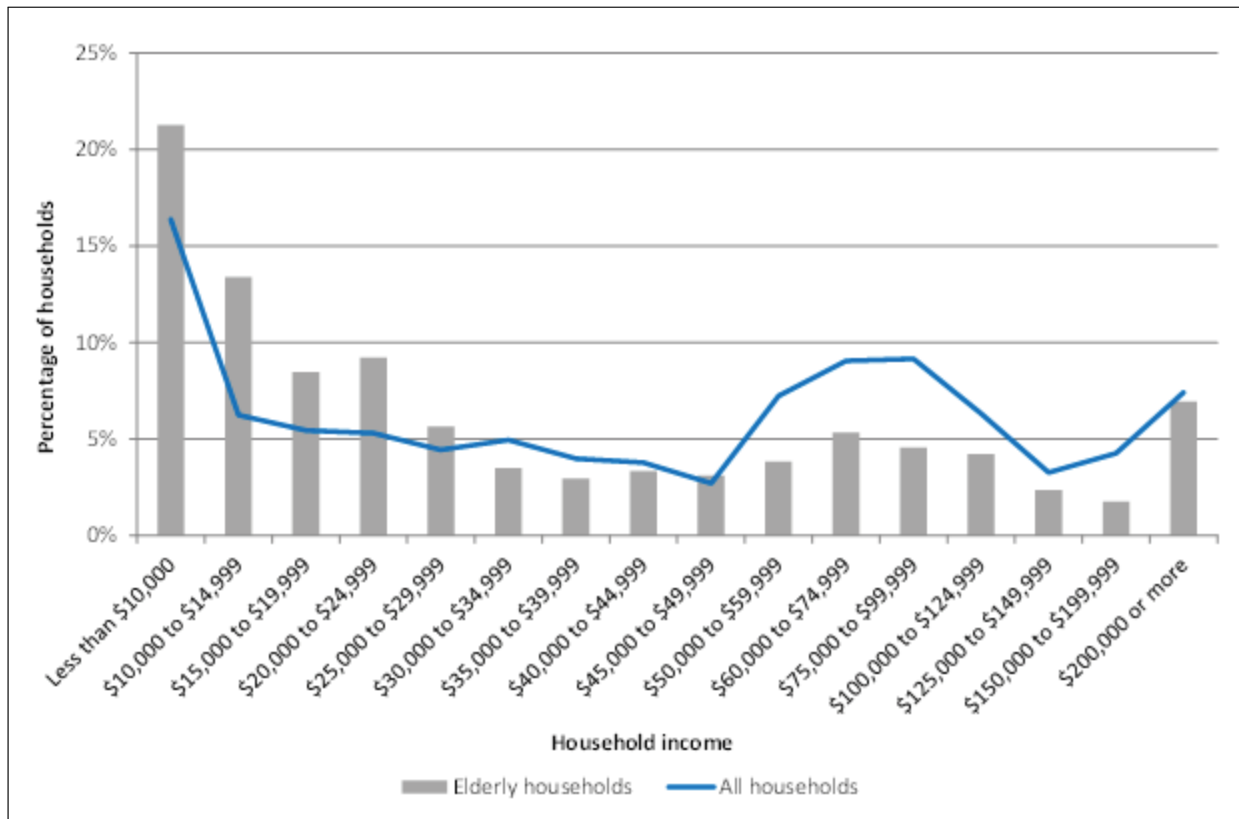


Figure 4-5 Income distribution in Atlanta, Georgia, elderly households and citywide
 Source: U.S. Census Bureau ACS, 2012 (2011 single-year estimates)

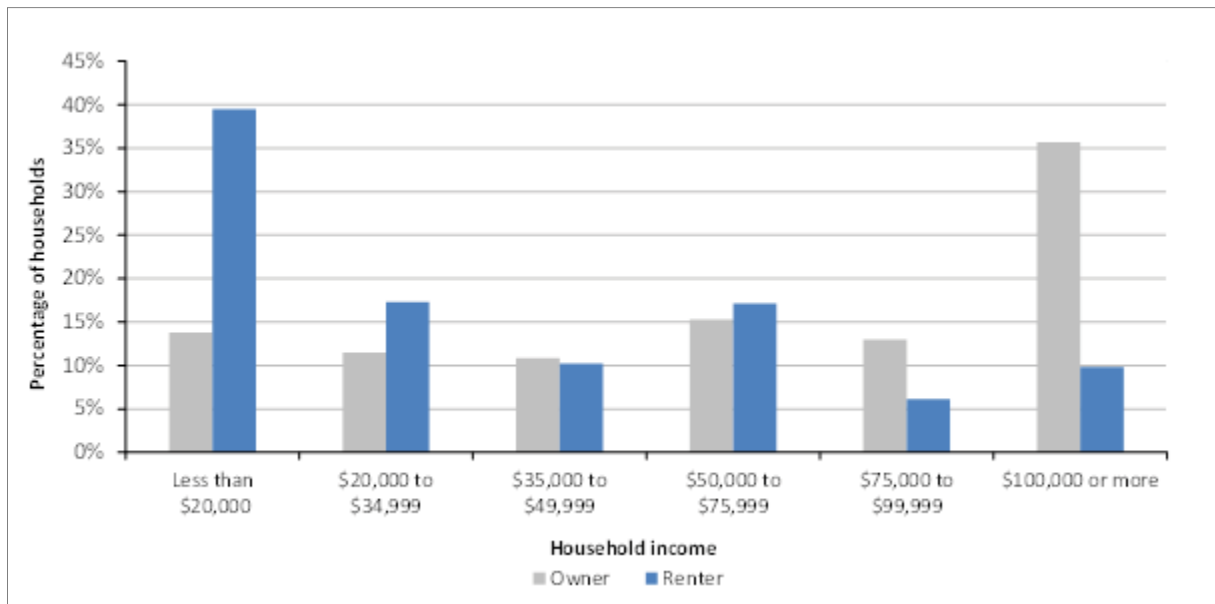


Figure 4-6 Atlanta, Georgia income distribution, renter- and owner-occupied households
 Source: U.S. Census Bureau ACS, 2012 (2011 single-year estimates)

Poverty Rates

In addition to income levels and income distribution, poverty rates serve as an important indicator of economic need. In 2011, 15.9% of people in the United States were living below the federal poverty line. This percentage provides a benchmark for assessing poverty levels within your community, which can be obtained using ACS single-year and three-year average estimates (depending on the size of your service area). Data on the percentage of elderly residents and children living below the federal poverty line are also available through ACS. These data can help to identify vulnerable populations.

Similar to income levels, poverty rates can be examined at the Census tract level using five-year average ACS estimates. Once these data are downloaded, they can be used to identify “poverty areas,” where 20% or more of the households in that Census tract have incomes below the federal poverty level. Again, these data can be mapped using AFF or with GIS capabilities at your utility.

In terms of affordability, identifying areas where poverty is more concentrated may have important implications for public health. In essence, the effective reduction in disposable income among low-income households could adversely affect those households’ ability to pay for needed food, heat, and medical care (Crawford-Brown et al., 2009; Raucher et al., 2011). Care should be taken to ensure that public policies (including well-intentioned environmental mandates) do not impose costs that may further exacerbate the health challenges faced by households in such low-income neighborhoods.

Many have argued that the official (i.e., federal) poverty rate does not provide an accurate measure of the number of households truly living in poverty conditions. Indeed, various studies have emphasized that households with incomes that are significantly higher than the poverty level often experience severe hardships, including hunger, lack of needed heating and cooling, and the inability to afford medical care (Boushey et al., 2001).

To obtain a more accurate measure of households living in poverty conditions, the U.S. Census Bureau developed a Supplemental Poverty Measure (SPM) in 2010. The SPM factors in public assistance and financial support offered to low-income households (e.g., housing subsidies, low-income home energy assistance) and also recognizes some nondiscretionary expenses that such households bear (e.g., taxes, out-of-pocket medical expenses, and geographic adjustments for differences in housing costs) (U.S. Census Bureau, 2011a).

At the national level, for a two- adult, two-child household in 2010, the SPM income threshold was set at \$24,343. This compares to the official poverty threshold of \$22,113. Nationwide, the SPM indicates⁴ that there are 5.35% more people in poverty than the official poverty threshold would indicate. The SPM also indicates that inside Metropolitan Statistical Areas the difference is 11.2%, and within “principal cities,” the SPM-implied number of people in poverty is 5.94% higher than the official poverty measure indicates. Although the SPM is not yet available at the city/community level, these general rules can help to identify additional households that may be adversely impacted by increased water and wastewater rates.

