

REQUEST FOR PROPOSAL FOR  
THE DESIGN AND  
CONSTRUCTION OF A VEHICLE WASH  
BAY FACILITY  
FOR THE TOWN OF BERLIN

**Project # 2021-16**



**TOWN OF BERLIN**  
**Public Building Commission**  
240 Kensington Road • Berlin, CT 06037  
**Office** (860) 828-7022 • **Fax** (860) 828-7180

**March 8, 2021**

# **1.0 Request for Proposal**

## **1.1 PURPOSE:**

The Town of Berlin Public Building Commission (PBC) is inviting qualified firms to submit proposals to design and build a new Vehicle Wash Bay Facility at the Town's Physical Services Complex. The PBC seeks a team which includes design and construction, the "Design-Build Team." The Town/PBC intends to issue one contract to the selected Team for the entire scope of work. The successful bidder shall provide a complete and operational wash bay system with all required appurtenances at no additional cost to the Town of Berlin.

The Town of Berlin and its construction representatives will pass all aspects of design and construction of a new Vehicle Wash Bay Facility to a qualified Design/ Build Team. The Town of Berlin reserves the right to accept or reject any proposal. The Town of Berlin reserves the right to accept the proposal that provides "best value" to the Town of Berlin and meets the minimum design requirements as set forth within.

The Design/ Build Team must exhibit that they, or sufficient members of their team, have experience in the design and construction of Vehicle Wash Bay Facilities or similar structures in size and scale to that which is being proposed. The Design/ Build Team will be required to acquire all necessary permits for the project including, but not limited to, local Inland Wetlands, Planning / Zoning, and Building Department approvals. Local permit fees are waived for this project by the Town of Berlin. If required of the project, all permit fees will be paid directly by the Town of Berlin.

## **SITE LOCATION**

35 Town Farm Lane  
Berlin, CT 06037

The parcel is currently owned by the Town of Berlin.

## **CONTACT PERSON – RFP PROCESS**

Maryssa Tsolis Purchasing Agent 240 Kensington Road Berlin, CT 06037	Phone: 860-828-7048 e-mail: <a href="mailto:mtsolis@town.berlin.ct.us">mtsolis@town.berlin.ct.us</a>
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## **CONTACT PERSONS – DESIGN AND CONSTRUCTION**

Michael S. Ahern, P.E. Director of Public Works 240 Kensington Road Berlin, CT 06037	Phone: 860-828-7014 e-mail: <a href="mailto:mahern@town.berlin.ct.us">mahern@town.berlin.ct.us</a>
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Doug Solek Director of Facilities 11 Town Farm Lane Berlin, CT 06037	Phone: 860-828-7029 e-mail: <a href="mailto:dsolek@town.berlin.ct.us">dsolek@town.berlin.ct.us</a>
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## **2.0 SUBMISSION OF PROPOSALS**

All Bid Proposal Forms and Deliverable Documents shall be delivered to the Engineering Office at the Berlin Town Hall, Room 120, 240 Kensington Road, Berlin, CT 06037. All proposals must be received by **2:00 PM., Thursday, April 1, 2021**, at which time they will be opened publicly and read aloud. The Town Hall will remain closed to the public. It is strongly recommended that bidders mail, UPS, or FedEx bids. Bidders can call Maryssa Tsois at 860-828-7048 if bringing bids in person – she will arrange to meet your representative outside to receive your bid. There will be no live bid opening at this time.

## **3.0 SITE CONDITIONS**

Design/ Build Teams are free to inspect the site at their convenience, but must attend a mandatory pre-bid meeting to be held at the site at **10:00 AM on Thursday, March 18, 2021**. The Design/ Build Team will be responsible for any assumptions made regarding the site for the work to be performed.

An A-2 survey with topographic and utility information prepared by J L Surveying, Berlin, CT is included in Attachment 1. Attachment 1 also includes a GIS aerial map showing existing conditions as well as an approximate staging area for the selected contractor. These and other documents are being provided for information only for the Design Build Entities in designing the Vehicle Wash Bay Facility.

The Design Build Team shall be responsible for extending the following utilities (as required) to the new building pad and connecting to the new Vehicle Wash Bay Facility:

1. Electrical
2. Natural Gas
3. Water
4. Sanitary Sewer
5. Storm Sewer
6. Computer and Alarms/Connections

## **4.0 SCOPE OF WORK and DESIGN REQUIREMENTS**

The Work consists of, but is not limited to: selective sitework, bituminous and concrete paving, concrete, unit masonry, roofing, miscellaneous metals, metal doors and frames, overhead doors and controls; miscellaneous carpentry, interior finishes, electrical, mechanical, and plumbing. The design and construction shall also include installation of an automatic touchless wash system with undercarriage wash equivalent to systems manufactured by HydroChem Systems (Caledonia, MI). Hydrochem's Sales Engineer, Geoff Momber, is familiar with this project and can be reached at 616-426-3533 or via email at [geoff.momber@hcs-clean.com](mailto:geoff.momber@hcs-clean.com). If another touchless wash system is proposed, the Design Build team shall provide sufficient information to document that it is equivalent to the HydroChem components and operation. See the Basis of Design in Attachment 2 for further detail.

The design of the Vehicle Wash Bay Facility must consider the functional space needs outlined within the *Statement of Need – Truck Wash Facility*, dated December 3, 2019 (see Attachment 3). The truck wash bay must be a minimum of 60 feet long and 24 feet wide, with ancillary space for supporting equipment and supplies (compressor, water heater, water softener, detergent drums, etc.). [A design

alternate is included in the bid proposal to reduce the proposed building length from 60 feet to 50 feet, with a corresponding deduct requested.] The new wash bay will be located along the south wall of the Highway Garage, to replace the existing pre-wash station at that site. The entrance to the new vehicle wash bay will be from the east side (rear) of the existing Highway Garage, and will incorporate concrete aprons (4,500 psi minimum, air entrained for strength and salt protection) at the entrance and exit. See the Basis of Design included in Attachment 2 for further detail.

The Highway Department can remove the existing slab and pavement to the extent required by the design team, and can dispose of all construction debris. The Highway Department can also supply a backhoe, excavator, loader, and dump trucks with operators at key phases of demolition and/or construction. The intent is to assist the Design/ Build Team on a mutually agreed upon schedule, and to reduce sitework costs as much as possible. The proposal should identify how and when Town forces can be utilized in this project to achieve cost savings.

The completed wash bay should include at least a three (3) month supply of detergent and startup training and support.

The design and construction of the Vehicle Wash Bay Facility must conform to all current state and local codes, standards, and regulations effective on the date of this request. The Design/ Build Team shall at all times observe and comply with all laws, ordinances and regulations of the federal, state and local governments, which may in any way affect the preparation or the performance of the contract.

The Design/ Build Team shall demonstrate to the Town of Berlin PBC that they have the expertise to design, build and complete the entire Vehicle Wash Bay Facility according to the design requirements as outlined herein. The Town of Berlin will rely primarily on the expertise of the Design/ Build Team to meet and exceed all minimum requirements.

Duties shall include, but not be limited to:

A. Pre-Construction & Design

- a. Review existing site conditions and identify issues
- b. Provide budget estimates through major design phases
- c. Develop schedule / phasing plans
- d. Provide value engineering services
- e. Identify and recommend options for long lead items
- f. Attend required meetings
- g. Provide preliminary Design Build Schematic Design architectural, plumbing, electrical, mechanical, structural, and fire protection design/drawings and comments on Value Engineering options for materials, schedule, or processes.

B. Construction

- a. Develop and maintain a master schedule, safety reports, and logs
- b. Hold weekly meetings with subcontractors, designer(s), and the PBC and be responsible for taking and distributing detailed notes in order to control the schedule
- c. Prepare and issue subcontractor bid information
- d. Produce written daily field reports on status and progress and submit to the PBC



- e. Control costs and issue reports, payment requisitions, and lien waivers
  - f. Obtain all applicable permits
  - g. Issue punch list and oversee resolution
- C. Project Close-out
- a. Upon project completion, provide the PBC and its designees with one complete set of as-built documentation in AutoCAD version 2013 or higher as well as a pdf record set.
  - b. Provide to the PBC and its designees a close-out package with all manuals, warranties, etc.
  - c. Provide (with responsible sub) MEP instructional training for the Town of Berlin operations personnel.
  - d. Provide to the PBC and its designees a copy of all inspections, permits, affidavits, etc. within 24 hours of receipt.

## **5.0 Budget**

The Town of Berlin has budgeted approximately \$494,000 for all costs (except as specifically noted) related to the construction and sitework for a new Vehicle Wash Bay Facility. It is the intent of the Town of Berlin to have all Design/ Build Teams design and construct a facility and related sitework within the budgeted amount. The Design/Build team shall provide a complete and operational wash bay system with all required appurtenances at no additional cost to the Town of Berlin. The Town will consider proposals for review that exceed the budget, if necessary, to meet the program and facility requirements. Demonstrated ability to complete all tasks as outlined herein within the budget as outlined above will result in a "highly favorable" determination by the Town of Berlin.

## **6.0 Bid Bond \*See Bid Proposal Form**

A certified check or bank draft made payable to the "Town of Berlin", or a satisfactory bid executed by the bidder and a surety company in an amount no less than five percent (5%) of the base bid, must be submitted with each proposal.

## **7.0 Performance and Payment Bond**

Successful bidders will be required to furnish a Performance and Payment Bond to the Town of Berlin in the amount of 100% of the contract sum.

## **8.0 Protection of Work and Property**

Successful bidders shall be responsible for protection of their equipment and materials against theft, damage or deterioration on the site.

## **9.0 Statement of Qualifications**

Interested Firms should submit a Statement of Qualifications that documents their qualifications and experience to perform the required services. At a minimum, the Statement of Qualifications should include the following items:

**9.1 Firm Background and Project Team** - Provide a background of the Lead Firm (and any subconsultant Firms). Clearly identify the following:

1. Firm Background and Organization Structure
2. Design / Build Team members shall be licensed for contracting and design (architecture and/or engineering) in the State of Connecticut.
3. Proposed Project Team (including subconsultant firms);
  - a. Clearly identify Project Team's organizational structure(s), permanent main addresses, dates firms were organized, and legal form of ownership. If a corporation, indicate where incorporated. How many years have you been engaged in services you provide under your present name?
  - b. Resumes of proposed Project Manager, and any other individuals related to the needs of this project, with background and experience related to similar projects

### **9.2 Design / Build Team Experience**

1. Previous completed design / build projects of a comparable scale or facility, for the lead Firm within the past five (5) years. Examples shall include project description, services provided by the lead firm, year completed, and Project Manager for the project.
2. Team firms shall list all current and past litigation within the past five (5) years.
3. Team firms shall list all past claims and/or litigation with the Town of Berlin.
4. Please respond to the following questions:
  - Have you ever failed to complete any work awarded to you? If so, where and why?
  - Have you ever defaulted on a contract? If so, where and why?
  - Is there any pending litigation which could affect your organization's ability to perform this agreement? If so, please describe.
  - Has your firm ever had a contract terminated for cause within the past five years? If yes, provide details.
  - Has your firm been named in a lawsuit related to errors and omissions within the past five years? If yes, provide details.
  - During the past seven years, has your firm ever filed for protection under the Federal bankruptcy laws? If yes, provide details.
  - Are there any other factors or information that could affect your firm's ability to provide the services being sought about which the Town should be aware?

### **10.0 Bid Proposal Requirements and Deliverables**

Each Design/ Build Team shall return one (1) original and (6) copies (and a pdf file) of the proposal sheet entitled "Bid Proposal Form", the Statement of Qualifications and completed Project References form.

Each bid proposal must be signed by an authorized agent of the bidder.

Successful bidders will be required to obtain all required governmental approvals following an award of contract with the Owner.

In addition to the Bid Proposal and Bid Bond, each Design/ Build Team shall submit with their Bid Proposal the following minimum deliverables seven (7) hard copies and

a pdf file) to the PBC so that their design can be fully understood and evaluated by the Owner:

1. Floor plan and elevations (2 minimum), to scale, to a schematic design level of the proposed construction with construction materials indicated.
2. Typical wall section at a scale appropriate to indicate construction techniques, building materials, and insulation values.
3. Site plan to a schematic design level indicating access points, zoning setback requirements, proximity to wetlands, and site lighting.
4. Cost estimate in CSI format indicating subtotal costs for each division and total hard costs (construction and sitework) for a "turnkey" product deliverable to the Town of Berlin.
5. Project schedule that indicates all completion dates for construction documents, approvals, construction, and occupancy.
6. Outline specifications indicating all planned construction materials. Outline specification shall be prepared in Masterspec format.
7. Layout drawing showing major components of the vehicle wash equipment.

### **11.0 Contract**

The Town of Berlin intends to enter into a contract with the successful Design/ Build Team. The form of contract will be AIA Document A141, "*Standard Form of Agreement Between Owner and Design-Builder*", 2014 edition.

The contract will include all labor and materials, tools and equipment and services required for proper performance of the work as indicated hereinafter and as may be required for proper completion of the work in accordance their Bid Proposal Form and deliverable documents and with the highest standards of the trades involved.

### **12.0 Consideration of Proposals**

The Town of Berlin reserves the right to select or reject all proposals; to waive informality in proposals; and to reject any and all bids, or accept such bid as shall in its judgement be to the best interest of the Town of Berlin.

### **13.0 Allowances**

The Design/ Build Team shall include in the Bid Proposal the following Allowance:

- |                             |            |
|-----------------------------|------------|
| 1. UTILITY COMPANY CHARGES: | \$3,500.00 |
|-----------------------------|------------|

The Design/ Build Team shall submit all invoicing to the PBC with supporting documentation from the Utility Company to substantiate all expenses. Utility Company charges allowance shall only cover direct costs to the utility company associated with their scope of work to provide and/or extend utilities to the new Vehicle Wash Bay Facility. The Design/ Build Team shall not include their scope of work, or overhead and profit, to the allowance amounts listed above.

**14.0 Withdrawal of Bids**

No bid may be withdrawn for a period of sixty (60) days after the opening of bids without written consent of the Owner.

**15.0 Rejection of Bids**

The Town of Berlin reserves the right to accept or reject any or all bids and waive any formalities in the bidding.

**16.0 Applicable Laws**

The bidding shall be done in accordance with the Code of the Town of Berlin, and the laws of the State of Connecticut.

**17.0 Insurance Requirements**

**17.1 Insurance Requirements/Standard Service Contract**

The Design Build Team shall agree to maintain in force at all times during which services are to be performed the following coverages placed with company(ies) licensed by the State of Connecticut which have at least an "A-" VIII policyholders rating according to Best Publication's latest edition Key Rating Guide.

		(Minimum Limits)
General Liability*	Each Occurrence	\$1,000,000
	General Aggregate	\$2,000,000
	Products/Completed Operations Aggregate	\$2,000,000
Auto Liability*	Combined Single Limit	
	Each Accident	\$1,000,000
Umbrella* (Excess Liability)	Each Occurrence	\$1,000,000
	Aggregate	\$3,000,000

\* The Town of Berlin shall be named as "Additional Insured". Coverage is to be provided on a primary, noncontributory basis.

If any policy is written on a "Claims Made" basis, the policy must be continually renewed for a minimum of two (2) years from the completion date of this contract. If the policy is replaced and/or the retroactive date is changed, then the expiring policy must be endorsed to extend the reporting period for claims for the policy in effect during the contract for two (2) years from the completion date.

Workers' Compensation and Employers' Liability	WC Statutory Limits	
	EL Each Accident	\$100,000
	EL Disease Each Employee	\$100,000
	EL Disease Policy Limit	\$500,000

Original, completed Certificates of Insurance must be presented to the Acting Purchasing Agent prior to purchase order/contract issuance. Vendor agrees to provide replacement/renewal certificates at least 60 days prior to the expiration of

the policy. Should any of the above described policies be cancelled before the expiration date, written notice must be made to the PBC 30 days prior to cancellation.

**17.2 Insurance Requirements/Professional Service Contract**

Vendor shall agree to maintain in force at all times during which services are to be performed the following coverages placed with company(ies) licensed by the State of Connecticut which have at least an "A-" VIII policyholders rating according to Best Publication's latest edition Key Rating Guide.

		(Minimum Limits)
General Liability*	Each Occurrence	\$1,000,000
	General Aggregate	\$2,000,000
	Products/Completed Operations	\$2,000,000
	Aggregate	
Auto Liability*	Combined Single Limit	
	Each Accident	\$1,000,000
Professional Liability	Each Claim or Each Occurrence	\$1,000,000
	Aggregate	\$1,000,000
Umbrella* (Excess Liability)	Each Occurrence	\$1,000,000
	Aggregate	\$1,000,000

\* The Town of Berlin shall be named as "Additional Insured". Coverage is to be provided on a primary, noncontributory basis. In addition to the coverage delineated above, Builders Risk Insurance is required for this construction contract.

If any policy is written on a "Claims Made" basis, the policy must be continually renewed for a minimum of two (2) years from the completion date of this contract. If the policy is replaced and/or the retroactive date is changed, then the expiring policy must be endorsed to extend the reporting period for claims for the policy in effect during the contract for two (2) years from the completion date.

Workers' Compensation and	WC Statutory Limits	
Employers' Liability	EL Each Accident	\$100,000
	EL Disease Each Employee	\$100,000
	EL Disease Policy Limit	\$500,000

Original, completed Certificates of Insurance must be presented to the Acting Purchasing Agent prior to purchase order/contract issuance. Vendor agrees to provide replacement/renewal certificates at least 60 days prior to the expiration of the policy. Should any of the above described policies be cancelled before the expiration date, written notice must be made to the PBC 30 days prior to cancellation.

**18.0 Warranty / Guaranty**

The Design/ Build Team and each Subcontractor shall warranty / guaranty that all materials and workmanship furnished and / or supplied for the construction of the

Vehicle Wash Bay Facility shall be free from original defects or against injury from proper and usual wear when used for intended purposes for one (1) year after the date of Substantial Completion. Where warranties are provided by the supplier / manufacturer for longer terms, such longer terms shall apply from the date of Substantial Completion.

## **19.0 Other General Conditions**

### Right To Amend or Terminate the RFP or Contract

The Town may, in its sole discretion, clarify, modify, amend or terminate this RFP if the Town determines it is in the Town's best interest. The Town has the right to extend the RFP Open Date no later than four (4) business days prior to the scheduled RFP Open Date, via Addendum, if determined it is in the Town's best interest. In the event that an insufficient number of qualified bids are received by the RFP Open Date, the Town may terminate and re-post the RFP if determined it is in the Town's best interest. All such actions shall be affected by a posting on the Town's website, [www.town.berlin.ct.us](http://www.town.berlin.ct.us). **Each proposer is responsible for checking the Town's website to determine if the Town has issued any addenda and, if so, to complete its proposal in accordance with the RFP as modified by the addenda.** The Town will contractually reserve the right to cancel the contract at any time.

Exceptions and Alternatives. Proposers wishing to take any exceptions to any requirement in the RFP shall state and explain such exceptions. The Town may accept proposals which take exception to any requirements in this RFP, or which offer any alternative to a requirement herein, as well as consider such exceptions and alternatives in evaluating responses. Any exception or alternative must be clearly delineated and cannot materially affect the substance of this Request for Proposals.

### Questions and Amendments

The Questions concerning the process and procedures applicable to this RFP are to be submitted **in writing** (including by e-mail or fax) and directed **only to:**

Name: Maryssa Tsolis

Position: Purchasing Agent

Email: [mtsolis@town.berlin.ct.us](mailto:mtsolis@town.berlin.ct.us)

Fax: (860)828-7048

**Proposers are prohibited from contacting any other Town employee, officer or official concerning this RFP. A proposer's failure to comply with this requirement may result in disqualification.**

The appropriate Town representative listed above must receive any questions from proposers no later than seven (7) days before the proposal opening date. That representative will confirm receipt of a proposer's questions by e-mail. The Town will answer all written questions by issuing one or more addenda, which shall be a part of this RFP and the resulting Contract, containing all questions received as provided for above and decisions regarding same.

At least four (4) calendar days prior to proposal opening, the Town will post any addenda on the Town's website, [www.town.berlin.ct.us](http://www.town.berlin.ct.us). **Each proposer is responsible for checking the website to determine if the Town has issued**

**any addenda and, if so, to complete its proposal in accordance with the RFP as modified by the addenda.**

No oral statement of the Town, including oral statements by the Town representatives listed above, shall be effective to waive, change or otherwise modify any of the provisions of this RFP, and no proposer shall rely on any alleged oral statement.

Costs for Preparing Proposal

Each proposer's costs incurred in developing its proposal are its sole responsibility, and the Town shall have no liability for such costs.