Workbook 3 provides the specific ACS data table that you will need to obtain poverty data for your community. The spreadsheet also provides templates for presenting these indicators as graphs and tables (see spreadsheet tab “Poverty”).

Housing Burdens and Nondiscretionary Spending

As noted in chapter 1, EPA’s residential indicator does not capture existing household economic burdens beyond those associated with water and wastewater bills. Economic burdens are commonly measured by comparing the cost of particular necessities to the resources (e.g., income) available to a household or community. EPA’s RI is such a measure in that it is used to evaluate the economic burden from wastewater charges by comparing those charges to MHI. However, wastewater service is just one of a set of basic necessities whose costs influence the overall economic burden on a community’s households.

Household economic burdens can be a significant factor for large urban communities where the cost of living is much higher than the national average, as well as in smaller rural communities where MHIs are often lower than the national MHI but nondiscretionary costs are not. Analysis of household economic burdens and nondiscretionary spending requirements can provide an indication of how difficult it is for both low- and middle-income households in your community to make ends meet, and how increases in water and wastewater costs will impact different types of households.

Housing burden is the most common measure of household economic burden. Most government agencies consider housing costs of between 30% and 50% of household income to be a moderate burden in terms of affordability; while costs greater than 50% of household income are considered

⁴ The SPM also adjusts for different housing status (e.g., renters versus owners). Additional details can be found in the U.S. Census Bureau (2011).

a severe burden. The ACS provides information on monthly housing costs for both owner-occupied and renter-occupied households, as well as by income level. These data can be divided by the MHI for these different groups to calculate housing burden. Additional analyses can be performed using IPUMS data (e.g., IPUMS can be used to determine the exact number of households with a moderate or severe housing burden, while ACS summary files can only provide average costs as a percentage of MHI for a limited number of household types).

Workbook 3 provides the specific ACS data tables you will need to access to obtain housing burden data for your community. The spreadsheet also provides templates for presenting different housing burden indicators as graphs and tables (see spreadsheet tab “Housing_burden”).

Sources of nondiscretionary spending data can help to provide insight into additional household economic burdens. Key sources for these data include the Bureau of Labor Statistics CES, the ACCRA COLI, and any additional local data sources prepared by government agencies or organizations. The BLS CES contains detailed demographic, income, and monthly expenditure data at the PUMA level. These data can provide insight on relative consumer spending within your community compared to different types of communities (e.g., urban vs. rural). CES data are accessed in the same way that IPUMS data are accessed, and require a thorough knowledge of a statistical software package such as SAS, SPSS, or STATA.

ACCRA COLI data are another source of nondiscretionary spending data. The ACCRA COLI provides a measure of

differences in the cost of living among urban areas in the United States. The ACCRA COLI measures relative price levels for consumer goods and services in participating areas. The average for all participating places, both metropolitan and nonmetropolitan, equals 100 and each participant's index is read as a percentage of this average. The ACCRA COLI dataset is updated quarterly for approximately 305 cities within the United States, and includes data for different income quintiles. This data can be useful if your community is one of the participating areas.

Additional Socioeconomic Indicators

There are several additional measures of economic need that can help to examine the ability of households to afford water and wastewater rate increases, including:

1. Percentage of residents receiving public assistance income and/or food stamps
2. Average annual unemployment rates
3. Number/percentage of households that are delinquent in paying their water bills
4. Number/percentage of households enrolled in utility low-income assistance programs.

Workbook 2 describes the specific ACS source tables that contain information related to the percentage of residents receiving public assistance income and/or food stamps and average annual unemployment. Information on delinquency rates and low-income assistance programs should be available through your utility.

Chapter 5

Guidance for Developing Alternative Measures of Household Affordability

This chapter provides additional guidance for assessing water and wastewater affordability at the household level (i.e., going beyond EPA's RI). This includes the development of utility-specific affordability measures, such as comparing current average wastewater bills to household income levels across the income distribution in your service area or community. The following sections provide an overview of recommended approaches for assessing affordability and communicating results, while more detailed instructions and templates for developing these alternative metrics are included in Workbook 4.

Remember that EPA may consider the affordability of water and CSO mandates using your community's MHI. However, throughout the following sections, water and/or wastewater bills are compared to household income levels, drawing upon data from selected communities throughout the United States. For the purpose of this Assessment Tool, hypothetical average household water and wastewater costs of \$300 and \$450, respectively, are used for a combined average annual bill of \$750. It is important to keep in mind that these analyses can be conducted using current water and/or wastewater costs, as well as household water and wastewater costs that take into account planned rate increases. This chapter also provides additional detail on conducting affordability analyses for future years.

Average Water and Wastewater Bills

Throughout this chapter, the comparison of average household water and wastewater bills to household income levels are discussed. It is important to note that the use of the term "bill" is intended to reflect the estimated average costs of water and/or wastewater service based on current rates and average household consumption. If data are available, a weighted average can be determined based on the number of single- and multi-family homes in the community and their respective average household consumption levels.

With this approach, average household water and wastewater costs are based on your utility's existing rate models, as reflected in the current rates. This provides a more realis-

tic assessment of current household costs and should allow you to easily evaluate household affordability in future years under planned rate increases. This approach should also allow you to examine household affordability under a series of "what if" scenarios (e.g., examining affordability with and without the impact of a potential mandated or nonmandated investment, or under different assumptions regarding interest rates and financing costs).

Water and Wastewater Bills and Household Income Comparisons

As a first step to developing your affordability indicators, compare average annual water and wastewater bills to household incomes for different types of households and across geographic areas. At the citywide level, this calculation essentially represents EPA's RI (although it can include water costs in addition to wastewater costs). The RI calculation should also be evaluated at the Census tract level (if your community is large enough to include several Census tracts) to identify areas where average household costs may have a "mid-range" to "large" economic impact (e.g., as defined by EPA for wastewater).

Continuing with our analysis of MHI by Census tract for the City of Philadelphia (see chapter 4), Figure 5-1 shows average annual household wastewater costs (using our hypothetical average bill of \$450) as a percentage of Census tract MHI. This map demonstrates how an increase in wastewater rates would impact communities within Philadelphia differently.

The Census tracts outlined in black in Figure 5-1 illustrate an important point for analyzing household affordability at the Census tract level. These Census tracts are highlighted because they have fewer than 750 people in them (the average number of people per Census tract is about 4,000). Thus, although a map may show several Census tracts where the average household water and/or wastewater bill amounts to a relatively high percentage of MHI, it is important to evaluate what this means in terms of the overall population of your service area (in the case of Philadelphia, about 1.5 million people). To account for this,