Ownership of Proposals

All proposals submitted become the Town's property and will not be returned to proposers.

Freedom of Information Act

All information submitted in a proposal or in response to a request for additional information is subject to disclosure under the Connecticut Freedom of Information. Proposers are encouraged **not** to include in their proposals any information which is proprietary, a trade secret, or otherwise confidential. All materials associated with this procurement process are subject to the terms of state laws defining freedom of information and privacy, and all rules, regulations and interpretations resulting from those laws.

Legal Status

If a proposer is a corporation, limited liability company, or other business entity that is required to register with the Connecticut Secretary of State's Office, it must have a current registration on file with that office. The Town may, in its sole discretion, request acceptable evidence of any proposer's legal status.

Presumption of Proposer's Full Knowledge

Each proposer is responsible for having read and understood each document in this RFP and any addenda issued by the Town. A proposer's failure to have reviewed all information that is part of or applicable to this RFP, including but not only any addenda posted on the Town's website, shall in no way relieve it from any aspect of its proposal or the obligations related thereto.

Each proposer is deemed to be familiar with and is required to comply with all federal, state and local laws, regulations, ordinances, codes and orders that in any manner relate to this RFP or the performance of the work described herein.

By submitting a proposal, each proposer represents that it has thoroughly examined and become familiar with the scope of work outlined in this RFP, and it is capable of performing the work to achieve the Town's objectives. If applicable, each proposer shall visit the site, examine the areas and thoroughly familiarize itself with all conditions of the property before preparing its proposal.

Tax Exemptions

The Town is exempt from the payment of federal excise taxes and Connecticut sales tax and use taxes. Such taxes must not be included in prices.

### Award Criteria & Selection

All proposals will be publicly opened and read aloud as received on the date, at the time, and at the place identified in this RFP.

The Town reserves the right to correct, after proposer verification, any mistake in a proposal that is a clerical error, such as a price extension, decimal point error or FOB terms. If any error exists in an extension of prices, the unit price shall prevail.

The Town reserves the right to accept all or any part of a proposal, reject all proposals, and waive any informalities or non-material deficiencies in a proposal. The Town also reserves the right, if applicable, to award the purchase of individual items under this RFP to any combination of separate proposals or proposers.

The Town will accept the proposal that, all things considered, the Town determines is in its best interests. Although price will be an important factor, it will not be the only basis for award. Due consideration may also be given to a proposer's experience, references, service, ability to respond promptly to requests, past performance, and other criteria relevant to the Town's interests, including compliance with the procedural requirements stated in this RFP.

#### **A. Evaluation Criteria**

The following specific criteria are expected to be among those utilized in the selection process. They are presented as a guide for the proposer in understanding the Town's requirements and expectation for this project and are not necessarily all inclusive or presented in order of importance.

- The background, experience, and strength of the Proposer in providing similar services elsewhere, including the level of experience in working with other Connecticut municipalities of similar size, and the quality of services performed.
- The Proposer's responsiveness and compliance with the RFP requirements and conditions to provide the services requested.
- A review of references provided with the Proposal, and administration of prior contracts.
- Competitiveness of proposed fee. The Town reserves the right to negotiate fees with the selected Proposer.

The Town may elect to have the proposals evaluated by a committee as part of making a selection. If deemed necessary, the Town reserves the right to arrange for interviews/oral presentations as part of the selection process, which invitations for interviews may involve a short-listing of the proposals received.

If the proposer does not execute the Contract within ten (10) business days of the date of notification, unless extended by the Town, the Town may call any proposal security provided by the proposer and may enter into discussions with another proposer. **The Town will post the Preliminary Notice of Award and related information on its website, [www.town.berlin.ct.us](http://www.town.berlin.ct.us), under "Bid and RFP Information."**



## **20.0 Key Dates**

RFP Advertised:	March 8, 2021
<b>Pre-Bid Meeting</b>	<b>March 18, 2021 @ 10:00AM*</b>
Questions due from Vendors:	March 25, 2021
RFP Open Date:	April 1, 2021 @ 2:00PM
Interview of Top Vendors:	TBD
Contract Execution Date:	Spring 2021

***\*To be held at the project site at 35 Town Farm Lane.***

**Bid Proposal Form**  
**TOWN OF BERLIN, CONNECTICUT**

**NEW VEHICLE WASH BAY FACILITY**  
**35 TOWN FARM LANE - BID #2021-16**

Pursuant to and in full compliance with the RFP, the undersigned certifies this proposal is submitted without collusion and all responses are true and accurate. If awarded this proposal, it is agreed this will form a contractual obligation to provide services at fees specified in this Proposal Form, subject to and in accordance with all instructions, conditions, requirements contained in the documents, including addenda, which are made part of this proposal.

**Please Provide a Breakdown of Pricing:**

<b>Existing Conditions/Design/Permitting</b>	\$ _____
<b>Demolition-Slab &amp; Bituminous Concrete</b>	\$ _____
<b>Demolition-Existing Wash Bay (&amp; Garage portions, if req'd)</b>	\$ _____
<b>Site Work and Utilities</b>	\$ _____
<b>Foundations, Slab, Ramps, Paving</b>	\$ _____
<b>Superstructure / Masonry</b>	\$ _____
<b>Automatic Vehicle Wash System</b>	\$ _____
<b>Plumbing, Heating, &amp; Ventilation</b>	\$ _____
<b>Electrical, Alarms, IT, Access Control</b>	\$ _____
<b>Openings (including Overhead Door Systems)</b>	\$ _____
<b>Finishes, All Other Items, Close-out</b>	\$ _____

**TOTAL Base Bid:**

\_\_\_\_\_ \$ \_\_\_\_\_  
 (Base Bid Amount, in words)

**ALTERNATE**

**1. Reduce the building length by 10 feet, from 60 feet to 50 feet. Deduct:**

\_\_\_\_\_ \$ \_\_\_\_\_  
 (Deduct Amount, in words)

**ALLOWANCES**

Included in the Bid Proposal are the following Allowances:

- |                             |            |
|-----------------------------|------------|
| 1. UTILITY COMPANY CHARGES: | \$3,500.00 |
|-----------------------------|------------|

If awarded this Contract, we will execute a Contract with the Town of Berlin, Owner of the property. Form of contract anticipated is AIA Document A141, "Standard Form of Agreement Between Owner and Design-Builder", 2014 edition.

**BID PROPOSAL FORM  
PAGE 2**

**CONTRACT TIME**

If awarded the Contract, the undersigned agrees that the work will commence upon formalization of a Contract with the Owner, and shall be Substantially Complete within

\_\_\_\_\_ (\_\_\_\_\_) calendar days  
**(Number of Days, in words)**

Completion of Work: It is agreed that time is of the essence for this project. The Design/ Build Team hereby agrees, upon award of a contract with the Owner, to commence, prosecute and substantially complete the work in accordance with the project completion time as stipulated within this Bid Proposal Form.

**ADDENDA**

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on this project. The Bid includes Addenda listed below and they are hereby acknowledged:

Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____
Addendum # _____	Dated _____

**PROJECT CONDITIONS**

Design/ Build Team herein agrees that it has been afforded the opportunity to inspect the project site and perform tests. The Design/ Build Team is satisfied with the Project site and conditions based upon such inspection. Design/ Build Team represents that it has visited the Project Site, become familiar with local conditions under which this Work is to be performed and correlated personal observations with the requirements of Request for Proposal.

It is further understood that no additional compensation will be allowed by the Town of Berlin by reason of any difficulties which the Design/ Build Team could have discovered or reasonably anticipated, prior to submittal of its bid proposal.

**BID PROPOSAL FORM  
PAGE 3**

**BID BOND**

Enclosed herewith, is the Bid Security in the form of:

Bid Bond (    )                      Certified Check (    )

in the amount of: \_\_\_\_\_ (\$ \_\_\_\_\_ )  
**(Bid Bond Amount, in words)**

**DELIVERABLES**

In addition to this Bid Proposal Form and Bid Bond, all requested deliverables as outlined within the "Request for Proposals" have been fully prepared and made part of this submission package.

COMPANY NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
(authorized signature, officer of bidder's company)

\_\_\_\_\_  
(above name, typewritten)

TITLE: \_\_\_\_\_

TELEPHONE #: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

**Proposer's References**  
**TOWN OF BERLIN, CONNECTICUT**

**NEW VEHICLE WASH BAY FACILITY**  
**35 TOWN FARM LANE - BID #2021-16**

Provide at least four (4) references:

1. BUSINESS NAME

\_\_\_\_\_

ADDRESS

\_\_\_\_\_

CITY, STATE

\_\_\_\_\_

TELEPHONE:

\_\_\_\_\_

INDIVIDUAL CONTACT NAME AND POSITION

\_\_\_\_\_

2. BUSINESS NAME

\_\_\_\_\_

ADDRESS

\_\_\_\_\_

CITY, STATE

\_\_\_\_\_

TELEPHONE:

\_\_\_\_\_

INDIVIDUAL CONTACT NAME AND POSITION

\_\_\_\_\_

3. BUSINESS NAME

\_\_\_\_\_

ADDRESS

\_\_\_\_\_

CITY, STATE

\_\_\_\_\_

TELEPHONE:

\_\_\_\_\_

INDIVIDUAL CONTACT NAME AND POSITION

\_\_\_\_\_

**TOWN OF BERLIN, CONNECTICUT**

**NEW VEHICLE WASH BAY FACILITY**  
**35 TOWN FARM LANE - BID #2021-16**

4. BUSINESS NAME

\_\_\_\_\_

ADDRESS

\_\_\_\_\_

CITY, STATE

\_\_\_\_\_

TELEPHONE:

\_\_\_\_\_

INDIVIDUAL CONTACT NAME AND POSITION

\_\_\_\_\_

# **ATTACHMENT # 1**

## **EXISTING CONDITIONS MAPPING**





**Legend**

- PARCEL\_ARCS\_2020
- - - SanitarySewerMains
- - - SanitaryLateralLines
- - - Drainage\_Lines

**>GAS Layer**

- UGas (C.N.G.)
- UGas (Yankee)
- Water\_Mains
- ♦ Water\_Hydrants
- - - NEG\_Water\_Mains
- - - NEG\_ServiceLines
- - - wLateralLine
- Water\_Mains



1 inch = 40 feet  
 0 20 40 80 Feet

MUNICIPAL COMPLEX  
 TOWN FARM LANE  
 BERLIN, CT 06037

Document Path: M:\Mike's Projects\2021-02-04\_Municipal Complex - Wash Bay\_24x36.mxd

Date: 2/8/2021  
 Created by: D. Thorn



Parcel Lines Approx.  
 2019 Aerial Photo  
 2020 GIS DataSet



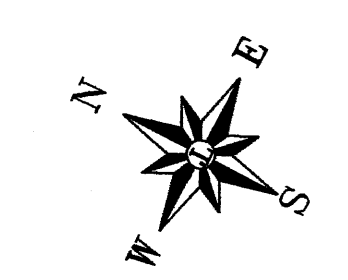


- MAP REFERENCES:
1. STATE HIGHWAY MAP RECONSTRUCTION OF MASSIRIO DRIVE SHEET NO. 11 7 A-1 BERLIN PROJ. NO. 07-155 1987
  2. SITE PLAN FOR PROPOSED ADDITION AND SITE IMPROVEMENTS FOR TRI-STAR INDUSTRIES, LOT 2D BLOCK 83A 101 MASSIRIO DRIVE BERLIN, CT. JUNE 25 2007 REV. 10-20-07 SCALE 1"=20' BY MBA ENGINEERING INC.
  3. ENGINEERING DEPT. TOWN OF BERLIN, MUNICIPAL GARAGE COMPLEX, SCALE 1"=40' 12-18-92 REV 11-13-96
  4. STATE HIGHWAY DEPT. MAPS ROUTE 9

LOT AREA= 345,430 SQ. FT. ( 7.93 AC)

FEMA BASE FLOOD ELEV=44  
Highest elev on site is 45x4 located west of salt shed

NO. 101 MASSIRIO DRIVE  
N/F  
EP ASSOCIATES LLC

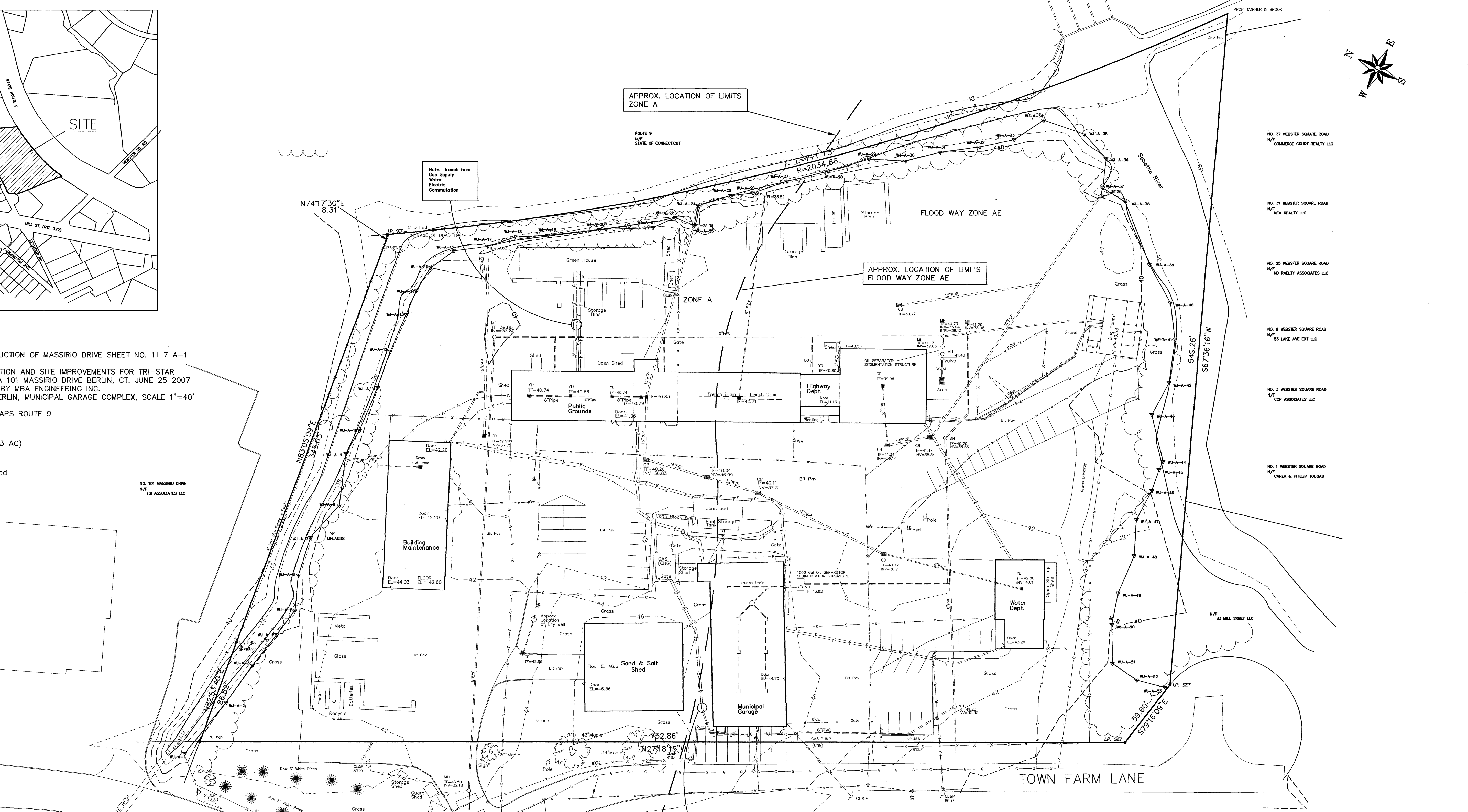
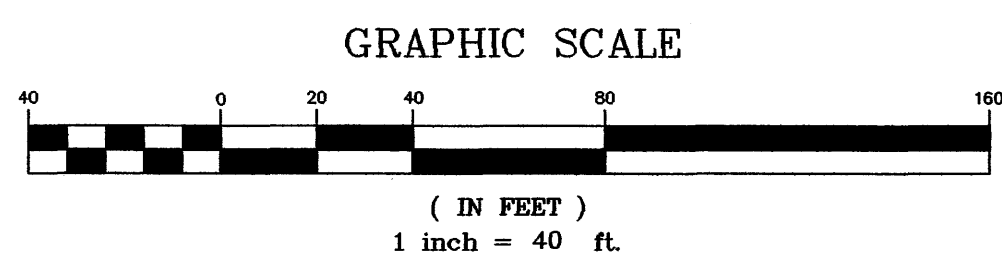


LEGEND	
○ I.P. FND.	IRON PIPE FOUND
○ I.P. SET	IRON PIN SET
○ MON. FND.	MONUMENT FOUND
○ MON. SET	MONUMENT SET
■ N/F	NOW OR FORMERLY
R	RADIUS
L	LENGTH
Δ	DELTA ANGLE
No.	NUMBER
N.T.S.	NOT TO SCALE
RY	REAR YARD
SY	SIDE YARD
BL	BUILDING LINE
○ SAN. MH.	SANITARY MANHOLE
○ STM	STORM
■ C.B.	CATCH BASIN (TYP. C)
■ Y.D.	CATCH BASIN (TYP. CL)
● Y.D.	YARD DRAIN
TF	TOP OF FRAME
FL	FLOOR ELEV
FL	FLOW LINE
INV.	INVERT
R.C.P.	REINFORCED CONCRETE PIPE
P.V.C.	POLYVINYL CHLORIDE PIPE
G	GAS LINE
W	WATER
P	PHONE LINE
E	ELECTRIC LINE
OH	OVERHEAD ELECTRIC LINE
RL	ROOF LEADER
MH	MANHOLE
SAN.	SANITARY
HYD	HYDRANT
WG	WATER GATE
WV	WATER VALVE
SL	SEWER LATERAL
X 76.2	EXIST. SPOT GRADE
BT	BITUMINOUS CONCRETE
CONC.	CONCRETE
○	POLE TYPE
CLF	Chin Link Fence
CL	CLEAN OUT SEWER LATERAL

RADOM MERE STONE  
BENCH MARK  
EL= 44.09  
N 597877.7889  
E 293743.9068

Note: Trench has:  
Gas Supply  
Gas Return  
Electric  
Communication  
Spare Conduit

UTILITY LEGEND	
A	A = Under Ground Compressed Air Line
E	E = Electric Line
F	F = Fiber Optic / Communications
G	G = Gas Line
T	T = Telephone Line
OH	OH = Overhead Wires
W	W = Water Line
---	Sanitary Sewer or Storm Sewer Lines



MAP CERTIFICATE:  
THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-200b-1 THRU 20-200b-20 OF THE REGULATIONS OF THE CONNECTICUT STATE ASSOCIATION OF LAND SURVEYORS, INC. THIS MAP CONFORMS TO A HORIZONTAL ACCURACY CLASS OF 4-5 THE SURVEY TYPE IS REPERMITSURVEY BASED ON EXISTING MAPS AND FIELD EVIDENCE.  
BOUNDARY - LOCATION MAP  
TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREIN.  
*John L. Johnson*  
JOHN L. JOHNSON

REVISIONS:	DATE:	FILE NAME:	DRAWN BY:	SHEET NO.:
	Plot Date: 4-10-09	C:\DRAW\2009\2912\TownFarmLane	JLG	1 OF 1
<b>BOUNDARY MAP</b> <b>FOR</b> <b>TOWN OF BERLIN MAINTENANCE COMPLEX</b> LOT 8 BLOCK 83A 19 TOWN FARM LANE BERLIN, CONNECTICUT <b>J L SURVEYING</b> 470 New Britain Road Berlin Connecticut Phone & Fax 860-828-3200				

# **ATTACHMENT # 2**

## **BASIS OF DESIGN**

## ATTACHMENT 2 - BASIS OF DESIGN

### Project Summary

The intent of the project is to provide a new vehicle wash bay facility that is fully enclosed, heated, and incorporates an automated drive-through vehicular wash system as described within this RFP. The successful bidder shall provide a complete and operational wash bay system with all required appurtenances at no additional cost to the Town of Berlin. The Ottawa County Road Commission Automated Truck Wash design, in Attachment 4, is to be the baseline example for the wash bay aspects of this project. The Town of Berlin and/or its designee, is to approve all products, materials and/or equipment provided as Equal/Equivalent, or as substitutions, to items listed within this scope of work and RFP. The information that follows is intended to clarify specific requirements and design goals per the Town of Berlin.