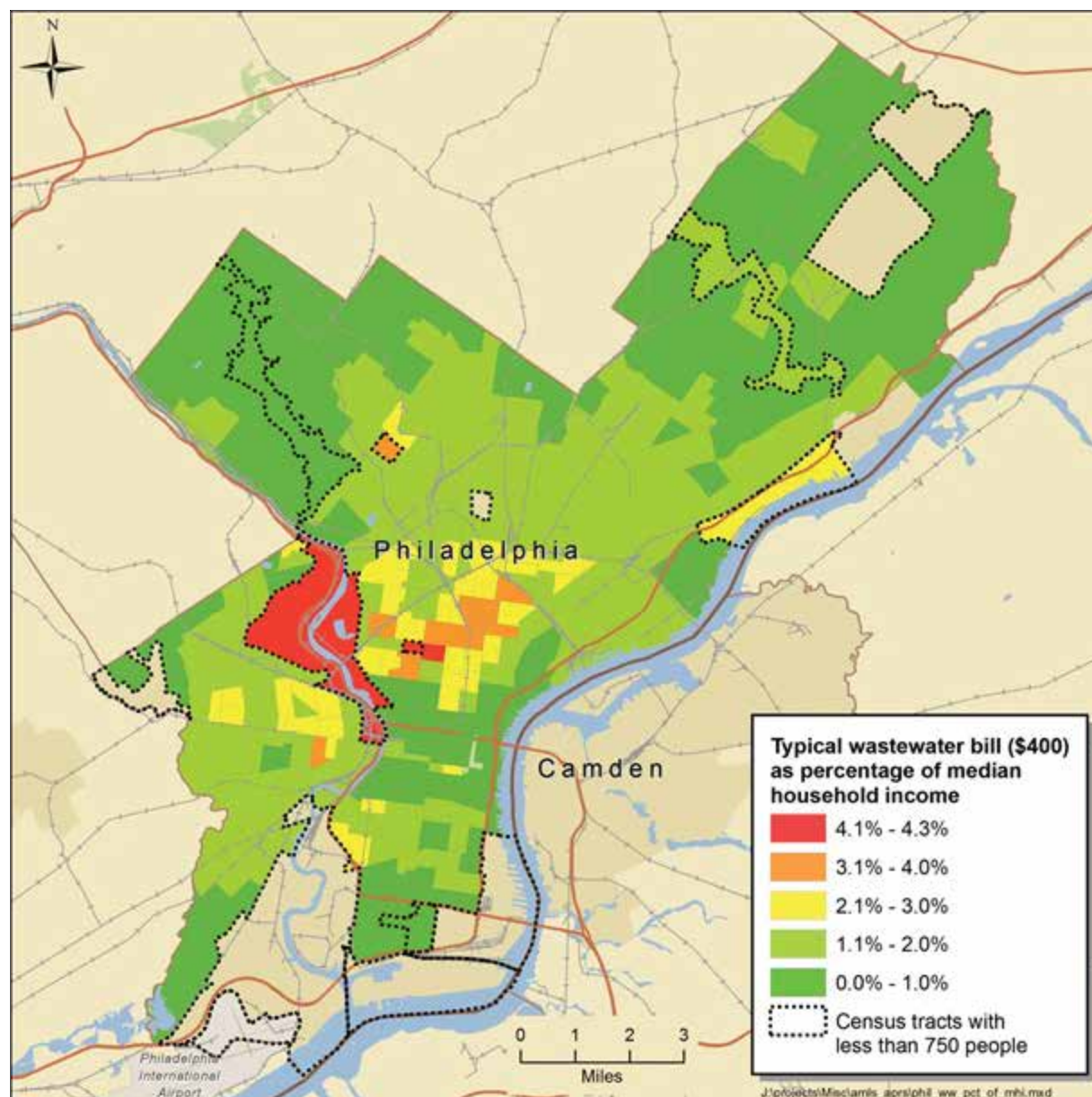


Figure 5-1 Hypothetical average annual wastewater bill as a percentage of Census tract MHI, Philadelphia, Pennsylvania

Source: U.S. Census Bureau ACS, 2011a, 2005–2010 five-year average estimates

it is important to examine variables that provide context (e.g., population, number of households) when downloading Census tract data for specific analyses. These data can be easily downloaded by Census tract via AFF using ACS five-year average estimates.

In many communities, the estimated average household wastewater bill and total combined (water and wastewater) bill may not exceed 2% and 4.5%, respectively, of MHI in most Census tracts; however, a number of households have

incomes well below the MHI for their community. Many of these households may already be paying more than 2% of their income for wastewater services, or more than 4.5% of their income for combined water and wastewater services.

This can be easily examined using income distribution data from the ACS. For example, Figure 5-2 shows the percentage of households within Sacramento, California, at different levels of affordability (i.e., the percentage of households spending certain percentages of their income

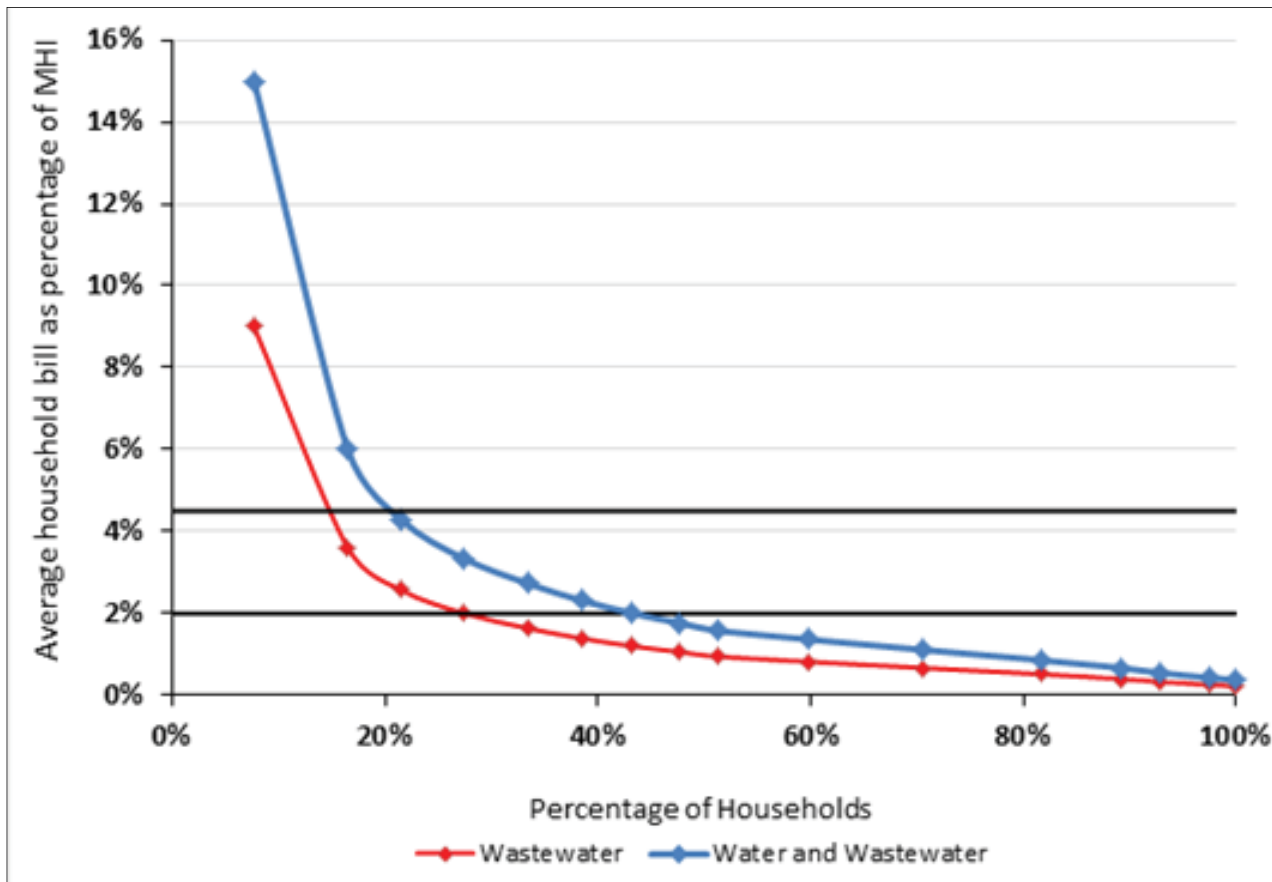


Figure 5-2 Hypothetical annual average wastewater and combined water and wastewater bills as a percentage of household income, Sacramento, California

on water and wastewater services). This analysis is based on the percentage of households within each of 16 Census-defined income categories and evaluates the average wastewater and total combined water and wastewater bill as a percentage of the mid-point income within each category. As shown, it appears that with average household costs of \$300 and \$450 for water and wastewater services, respectively, close to 30% of households in Sacramento, would pay more than 2% of their income for wastewater services, and about 20% pay more than 4.5% of their income for combined water and wastewater services.

IPUMS data can be used to conduct further analysis on the number of households that may be unable to afford significant water and/or wastewater rate increases. For example, based on the estimated average household water and wastewater cost of \$750, households earning less than \$16,667 would pay more than 4.5% of their income for water and wastewater services. IPUMS can be queried to determine the exact number of households within your community (and within each PUMA in your community), that make less than this amount (and therefore would have paid more than 2% of their income for their estimated average wastewater bill).

Table 5-1 Hypothetical annual average wastewater bill as percentage of MHI by income category, Butte, Montana

Income category	Percentage of households	MHI within income quintile	Average estimated wastewater bill as a percentage of MHI
Less than \$20,000	24%	\$10,000	7.50%
\$20,000 to \$39,999	26%	\$29,999	2.50%
\$40,000 to \$74,999	30%	\$57,499	1.30%
\$75,000 to \$99,999	8%	\$87,499	0.86%
\$100,000 to \$199,999	10%	\$149,999	0.50%

Three-year average ACS estimates were used due to the small size of Butte; one-year estimates are unavailable.

Table 5-2 Hypothetical annual average wastewater bill as a percentage of federal poverty threshold incomes

Household or family size	Poverty threshold	Average water and wastewater bill (example) (\$)	Estimated average household bill as a percentage of poverty level income (%)
1	\$11,170	284	2.54%
2	\$15,130	568	3.76%
3	\$19,090	852	4.46%
4	\$23,050	1,136	4.93%
5	\$27,010	1,420	5.26%
6	\$30,970	1,705	5.50%
7	\$34,930	1,989	5.69%
8	\$38,890	2,273	5.84%

Table 5-1 presents another way to evaluate impacts to low-income households within your community. Based on the hypothetical average water and wastewater bill of \$750, Table 5-1 shows average annual water and wastewater costs as a percentage of MHI for different income categories, using Butte, Montana, as an example. As shown, average water and wastewater bills already amount to more than 7.5% of MHI for households in the lowest-income category (approximately 24% of the 14,836 households in Butte). This analysis assumes that MHI within each income quintile is the mid-point. However, IPUMS data can be used to determine the true median.