1. Sole Source (Proprietary) Items - The following is a list of proprietary items that must be used on this project:
  - a. Building Security System- High Security Building Access and Monitoring System by Genetec and/or Napco compatible systems.
  - b. Fire Alarm System – Honeywell Notifier.
  - c. Building Management System - Alerton is the existing system. Communication integration of new system to existing systems to be included as part of the overall design/cost.
  - d. Telecom - Data Ports & Faceplates: Cat 6 cable with R/45 Jacks, as required/requested.
  - e. Electrical Metering & Power Monitoring - GE or Square D.
  - f. Lock Cylinders & Keys - ASSA Abloy Product.
  - g. Concrete Sealer – SprayLok SCP327.
  
2. Unacceptable Products and/or Applications - The following is a list of unacceptable products and/or applications that may NOT be used on this project:
  - a. No vertical rod exit devices; center mullions must be used on exterior pair of doors; interior pair non-public can have flush bolts on inactive leaf and lockset on active leaf
  - b. No tandem door pulls
  - c. No Gypsum board, or sheet aluminum exterior soffits
  - d. No foundations constructed of materials other than concrete
  - e. No acoustic duct liners

3. General Notes
  - a. It will be expected that the Design Build Team Architect and Engineer of Record will stamp and seal all construction documents for permitting and review.
  - b. Existing Conditions: The project location is located at 35 Town Farm Lane, Berlin, CT. See Attachment 1 for existing site information.
  - c. Owner's Work (based on a mutually agreed upon schedule):
    - i. Owner can remove the existing concrete slab and pavement to the extent required by the Design Team, and can adjust utility structures (e.g., manhole frames and covers, catchbasin tops) as needed.
    - ii. Owner can dispose of all construction debris.
    - iii. Owner can supply a backhoe, excavator, loader, dump trucks (all with operators) at key phases of demolition and/or construction.
4. Proposal, Bidding and Contracting
  - a. Delivery Method - The project will use a Design/Build delivery method, based on documents as attached in this RFP and as provided in response to this RFP.
  - b. The Town of Berlin reserves the right to have a peer review of all Design and Construction Documents, including, but not limited to, Structural, Architectural, Mechanical, Electrical, Plumbing and Fire Protection. Any costs associated with updating documents found to be incorrect in the review will be done at the cost of the Contractor/Design Build Team.

### Building Size

1. Length – 60 feet. (Alternate 1 – reduce building length to 50 feet.)
2. Width – 24 feet
3. Height to Ceiling – minimum height of 20 feet (or as required for clearance over the wash bay and overhead doors, and to supply overhead heating and lighting.)

### Substructure

1. Foundations – to be designed and constructed suitable for the building and based on the Site Survey and available information. The foundation design, as all the building design, will be certified by professional Architects and Engineers, as applicable. Any geotechnical investigation/analysis needed is the responsibility of the Design Build Team.
2. Subdrainage Systems – as needed for design of building/site.

## Floor and Ramp Construction

1. Floor Slab - Floor slab to be provided per all Federal, State and Local applicable code requirements. To be constructed as cast-in-place air-entrained concrete, 4,500 PSI minimum (or as required to support an axle rating of 48,000 pounds for live load in addition to the dead loads), supported on concrete footings. Slab surface will be sealed with SprayLok SCP327 and receive a broomed finish.
2. Ramps - Exterior ramps will be constructed as cast-in-place air-entrained concrete slab, 4,500 PSI minimum (or as required to support an axle rating of 48,000 pounds). Ramps to be sloped away from the entry and exit doors a minimum of 2%, and grooved to reduce sheet flow (and the potential for icing) and to provide additional traction. Ramp surface will also be sealed with SprayLok SCP327 and receive a broomed finish. Minimum ramp lengths from new building – 15 feet at entry (east side), 10 feet at exit (west side).

## Roof Structural Frame and Roof Deck

1. Roof Construction – to be designed to meet all applicable building codes.
2. Roofing materials to be warranted for 20 years with a lifetime expectancy of 30 years or more.
3. Roof Construction Air Barriers, Vapor Retarders and Insulation - Air barriers, vapor retarders and insulation shall meet building code energy, thermal and vapor barrier requirements.

## Exterior Enclosure

1. Exterior Wall Skin and Construction - As proposed by the Design Build Team. Through-wall flashing with either copper flashing with copper drip edge, or stainless-steel flashing with stainless steel drip edge. If CMU is proposed, CMU reinforced with galvanized steel rebar and horizontal truss reinforcing to meet code requirements for structural and seismic performance. Stainless steel adjustable ties.
2. Exterior Louvers, Grilles and Screens (if required) - Louvers to be commercial grade extruded aluminum fixed blade louvers with drainable blade profile; high-performance painted finish, with bird screen, and with insulated blank-out panels to cover excess louver area not connected to duct.
3. Exterior Soffits (as required) - Building Soffits to be wood or metal or combination of those two materials. No EIFS or similar material to be used on this project.
4. Exterior Entrance/Service Doors  
Provide solid steel doors at all exterior doors.  
Hardware: Full height continuous hinge; exit device; offset tubular pulls;



closures; stops; threshold; weatherstripping.

Hardware: Mortised lock-set with lever handle; butt hinges; threshold.

5. Overhead Doors – provide coiling or sectional overhead doors rated for corrosive and wet environments. Electrically or air operated with automatic-reversing and manual back-up opening capabilities. To be equipped with manual over-ride in case of power outage or motor failure. Design Team to propose final overhead door options/selection for Town review.

### Interior Construction

1. All interior finish and color selections for materials to be presented to, and approved by, the Town of Berlin and/or its designee.
2. Interior Partition Firestopping - Through-penetration firestopping in accordance with a tested U.L. design, to attain an f-rating equal to the rating of the partitions, and a corresponding T-rating where required by code. Top-of-partitions firestopping at rated partitions and smoke barriers in accordance with a tested U.L. Design.
3. Interior Doors (if provided)  
Access Doors: Furnish access doors to provide access to plumbing, mechanical, and electrical controls. Frame with 1” wide overlapping trim; painted steel units. Furnish fire-rated units for installation in fire-rated walls and fire-rated ceiling assemblies.
4. Interior Finishes - Note: All finish and color selections for materials to be presented to, and approved by, the Town of Berlin and/or its designee.
  - a. Wall Finishes - The Owner is relying on the Design Build Team for selection of interior finishes that are resilient, moisture-resistant, bright, and can be easily washed periodically. This could range from painted CMU or painted concrete, to PVC panels.
  - b. Ceiling Finishes - To be proposed by Design Build Team. Again, the design intent is for resilient, moisture-resistance, easy-to- clean, and bright materials.

Plumbing - Note: It is the intention that all services will be run from the Highway Garage, excluding sanitary sewer discharge. The contractor is to supply domestic water, hot and cold, distributed to areas requiring it throughout the building. Equipment to be natural gas-fired. Sanitary drainage system, roof drains and other plumbing systems to be as required by code and building design. Plumbing fixtures are to be mounted in accordance with plumbing code, and industry standards. Fixtures designated as “accessible” are to be mounted in accordance with local Connecticut Disabilities regulations and the Americans with Disabilities Act.

Codes and Standards; including, but not limited to, the following:

- International Building Code
  - International Plumbing Code with Connecticut State Amendments NFPA54
  - Fuel Gas Code
  - Local ordinances and requirements
  - Town of Berlin requirements.
1. Domestic Water Distribution - As needed, per code and design of building. Plastic piping is acceptable, dependent on code requirements and where allowed by the wash bay system manufacturer.
  2. Water Supply Equipment –
    - a. Hot Water Heaters: Water heater(s) shall be natural gas-fired.
    - b. Exterior Fire Hose Connection: Shall be provided at the entry to the wash bay. Unit shall be non-freeze type, and located approximately 18" above finished grade. If possible, the existing fire hose ball valve assembly along the south wall of the Highway Garage can be used for this purpose.
  3. Hose Bibs: Shall be chrome-plated, wall mounted, with integral vacuum breaker, and loose key handle. Hose bibs shall be located at the following locations: Interior, towards east end of wash bay, and Exterior, east end, near entry ramp.
  4. Water Supply Insulation - Insulation will be applied to any hot water, hot water re-circulation, and horizontal storm drain piping. It will be continuous-through supports and include a vapor retarding jacket. Insulation shields to be placed to protect insulation at pipe hangers.
  5. Eye Wash - Provide eye wash/chemical wash station, if required. Provide drain in close proximity to eye wash/chemical wash station.

### Sanitary Waste

1. Waste and Vent Piping - Piping will be designed to collect liquid wastes from all plumbing fixtures and drains requiring waste connections. Floor and trench drains in the wash bay slab connect to the existing oil-water separator and site sanitary sewer system by gravity. The sanitary system will include an atmospheric venting system to maintain trap seals, with vent terminals through the roof, located not closer than 25' from any fresh air intake, or operable window.

Note: Confirm design of sanitary system and interconnection with Berlin Water Control.

## 2. Waste Piping Specialties

Floor Drains: Cast iron body construction, heavy-duty grade, PDI approved (see drawings in Attachment 4).

Rain Water Drainage Systems - System to be gravity drainage-type and collect the discharge from all roof drains, as needed. The pipe routing is to be directly from the roof drain location, vertically down against the building, and to run-off, or be collected below the first-floor slab elevation, to minimize conflicts with other building elements and systems.

Roof drains, if needed, to be cast iron construction, heavy-duty, with flashing clamp for membrane roofing, under-deck clamping device, and aluminum domes.

Rain Water Drainage Insulation (if drains are interior to building) - Provide pre-formed pipe insulation on all drain bodies, and horizontal sections of rain water drainage system, to prevent condensation.

Natural Gas Systems - Service piping, already provided by Connecticut Natural Gas (CNG), includes a meter and regulator at the southwest corner of the Highway Garage. An initial review by the Town Facilities Department and CNG indicates that the existing gas service line can satisfy projected demands, but that the meter will need to be replaced – see Attachment 5 for details, and a related discussion in Design Considerations, further below. A complete distribution system will be provided within the building to serve all fixtures and equipment requiring gas service. The system will include manually operated, shut-off valves, positioned at each connection to equipment, and provide service shut-off for mains and branch lines in the overall system. Gas pressure regulators will be provided, as necessary, to accommodate the various gas pressure requirements to gas-fired equipment.

Shut-off valves: Those sized 1/2" to 2-1/2" shall be bronze bodied ball valves. Those sized 3" and larger, shall be steel construction lubricated plug style.

Note: Coordinate all design and equipment requirements with CNG.

Heating and Ventilating Systems - Design basis for proposed wash Bay by Design Build Team. The Town anticipates the selection of gas-fired radiant tube heaters mounted at ceiling for heating within the wash bay (see City of Norwich Mechanical Plan in Attachment 4 for one example of such an installation). Sufficient exhaust ventilation shall be provided to clear the building of vehicle exhaust and residual humidity during and after wash system activation, in conjunction with overhead door operation. Controls shall be Alerton, or equivalent, that will communicate with existing Town of Berlin Building Management System. Communication integration of new system to existing systems to included as part of the overall design/project cost; the Design Build Team



will coordinate on this with the Town's Facility Department.

Reference Standards, including but not limited to, the following:

- International Energy Code. International
- Mechanical Code. NFPA 101 - Life Safety Code.
- Guide Books of The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).

Fire Protection - Per code requirements.

### Electrical

1. Electrical Service and Distribution - Electrical service for the facility will be brought from the Highway Garage, but will likely require a new electrical service panel (see Attachment 5). Contractor to provide conduits appropriately sized for service with any concrete pads or other required connections to power the building.
2. Codes and Standards, including but not limited to, the following:
  - Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings, 2011
  - Connecticut State Building Code
  - National Fire Alarm and Signaling Code NFPA 72, 2010. International Energy Conservation Code, 2009.
  - Life Safety Code NFPA 101, 2009.
3. Electrical Branch Wiring - In general, wiring will be insulated conductors installed in metal conduit or metallic tubing run, concealed in the finished areas or exposed in the unfinished areas. All wire to be copper wire.
4. Interior Lighting - to be moisture-resistant fixtures mounted above the wash bay. Design-Build Team to propose fixtures and locations for Town review.
5. Exterior Building Lighting- shall be provided at the building exits. Luminaires shall be LED technology.

Communication and Security Systems – Genetec platform (proprietary system). No phone system proposed. Note that an Ethernet modem shall be provided as part of the wash system's master control panel. Coordination with the Town IT Department on integrating with the Town computer system is included in the Design-Build scope; this may include running computer cable from the existing Highway Garage system.

Detection and Fire Alarm - Per code requirements.

Security Access and Surveillance - At a minimum, the security system shall provide the following functions:

1. Intrusion alarms for the exterior doors - to interface with the Town's Napco/Genetec platform.
2. Interface with the fire alarm system

Lightning Protection - The lightning protection system shall be designed and installed in accordance with applicable codes.

Grounding - All exposed, non-current carrying metallic parts of electrical equipment, the raceway system, and the neutral conductor of the wiring system will be grounded in accordance with the Electrical Code.

#### Equipment and Special Construction

1. Automated Wash Bay Equipment - An automatic touchless wash system with undercarriage wash equivalent to systems manufactured by HydroChem Systems (Caledonia, MI) is to be installed. HydroChem's Sales Engineer, Geoff Momber, is familiar with the site and project, and can be reached at (616) 426-3533, or via e-mail at: Geoff.momber@hcs-clean.com. If another touchless system is proposed, the Design-Build Team should provide sufficient information to document that it is equivalent to the HydroChem system included in Attachment 6.0.
2. Traffic Signal - A traffic signal head must be installed at the entry ramp to the wash bay. Its operation should be tied into the operation of the wash bay equipment and the overhead door to alert the driver when it is safe to proceed into the building. See Attachment 6.0 for details.
3. Card Reader – a smart card reader must be installed at the entry to trigger overhead door and wash system. The reader will be compatible and interface with the Town's Genetec access control system, and be coordinated with the traffic signal operation.

#### Design Considerations

1. Electrical Switchgear - As detailed by the e-mail from Bigelow Electric in Attachment 5, the existing electric service panel does not have enough capacity to serve the additional circuits associated with truck wash bay loads.

2. Gas Service and Meter Location - The existing gas meter and regulator is located at the southwest corner of the Highway Garage. Depending on the proposed building design, this could present a utility relocation and cost consideration. As noted above in Natural Gas Systems and in Attachment 5, CNG will upgrade the meter at no charge and has determined that the existing service line can supply the projected estimated load of 700,000 BTUs. However, if the Design Build Team proposes to relocate the meter and service line, the extra costs and design should be factored into the submitted proposal price.
3. Police Department Vehicle Impoundment Area - The fenced-in Police Department Impoundment Area can be relocated if additional room is needed by the selected design. This relocation would be completed by the Town Berlin at no expense to the project budget; however, the selected Design-Build Team should indicate to the Town the minimum clear area required for the new wash bay and associated vehicular circulation as soon as this is determined.
4. Floodplain - The site of the proposed vehicle wash bay is located within the 100-year FEMA floodplain (elevation 44.5). The location of the flood zone boundary is shown on the A-2 site survey (Attachment 1), and design considerations are presented in the Statement of Need (Attachment 3).
5. Sanitary Plumbing Vent - The design must incorporate a sanitary plumbing vent system to minimize the potential for odors to flow back into interior floor drains in the wash bay and Highway Garage. The Design-Build Team should be aware that this is already a periodic problem, and is not an insignificant design issue.
6. Ancillary Equipment in Highway Garage – The back (southeast) corner of the nearby Highway Garage contains an existing air compressor (Quincy PLT-5. Model No. 151030-633) that serves the garage. The Town would prefer to have a single compressor serve the garage and the wash bay, so this compressor (if sufficient) could be adapted to also serve the wash bay. In addition, available room in this area (approximately 140 sf) can be used to house other associated equipment such as the hot water heater, storage tank(s), detergent totes/drums, water softener tanks, etc. as long this equipment does not intrude into the vehicle bay to the point that vehicle storage is impacted. The Design-Build team will need to coordinate on how much space can be used with the Highway Superintendent. It is likely that at least two bollards (or other protective measures) would need to be installed to shield the equipment in this area from vehicular contact.
7. Overhead Door Systems – The PBC reviewed several systems geared towards harsh and/or wet and corrosive environments, including both coiled and sectional doors. These manufacturers were evaluated: American Garage Doors (polycarbonate sectional doors – Survivor Gold, air operator, full clear vision panel available), Airlift (various models), Raynor Garage Doors

- (RapidCoil RC300HD - high speed, fabric, self-reinserting, electrically operated coiling system), and Performax Global (MaxSpeed – a high speed, rubber, self-reinserting, roll-up door). The intent is to install a door system that meets the space requirements of the truck wash system manufacturer and that will operate reliably in this wet and corrosive environment. The increased visibility of the translucent door systems or those with vision panels is considered a positive. The PBC is looking to the design team to evaluate the positives and negatives of commercially available door systems, and make a recommendation to the Town before proceeding.
8. Air Compressor – During site tours of several existing wash bays, staff at two of the facilities mentioned that they upgraded the originally specified and installed air compressor as these units did not adequately satisfy the demands. One of the facilities, City of Norwich, upgraded to an Ingersoll Rand Model No. CBV683330 to power their HydroChem system. The Design-Build Team should thoroughly evaluate the Highway Garage’s existing Quincy air compressor as it relates to serving the wash bay and existing demands. If this compressor needs to be replaced, then the Design-Build Team should specify a new unit that has more capacity than the minimum calculated demands of the wash bay system, overhead door operators (as relevant), and the existing garage equipment.

## **ATTACHMENT # 3**

### **STATEMENT OF NEED**

## Statement of Need – December 3, 2019

### Truck Wash Facility

Background – The existing truck wash bay was constructed along the south side of the Highway Garage in 2004. It is a steel framed free-standing structure with canvas covers and a flat roof. This wash bay was never fully enclosed, heated, or outfitted with a pressure washer or dedicated dispensing system. The existing system uses a fire hose instead of a pressure washer, and a custom-perforated PVC pipe was adapted by Staff for undercarriage spray. The accompanying photos show the existing configuration. Attempts were made over the years to close in the two open ends with canvas flaps, but these are awkward to use and do not last. There is no heat in the existing wash bay, so the floor ices up in winter conditions when the plow trucks and other equipment are washed after deicing and snow removal operations are completed. This is an unsafe condition for Town staff, and complaints have been made to management and the Town Council regarding correcting this situation. Adapting and extending the existing wash bay is feasible, and appears to be a cost-effective approach to providing a fully enclosed facility.

Based on input from the Public Works Department (which includes Highway and Parks & Grounds), Facilities Department, Fleet Manager, and Town Risk Manager, the following are recommended to be considered and/or incorporated into a new truck wash facility:

#### Worker Safety

- The interior space should be heated such that, even in frigid winter conditions when the doors are opening and closing frequently, the wash bay floor drains freely and does not ice up.
- The floor slab should be appropriately sloped and have a texture/channels to remove standing water quickly and improve traction for staff.
- Hose management should be addressed to avoid excessive coiling and associated trip hazards.
- Interior lighting should be designed to minimize shadows and to illuminate all sides of vehicles in the wash bay.
- Exterior floodlights should be installed at all entry and exit doors.

#### Wash Bay Size

The Highway Department requests enough room to wash one of the Town's large plow trucks with the plow attached. This translates into a minimum interior length of 40 feet (this allows approximately 5 feet of extra room at the front and the back of the plow truck for staff to use a pressure washer). The existing wash bay has sufficient width and height (the front-end loader can fit into the existing bay), but would need to be extended to the west by approximately 6 feet to provide the additional length needed.

#### Overhead and Entry Doors

New overhead roll-up doors at each end of the wash bay should be industrial grade electrically powered doors able to withstand the high moisture environment and designed to minimize the potential for icing



on key components (e.g. the wheels and tracks). There should be a manual override in case of power outages or motor breakdown. There should also be at least one standard (36" wide) doorway for personnel access and egress in addition to the overhead doors.

#### Flooding Potential

The existing wash bay is within a 100-year flood zone, and this area has flooded in the past due to the location of the Mattabassett River located 180 feet to the south. Key electrical and mechanical components should be located at least two (2) feet above the 100-year base flood elevation, and other features should meet relevant flood resistant design criteria (ASCE 24-14, the current International Building Code, and the Town Building Code). As the existing wash bay floor slab and lower wall sections are below the base flood elevation, the walls may need to incorporate flood openings and flood resistant materials; these FEMA and relevant building code requirements should be reviewed by a registered architect, and incorporated into the facility design.

#### Structure

The overall structure should be able to resist occasional unintentional contact from large vehicles. The existing wash bay, similar to the other structures in the Physical Services Complex, is in an active area where dump trucks, trucks with trailers, earth-moving equipment, and delivery vehicles (tractor trailers and tanker trucks) circulate on a regular basis.

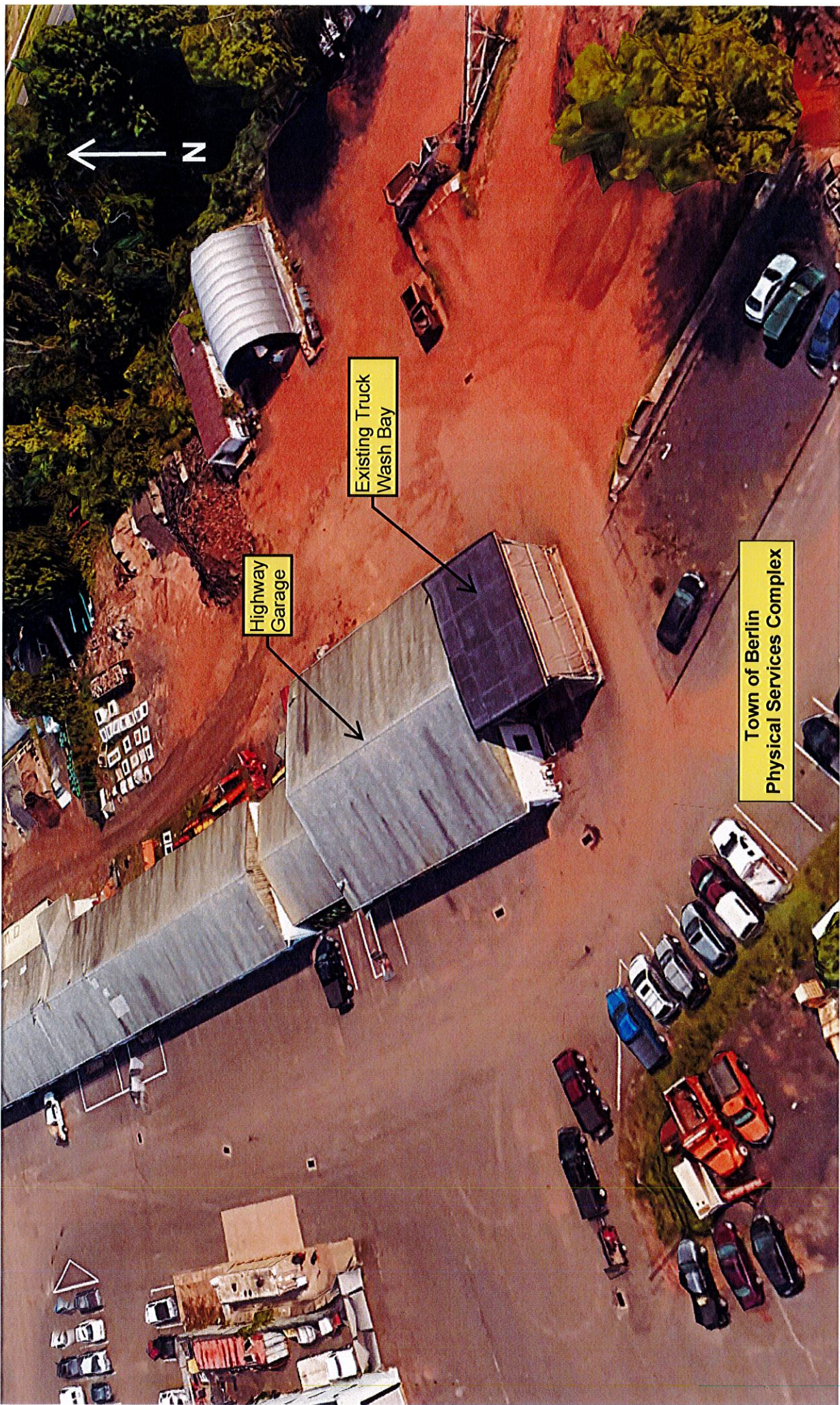
#### Mechanical/Electrical/Plumbing (MEP)

The MEP engineer should review existing conditions and determine what is needed to incorporate new systems, which should include new domestic hot and cold water service for washing equipment, radiant heat, ventilation, and approved interior and exterior lighting. The existing oil-water separator can continue to be used to receive vehicle wash wastewater in an expanded fully enclosed wash bay. The plumbing scope should include a dedicated sanitary plumbing vent (or air admittance valve), as the garage periodically has odors related to the separator and exterior sanitary waste lines.

#### Pressure Washer System

The facility should include a dedicated system for washing large trucks and vehicles, with an undercarriage spray component. The Facilities Department and the Town Fleet Manager should be consulted on what this system should include.





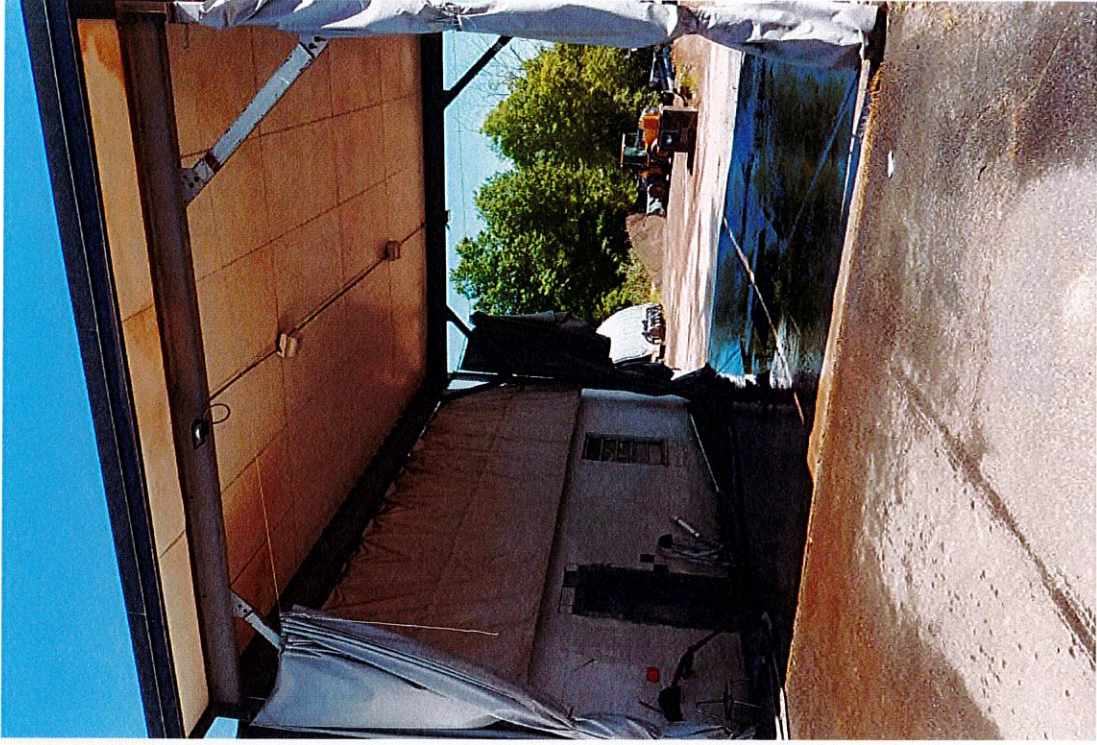
N

Highway Garage

Existing Truck Wash Bay

Town of Berlin  
Physical Services Complex





Truck Wash Bay  
Town of Berlin - Physical Services Complex

**ATTACHMENT # 4**

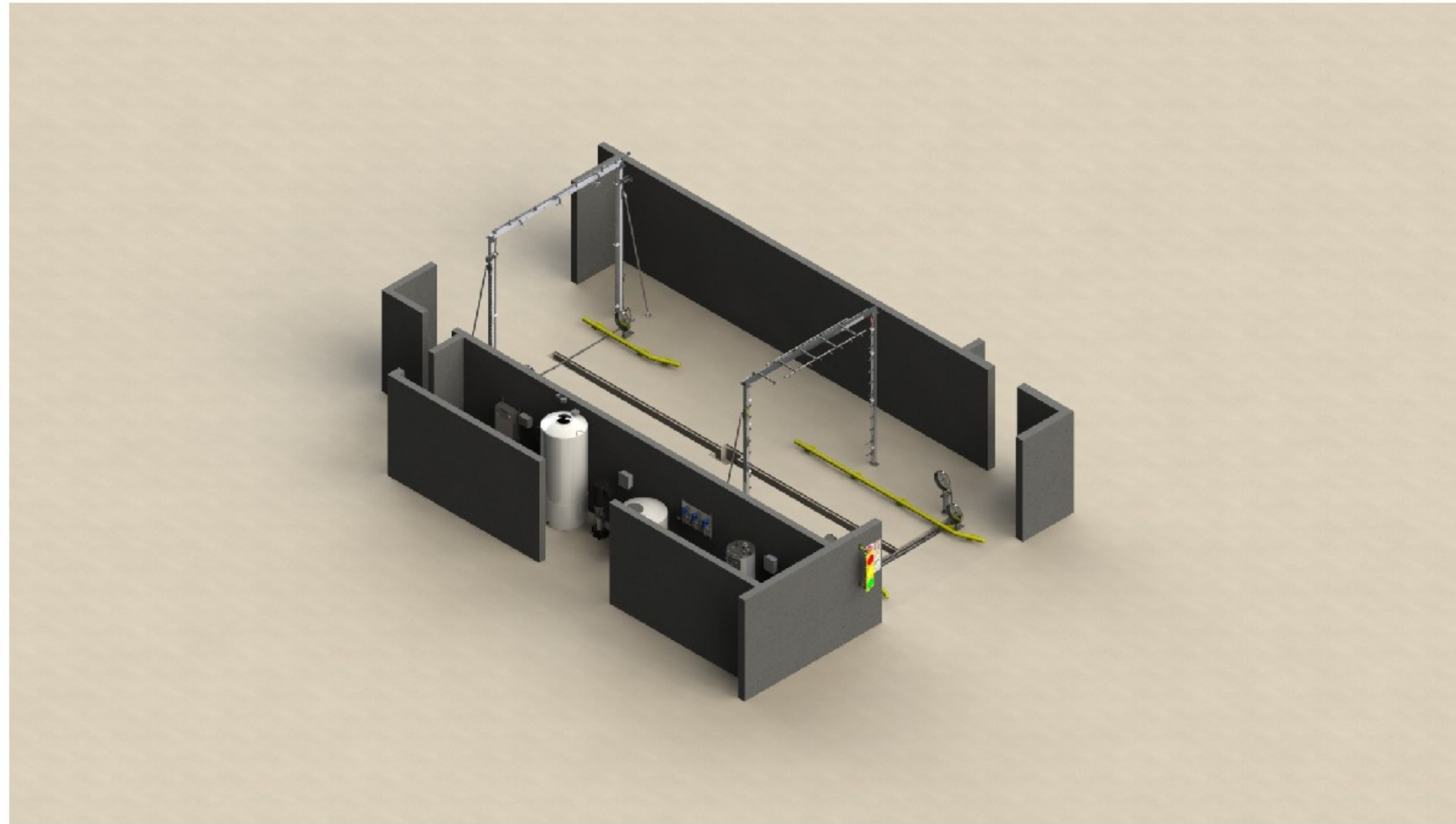
**OTTOWA COUNTY TRUCK WASH DRAWINGS**

**CITY OF NORWICH WASH BAY -ELECTRICAL  
AND MECHANICAL PLANS**



# OTTAWA COUNTY ROAD COMMISSION

## AUTOMATED TRUCK WASH



### PAGE DIRECTORY:

1. COVER SHEET	HC-MEP-243
2. LEGENDS SHEET	HC-MEP-243
3. MECHANICAL LAYOUT - ISOMETRIC	HC-MEP-243
4. MECHANICAL LAYOUT - OVERALL	HC-MEP-243
5. ELECTRICAL LAYOUT - OVERALL	HC-MEP-243
6. PLUMBING SCHEMATIC	HC-MEP-243
7. MECHANICAL LAYOUT - ARCHES	HC-MEP-243
8. TRENCH DETAIL	HC-MEP-243
9. MECHANICAL LAYOUT - GUIDERAILS	HC-MEP-243

### SHOP DRAWINGS / SUBMITTAL REVIEW

APPROVED  APPROVED WITH CHANGES NOTED

REVISE AND RESUBMIT  REJECTED \_\_\_\_\_

SUBMITTAL WAS REVIEWED FOR DESIGN CONFORMITY AND GENERAL CONFORMANCE TO CONTRACT DOCUMENTS ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING DIMENSIONS AT JOB SITES FOR TOLERANCES, CLEARANCES, QUANTITIES, FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATION OF HIS WORK WITH OTHER TRADES AND FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS.

BY \_\_\_\_\_ DATE \_\_\_\_\_

### HYDRO-CHEM SYSTEMS PRIMARY CONTACT INFORMATION

#### PROJECT MANAGER - TOM CUNNINGHAM

CONTACT NUMBER: (616) 426-3510

EMAIL: tom.cunningham@hcs-clean.com

#### SALESMAN - GEOFF MOMBER


CONTACT NUMBER: (616) 426-3533

EMAIL: geoff.momber@hcs-clean.com

#### LEAD DESIGN ENGINEER - ERIC BRUS

CONTACT NUMBER: (616) 426-3530

EMAIL: eric.brus@hcs-clean.com

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**EQUIPMENT ABBREVIATIONS**

AC	ACCESS CONTROL
ACP-R	AIR CONTROL PANEL - RINSE
ACP-D	AIR CONTROL PANEL - DETERGENT
BA	BLOWER ARCH
BMS	BLOWER MOTOR STARTER
BOMS	OSCILLATING BLOWER MOTOR STARTER
BP	BOOSTER PUMP
BPMS	BOOSTER PUMP MOTOR STARTER
BRA	BRUSH ARCH
BT	BRINE TANK
CF	CARBON FILTER
DA	DETERGENT ARCH
DD	DETERGENT DRUM
DM	DETERGENT MODULE
DSPE	DOOR SAFETY PHOTOEYE
Dt	DETERGENT TOTE
DT	DETERGENT TANK
FBM	FRONT BLAST MANIFOLD
FFV	FRESH FILL VALVE
FRA	FINAL RINSE ARCH
FRBA	FRONT/REAR BLAST ARCH
FRP	FINAL RINSE PUMP
FRPMS	FINAL RINSE PUMP MOTOR STARTER
FRT	FRESH RINSE TANK
GR	GUIDE RAILS
HDPE	HEIGHT DETECTION PHOTOEYE
HPLS	HYDRAULIC PACK LEVEL SENSOR
LS	LIMIT SWITCH
MCP	MASTER CONTROL PANEL
OBA	OSCILLATING BLAST RINSE ARCH
ODM	OVERHEAD DOOR MOTOR
ODA	OSCILLATING DETERGENT ARCH
PA	PROTECTANT ARCH
PD	PROTECTANT DRUM
PE	PIT ENHANCER
PE-E	PHOTOEYE - EMITTER
PE-R	PHOTOEYE - RECIEVER
PHE	PHOTOEYE KIT
PRA	PRE-BLAST RINSE ARCH
Pt	PROTECTANT TOTE
PW	PRESSURE WASHER UNIT
PWRB	PRESSURE WASHER REMOTE BOX
RBA	REAR BLAST RINSE ARCH
RBM	REAR BLAST MANIFOLD
RDV	RINSE DIVERTER VALVE
RECLAIM	RECLAIM SKID
RFV	RINSE FILL VALVE
RO	RO SKID
RORWT	RO REJECT WATER TANK
ROWT	RO WATER TANK
RPMS	RINSE PUMP MOTOR STARTER
RPWLS	RECLAIM PIT WATER LEVEL SENSOR
RRFV	RECLAIM RINSE FILL VALVE
RRWT	RECLAIM RINSE WATER TANK
RTP	REMOTE TOUCH PANEL
RWLS	RECLAIM WATER LEVEL SENSOR
RWP	RINSE WATER PUMP
RWT	RINSE WATER TANK
SA	SANITIZER ARCH
SD	SANITIZER DRUM
SBA	SIDE BLAST ARCH
SFRA	SPOT FREE RINSE ARCH
SFRV	SPOT FREE RINSE VALVE
SM	SANITIZER MODULE
SRA	SPINNER RINSE ARCH
St	SANITIZER TOTE
ST	SANITIZER TANK
UCCP	UNDERCARRIAGE CORROSION PROTECTANT
UCP	UNDERCARRIAGE WASH PUMP
UCPMS	UNDERCARRIAGE WASH PUMP MOTOR STARTER
UCS	UNDERCARRIAGE SANITIZER
UCW	UNDERCARRIAGE WASH
WA	WAX ARCH
WD	WAX DRUM
WH	WATER HEATER
WLS	WATER LEVEL SENSOR
WM	WAX MODULE
WS	WATER SOFTENER
WSA	WHEEL SPINNER ASSEMBLIES
Wt	WAX TOTE
WT	WAX TANK

**ELECTRICAL SECTION**

START UP REQUIREMENTS:  
HYDRO-CHEM SYSTEMS, INC. (HCS) WILL APPLY POWER TO MCP AND CHECK ROTATION OF MOTORS. UNDER NO CIRCUMSTANCES IS THE EQUIPMENT TO BE STARTED WITHOUT HYDRO-CHEM SYSTEMS REPRESENTATIVE PRESENT OR WARRANTY WILL BE VOIDED.

- ELECTRICAL CONTRACTOR SHALL FURNISH THE FOLLOWING:
- 1 ALL PERMITS, PERMIT FEES, INSPECTIONS, ALL OTHER FEES AND SALES TAXES RELATING TO ALL ELECTRICAL WORK.
  - 2 ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES GOVERNING ELECTRICAL INSTALLATION.
  - 3 ELECTRICAL SERVICE, MAIN ELECTRICAL DISTRIBUTION PANEL AND OTHER ELECTRICAL DISTRIBUTION PANELS AS REQUIRED.
  - 4 ELECTRICAL SERVICE CONDUIT AND WIRING FROM ELECTRICAL DISTRIBUTION PANELS TO ALL WASH EQUIPMENT INCLUDING BUT NOT LIMITED TO HYDRO-CHEM SYSTEMS, INC. PANEL, PUMPS, PRESSURE WASHERS, WATER HEATERS, AND DEVICES IN CONNECTION TO THE WASH EQUIPMENT.
  - 5 ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR POWER WIRING ALL OF (HCS) WASH EQUIPMENT. ELECTRICAL CONTRACTOR SHALL MAKE ALL TERMINATIONS. ADDITIONAL DETAILS ON TERMINATIONS ON SEPARATE DOCUMENTATION.
  - 6 ELECTRICAL CONTRACTOR SHALL FURNISH ALL WIRE CONDUIT (EXPOSED, IN SLABS OR WALLS), JUNCTION BOXES, AND OTHER ITEMS AS REQUIRED FOR COMPLETE ELECTRICAL INSTALLATION.
  - 7 ALL STARTERS SHALL BE PROVIDED BY (HCS) AND SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.
  - 8 ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE ELECTRICAL INSTALLATION FOR THE ELECTRICAL SERVICE, POWER WIRING, CONTROL WIRING, AND ALL ELECTRICAL CONDUIT. THE ELECTRICAL SHALL BE LEFT COMPLETE AND READY FOR USE BY THE OWNER.
  - 9 PACE LIGHTS ARE TO BE PROVIDED BY (HCS) AND ARE TO BE INSTALLED BY ELECTRICAL CONTRACTOR. THE PACE LIGHTS SHOULD BE INSTALLED AT 7'-0" A.F.F.
  - 10 ALL ELECTRICAL CONDUIT STUB-UPS SHALL BE LOCATED WITHIN 3'-0" MAX OF JUNCTION BOXES.

NOTE:  
ALL ELECTRICAL METHODS AND MATERIALS SHALL BE SUITABLE FOR USE IN WET/CORROSIVE LOCATIONS, INCLUDING WATER TIGHT CONDUIT LINES IN WASH BAY AS PER NATIONAL AND LOCAL ELECTRICAL CODES. (DRILL DRAIN HOLES IN JUNCTION BOX BOTTOMS IF NECESSARY)

ELECTRICAL WIRE SIZE ARE NATIONALLY MINIMUM REQUIRED BY HYDRO-CHEM SYSTEMS. SIZES MAY BE SUBJECT TO CHANGE PER LOCAL CODE AND REGULATIONS.

LOW VOLTAGE (LV) WIRE TO BE MINIMUM 16 AWG SINGLE CONDUCTOR OR 18 AWG MULTIPLE CONDUCTOR, PROVIDED BY ELECTRICAL CONTRACTOR. IN GROUND LOOP WIRE PROVIDED BY (HCS).