Examining the average wastewater bill as a percentage of poverty level income also provides insight into the number of people facing unaffordable water and wastewater bills. Poverty threshold incomes vary depending on the number of people living in the household. For example, in 2010, the official federal poverty threshold for a household or family of 2 was \$15,130; for a family of 4, the poverty threshold was \$23,050.

Table 5-2 shows the hypothetical average water and wastewater bill of \$750 as a percentage of poverty threshold incomes by household size. To conduct this analysis, the combined water and wastewater bill of \$750 were adjusted to account for differences in household size, based on the average U.S. household size of 2.64 in 2011 (i.e., each person in the household adds about \$284 to the average bill). As shown in Table 5-2, the hypothetical average bill of \$750 ranges from 2.5% to 5.8% of poverty threshold incomes.

Finally, as discussed in chapter 4, in many communities, incomes vary considerably between renter-occupied and owner-occupied households, as well as for elderly households. Drawing upon our analysis of MHI for different types of households in Kansas City, Kansas (see chapter 4), Table 5-3 shows an average total water and wastewater bill of \$750 as a percentage of MHI across these different household types. As shown, in Kansas City renter-occupied households have much lower incomes than all other household types. On average, these households would pay 3.01% of their income for water and wastewater services with an average annual bill of \$750.

Table 5-3 Hypothetical annual average total household water and wastewater bill as a percentage of MHI by household type, Kansas City, Kansas

Household type	MHI (2011\$)	Average household water and wastewater cost as a percentage of MHI
All households	37,036	2.03%
Elderly households	27,955	2.68%
Renter-occupied	24,898	3.01%
Owner-occupied	47,272	1.59%

Source: U.S. Census Bureau ACS, 2012 (2011 single-year estimates).

IPUMS data can also be used to estimate average household water and wastewater costs as a percentage of MHI for multi-family and single-family homes. For this analysis, the average estimated water and wastewater bill can be based on actual average consumption for these different types of households.

Workbook 4 provides specific instructions and templates for developing the affordability metrics (including graphs and tables) presented in this section. The “Overview” tab in this spreadsheet contains a table of contents that links spreadsheets in the Excel worksheet to specific figures and tables in this section.

Income Distribution: Implications for Wastewater Affordability

As noted throughout this report, EPA’s 1997 Guidance suggests that wastewater bills equal to 2% of MHI are considered affordable for a community. In 1997 (when the Guidance was developed), the most recent income and poverty data available would have been from 1996. In 1996, the national MHI was \$35,492 (U.S. Census Bureau, 1997). Thus, an average annual wastewater bill equal to 2% of national MHI would have equated to \$710. Based on national income distribution data, in 1996 the lowest quintile (20th percentile) of household income was 42% of the median income, or approximately \$14,900 (U.S. Census Bureau, 1997). That is, the lowest 20% of households in the United States made \$14,900 or less. At that income level, a bill of \$710 would have equated to 4.75% of household income. In other words, the MHI threshold of 2% would be equivalent to having 20% of households in a community pay 4.75% (or more) of their income for wastewater service.

Using the national income distribution data for 2012, a bill equal to 2% of national MHI would be \$1,010 per year. That bill would represent 4.9% (or more) of income for the lowest 20% of U.S. households, which is relatively similar to the 1996 level. In many communities, however, a wastewater bill of 2% of MHI would have a much more severe impact on low-income households. For example, in New York City, 2% of the city’s MHI of \$49,461 would be \$989 per year. This would represent 5.9% at the upper limit of the city’s lowest income quintile (\$16,824), meaning that at least one-fifth of the city’s households would be paying 5.9% of their income (or more) for wastewater services—a burden that is 20% greater than would be expected from the national income distribution.

In this example for New York City, in order to keep the impact on low-income households consistent with that expected from national income distributions—that is, to ensure that no more than 20% of households face sewer bills of 4.8% (or more) of income—then wastewater bills would need to be no more than \$807 per year, or 4.8% of the upper limit for the lowest income quintile. This amounts to 1.63% of the city’s MHI. This reveals the extent to which the 2% of MHI metric does not reflect burdens on the poorest 20% of households in the community, and that an MHI-based metric of affordability for New York City of about 1.6 would be more equivalent to 1996 measures for reflecting impacts on the lowest-income quintile.

This analysis can be easily applied to your community in the context of water and/or wastewater services using ACS data related to income quintiles and MHI.

Assessment of Affordability in Future Years

Finally, in addition to analyzing affordability impacts associated with current water and wastewater rates, it is also important to examine how affordability will change over time. Many utilities have the capability to estimate rate increases for future years, based on estimated costs associated with planned projects and programs. Using these data, it is relatively straightforward to calculate the estimated average household water and wastewater bill for future years. However, this calculation will need to take into account any assumed changes in household water consumption over time, such as whether your utility expects average household use to decline. You may also want to conduct sensitivity analyses to examine the effect of your assumptions (e.g., regarding O&M costs for planned projects or project financing costs and interest rates).

In order to compare average water and wastewater bills to household income levels, it will also be necessary to make some assumptions about how income levels will change over time. In the past, we would have recommended that you simply assume incomes will increase at the same rate as the CPI. However, as demonstrated in chapter 6, in recent years income levels have not kept pace with the CPI, and have even declined in many communities. This can make it difficult to project MHI for your community going forward.

One approach for projecting future income levels is to examine how income levels have changed in recent years in comparison to the CPI. For example, over the past five years national income levels have increased at a rate of approximately 60% of the increase in CPI. Given the recent economic crisis and recovery process, it seems reasonable to assume that this trend will likely continue, at least for the near future. Thus, to project MHI over the next several years, you may wish to assume that incomes will increase by about 60% (or rate at which your community's MHI has increased relative to CPI) of the forecasted change in CPI (as developed by the Congressional Budget Office). Beyond

the next several years, it may be reasonable to assume that incomes will again begin to increase at the same rate as the CPI. Although this analysis is not exact, it does provide a general idea of how income levels may change.

Communicating the Results

Given the wealth of information and analyses described in chapters 4 and 5 of this Assessment Tool, it can be difficult to imagine how to best synthesize and communicate the results of your affordability assessment. As noted in chapter 4, we do not propose any specific thresholds that would indicate that a community is at risk of being unable to afford significant increases in water and wastewater costs. The analyses conducted here are intended to go beyond EPA's RI to provide a more comprehensive assessment of household affordability.

Depending on your community, you may want to focus on specific aspects of the Assessment Tool suggested (e.g., EJ concerns, elderly households, impacts to low-income households). The graphs and tables portrayed in this Assessment Tool are also provided as templates in the guidance documents and can be used to analyze and present results.

Chapter 6

Guidance for Assessing Utility Financial Capability: EPA's Secondary Screening Analysis and Alternative Measures

This chapter provides guidance for completing EPA's secondary screening analysis (i.e., developing the FCI), as well as for developing alternative measures of utility financial capability. First, we overview the methods outlined in EPA's 1997 Guidance for completing the secondary screening analysis. Next, we provide guidance for developing alternative financial indicators (such as those outlined in chapter 4). More specific instructions and templates are included in Workbook 5.

Again, it is important to note that although EPA's 1997 Guidance was developed within the context of waste water and CSO controls, our Assessment Tool is focused on the affordability of water supply, wastewater, CSO, and stormwater) programs.

Calculating EPA's FCI Metrics

EPA's secondary screening analysis includes a series of economic indicators used to evaluate a utility's financial capability to implement mandated wastewater, CSO, and/or stormwater controls. These indicators include:

- Bond rating
- Overall net debt as a percentage of full market property value (FMPV)
- Unemployment rate
- MHI
- Property tax revenues as a percentage of FMPV
- Property tax revenue collection rate.

Table 6-1 Permittee FCI benchmarks and their ratings: EPA Guidance

Financial capability metric	Strong (score = 3)	Mid-range (score = 2)	Weak (score = 1)
<i>Debt indicators</i>			
Bond rating GO bonds	AAA-A (S&P) Aaa-A (Moody's)	BBB (S&P) Baa (Moody's)	BB-D (S&P) Ba-C (Moody's)
Bond rating (revenue bonds)	AAA-A (S&P) Aaa-A (Moody's)	BBB (S&P) Baa (Moody's)	BB-D (S&P) Ba-C (Moody's)
Overall net debt as percentage of FMPV	Below 2%	2–5%	Above 5%
<i>Socioeconomic indicators</i>			
Unemployment rate	More than 1 percentage point below the national average	+/- 1 percentage average point of national average	More than 1 percentage of national average
MHI	More than 25% above adjusted national MHI	+/- 25% of adjusted national MHI	More than 25% below adjusted national MHI
<i>Financial management indicators</i>			
Property tax revenues as percentage of FMPV	Below 2%	2–4%	Above 4%
Property tax revenue collection rate	Above 98%	94–98%	Below 94%
GO: general obligation.			