INPUTS 24VDC OUTPUTS 24VAC  
LOOP SENSOR INTERCONNECTING WIRE TO BE 2 CONDUCTOR SHIELDED TO LOOP BOX  
PACE LIGHTS 24VDC  
MOTOR STARTERS BY (HCS), DISCONNECTS BY OTHERS

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1 120V OUTLET RECEPTACLE</li> <li>1 CAT5 TO MCP</li> <li>1 CAT5 TO HIGH-SPEED INTERNET</li> <li>2 2 LV WIRES TO MCP</li> <li>3 3 LV WIRES TO MCP</li> <li>4 4 LV WIRES TO MCP</li> <li>5 5 LV WIRES TO MCP</li> <li>6 6 LV WIRES TO MCP</li> <li>7 7 LV WIRES TO MCP</li> <li>8 8 LV WIRES TO MCP</li> <li>9 9 LV WIRES TO MCP</li> <li>10 2 SHIELDED LV WIRES TO LOOP BOX</li> <li>11 2 LV WIRES TO RECLAIM SKID</li> <li>12 2 LV WIRES TO PRESSURE WASHER</li> <li>13 4 LV WIRES TO RO SKID</li> <li>14 2 LV WIRES TO LIFT STATION</li> <li>15 10 LV WIRES TO MCP</li> <li>16 12 LV WIRES TO MCP</li> <li>17 14 LV WIRES TO MCP</li> <li>20 HV INTERCONNECTION TO MOTOR STARTER BOX</li> <li>21 5 HV WIRES TO POWER WASHER</li> <li>22 2 HV WIRES TO POWER WASHER</li> <li>23 3 HV WIRES TO MCP</li> </ol> | <ol style="list-style-type: none"> <li>1 120V SINGLE PHASE POWER SOURCE</li> <li>2 230V SINGLE PHASE POWER SOURCE</li> <li>3 240V THREE PHASE POWER SOURCE</li> <li>4 480V THREE PHASE POWER SOURCE</li> <li>5 415V THREE PHASE POWER SOURCE</li> <li>6 575V THREE PHASE POWER SOURCE</li> <li>7 230V THREE PHASE POWER SOURCE</li> <li>8 208V THREE PHASE POWER SOURCE</li> <li>9 380V THREE PHASE POWER SOURCE</li> </ol> |
|---|---|

**PLUMBING SECTION**

- OWNERS MECHANICAL/PLUMBING CONTRACTOR (M/PC) SHALL FURNISH THE FOLLOWING:
- 1 (M/PC) SHALL BE RESPONSIBLE FOR AND FURNISH ALL PERMITS, PERMIT FEES, INSPECTION, ALL OTHER FEES AND SALES TAXES RELATING TO ALL PLUMBING WORK.
  - 2 (M/PC) SHALL FURNISH AND INSTALL ALL WATER SUPPLY PIPING FROM BUILDING WATER SUPPLY ENTRANCE TO EACH ITEM OF HYDRO-CHEM SYSTEMS EQUIPMENT. PLUMBING CONTRACTOR SHALL CONNECT ALL WATER SUPPLY PIPING TO HYDRO-CHEM SYSTEMS EQUIPMENT.
  - 3 (M/PC) SHALL FURNISH AND INSTALL ALL PIPING REQUIRED TO INTERCONNECT THE VARIOUS ITEMS OF HYDRO-CHEM SYSTEMS EQUIPMENT.
  - 4 (M/PC) SHALL FURNISH AND INSTALL ALL PLUMBING IN WALLS, EXPOSED AND UNDER FLOOR SLABS.
  - 5 (M/PC) SHALL FURNISH AND INSTALL FLUE FOR WATER HEATER AND COORDINATE OPENING IN ROOF WITH GENERAL CONTRACTOR.
  - 6 (M/PC) SHALL FURNISH AND INSTALL GAS METER, GAS SERVICE PIPING, GAS PIPING TO WATER HEATER, PRESSURE REGULATORS, AND SHALL CONNECT GAS TO HYDRO-CHEM SYSTEMS WATER HEATER.
  - 7 (M/PC) SHALL BE RESPONSIBLE FOR FURNISHING PROPER GAS PRESSURE AS PER WATER HEATER MANUFACTURER'S RECOMMENDATIONS TO ASSURE PROPER FUNCTIONING OF HYDRO-CHEM SYSTEMS WATER HEATER.
  - 8 (M/PC) SHALL FURNISH AND INSTALL ALL EXTERNAL PLUMBING (PER CODE).
  - 9 FLEXIBLE 1/4" TUBING PROVIDED BY AND INSTALLED BY PLUMBER


NOTE:  
ALL VALVES TO BE PROVIDED BY THE PLUMBER AND SHOULD BE BALL VALVES EXCEPT WHERE NOTED OTHERWISE. ALL ARCH CONNECTIONS ARE UNIONS AND WILL BE PROVIDED BY HCS. OUTLETS OF THE DETERGENT MODULES SHOULD BE SCH 80 PVC BECAUSE OF THE CORROSIVE NATURE OF DETERGENTS THAT WILL BE CONTAINED IN THE LINE. OUTLETS OF THE RINSE SYSTEM WILL SEE PRESSURES UP TO 400 PSI AND VOLUMES TO 250 GPM. TYPICALLY PLUMBERS USE SCH40 GALVANIZED PIPING. THE LOWER THE RINSE PIPES ARE RUN IN HEIGHT UP TO THE RINSE ARCH THE QUICKER THE SYSTEM WILL CHARGE WHEN THE PUMP IS STARTED. THESE REQUIREMENTS HAVE BEEN COMPILED IN AN EFFORT TO PREDICT ALL NEEDS. CUSTOMER AND PLUMBER/CONTRACTOR SHOULD REVIEW TO FIND ERRORS OR OMISSIONS. THE CUSTOMER AND PLUMBER SHALL BE RESPONSIBLE FOR ALL PERMITS AND BUILDING CODE REQUIREMENTS. THE FREQUENCY AT WHICH VEHICLES CAN BE WASHED IS DIRECTLY PROPORTIONAL TO THE FILL RATE OF RW. FITTING SIZES LISTED ARE THE SIZE OF THE FITTINGS ON THE TANK. PLUMBER SHOULD DO WHATEVER IS NEEDED TO SUPPLY THE MAXIMUM POUR OUT OF WATER AVAILABLE. IF NECESSARY, DUE TO LONG RUNS, THE PIPES SHOULD BE OVERSIZED. PLUMBER WILL NEED TO PROVIDE BACK FLOW PREVENTER AS REQUIRED BY CODE AND KEEP IN MIND THE REDUCED PRESSURE EFFECT ON VOLUME OF FLOW. AIR PROVIDED BY OWNER TO BE DRY, IF APPLICABLE A CONDENSATE SEPERATOR/FILTER IS REQUIRED PRIOR TO HCS FEED POINTS. PROVIDE ADDITIONAL SUPPORTS FOR HIGH PRESSURE RINSE LINES, DUE TO SHOCK FACTOR WHEN PRESSURIZED.

- |  |  |
|--|--|
|  | HOSE REEL                                |
|  | EXPANSION TANK                           |
|  | UNION                                    |
|  | FLOW DIRECTION                           |
|  | TEMPERATURE GAUGE                        |
|  | PRESSURE GAUGE                           |
|  | PRESSURE SWITCH                          |
|  | HOSE BIBB                                |
|  | VACUUM BREAKER                           |
|  | TEMPERING VALVE - Honeywell MX129 1.5"   |
|  | CHECK VALVE                              |
|  | SHUT-OFF VALVE                           |
|  | SOLENOID VALVE                           |
|  | GATE VALVE                               |
|  | GLOBE VALVE                              |
|  | KNIFE VALVE                              |
|  | CONDENSATE SEPERATOR W/FILTER,AUTO DRAIN |
|  | 3-WAY DIVERTER VALVE                     |
|  | FULL FLOW FLAPPER CHECK VALVE            |
|  | PRESSURE REDUCING VALVE                  |

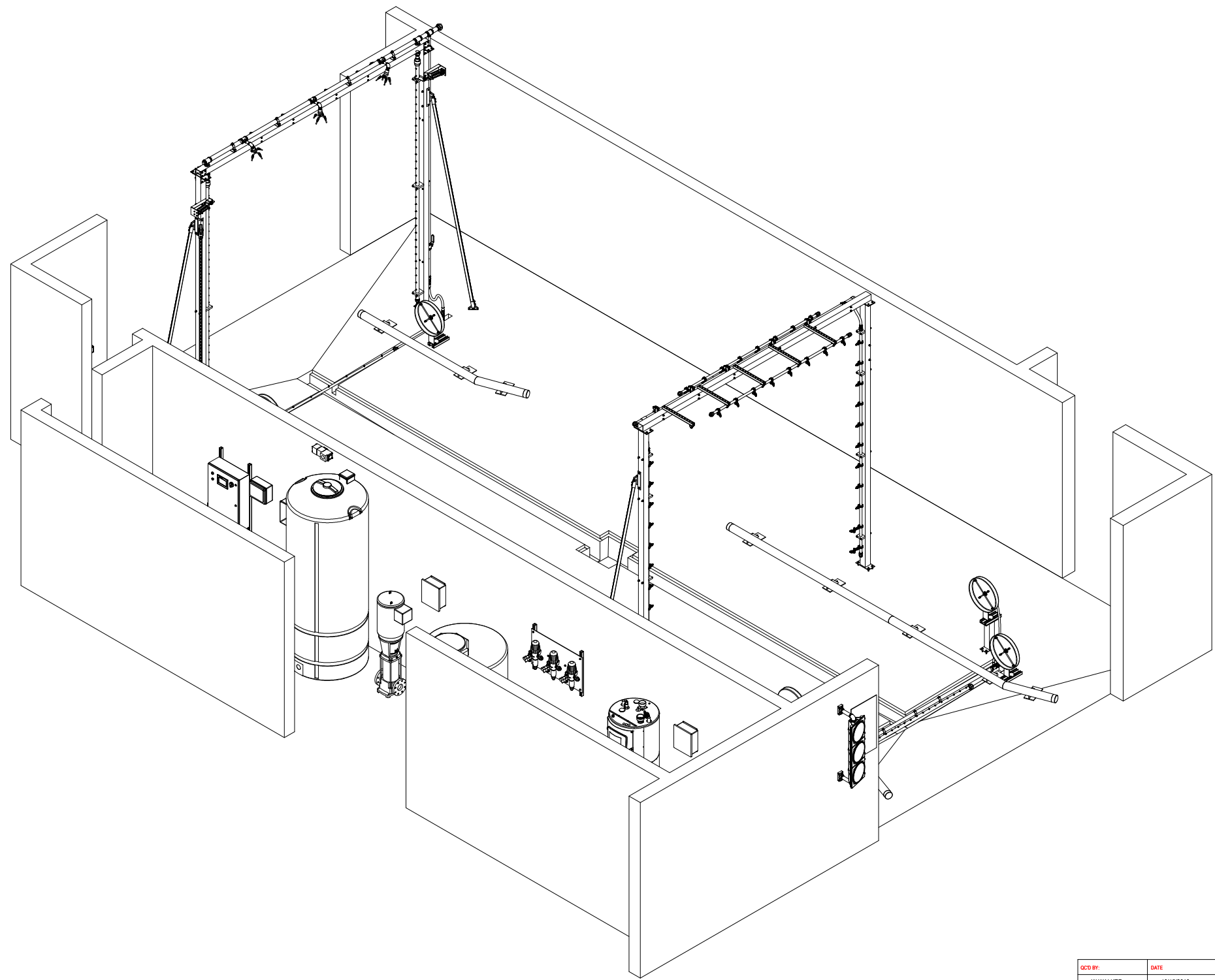
SUPPLIED BY:	
<input type="checkbox"/>	A HYDRO-CHEM SYSTEMS
<input type="checkbox"/>	B PLUMBING CONTRACTOR
<input type="checkbox"/>	C GENERAL CONTRACTOR
<input type="checkbox"/>	D CUSTOMER

NOTE: ALL INTERCONNECTING LINES PROVIDED BY PLUMBER UNLESS OTHERWISE NOTED

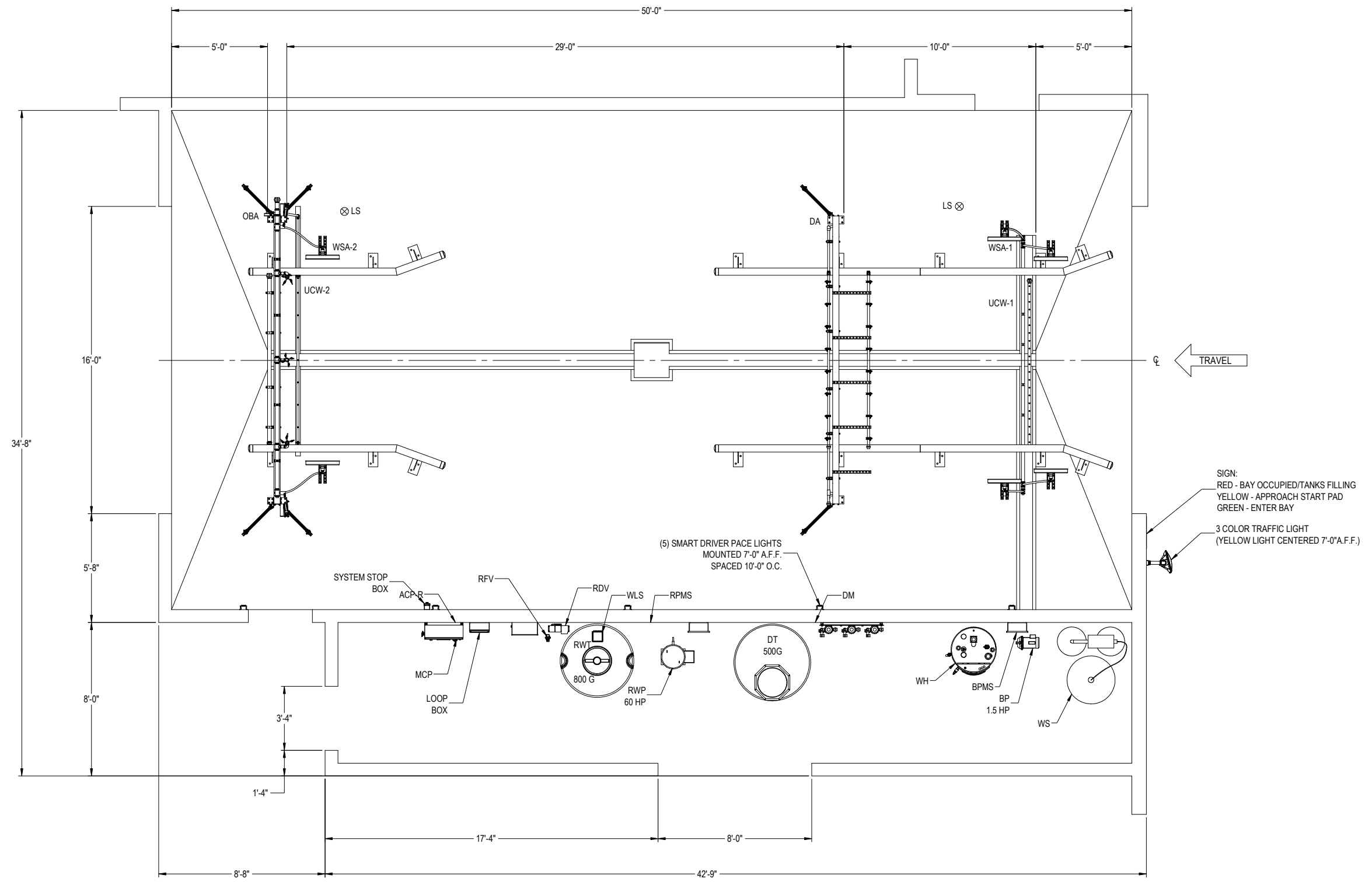
- AIR LINE
- COPPER PIPE
- EQUIPMENT
- GALVANIZED PIPE
- PVC PIPE

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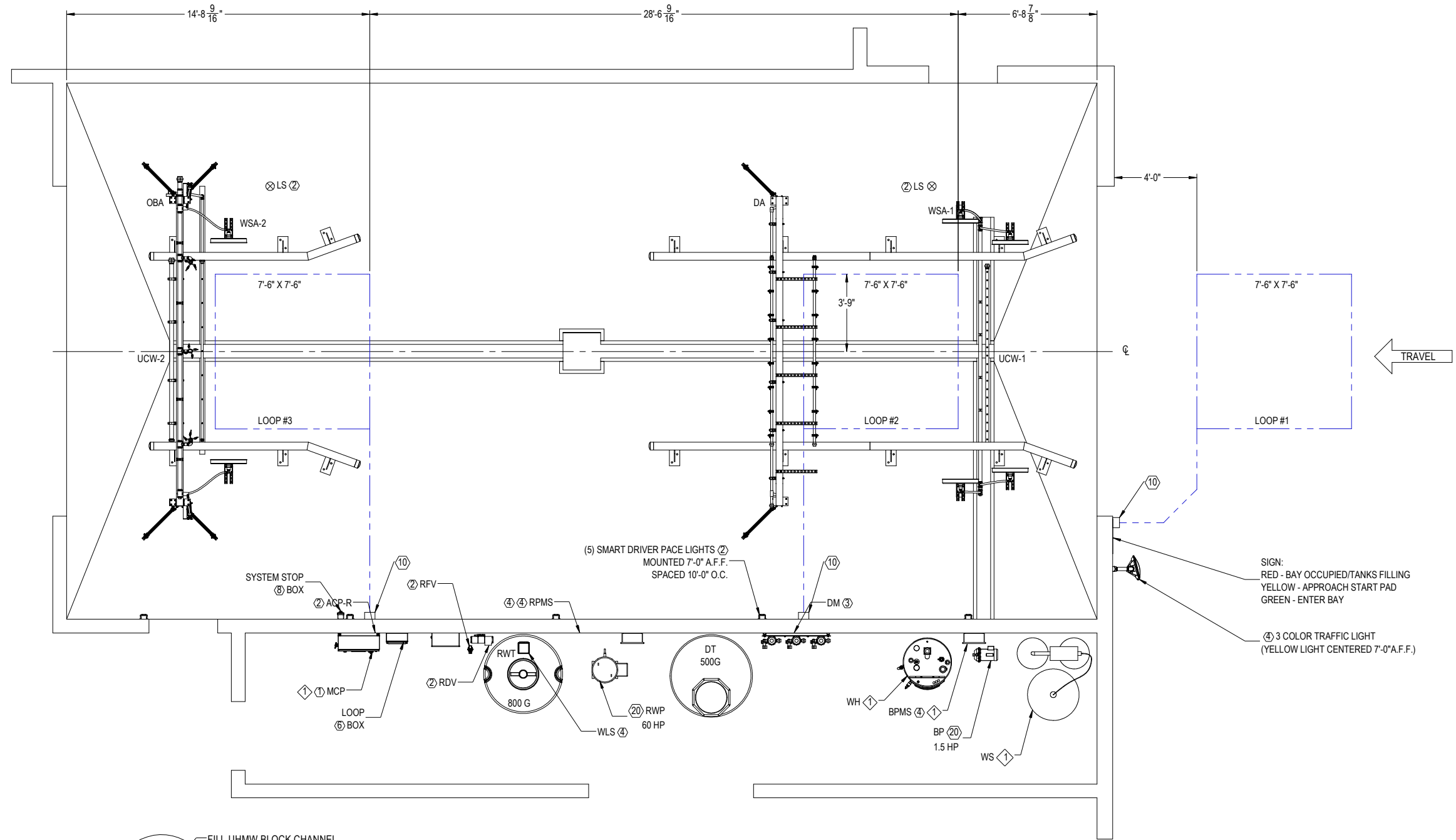
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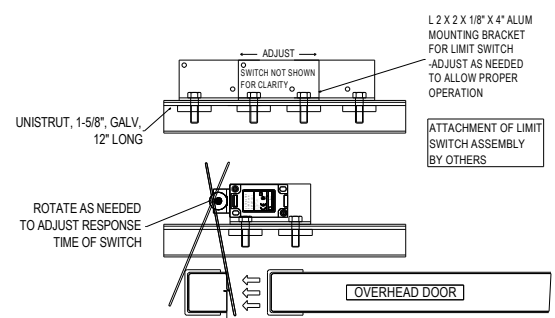
PROJECT ENGR:	DATE:	DESCRIPTION:
E. BRUS		<b>AUTOMATED TRUCK WASH MECHANICAL LAYOUT - OVERALL</b>
<b>CUSTOMER: OTTAWA COUNTY ROAD COMMISSION</b>		
SCALE: NTS	SIZE: D	DRAWING NUMBER: HC-MEP-243
DATE: 12/17/2019		SHEET: 4 of 9