S&P: Standard & Poor's.

As part of the screening analysis, each indicator is “scored” on a scale of 1 (weak) to 3 (strong). The average of these scores represents the overall FCI. The following sections describe the methods and data sources used to determine each indicator. Table 6-1 shows the ratings and scores for each indicator, as outlined in EPA’s guidance documents.

Bond rating

The first financial benchmark included in EPA’s secondary screening analysis is a municipality’s bond rating for both GO and revenue bonds. GO bonds are bonds issued by a local government and repaid with taxes (usually property taxes). GO bond ratings reflect financial and socioeconomic conditions experienced by the community as a whole. Revenue bond ratings, by comparison, reflect the financial conditions and management capability of a water/wastewater utility. They are repaid with revenues generated from user fees.

There are currently three major rating agencies for municipal bonds: Moody’s Investors Services, S&P, and Fitch Ratings. Of the three rating agencies, Moody’s and S&P’s rate over 80% of all municipal and corporate bonds (these are also the only two rating agencies included in EPA’s 1997 Guidance). Municipal bond reports from these agencies can be accessed at:

- Moody’s Investors rating service: www.moodys.com
- S&P rating service: www.standardandpoors.com

Table 6-1 shows how ratings from these agencies translate into “strong,” “mid-range,” and “weak” scores in terms of the FCI.

In its 1997 Guidance, EPA notes that there are many small- and medium-sized communities that have not used debt financing and therefore have no bond rating. EPA states that when a bond rating is unavailable, this indicator can be excluded from the secondary screening analysis. However, this will effectively place a greater reliance on scores for the socioeconomic and financial management indicators.

Net debt as a percentage of Fair Market Property Value (FMPV)

The second financial benchmark measures a municipality’s outstanding GO debt as a percentage of FMPV. This indicator is intended to provide a measure of debt burden on residents within your service area/community, as well as a measure of the ability of your local government to issue additional debt.

To calculate net debt as a percentage of FMPV, it is first necessary to identify the direct net debt of your community, as well as your community’s share of debt from overlapping entities. EPA defines overall net debt as debt repaid by property taxes within a utility/municipality’s service area. It excludes debt that is repaid by special user fees (e.g., revenue bonds). The percentage of your community’s share of debt from overlapping entities is the amount charged to persons or property with your service area (based on the estimated FMPV of real property of each overlapping jurisdictions).

Debt information is typically available from your community’s annual financial statements. FMPV data should be available through your community or State assessor’s office (EPA’s 1997 Guidance states that as long as your service area boundaries generally conform to one or more community boundaries, it is not necessary to prorate the FMPV).

In some communities, the tax assessed property value will not reflect FMPV. This occurs when the tax assessment ratio is less than one. In such cases, FMPV can be computed by dividing the total tax assessment value by the assessment ratio (i.e., the percentage of the FMPV that is taxed at the established tax rate).

If the net debt for your community is greater than 5% of the FMPV, you would receive a “weak” rating for this indicator, based on EPA’s scoring methodology. A net debt of 2% to 5% of FMPV is considered “mid-range,” while below 2% is considered “strong.”

Unemployment rate

The unemployment rate is defined as the percentage of the total labor force that is unemployed but actively seeking employment and willing to work. Monthly and annual average unemployment rates are available through the BLS Local Area Unemployment Statistics (LAUS) program. LAUS is a federal-state cooperative effort that maintains employment statistics for Census regions and divisions (e.g., counties and metropolitan statistical areas), cities of 25,000 population or more, and other areas. EPA Guidance does not specify whether monthly or annual data should be used, however, we recommend using the annual average unemployment rate. For more information and to access LAUS data, visit www.bls.gov/lau/data.htm.

For the purposes of calculating the overall FCI, local unemployment rates are compared to the national average as a benchmark (also available through BLS). Areas with an unemployment rate of more than 1% above the national average are rated as “weak” in this area. Areas with unem-

ployment rates within 1% of the national average is considered “mid-range” and those with unemployment rates more than one percentage point below the national average are considered “strong.”

MHI

The MHI benchmark compares your community’s MHI to the national MHI. As detailed in previous chapters, this information can be easily accessed from the U.S. Census Bureau ACS via AFF. Depending on the size of your community, you will need to use single-year, three-year average, or five-year average ACS estimates. These estimates are adjusted for inflation by the ACS.

In terms of the overall FCI, a community is considered weak for this indicator if MHI is more than 25% below the national MHI, mid-range if MHI is within 25% of the national MHI, and strong if MHI is more than 25% above the national MHI.

Tax revenues as a percentage of FMPV

This indicator, which EPA also refers to as the “property tax burden,” is intended to measure the funding capacity available to support debt based on the wealth of the community, as well as the effectiveness of management in providing community services (1997 Guidance).

FMPV data should be readily available through the community or state’s assessor office, while property tax revenues are typically available in a community’s annual financial statements. If a community’s property tax revenues are greater than 4% of FMPV, a “weak” rating is assigned for this indicator; between 2% and 4% is considered mid-range; and below 2% is considered strong.

Property tax collection rate

The property tax collection rate is intended to measure of the efficiency of the tax collection system and the acceptability of tax levels to residents. To determine the collection rate, you will need to divide property tax revenues by the property taxes levied. However, be aware that this metric may understate the effort your community is making if it relies less than the typical community on property taxes and more on, say, sales taxes, user fees, special fees, and assessments. See the following section for more on this issue.

To calculate property taxes levied, multiply the assessed value of real property within your community/service area by the property tax rate. This information should

be available through your community or state assessor’s office. Property tax revenues are typically available in your community’s annual financial statements.

For this indicator, if the property tax collection rate in your community is below 94%, you will receive a “weak” rating; between 94% and 98% is considered mid-range; and above 98% is considered “strong.”

Alternative Measures of Utility Financial Capability

Chapter 1 of this Assessment Tool provides several suggestions for supplemental measures that would help to provide a better assessment of utility financial capability. The following sections provide instructions for developing and analyzing these measures.

It is important to note that the measures suggested below may not necessarily apply to your community, and that there may be additional financial indicators not reflected here that may be particularly relevant for your community. In developing evidence to support a determination on whether your utility has the financial capability to implement regulatory mandates, it is important to investigate relevant measures and metrics specific to your community.

Local tax revenues as a percent of gross taxable resources

As discussed previously, EPA uses property tax revenues as a percentage of FMPV as its sole measure of local tax burden. However, in cities that rely on multiple forms of taxation, focusing solely on property taxes inevitably understates a city’s current tax effort. To account for multiple forms of taxation, total local tax revenues as a percentage of gross taxable resources should be included as a supplemental measure in EPA’s FCI (in addition to real property taxes as a percentage of FMPV). This would provide a better measure of the extent to which a municipality is already using the full range of its taxable resources.

Gross taxable resources are the combined dollar amount of resident household incomes and business surpluses (income less employee compensation) within a community (NYC Independent Budget Office, 2007). Tax effort is the ratio of direct and overlapping government tax collections to taxable resources. In 2007, the NYC Independent Budget Office developed a report comparing state and local taxes in large U.S. cities (NYC Independent Budget Office, 2007). This report provides a methodology for determining a city/municipality’s total taxable resources and is available at

www.ibo.nyc.ny.us/iboreports/CSALTFINAL.pdf. Total tax revenues should be available within your community's annual financial reports.

Measuring the severity of unemployment

Chapter 1 of this Assessment Tool discusses the limitations associated with the application of current annual average unemployment as a key indicator of utility financial capability. To provide a more accurate measure of whether local economic problems are severe enough to warrant relief from EPA mandates, the following measures are suggested:

- The current and long-term average unemployment rate in your community compared to the long-term national average. Between 1991 and 2011, the national unemployment rate averaged 5.8%. Use of the long-term average level of unemployment as a benchmark anchors the national unemployment rate as a comparison measure. For example, in 2010 a community with an unemployment rate of 10.1% would be classified as having only a mid-range unemployment problem simply because it was within 1% of the national average of 9.1% in that year.
- Long-term unemployment compared to national long-term unemployment. The annual average unemployment rate does not reflect trends in long-term unemployment (defined as the share of the labor force continuously unemployed for one half year or more). Use of the long-term unemployment rate provides an additional measure of economic distress within a community.

In addition to broadening the range of labor market indicators, other measures of local economic distress, such as foreclosure rates and annual migration/population data, can provide insight into the financial capability of a

community or utility to fund mandated programs. In many communities, high foreclosure rates have had a significant impact on the financial condition of local governments, and their ability to finance capital improvements. In addition, chronic joblessness leads working-age residents to migrate to areas where they have a better chance of finding a job. This kind of migration does not show up in unemployment rates, but it can permanently affect a community's ability to support investments in water and wastewater systems.

The deterioration of local government financial capabilities

To take into account the erosion of local government finances, a measure of local government revenue growth or decline can be included in EPA's FCI matrix, with an absolute decline in real revenues over some period taken as a sign of weakened financial capacity. Revenue growth or decline should be measured over a long enough period of time to ascertain a trend (e.g., the last 3 to 5 years). This information should be available from your local government's annual financial reports.

Ignoring other long-term liabilities

EPA's methodology for assessing municipalities' financing capacity takes into account their formal debt burden (measured by the ratio of net debt to underlying property values). But it does not consider a burden that for a growing number of municipalities is greater than the burden of formal debt—unfunded pension liabilities and other commitments to retirees, as well as other long-term contractual commitments. The value of unfunded long-term liabilities over time should be included as a supplemental measure of utility financial capability (e.g., in comparison to available resources for meeting these commitments).

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Utility Rate Discounts for Low-Income Customers in Other States

By: Lee Hansen, Associate Analyst
February 1, 2018 | 2018-R-0051

Issue

This report describes utility rate discount programs for low-income customers in other states.

Summary

Many states require their regulated electric and gas utility companies to provide low-income customers with discounted electric or natural gas service rates. [PA 11-80](#), among other things, required Connecticut's Department of Energy and Environmental Protection (DEEP) to evaluate the benefits and costs of developing such rates. As part of its subsequent 2013 [final report](#), DEEP summarized the low-income discount rate programs offered in 11 other states: Arizona, California, Georgia, Maine, Massachusetts, Minnesota, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont.

This report describes the eligibility requirements and discounts currently available in those 11 states. The states, and often individual utility companies within each state, use a variety of means to determine customer eligibility and the type of discount customers will receive. Programs typically limit eligibility to households with an income below a certain threshold (e.g., a percentage of the federal poverty level or the state's median income) and may require additional criteria to be met, such as receiving benefits from other programs. The types of discounts provided include fixed billing credits, fixed percentage discounts, and billing caps based on a percentage of the customer's income. Several programs also feature "tiered" benefits that provide greater discounts to customers with lower incomes.

Additional information regarding other types of low-income energy assistance programs (e.g., weatherization and debt forgiveness programs) is available on the U.S. Department of Health and Human Service’s Low-income Home Energy Assistance Program (LIHEAP) Clearinghouse [website](#).

Utility Rate Discounts for Low-Income Customers

Tables 1 through 11 show the eligibility requirements and discounts provided in the low-income discount rate programs in Arizona, California, Georgia, Maine, Massachusetts, Minnesota, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont.

Table 1: Arizona Discounted Utility Rates for Low-Income Customers

<i>Utility</i>	<i>Eligibility Requirements</i>	<i>Discount</i>
Arizona Public Service Co.	Maximum household income of 150% of federal poverty level (FPL)	Flat 25% discount on monthly bills
Southwest Gas Corp.	Maximum household income of \$49,200 for a 4-person household	Annual 30% reduction in monthly basic service charge Per therm discount applied to first 150 therms of natural gas use each month from November through April (discount rate varies according to gross household income and the number of residents in the home)
Tucson Electric Power Co.	Maximum household income of 150% FPL	Depending on the type of service, either a \$9 monthly discount or a discount based on usage (e.g., 25% on bills with 0-300 kWh usage; 20% on bills with 301-600 kWh; 15% on bills with 601-1000 kWh usage; no discount on bill with over 1000 kWh usage) Discounts are not available to new customers or current customers who move
UniSource Energy Services	Maximum household income of 150% FPL	Electric service : Flat \$16 per month discount Gas service : \$3 discount on the standard basic service and meter charge; \$0.15 per therm discount for up to 100 therms of gas use each month from November through April

Table 2: California Discounted Utility Rates for Low-Income Customers

<i>Utility</i>	<i>Eligibility Requirements</i>	<i>Discount</i>
California Alternate Rates for Energy (CARE) Program (applies to Alpine National Gas, Bear Valley Electric, Edison, Liberty Utilities, PacifiCorp, PG&E, SDG&E, SoCal Gas, Southwest Gas, and West Coast Gas)	Maximum household income of 200% FPL	30-35% discount on electric bills 20% discount on natural gas bills
Family Electric Rate Assistance Program (applies to Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Edison)	Household income of 200% -250% FPL	12% discount on electric bills

Table 3: Georgia Discounted Utility Rates for Low-Income Customers

Utility	Eligibility Requirements	Discount
SCANA Energy (Regulated Division)	\$42,395 maximum household income for a 4-person household	\$0.05 per therm discount for customers on the fixed price plan

Table 4: Maine Discounted Utility Rates for Low-Income Customers

Utility	Eligibility Requirements	Discount
Emera Maine (Bangor Hydro Electric Co. and Maine Public Service Co.)	\$36,900 maximum household income for a 4-person household (customers who receive housing subsidies are ineligible, unless a household member uses an oxygen pump/ventilator for at least eight hours per day)	One-time annual reduction
Central Maine Power	Maximum household income of 150% FPL	Annual lump sum billing credit based on household income and estimated electric usage

Table 5: Massachusetts Discounted Utility Rates for Low-Income Customers

Utility	Eligibility Requirements	Discount
Berkshire Gas Co.	Maximum household income of 60% of state median income and (1) receiving benefits from any means-tested public benefit program or (2) eligible for low-income heating assistance program (LIHEAP)	20.47% discount for non-heating service; 19.18% discount for heating service
Blackstone Gas Co.	Receiving benefits from any means-tested public benefit program	14% discount for non-heating service; 15.8% discount for heating service
Columbia Gas of Massachusetts (pp. 167, 172)	Maximum household income of 60% of state median income and (1) receiving benefits from any means-tested public benefit program or (2) eligible for LIHEAP	25% discount for non-heating and heating service
Fitchburg Gas and Electric/ Unitil	Maximum household income of 60% of state median income and (1) receiving benefits from any means-tested public benefit program or (2) eligible for LIHEAP	Gas: 25% discount for non-heating and heating service Electric : 25% discount
National Grid	Maximum household income of 60% of state median income and (1) receiving benefits from any means-tested public benefit program or (2) eligible for LIHEAP	Gas : 25% discount for non-heating and heating service Electric : 29% discount
New England Natural Gas Co. (Liberty Utilities)	Maximum household income of 60% of state median income and (1) receiving benefits from any means-tested public benefit program or (2) eligible for LIHEAP	25% discount for non-heating and heating service
NSTAR (Eversource)	Maximum household income of 60% of state median income and (1) receiving benefits from any means-tested public benefit program or (2) eligible for LIHEAP	Gas: 25% discount for non-heating and heating service Electric (Greater Boston- MetroWest) : 27% discount for non-heating and 25.7% for heating service

Table 5 (continued)

<i>Utility</i>	<i>Eligibility Requirements</i>	<i>Discount</i>
Western Massachusetts Electric Co. (Eversource)	Maximum household income of 60% of state median income and (1) receiving benefits from any means-tested public benefit program or (2) eligible for LIHEAP	32% discount for non-heating and heating service

Table 6: Minnesota Discounted Utility Rates for Low-Income Customers

<i>Utility</i>	<i>Eligibility Requirements</i>	<i>Discount</i>
CenterPoint Energy	Receiving LIHEAP assistance and agrees to be placed on a leveled payment plan and payment schedule Participation is limited to first come first served, up to a \$5 million program cap	Customers receive a monthly bill credit determined as one-twelfth of the difference between an estimate of the customer's annual gas bill and 4% of the customer's household income
Minnesota Energy Resources	Receiving LIHEAP assistance Participation is limited to first come first served, up to a \$750,000 program cap	Customers receive a monthly bill credit determined as one-twelfth of the difference between an estimate of the customer's annual gas bill and 6% of the customer's household income
Minnesota Power	LIHEAP qualified	Discounts range from 22.2% to 27.8% depending on monthly electricity usage
Xcel Energy (p. 119)	Receiving LIHEAP assistance (50% state median income) and using more than 3% of annual household income for electric use	The company offers customers with the lowest income and history of using more than 750 kWh per month an "affordable" monthly bill if they agree to "affordable" monthly payments (see also: http://energycents.org/affordability-programs/xcel-energy-customers/)