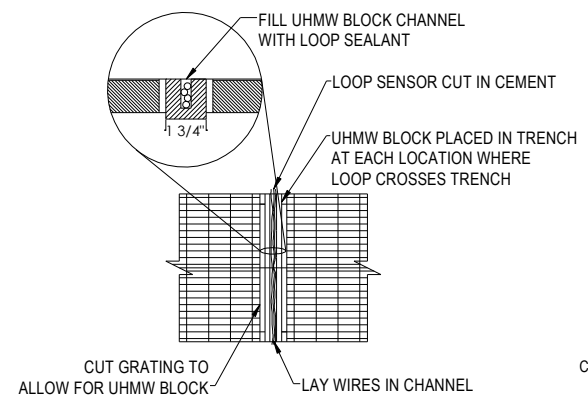


SIGN:  
 RED - BAY OCCUPIED/TANKS FILLING  
 YELLOW - APPROACH START PAD  
 GREEN - ENTER BAY

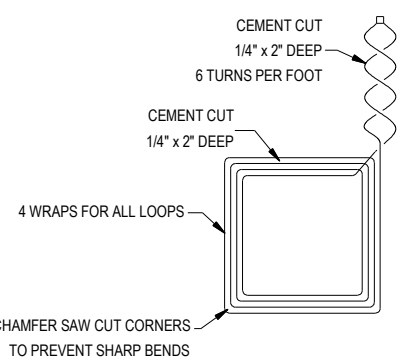
④ 3 COLOR TRAFFIC LIGHT  
 (YELLOW LIGHT CENTERED 7'-0\"/>



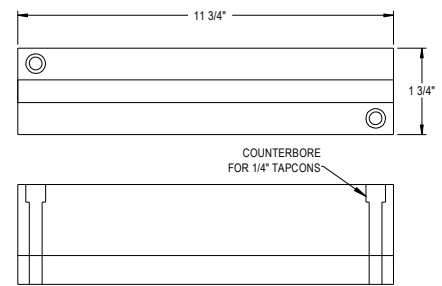
**LIMIT SWITCH DETAIL**



**LOOP TRENCH DETAIL**



**LOOP WIRE DETAIL**



**LOOP CHANNEL DETAIL**

	FLA			
3 PHASE VOLTAGE	208V	240V	480V	575V
60 HP RINSE PUMP	169	154	77	62
SINGLE PHASE		120V		
MCP		20 A BREAKER SPECIFIED		
GAS WATER HEATER		15 A BREAKER SPECIFIED		
WATER SOFTENER		15 A BREAKER SPECIFIED		
1.5 HP BOOSTER PUMP		10.4 A		

DCD BY:	DATE
W. WALKER	10/15/2019
E. BRUS	10/16/2019



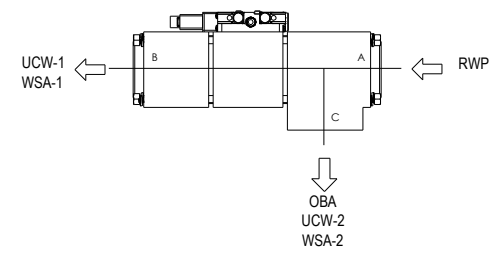
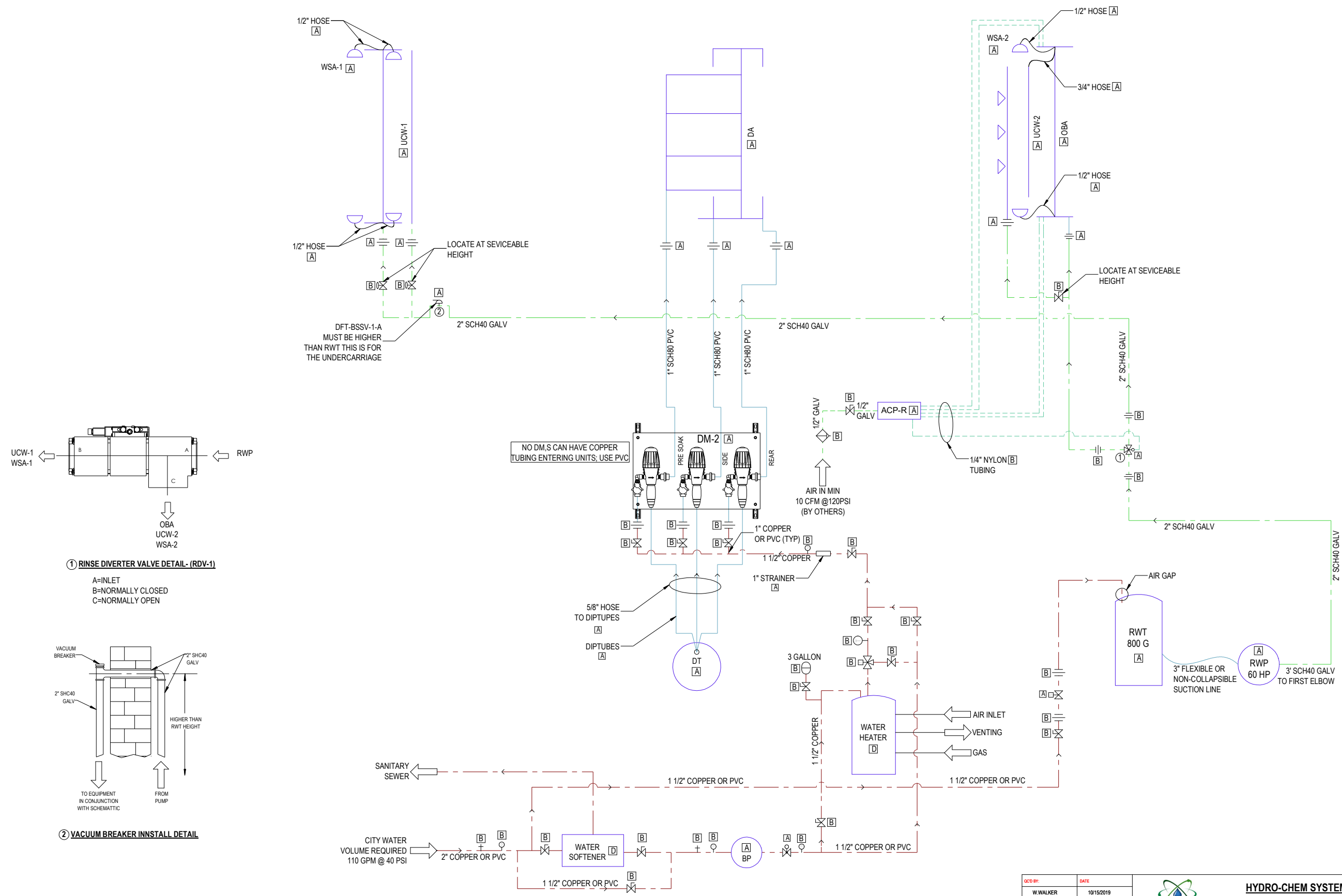
**HYDRO-CHEM SYSTEMS, INC.**  
 6605 BROADMOOR AVE. | CALEDONIA, MI  
 PH: 616-531-6420 | FAX: 616-531-8692  
 www.hydrochemsystems.com

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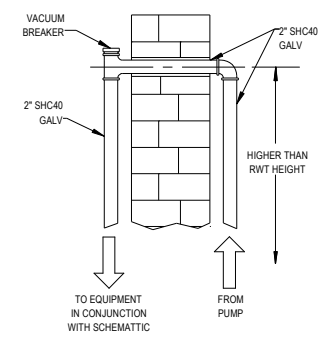
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PROJECT ENGR:	DATE:	DESCRIPTION:
E. BRUS		<b>AUTOMATED TRUCK WASH ELECTRICAL LAYOUT - OVERALL</b>
CUSTOMER:		SHEET
OTTAWA COUNTY ROAD COMMISSION		5 of 9
SCALE:	SIZE:	DRAWING NUMBER:
NTS	D	HC-MEP-243
DATE:	12/17/2019	



① RINSE DIVERTER VALVE DETAIL - (RDV-1)

A=INLET  
B=NORMALLY CLOSED  
C=NORMALLY OPEN



② VACUUM BREAKER INSTALL DETAIL

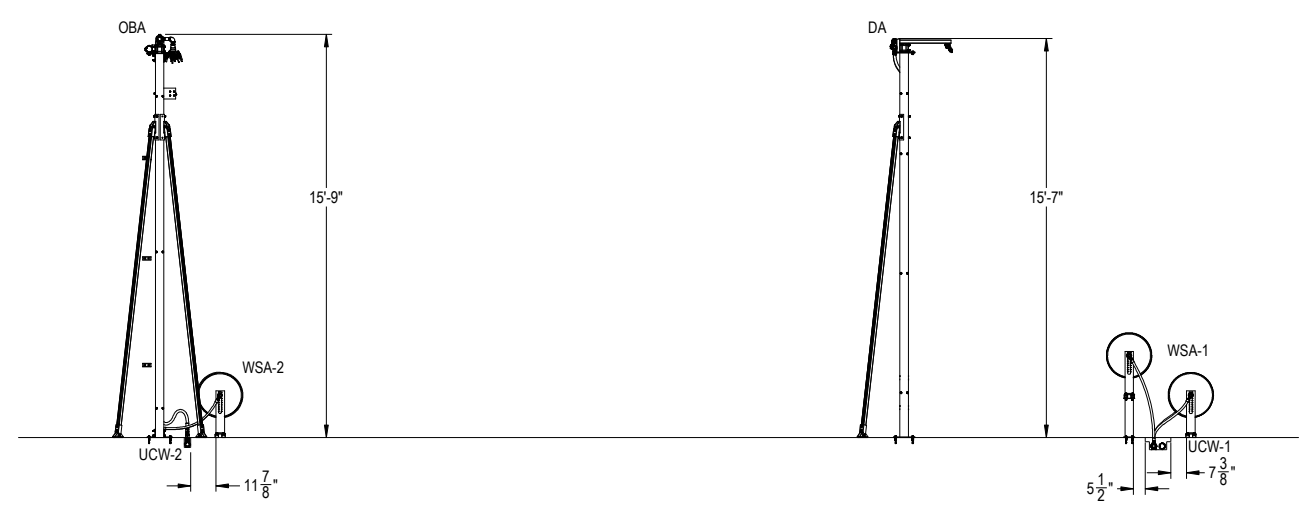
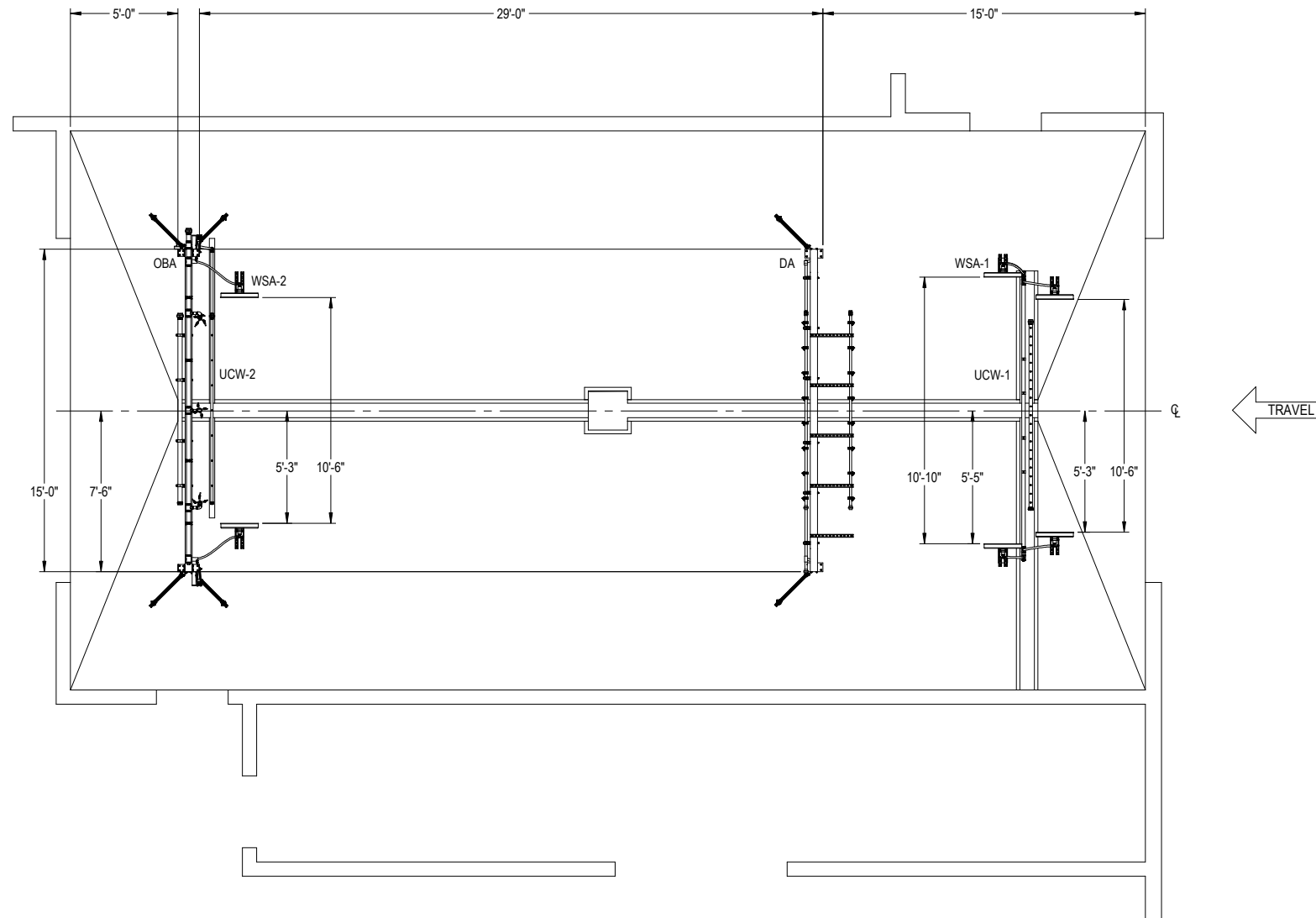
DCD BY:	DATE
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E. BRUS	10/16/2019




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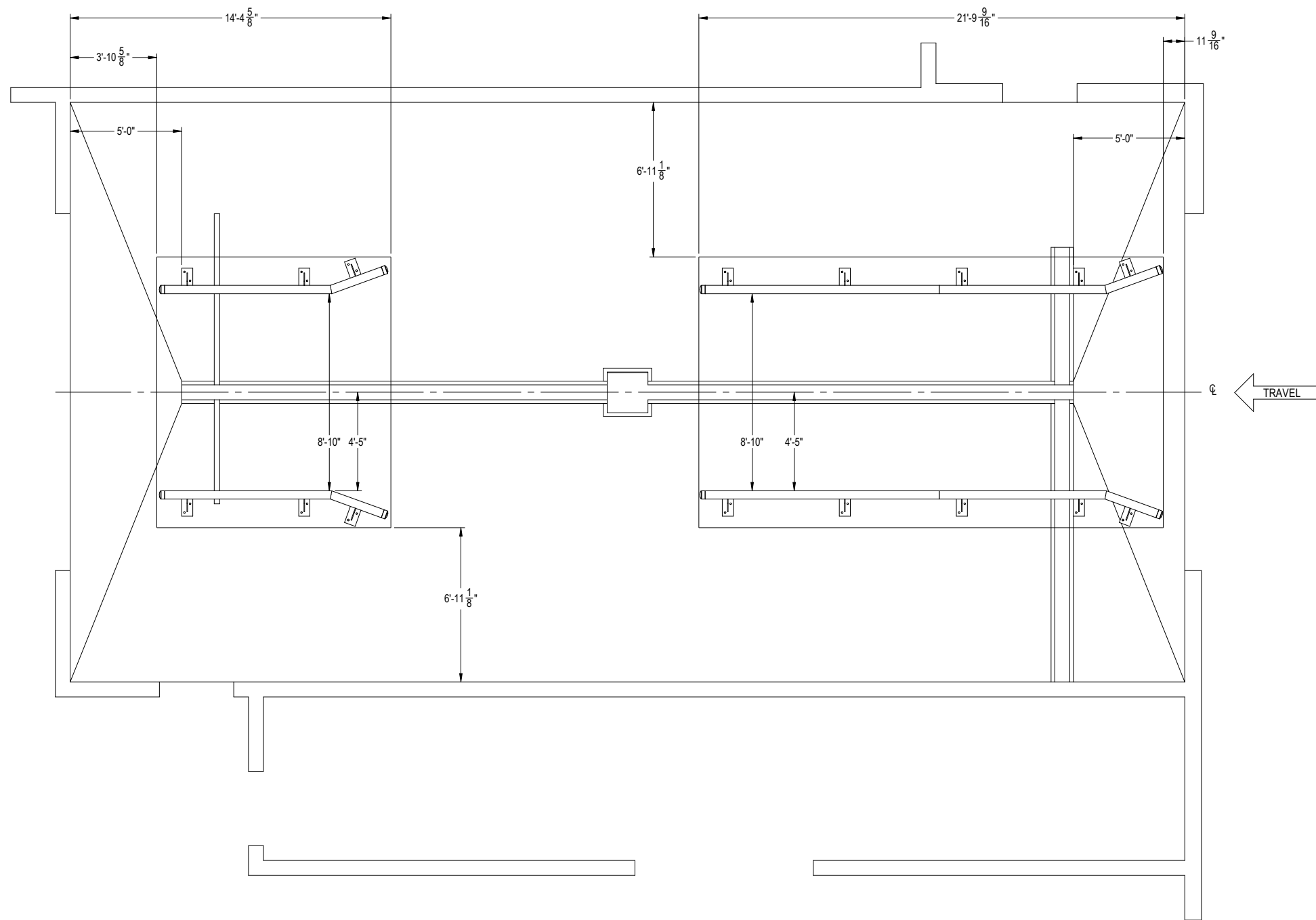
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	<b>CUSTOMER:</b> <b>OTTAWA COUNTY ROAD COMMISSION</b>	<b>SCALE:</b> NTS <b>DATE:</b> 12/17/2019





<table border="1"> <tr> <th>DCD BY:</th> <th>DATE</th> </tr> <tr> <td>W. WALKER</td> <td>10/15/2019</td> </tr> <tr> <td>E. BRUS</td> <td>10/16/2019</td> </tr> </table>	DCD BY:	DATE	W. WALKER	10/15/2019	E. BRUS	10/16/2019	 <p><b>HYDRO-CHEM SYSTEMS, INC.</b> 6605 BROADMOOR AVE.   CALEDONIA, MI PH: 616-531-6420   FAX: 616-531-8692 www.hydrochemsystems.com</p>	<table border="1"> <tr> <td>PROJECT ENGR:</td> <td>E. BRUS</td> <td>DATE:</td> <td></td> </tr> </table>	PROJECT ENGR:	E. BRUS	DATE:							
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SCALE:	NTS	SIZE:	D	DRAWING NUMBER:	HC-MEP-243	SHEET:	7 of 9											
DATE:	12/17/2019																	