Table 7: New Hampshire Discounted Utility Rates for Low-Income Customers

<i>Utility</i>	<i>Eligibility Requirements</i>	<i>Discount</i>
Electric Assistance Program (applies to Eversource, Liberty Utilities, New Hampshire Electric Cooperative, and Unitil)	Maximum household income of 200% FPL	Discount rate is based on household income: 151%-200% FPL: 8% discount 126%-150% FPL: 22% discount 101%-125% FPL: 36% discount 7%-100% FPL: 52% discount 0%-75% FPL: 76% discount Discount applies to first 750 kWh used per month
Liberty Utilities (p. 57)	Eligible for LIHEAP benefits (200% FPL) or benefits from certain other programs	60% discount on gas delivery charges
Northern Utilities (p. 85)	Eligible for LIHEAP benefits or benefits from certain other programs	60% discount on gas delivery charges

Table 8: New York Discounted Utility Rates for Low-Income Customers

Utility	Eligibility Requirements	Discount
Central Hudson Gas & Electric Corp.	Receiving Home Energy Assistance Program (HEAP) benefit (60% state median income level)	Monthly discount varies depending on service type and amount of HEAP benefit: \$30-\$67 on gas heating bills \$3 on gas non-heating bills \$19-\$72 on electric heating \$19-\$56 on electric non-heating \$3-\$22 on non-utility heating fuels
Consolidated Edison Co.	Tier 1- receiving benefits under HEAP or certain other benefit programs Tier 2- received HEAP benefits with one add-on benefit in past 12 months Tier 3- received HEAP benefits with two add-on benefits in past 12 months Tier 4- enrolled in the Direct Vendor or Utility Guarantee Program	Monthly electric (p. 104) discounts vary by tier and service type Tier 1: \$10 non-heating and heating Tier 2: \$10 non-heating and heating Tier 3: \$21 non-heating, \$26 heating Tier 4: \$10 non-heating and heating Monthly discount for gas (p. 12) service is \$3 for non-heating service and \$50 for heating across all tiers
National Grid	Tier 1- receiving benefits under HEAP Tier 2- receiving HEAP and (a) household income within lowest income levels or (b) vulnerable household member Tier 3- receiving HEAP, household income within lowest income levels, and vulnerable household member Tier 4- enrolled in the Direct Voucher or Utility Guarantee Program Tier 5- households identified by the state Office of Temporary Disability Assistance	Monthly electric discount Tier 1 - \$11 heating and non-heating service Tier 2 - \$29 heating and non-heating Tier 3 - \$47 heating and non-heating Tier 4 - \$31 heating and non-heating Tier 5 (non-utility) - \$11 heating and non-heating Monthly gas discount Tier 1 - \$3 heating and non-heating Tier 2 - \$10 heating and \$3 non-heating Tier 3 - \$29 heating and \$3 non-heating Tier 4 - \$12 heating and \$3 non-heating Tier 5 (non-utility) - \$3 heating and non-heating
Long Island Power Authority (pp. 24, 245, 249)	Receiving benefits for HEAP or certain other benefit programs	97.5% discount on daily service charge 25% discount on first 250 kWh of usage
New York State Electricity and Gas	Receiving HEAP benefits	Monthly bill credit

Table 9: Pennsylvania Discounted Utility Rates for Low-Income Customers

Utility	Eligibility Requirements	Discount
Columbia Gas of Pennsylvania	Maximum household income of 150% FPL with termination notice or at least one failed payment in past 12 months or otherwise identified through cross utility referral and credit scoring	Offers three discount options: (1) Caps bills based on income: 7% of income if 0%-110% FPL; 9% of income if 110%-150% FPL (2) average payment of last 12 months prior to joining program (3) flat 50% discount Requires \$25 minimum payment
Duquesne Light Company	Maximum household income of 150% FPL and demonstrated or expressed inability to pay electric service bill	Discount varies by household income and service type: 0-50% FPL: 70% discount for non-heating; 55% discount for heating 51-100% FPL: 40% discount for non-heating; 35% discount for heating 101-150% FPL: 15% discount for non-heating; 20% discount for heating Total annual discount is capped at \$700 for non-heating customers and \$1,800 for electric heating customers
Metropolitan Edison Co.	Maximum household income of 150% FPL and total energy burden over 3% (for non-electric heat service) or 9% (for electric heat service) of total gross household income	Non-heating service: bills capped at 3% of income with a \$1,090 maximum annual subsidy and \$12 minimum monthly payment Heating service: bills capped at 9% of income with a \$2,670 maximum annual subsidy and \$45 minimum monthly payment
PECO Energy Co.	Maximum household income of 150% FPL	Bills are capped at a percentage of household income, depending on income level and service type Electric non-heating 0-50% FPL: bill capped at 5% of income with a \$2,048 maximum annual discount 51-100% FPL: bill capped at 6% of income with a \$1,389 maximum annual discount 101-150% FPL: bill capped at 7% of income with a \$1,241 maximum annual discount Electric Heating 0-50% FPL: bill capped at 13% of income with a \$2,922 maximum annual discount 51-100% FPL: bill capped at 16% of income with a \$1,881 maximum annual discount 101-150% FPL: bill capped at 17% of income with a \$1,661 maximum annual discount

Table 9 (continued)

Utility	Eligibility Requirements	Discount
Penelec	Maximum household income of 150% FPL and total energy burden over 3% (non-electric heat) or 9% (electric heat) of total gross household income	<p>Non-heating: bills capped at 3% of income with a \$1,110 maximum annual subsidy and \$12 minimum monthly payment</p> <p>Heating: bills capped at 9% of income with a \$2,710 maximum annual subsidy and \$45 minimum monthly payment</p>
Penn Power	Maximum household income of 150% FPL and total energy burden over 3% (non-electric heat) or 9% (electric heat) of total gross household income	<p>Non-heating: bills capped at 3% of income with a \$1,090 maximum annual subsidy and \$12 minimum monthly payment</p> <p>Heating: bills capped at 9% of income with a \$2,700 maximum annual subsidy and \$45 minimum monthly payment</p>
Peoples Natural Gas Co.	Maximum household income of 150% FPL and classified as "payment-troubled"	<p>Bills are capped at a percentage of household income depending on income level</p> <p>0-50% FPL: bills capped at 8% of income</p> <p>51-100% FPL: bills capped at 9% of income</p> <p>101-150% FPL: bills capped at 10% of income</p> <p>\$1,000 maximum annual subsidy (with certain exceptions allowed) and \$25 minimum monthly payment applies to all caps</p>
PPL Electric Utilities Corp.	Maximum household income of 150% FPL and unable to pay electric bill in full	<p>Percent of Bill option</p> <p>0-50% FPL: 50% discount</p> <p>51-100% FPL: 30% discount</p> <p>101-150% FPL: 20% discount</p> <p>Minimum Payment Plan option</p> <p>Customer receives fixed monthly billing credit based on income level (e.g., customers in the 101-150% FPL level receive a \$73 monthly credit)</p> <p>Agency Selected Payment option</p> <p>Allows caseworkers to determine a custom amount that is less than the percent of bill amount</p> <p>All options have a \$30 monthly minimum for electric heat service and \$12 monthly minimum for non-electric heat service</p>
UGI Utilities	Maximum household income of 150% FPL	<p>Bills are capped at a percentage of household income depending on income level</p> <p>0-50% FPL: bills capped at 7% of income</p> <p>51-100% FPL: bills capped at 8% of income</p> <p>101-150% FPL: bills capped at 9% of income</p> <p>All levels require \$25 minimum monthly payment for heating service and \$15 minimum monthly payment for non-heating service</p>

Table 10: Rhode Island Discounted Utility Rates for Low-Income Customers

Utility	Eligibility Requirements	Discount
National Grid	Head of the household or principal wage earner and (1) receiving Supplemental Security Income benefits or (2) eligible for benefits from LIHEAP or certain other public benefit programs	Customers do not have to pay the \$5 monthly customer charge and receive a 31% discount on their distribution charge (\$0.02953/ kWh rather than \$0.04300/ kWh)

Table 11: Vermont Discounted Utility Rates for Low-Income Customers

Utility	Eligibility Requirements	Discount
Green Mountain Power Corp.	Maximum household income of 150% FPL	25% discount on monthly energy charges
Vermont Gas	Maximum household income of 185% FPL	20% discount on monthly natural gas bill

LH:cmg

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57. Refer to the Application, Exhibit 5, Direct Testimony of Patrick L. Baryenbruch (Baryenbruch Testimony), PLB – 2, Evaluation of Necessity of Services and Reasonableness of Charges from Water Services Corporation.

a. Provide a detailed explanation as to why Mr. Baryenbruch's analysis did not include Investor Owned Water Utilities.

b. Provide a detailed analysis supporting the assumption that the customer accounts expenses incurred for electric and gas Investor-Owned Utilities are comparable to the costs incurred by an Investor-Owned Water Utility.