DCD BY:	DATE
W. WALKER	10/15/2019
E. BRUS	10/16/2019



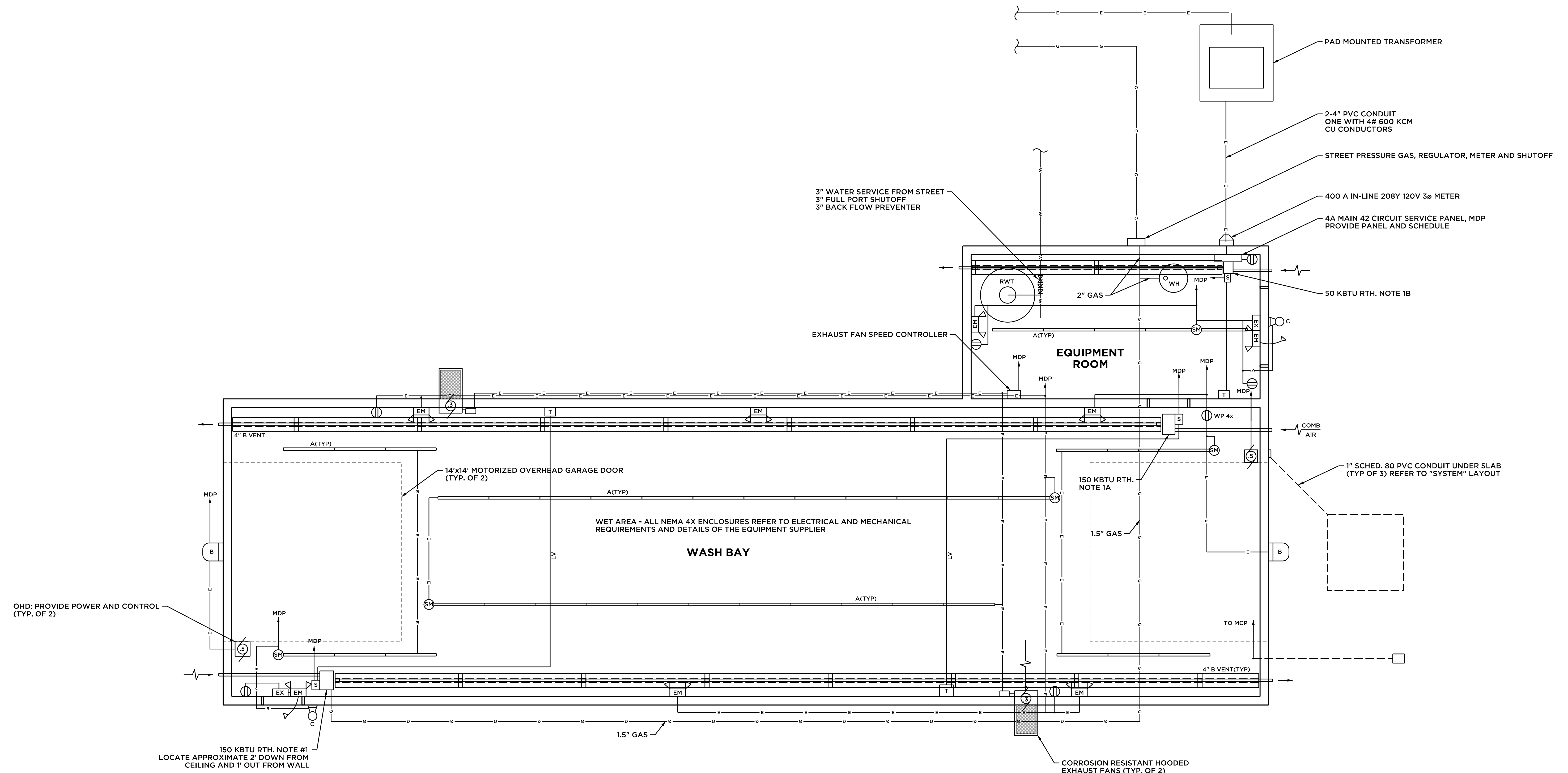
**HYDRO-CHEM SYSTEMS, INC.**  
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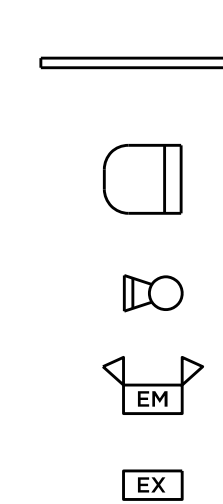
PROJECT ENGR.	DATE	APPROVED BY:
E. BRUS		
<b>DESCRIPTION</b>		
<b>AUTOMATED TRUCK WASH MECHANICAL LAYOUT - GUIDERAILS</b>		
<b>CUSTOMER</b>		
OTTAWA COUNTY ROAD COMMISSION		
<b>SCALE</b>	<b>SIZE</b>	<b>DRAWING NUMBER</b>
NTS	D	HC-MEP-243
<b>DATE</b>	<b>SHEET</b>	
12/17/2019	9 of 9	



**NOTES:**

- 1) PROVIDE RADIANT TUBE HEATERS (RTH.), 2 STAGE, NATURAL GAS WITH SIDE SHIELDS
  - A) TRUCK WASH: 150 KBTU 2 STAGE, ALL STAINLESS STEEL, WITH 2 STAGE NEMA 4X T'STAT EQUAL TO REVERBER RAY HL2-SS-50-150N WITH ALL OPTIONS.
  - B) EQUIPMENT RM: 50 KBTU, TAPERED TITANIUM STABILIZED COMBUSTION CHAMBER AND ALUMINUM/STEEL EMITTER TUBE WITH 2 STAGE PROGRAM. T'STAT EQUAL TO REVERBER RAY # LD3-20-50 AND LUX PRO #PSP-722 WITH ALL OPTIONS. PROVIDE HEAT SHIELDING FOR COMBUSTIBLES WITHIN 72" OF RTH. UNITS.
- 2) LIGHTING IS CONTROLLED VIA SM OCCUPANCY/MOTION DETECTORS OR PHOTO ELECTRIC MEANS WIRE TYPE A FIXTURES SO THAT DETECTION AT EITHER END OF THE WASH BAY ENERGIZES FIXTURES SHOWN. THERE ARE 3 ZONES; ENTRANCE, WASH BAY AND EXIT.
- 3) SITE UTILITIES: PROVIDE AS REQUIRED BY NPU AND AS SHOWN.
- 4) ALL BRANCH CIRCUIT HOME RUNS TO MDP ARE #12 CONDUCTORS IN 3/4" PVC CONDUIT.
- 5) PIPE RUNS ARE DIAGRAMATIC AND MAY BE SHOWN OUTSIDE THE BUILDING FOR CLARITY. THE INTENT IS TO ROUTE RUNS INSIDE.
- 6) EXHAUST FANS: 2500 CFM, 120 V WIRE INTO ONE COMMON SPEED CONTROLLER; MULTI FAN/GRAINGER #3C 956. WIRE TO ENERGIZE AUTOMATICALLY WITH WASH SYSTEM OPERATION AND WITH A BYPASS TO ALLOW MANUAL SHUT DOWN, EQUAL TO SCHAEFER/GRAINGER # 5AFC6.
- 7) THE WORK SHOWN HERE REPRESENTS ADDITIONAL WORK TO THAT REQUIRED BY THE TRUCK WASH SYSTEM SUPPLIER.
- 8) CONTRACTOR RESPONSIBLE FOR ALL MEP COMPONENTS AS REQUIRED TO INSTALL COMPLETE SYSTEM IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENT. THESE PLANS DO NOT REFLECT SYSTEM MEP COMPONENTS.

**LEGEND:**



- A. VAPOR TIGHT LED STRIP FOR GENERAL ILLUMINATION. 4700 LUMEN OUTPUT (EQUAL TO 2 x 4' T8 LAMPS) 4000°K COLOR, 48" W, LED, UNIVERSAL VOLTAGE, 48"L x 4 1/2"W x 3"H ALUMINUM HOUSING SUSPENDED WITH 2 x 5' CABLES, WITH POLYCARB. DIFFUSER EQUAL TO ECONOLIGHT # E-VW4L04UNW AND 2 CABLES # E-ACSC5. MOUNT AT ABOUT 15' AFF.
- B. CUTOFF WALL PACK FOR BUILDING EXTERIOR ILLUMINATION. 12,400 LUMEN OUTPUT (EQUAL TO 250 W PSMH), 4000°K COLOR, 150 W LED, UNIVERSAL VOLTAGE, 19"D x 14"W x 10"H DK BRONZE ALUMINUM HOUSING, WALL MOUNTED AT ABOUT 18' AFG. EQUAL TO ECONOLIGHT EAL3L315NZ AND E-ACP2 PHOTO ELECTRIC CONTROL.
- C. WALL MOUNTED GLOBE LANDING LIGHT FOR ENTRANCE ILLUMINATION. 828 LUMEN OUTPUT (EQUAL TO 75W INCAND), 4000°K COLOR, 22W LED, 120V WITH BUILT-IN PHOTOELECTRIC CONTROL, 6"D x 4"W x 10"H DK BRONZE ALUMINUM HOUSING, WALL-MOUNTED AT ABOUT 10' AFG. EQUAL TO ECONOLIGHT E-WGL21NZP. PROVIDE SWITCH NEAR DOOR STRIKE.
- D. WET LOCATION EMERGENCY LIGHT WITH 90 MIN. BATTERY AND CHARGER, WITH 9.6V REMOTE HEAD, LED LAMPS, 120V, GRAY ALUMINUM PLASTIC HOUSING. EQUAL TO LITHONIA-GRAINGER #46C221 AND #GNCZ7 REMOTE
- E. WET LOCATION RED LETTERED LED EXIT SIGN WITH NI CAD BATTERY BACKUP, 120V, WHITE PLASTIC HOUSING 2 1/2"D x 12 1/2"W x 8"H, SINGLE FACE, LITHONIA-GRAINGER #46C212.

<p><b>ANCHOR</b> ENGINEERING SERVICES, INC.</p> <p>41 Sequin Drive Glastonbury, CT 06033 Phone: (860) 633-9770 Fax: (860) 633-9971 www.anchorengr.com</p>	
<p>PROJ. ENGINEER: JC PROJ. MANAGER: MNB OFFICE REVIEW: MNB</p>	
<p><b>VEHICLE WASH BAY FACILITY</b> CITY OF NORWICH PUBLIC WORKS FACILITY <b>ELECTRICAL &amp; MECHANICAL PLAN</b></p>	
<p>50 CLINTON AVENUE NORWICH, CT</p>	
<p>PROJECT: 269-10</p>	<p>DATE: 12/14/17</p>
<p>SCALE: 1/4"=1'-0"</p>	
<p>SHEET NO. 11 OF 11</p>	

## **ATTACHMENT # 5**

# **ELECTRICAL AND NATURAL GAS SERVICE INFORMATION**

## Michael Ahern

---

**From:** Doug Solek  
**Sent:** Friday, October 9, 2020 11:29 AM  
**To:** Michael Ahern  
**Subject:** FW: FW: Truck Wash - Electrical = Town of Berlin Highway Department

Hi Mike,

Please see below. If we proceed with the one proposed option referenced we would need an electrical upgrade due to the system requirements. If we pursue a less complex system there is a possibility we can expand on the existing electrical service with a few circuits.

Douglas Solek  
Director of Facilities  
Town of Berlin  
#11 Town Farm Lane  
860-828-7029

----- Original message -----

From: paul@bigelowelectricinc.com  
Date: 10/9/20 11:21 AM (GMT-05:00)  
To: Doug Solek <dsolek@town.berlin.ct.us>  
Subject: RE: FW: Truck Wash - Electrical = Town of Berlin Highway Department

Hi Doug,

I surveyed the existing electrical service in the grounds/highway dept. building. It is fed from the fleet garage via a 120/208v 3ph 225amp circuit for the entire building. The main service in the fleet building is a 120/208 3ph, 400 amp service which appears to feed everything in the complex. I did not check any loads for amperage readings but the MDP is full and has no free spaces.

I would recommend installing a new 277/480v service for the new wash building. Eversource has a pole with primary power located in the vicinity of the new wash building. It shouldn't be too difficult of an install. The proposed pumps are good size and it would make more sense to feed them with 480v.

Please let me know if you should need any further info.

Thank you,

Paul Bigelow

**Bigelow Electric Inc.**  
**292 New Britain Rd.**  
**Kensington, CT 06037**  
**ph. 860-223-2920**



## Michael Ahern

---

**Subject:** Truck Wash Bay - Natural Gas Service  
**Attachments:** Meter upgrade/35 Town Farm Lane Berlin

---

**From:** Doug Solek <dsolek@town.berlin.ct.us>  
**Sent:** Monday, January 11, 2021 10:00 AM  
**To:** Michael Ahern <mahern@town.berlin.ct.us>  
**Subject:** RE: Truck Wash Bay - Natural Gas Service

Hi Mike,

Please see attached from CNG. "Long of the Short ", is the first stage line from the street to the building can handle the proposed capacity increase.

- \*There is currently a 1 million BTU load at the building with existing equipment. (Existing 1 million Diaphragm Meter)
- \*Potential additional Load of 600-700K BTU's?. (Heat & DHW in new wash bay)
- \* Next size diaphragm meter available is 1.5 million( too small)
- \*Over 1.5 Million jumps to a 3 million rotary meter.
- \*Meter upgrade and all associated header piping no cost to Town.
- \*If first stage line needs to be relocated for meter location change and any excavation needed there could be associated costs from CNG.
- \*Apprx . 4 week lead time notification for CNG Schedule to upgrade meter.
- \* If meter relocation is required, need to contact and coordinate with CNG.

Let me know if you need any additional info.

Thanks,

*Douglas Solek  
Director of Facilities  
Town of Berlin  
#11 Town Farm Lane  
Berlin, CT 06037  
860-828-7029*

## Michael Ahern

---

**From:** DENNIS V DEBATTE <ddebatte@uinet.com>  
**Sent:** Monday, January 11, 2021 9:34 AM  
**To:** Doug Solek  
**Subject:** Meter upgrade/35 Town Farm Lane Berlin

Good Morning Doug,

Engineering completed the design for the new meter. It's a 3M rotary that will replace the existing AL 1,000.

There's no charge to change out the meter and the gas will be shut off for a few hours during the swap out.

Please let me know when ready and give me a few weeks lead time to schedule the work order.

If additional work to replace the service line coming in is requested there could be a charge, which would have to be priced out.

Thanks.



**Dennis DeBatte**  
Commercial & Industrial Energy Specialist.

76 Meadow St 2<sup>nd</sup> Floor, East Hartford, CT 06108  
Telephone 860.841.2690  
Fax 860.727.3326  
[ddebatte@uinet.com](mailto:ddebatte@uinet.com)



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## **ATTACHMENT # 6**

# **WASH BAY EQUIPMENT - OUTLINE SPECIFICATION**

**SECTION 111xx - VEHICLE WASHING EQUIPMENT**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section includes vehicle washing equipment designed for the following types of vehicles:

- 1. Cars, trucks and all other vehicles up to 13'6" high and 40' long.

The Owner is requesting bids for a touchless vehicle wash system specified herein:

- 2. Touchless In-Bay Automatic Drive-Thru Type. System shall be totally automatic being actuated by a vehicle driving through the touchless automatic wash system that is mounted in wash bay meeting the minimum specification specified herein.

**1.3 WASH SYSTEM REQUIREMENTS**

- A. This system shall be an industrial quality, drive-thru wash system being able to complete a vehicle wash in less than 3 minutes. The wash system shall be touchless, utilizing a Single Step Detergent cleaning method to breakdown and remove soils without the use of any brushes or friction devices touching the vehicle.
- B.
  - 1. Vehicle wash system shall be of commercial-duty, and satisfactorily clean the owner's fleet including all styles of vehicles up to 13'6" high and 40' long for front, roof, both sides and rear.
  - 2. The wash system shall have an undercarriage pre-wash at the entrance and additional undercarriage at the rinse that will utilize a high pressure pump system to provide a high volume rinse to thoroughly remove soils off the underside of the vehicle. Special emphasis shall also be given to the wheel and wheel well area to remove heavy soils present there as well.
- C. The general contractor and the manufacturer of the wash system are responsible for the supply of necessary equipment, materials and service for the complete assembly and erection of the equipment so that it is ready for operation as per all applicable specifications.
- D. The vehicle wash system shall be installed by the general contractor, supervised by the manufacturer and interconnected and connected to the building services by the general contractor's plumbing and electrical contractor.
- E. Start-up, commissioning and training of the wash system shall be performed by the wash system manufacturer.
- F. Training of the Town of Berlin employees shall be performed by the wash system manufacturer.
- G. In order to ensure minimum downtime and operational costs, the vehicle wash design must utilize non-proprietary components that are readily available in the general marketplace, without being dependent upon a single supplier for replacement parts and/or components. This is to protect the best interest of the procuring entity and its financial resources.
- H. The automatic wash system equipment bidder shall submit a detailed compliance, substitution, exception statement with the bid proposal. This compliance statement shall provide a line by line compliance, substitution, or exception statement indicating whether or not each line item is being provided as specified, substituted, or not being provided. This set of statements shall also include the price differential for substituting or taking exception not to provide each line item. Bids without this compliance statement shall be rejected by the Town.

#### 1.4 SUBMITTALS

- A. Shop Drawings: Submit Shop Drawings that have floor plans or isometric view of the equipment being installed.
  - 1 Submit Product Data in strict accordance with requirements of these specifications.
  - 2 Scale drawings showing wash equipment layout, location and utility services to be furnished and installed by the contractor and/or skilled trades.
  - 3 Restrict submittal material to pertinent data. For instance, do not include manufacturer's complete catalog when pertinent information is contained on a single page.
- B. Additional cost resulting from substitution of products other than those specified, including drawing changes and construction cost will be at the expense of the contractor and wash system manufacturer.
- C. Closeout Submittals:
  - 1 Maintenance and Operating Manuals: Submit one (1) bound and one (1) electronic maintenance and operating manuals, including operating and maintenance instructions, emergency information, spare parts list and similar information for each item of vehicle washing equipment required.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: It is anticipated that the supplier will be regularly engaged by the Town in the design and supply of the type equipment specified herein, for a period of not less than ten years. All similar items shall be the products of one manufacturer. The equipment offered shall be the latest standard product, modified as necessary to meet the requirements of the specification.
- B. Installer Qualifications: Vehicle washing equipment installed by the contractor must be supervised by the manufacturer's qualified installation employee.
- C. Regulatory Requirements:
  - 1 Electrical Code: Comply with NFPA 70/ANSI C1 "National Electrical Code" for electrical components incorporated into the vehicle washing equipment.
- D. Catalog Standards: Manufacturer's model numbers may be shown in the Contract Documents for convenience in identifying certain vehicle washing equipment. Unless modified by notation in the Contract Documents, the model number description for the indicated model number constitutes requirements for that item of vehicle washing equipment.
  - 1 The use of model numbers, and the specific requirements set forth in the Contract Documents are not intended to preclude use of any other acceptable manufacturer's product which may be equivalent, but are given for the purpose of establishing a minimum standard of design, function, and quality of materials, construction, and workmanship.
- E. The wash system and its supporting equipment shall be designed and manufactured by a single OEM manufacturer source and installation services shall be provided by the same OEM manufacturer in order to maintain quality control.
- F. Inserts and Anchorages: Furnish inserts and anchoring devices that must be built into other work for the installation of vehicle washing equipment and related work. Coordinate delivery with other work to avoid delay.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver vehicle-washing equipment to Project site in original unopened containers or packages, with manufacturer's labels, and instructions intact and legible.
- B. Contractor is to unload, handle, store, and protect vehicle-washing equipment in accordance with manufacturer's recommendations.



**Town of Berlin  
Berlin CT**

**1.7 COORDINATION**

- A. Wash system manufacturer shall coordinate equipment layout and installation with other work, including entry doors, sectional overhead doors, operators, and controls, and with floor drains.
- B. Wash system manufacturer shall coordinate locations and requirements of service-utility connections.
- C. Wash system manufacturer shall coordinate size, location, and requirements of concrete bases, trench drains, and positive slopes to drains.

**1.8 WARRANTY**

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Submit a written warranty, executed by the manufacturer of each item specified, agreeing to repair or replace vehicle washing equipment or their components that fail in materials or workmanship within the specified warranty period.
  - 1 Warranty Period: 1 year from date of Substantial Completion.
  - 2 In addition to the standard warranty the manufacturer shall assign a dedicated account manager to make, at a minimum, quarterly check in calls to assess wash counts, soap consumption and provide a cost per wash analysis to the owner. There will be no charge for this for the warranty period. Beyond the warranty period, an account manager will remain assigned at no additional cost to the Town, so long as the Town continues to purchase detergent from the wash manufacturer.

**PART 2 - PRODUCTS**

**2.1 EQUIPMENT MANUFACTURER**

- A. Vehicle Wash Equipment designed for this project is manufactured by:

HYDRO-CHEM SYSTEMS, INC.  
6605 Broadmoor Ave  
Caledonia MI 49316  
800-666-1992  
[www.hcsclean.com](http://www.hcsclean.com)  
Representative: Geoff Momber
- B. The use of Hydro-Chem Systems Inc. catalog/model numbers, and the specific requirements set forth herein and on the drawings are not intended to preclude the use another manufacturer's products or procedures, but are given for the purpose of establishing a minimum standard of design and quality for materials, construction and workmanship.
- C. Equipment offered as an alternative to the equipment specified must be identical in both function and installation; and shall have been required to have design engineer approval. The drawings have been based on the equipment manufactured by Hydro-Chem Systems Inc., if the contractor it elects to use equipment manufactured by another manufacture they must assume full financial responsibility for any changes that occur as a result of the change. The financial responsibility shall include any changes for the general construction, plumbing, mechanical, electrical, and any architectural or engineering work incurred as a result of the change.

**2.2 TOUCHLESS IN-BAY DRIVE THRU AUTOMATIC VEHICLE WASH SYSTEM DESCRIPTION:**

- A. Design Requirements:
  - 1. Sequence of Operation:

- a. This system is specified as a drive thru wash being able to completely wash in less than 3 minutes. The wash shall utilize a Single Step Hydro-Fluoric (HF) free detergent cleaning method to breakdown and remove soils without the use of any brushes or friction devices touching the vehicle.
  - b. The operation and startup of this system shall be initiated by utilizing a loop sensor installed just prior to the entrance of the wash bay as shown on the drawings. The vehicle wash equipment system shall be supplied with magnetic vehicle loop sensors for positive indication of vehicle presence for all operations of the system.
  - c. Vehicle to be washed pulls up to the entrance of the wash bay and in clear sight shall be 3 streetlights at the entrance. Lights shall be; RED – VEHICLE IN BAY OR TANKS FILLING, YELLOW – APPROACH START PAD/ACTIVATE WASH, and GREEN – ENTER WASH SLOWLY.
  - d. The vehicle wash system will start after system control has performed a check of all device inputs and the vehicle to be washed, drives over the first loop sensor prior to the undercarriage and chassis pre-wash.
  - e. After leaving the pre-wash area, the Detergent arch shall begin applying detergent as the vehicle approaches and drives thru. The detergent arch shall incorporate separate oscillating side manifolds for the application of the detergent to the sides of the vehicle. An intensified pre-soak manifold shall apply the detergent to the front of the vehicle at up to 2 times the concentration for proper release of the soils found on the front of the vehicle. Use of the detergent arch support column and cross piece as the detergent delivery manifold is not allowed. The detergent manifolds shall be Schedule 80 PVC piping. Use of stainless steel or galvanized steel detergent manifolds is not allowed.
  - f. The oscillating side manifolds in Detergent Arch shall each be driven by pneumatic actuator motors. The oscillating manifolds shall pivot towards the front of the vehicle as the vehicle approaches the detergent arch and effectively cover the front and sides of the vehicle. When the front of the vehicle is even with each arch, each oscillating manifold shall begin to oscillate.
  - g. A separate rear detergent manifold located on detergent arch shall apply detergent at up to two times the concentration to the rear of the vehicle after the vehicle has passed the arch.
  - h. A series of LED pace lights shall be mounted on the driver side of the wash bay to assist drivers in maintaining the correct speed. The vehicle shall drive thru at the rate of 1 foot per second.
  - i. The vehicle will continue through the wash bay from the detergent arch to the rinse arch allowing adequate time for detergent reaction on vehicle surface. When the vehicle drives over the high pressure rinse loop sensor, the control system shall turn on the high pressure rinse pump and apply a high pressure rinse to the sides, top, front, rear, and undercarriage as the vehicle moves through the rinse arch. The rinse arch shall use oscillating manifolds that lock towards the front of the vehicle upon the vehicle entering the rinse arch. As the vehicle moves through, the oscillating manifolds shall pivot to apply rinse water to the vehicle and remove the detergents. As the rear of the vehicle exits the rinse arch, the oscillating manifolds shall be directed towards the rear of the vehicle and lock into place; directing rinse water to rinse the detergents from the rear of the vehicle.
  - j. At the exit of the vehicle from detergent arch, the wash system control system shall send a signal to open the wash bay exit door.
  - k. After the wash is complete the system shall reset itself ready for the next wash. In the automatic doors mode the wash system shall close the exit door.
2. Wash System Performance:
- a. Operation: The vehicle washer shall be actuated in cycle sequence by vehicles driven in a fixed path between tire guides at a slow speed (50-60 feet/minute) through the washing system. All washing operations shall be fully automatic, activated by the vehicle driving through.
  - b. The vehicle wash equipment supplier is responsible to design the equipment to adequately wash up to 20 vehicles per hour. The vehicle wash shall be able to remove all visible, heavy dirt accumulation and most of the road film from the Owner's vehicles when they are driven through the washer at 50

feet/minute using HF free detergents. The amount of detergent used per vehicle to remove road film shall not exceed 0.40 gallons. The use of detergents containing HF or Ammonium BiFlouride (ABF) will not be allowed.

- c. The evaluation of the system's capability to remove road film shall be determined only after the vehicle has dried after washing has been complete.
- d. The manufacturer supplier must provide free on line diagnostics (Internet access by owner) during the warranty period.

## 1.2 MATERIALS AND COMPONENTS

- C. General: Provide manufacturer's standard vehicle washing equipment systems modified as required to suit Project conditions. Where components are not otherwise indicated, provide standard components, published by manufacturer as included in standard pre-engineered vehicle washing equipment systems and as required for a complete system.
- D. Detergent System:
  - 1. Detergent Arches (1):
    - a. Manufacturer's standard design, arch manufactured from stainless steel or aluminum materials with support legs. The arch is to be attached to the concrete floor slab with stainless steel anchors.
    - b. Timing of operation and position of the detergent arch shall be determined by the manufacturer to provide optimum detergent penetration before high pressure wash cycle.
  - 2. Detergent Manifolds:
    - a. Shall be constructed using Schedule 80 PVC and utilize nozzles that are constructed of a chemically coupled, glass-reinforced engineering grade of polypropylene that will provide strength and durability with chemical resistance. A Viton O-ring shall be utilized to provide a positive seal between the body and the tip of the nozzle. The nozzle shall utilize a pressure check to eliminate wasted detergents draining from the arch after detergent application has ceased. Use of stainless steel or galvanized steel piping for detergent manifolds is not allowed.
    - b. Detergent arch shall incorporate separate oscillating side manifolds for the application of the detergent to the sides of the vehicle. Each detergent arch shall incorporate a top mounted, fixed detergent manifold to deliver detergent to the top of the vehicle. An intensified pre-soak manifold, shall apply the detergent to the front of the vehicle at up to 2 times the concentration for proper release of the soils found on the front of the vehicle. Use of the detergent arch support column and cross piece as the detergent delivery manifold is not allowed.
    - c. The oscillating side manifolds in Detergent Arch shall each be driven by pneumatic actuator motors. The oscillating manifolds shall pivot towards the front of the vehicle as the vehicle approaches each detergent arch and effectively cover the front and sides of the vehicle. When the front of the vehicle is even with each arch, each oscillating manifold shall begin to oscillate.
    - d. Top/side spray manifolds manufactured per the bidders standard designs. Detergent manifolds shall be designed to evenly apply detergent, warm water solution to top and sides, of the vehicle proceeding through the arch. The design shall allow immediate activation of the nozzles upon arch activation by the vehicle.
    - e. An intensified rear detergent spray manifold manufactured per the vehicle wash equipment manufacturer's standard designs. Detergent shall be applied to the rear of the vehicle via a separate rear spray manifold that is activated immediately after the vehicle has passed through the front/side spray manifold. The detergent concentration for the rear wash arch shall be double amount of detergent when compared to the front/side manifold delivery. The intensified rear detergent spray manifold shall be controlled and operated via its own vehicle sensing device, solenoid valves and chemical pumps to prevent spraying except on the rear of the vehicle.

3. Booster Pump:
  - a. The pump shall be a stainless steel multi-stage centrifugal pump. The 120 Volt TEFC, Single Phase, 1.5 HP pump. The pump shall maintain up to 60 psi to the detergent system. An appropriately sized motor starter shall be supplied.
4. Water Softening System – Twin Tank (**Supplied by mechanical contractor**):
  - a. The water softener provided for this wash will totally soften the water provided to the detergent system.
  - b. Commercial water softener capable of a flow rate of 14 GPM of soft water, with a peak rating of 19 GPM. It shall feature two 20,000 grain capacity tanks. The control shall provide continuous soft water by utilizing a flow meter to monitor the amount of water used. The resin tank shall be made with non-corroding polyglass and the brine tank of high density polyethylene. The resin shall be high capacity, long life cation exchange resin.
5. Water Heater – Natural Gas (**Supplied by mechanical contractor**):
  - a. The water heater shall be a commercial grade 93gallon, sealed combustion unit having an input rating of 199,000 Btu/hr. The water heater shall be capable of full modulation firing down to 20% of rated input with a turn down ratio of 5:1. The water heater shall be designed for up to 95% thermal efficiency.
  - b. The water heater shall consist of a direct fired stainless steel heat exchanger mounted on top of a glass lined storage tank in a fashion that will reduce the amount of scale build-up that is known to reduce efficiency. The water heater shall have no visible pipes that connect the heat exchanger to the storage tank.
  - c. The water heater shall be constructed with a heavy gauge steel jacket assembly, primed and pre-painted on both sides. The combustion chamber shall be sealed and completely enclosed, independent of the outer jacket assembly, so that integrity of the outer jacket does not affect a proper seal. A burner/flame observation port shall be provided. The burner shall be a premix design and constructed of high temperature stainless steel with a woven metal fiber outer covering to provide modulating firing rates. The water heater shall be supplied with a gas valve designed with negative pressure regulation and be equipped with a variable speed blower system, to precisely control the fuel/air mixture to provide modulating water heater firing rates for maximum efficiency. The water heater shall operate in a safe condition at a de-rated output with gas supply pressures as low as 4 inches of water column.

E. Rinse System:

1. Rinse Arch:
  - a. Due to the necessity of washing irregular shaped vehicles fixed arch high pressure rinse manifolds are unacceptable. Oscillating side manifolds shall be the basis of design for the high pressure rinse arch section.
  - b. The high pressure rinse arch shall be constructed of aluminum or stainless steel. The arch shall be mounted to the floor using stainless steel anchors. Its design shall incorporate the use of stainless steel nozzles per the manufacturer's specifications.
  - c. Header piping shall be a minimum of 2" schedule 40 galvanized pipe. Side oscillating manifolds shall be 1 1/2" minimum schedule 40 galvanized pipe and swivels shall be capable of a minimum 2000 PSI and shall have stainless steel internals. The swivels shall be sealed construction with no need for lubrication. The minimum output flow rate of the rinse arch shall be 200 GPM at pressures up to 330 PSI.
  - d. The side oscillating manifold shall have a home position directing the cleaning power to the front of the vehicle as it enters the arch. As the front of the vehicle enters the high pressure rinse arch, the side manifolds shall begin to oscillate and effectively remove the previously applied detergents. As the rear of the vehicle exits the high pressure rinse arch, the oscillating manifolds shall lock to the exit position to enhance cleaning on the rear of the vehicle.

**VEHICLE WASHING EQUIPMENT**

- e. There shall be (3) spinners located on the cross over manifold mounted on the top of the arch to adequately clean the front and top of the vehicles and (1) wheel spinner assembly affixed to the wash bay floor to provide effective rinsing of the vehicle wheels.
- f. The high pressure rinse arch shall incorporate a set of two zero degree angle spinning nozzles, installed on the wash bay floor and three spinning nozzles installed in the top cross over manifold mounted to the cross over arch. Each spinner shall have 4 stainless steel nozzles equipped with air jet nozzles. Zero degree angle water to pass thru the secondary orifice. The union of each spinner assembly shall be capable of withstanding up to 3000 PSI and capable of 500 rpm's without premature wear of the seal. The angle of the spinners shall be factory preset without any additional adjustment needed.
- g. The high pressure rinse section shall incorporate an undercarriage rinse section and shall consist of a fixed manifold, installed below the wash bay floor that will deliver a minimum of 30 gallons per minute at a minimum of 300 PSI to the underside of the vehicle.
- h. Each oscillating manifold shall incorporate a 2" air cylinder to provide the thrust for oscillation. All pneumatic controls for the air system shall be included with bid. Air supply will be provided by others.

2. Rinse Pump:

- a. The high pressure rinse pump shall be a stainless steel multi-stage centrifugal pump. This pump shall be set up to operate at an efficiency rating at least 75%. The pump shall be specified as ODP and 480 Volt, 3 Phase 60 HP pump, it shall deliver approximately 230 GPM @ 330 PSI to the rinse arch. The high pressure rinse pump assembly shall incorporate a 316 stainless steel impeller and 316 stainless steel impeller housing and be incorporated into a vertical shaft design to minimize floor space.
- b. This high pressure rinse pump is to be supplied with 1 corrosion resistant 1500-gallon holding tank and automatic fill valve. There shall be a low water shutoff sensor to eliminate the possibility of the rinse pump running dry. There shall also be a sensor to prohibit a wash cycle from starting if the tank does not have an adequate supply of water for that wash. An appropriately sized motor starter shall be supplied.
- c. The high pressure rinse pump shall provide rinse water to both the undercarriage rinse manifold as well as the side and top rinse manifold assemblies.

3. Guide Rails:

- a. Guide rails are to be made out of 3" powder-coated safety yellow galvanized steel pipe. Provide guide rails for protection around the arches as shown on the prints. Mounting shall be done with  $\frac{3}{4}$ " anchors. Guide rail total height shall from wash bay surface to top shall not exceed 3.5" to allow passage of belly blade style plow trucks.

F. Control Package

Master Control Panel:

- a. This panel shall be a 115 Volt Master Control Panel (MCP) to regulate all operations of the wash system. The panel shall be designed to meet the requirements of the National Electric Code, Articles 430 and 670, NFPA Standard 70 and shall utilize components with Underwriters Laboratories, Inc. (UL) rating.
- b. The MCP shall be PLC based. The use of PC/Windows/Linux will not be accepted as a substitution.
- c. This system shall incorporate additional protection by using PELV (Protective Extra Low Voltage) for all outputs from this panel. If a manufacturer chooses to use high voltage controls, they will be responsible for Electrical Contractor costs to install them.

- d. An Ethernet modem shall be located inside the MCP to enable remote electrical trouble shooting and to change programming. Ethernet and dedicated IP address will be provided by Owner.
- e. MCP must be capable of monitoring wash count as well as run time on detergent water pump, and rinse pump. MCP must also track occurrences of troubles such as low water shutdowns. Report of all trouble occurrences, hours of runtime, wash counts, and wash costs must be submitted to the Owner on a monthly basis during the warranty period.
- f. This system must have a display panel that indicates the wash count, pump hours, and monitoring of all devices controlled by the MCP. This touchscreen panel shall also provide easy troubleshooting of the wash system. The screen shall provide monitoring of all input sensors, output devices.
- g. The Touchscreen panel shall also provide the ability to individually turn on all devices of the wash system controlled by the MCP. This feature shall have a password protection for the end user.
- h. The system shall incorporate a System Stop button both on the Master Control Panel and in the wash bay to stop the wash program from running.
- i. The MCP shall be capable of integration of an access control system (provided by others). The wash manufacturer will be responsible for coordination of this integration with the end user and any access control system or vendor.

2. Low Voltage Street Lights and Signs:

Low voltage streetlights shall be at the entrance of the wash. These streetlights shall be 24 VAC. At the entrance shall be a "Tanks Filling/Vehicle in Bay" (RED) light when a wash is in progress or the tanks may be filling to prevent the next wash to occur with sufficient water. "Approach Start Pad/Activate Wash" (YELLOW) alerting the drivers the wash is ready for activation of the next wash, and "Enter Wash" (GREEN) light to alert the driver the doors are all the way up and the system is starting and to enter bay. Appropriate signs shall accompany these lights to instruct the driver.

3. Integration of Overhead Door Controls to the MCP:

- a. The vehicle wash equipment manufacturer shall be responsible for automating the entrance and exit doors, (door openers, standard controls, and photo eye protection from closing against the system closing the door in the event someone or something is in the path of the door is to be provided by door manufacturer) and integrating the opening of the entrance and exit doors into the operation of the wash system. Final connection from the master control panel to the door controls to be made by electrician.

G. Vehicle Loop Detector System: Provide manufacturer's standard magnetic detector designed to detect presence or transit of a vehicle over an embedded loop of wire and to emit signal activating or deactivating vehicle wash system. Provide number of loops consisting of multiple strands of wire, number of turns, loop size, and method of placement at location shown on Drawings, as recommended in writing by system manufacturer for function indicated. The use of limit switches or photo-eyes for detecting the vehicle moving through the wash is prohibited for safety of Town personnel.

- 1 The wash system manufacturer is responsible for coordinating the installation of the loop sensors provided with the wash system. The installation is to be performed by skilled trades with supervision and assistance of the wash manufacturer.

B. Cleaning Chemicals: Equipment supplier shall provide training on the system, and 275 gallons of detergent with the system.

- 1 The cleaning detergents shall be formulated for cleaning of exterior of vehicles in a touchless vehicle wash system and be able to remove light oils, most road film and general soils.
- 2 The cleaning detergents shall be safe on painted surfaces and ferrous and non-ferrous metals and shall have no adverse effect on the health of personnel, vehicle surfaces, or the wash bay equipment when used in accordance with the specified safe handling and use procedures.
- 3 The cleaning detergent(s) will have no flash point and contain no phosphates, no phenols or butyls.



- 4 The cleaning detergents shall not contain HF or ABF.
- 5 The cleaning detergent(s) shall be able to satisfactorily wash all of the Owner's vehicles. The vehicle wash with the proposed cleaning detergent(s) shall be able to remove all visible, heavy dirt accumulation and most of the road films the vehicles when they are driven through the washer at one foot per second.

### **PART 3 - EXECUTION**

#### **3.1 INSPECTION**

- A. Coordinate location of rough-in work and utility stub-outs to assure match with equipment to be installed.
- B. Inspect delivered equipment for damage from shipping and exposure to weather. Compare delivered equipment with packing lists and specifications to assure receipt of all equipment items and specified accessories.
- C. Report in writing to the Architect, any damaged, missing or incomplete scheduled equipment, and improper rough-in work or utility stub-outs.

#### **3.2 INSTALLATION**

- A. Contractor with the supervision of the wash system manufacturer shall install equipment in accordance with plans, shop drawings, and manufacturer's instructions:
  1. Place vehicle wash equipment after finishes have been completed in each area.
  2. Positioning: Place equipment in accordance with positioning requirements set level, plumb and at right angles to adjacent work.
  3. Fitting: Where field cutting or trimming is necessary, perform in a neat, accurate, professional manner without damaging equipment or adjacent work.
  4. Anchorage: Attach equipment to floors and walls with type of anchors and fasteners recommended by equipment manufacturer for type of substrate indicated to be secured to. Installation fasteners shall be installed to avoid scratching or damaging adjacent surfaces.
  5. Equipment supplier shall undertake the commissioning of the system and make all required adjustments to ensure proper operation.
  6. The owner's personnel shall be trained on-site for a minimum of five hours in the system operation and maintenance.

#### **3.3 EQUIPMENT UTILITY CONNECTIONS**

- A. Mechanical Interconnecting Plumbing:
  1. Water, gas, compressed air, and exhaust stack venting adequate for the requirements of the wash system shall be supplied and terminated in the wash equipment area by the mechanical trades. Interconnections between various pieces of equipment will be performed by the mechanical trades and coordinated by the wash system manufacturer.
  2. Equipment detergent chemical lines shall be supplied and installed by vehicle wash equipment manufacturer.
- B. Electrical Interconnecting Wiring:
  1. Electrical service adequate for the requirements of the wash system shall be supplied and terminated in the wash equipment area by the electrical Trades. Interconnections of the wash equipment will be performed by the electrical trades and coordinated by the wash system manufacturer.
  2. All lights and controls shall be low voltage. Electrical trades shall make connections of all low voltage control wiring.

#### **3.4 START-UP AND TESTING**

- A. After final connections are made the start-up shall be performed by the wash system manufacturer in the presence of the Owner.

**Town of Berlin  
Berlin CT**

- B. Prior to release of final payment, specified equipment shall be tested for compliance with specification in the presence of the Owner using acceptance procedures provided by the manufacturer.
- C. Equipment shall not damage vehicles, including antennas, mirrors, windshield wipers and windows, or equipment itself.
- D. Make a final check of each vehicle washing equipment operation with Owner's personnel present and before date of Substantial Completion. Determine that operation systems and devices are functioning properly.

**3.5 CLEANUP**

- A. Touch-up damage to painted finishes.
- B. Wipe and clean equipment of any oil, grease and solvents, and make ready for use.
- C. Clean area around equipment installation and remove packing or installation debris from job site.
- D. Notify Architect or designated representative for acceptance inspection.

**3.6 TRAINING**

- A. Instruct owner's personnel in proper use, operation, and daily maintenance of vehicle washing equipment. Review emergency provisions, including procedures to be followed at time of operational failure. Train Owner's personnel in procedures to follow in identifying sources of operational failures or malfunctions. Confer with Owner on requirements for a complete vehicle washing equipment maintenance program.
- B. The owner's personnel shall be trained for a minimum of 5 hours in the system operation and maintenance.

**END OF SECTION 111xx**