RESPONSE:

a. Mr. Baryenbruch's criteria in selecting comparison group water companies presented in his direct testimony is number of customers.

Mr. Baryenbruch heeded the KPSC's previous directive to WSCK regarding the benchmarking of allocated charges from Water Services to other utilities. In WSCK's 2010 rate case, Mr. Baryenbruch compared WSCK's total administrative and general (A&G) expenses per customer to those of other utility service companies. The majority of WSCK's total A&G expenses are allocated charges from Water Services Corporation (WSC). The comparison group consisted of service companies that are part of utility holding companies and file a Form 60 with the FERC. These are all electric and combination electric/gas utility companies. Mr. Baryenbruch used this group because the Form 60 includes detailed information on A&G expenses. The KPSC did not agree with the comparison group's makeup. It ruled as follows:

We agree with the AG's criticism of Mr. Baryenbruch's study as failing to involve similar type and sized utilities and, therefore, decline to afford it any weight. (KPSC Order for Case No. 2010-00476, pages 11-12)

WSCK's next rate case was for a 2013 test year. In this case, another WSCK witness used a comparison group of Kentucky water companies in benchmarking WSC charges allocated to WSCK. In this case, the KPSC ruled as follows:

In its last rate-case proceeding, WSKY presented a study comparing WSC's allocated service costs to those of a comparison group composed of electric utilities. In that

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preceding, the Commission declined to give WSKY's study any weight, finding that it failed to involve utilities of similar type and size. Heeding the Commission's past critique of its electric utility study, WSKY commissioned a new study using a sample group of Kentucky water utilities that are of comparable size to WSKY. (KPSC Order for Case No. 2013-00237, page 17)

In the current WSCK case, Mr. Baryenbruch selected Kentucky water companies with total customers that are 2 ½ times larger and smaller than WSC. The result is a comparison group of 64 Kentucky water companies. The selection was not based on whether a water company was investor-owned. The KPSC's order in WSCK's 2010 and 2013 cases did not specify that comparison groups must include investor-owned utilities.

b. WSC provides customer accounts services to all Corix Regulated Utilities, US Inc. (CRU US), utilities, including WSCK. Also, CRU US utilities incur certain customer accounts services directly. In Exhibit 2 of his direct testimony, Mr. Baryenbruch compares the 2019 total cost of CRU US utilities' customer accounts services to those of other utilities operating in states in which CRU US utilities also operate. The comparison group consists of utilities that file a Form 1 with the FERC. The Form 1 provides a consistent set of data that is publicly available.

Customer accounts services expenses are recorded in FERC accounts 903 – Customer Records and Collection Expenses and 905 – Miscellaneous Customer Accounts Expenses. A detailed description of the type of expenses recorded in these FERC accounts is provided on page 49 of Mr. Baryenbruch's Exhibit PLB-2 to his direct testimony. These are the same type of expenses incurred to provide service to the customers of CRU US utilities.

The electric utility comparison group is valid because, with one exception, customer accounts activities are similar across different types of utilities. Customer accounts services activities consist of the following major activities:

- Customer Call Center Operations – customer calls/contact, credit, order taking/disposition, bill collection efforts and outage calls
- Customer Call Center Maintenance – support of phone banks, voice recognition units, call center software applications and telecommunications
- Customer billing – bill printing, stuffing and mailing
- Remittance processing – processing customer payments
- Bill payment centers – processing customer payments at locations where customers can pay their bills in person

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Call center operations are more labor intensive for electric utilities. Their customers place an annual average of 2.50 customer calls to call centers compared to WSC's 1.07 calls per customer during 2019. Mr. Baryenbruch factors this difference into his cost comparison by adding a proportionate amount of expenses to the actual costs of CRU US utilities. This calculation is shown on page 50 of Exhibit PLB-2 of Mr. Baryenbruch's direct testimony. For 2019, the adjustment added more than \$2.2 million to WSC's actual expenses of \$4.8 million to arrive at a cost pool total of \$7.0 million. This adjustment put WSC's cost per customer on the same calculation basis as the electric utilities in the comparison group. On page 52 in Exhibit PLB-2 of Mr. Baryenbruch's testimony, it can be noted that WSC's 2019 \$26.22 cost per customer is below the comparison group's average of \$28.49.

Another factor that illustrates the comparability of customer account services across utilities is the fact that many use the same customer system. For instance, WSC uses Oracle's Utilities Customer Care and Billing system, which is designed to meet the needs of electric, gas and water utilities. The system supports all aspects of utility customer accounts services.

WITNESS:

Patrick Baryenbruch, CPA,CITP, Baryenbruch & Company, LLC

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58. Refer to the Application, Exhibit 5, Brown Testimony page 3. Mr. Brown explained that in an effort to reduce the rate case expense, the salary and wage analysis was conducted internally rather than hiring an outside consultant to perform the analysis. According to Mr. Brown, this reduced rate case expense by \$30,000. Provide a detailed explanation as to why Water Service Kentucky hired Mr. Baryenbruch to perform the analysis to show that charges of Water Services Corporation are reasonable, rather than to perform the analysis in-house.

RESPONSE:

Mr. Baryenbruch was commissioned by the WSC to perform a study for the entire company. Costs pertaining to the study that was performed for WSC and relied on by Mr. Baryenbruch in this case have not been included in WSCK's rate case expense claim. Water Service Corporation of Kentucky makes every reasonable effort to reduce rate case expense in each case.

WITNESS:

Rob Guttormsen

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59. Refer to Water Service Kentucky's Response to the June 26, 2020 Order, Appendix B, Item 3, Filing Template Pro Forma, Tab: Sch.D-Rev Req and to Tab: wp.h-cap.struc. Using Water Service Kentucky's requested revenue requirement and its capital structure, impute Water Service Kentucky's Weighted Cost of Capital (WCC) and Return on Equity (ROE). Provide the requested calculations in an Excel spreadsheet format with all columns and rows accessible and all formulas unprotected.

RESPONSE:

WSCK did not perform a ROE study, nor is it requesting rate base/rate of return treatment in Case No. 2020-00160. WSCK is proposing to use an operating ratio of 88% is based on Commission decisions in WSCK's past (4) general rate cases.

WITNESS:

Perry Brown, Senior Financial Analyst

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

60. Given that Water Service of Kentucky's revenue requirement is calculated using the operating ratio method that is directly dependent on the level of operating expenses that is incurred, describe in detail the incentives for Water Service Kentucky to control its operating expenses and to improve its operating efficiencies.

RESPONSE:

WSCK controls operating expenses and improves operating efficiencies so that it can continue to provide safe, reliable utility service to its customers in Kentucky while ensuring a fair return for shareholders. The Commission encouraged WSCK to utilize the operating ratio method in Case No. 2008-00563 and found that calculating WSCK's revenue requirement using an operating ratio of 88 percent allows WSCK sufficient revenues to cover its reasonable operating expenses and provide for reasonable equity growth in Case No. 2010-00476, Case No. 2013-00237, Case No. 2015-00382, and Case No. 2018-00208.

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
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61. Since Water Service Kentucky's revenue requirement is not dependent on rate base explain in detail the motivation for Utilities to increase its investment in the infrastructure of Water Service Kentucky.

RESPONSE:

Investment in Kentucky infrastructure is driven by the needs of operations, not WSCK's revenue requirement. WSCK plans investments using the same asset management framework relied upon for all of WSCK's sister companies whose revenue requirements are calculated using rate base. WSCK's asset management framework is primarily focused on an assessment of an asset's condition and the consequence of an asset failure.

WITNESS:

Rob Guttormsen

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
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62. For each Water Service subsidiary that provides retail water service, provide the following:

a. A cite to the last fully litigated rate case and a copy of the section of the Order discussing the WCC and ROE; and

b. The last authorized Weighted Cost of Capital and ROE.

RESPONSE:

Please see the attached file, "Response to Staff DR 2.62 - UI Rate Case Summary".

WITNESS:

Perry Brown, Senior Financial Analyst

CASE NO. 2020-00160
WATER SERVICE CORPORATION OF KENTUCKY
RESPONSES TO COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION

63. Provide Utilities capital structure, WCC, and ROE for the 12 months ending March 31, 2020.

RESPONSE:

Please see the attached file, "Response to Staff DR 2.63 – Capital Structure".

WITNESS:

Perry Brown, Senior Financial Analyst