



ADDENDUM NO. 03

To: Prospective Bidders & Plan Holders

From: Craig A. Johnson, P.E.
Crist Engineers, Inc.

Date: May 12, 2025

Project: Package B – Admin Building
Wynne, Arkansas

Bid Date: May 27, 2025

Bid Time: 12:00 PM

Location: Wynne Water Utilities
550 Falls Blvd, N.
Wynne, Arkansas 72396

The BIDDER shall properly acknowledge Addendum No. 03 as required in Article 3 of Document 004100 on the Bid Form as confirmation that the BIDDER has examined the following Addenda and the related changes to the Contract Documents. Lack of proper acknowledgement on the Bid Form may deem a bid non-responsive.

The Contract Documents dated January 2025 are hereby amended as follows:





Prospective Bidders & Plan Holders
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Package B – Admin Building
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ITEM #1: Advertisement for Bids

- A. The bid opening date is hereby moved to **May 27, 2025, at 12:00PM.**

Specifications

1. 00 22 13 Bidder Checklist:

Delete 00 43 15, SRF DBE/MBE/WBE Compliance Evaluation Forms

2. 00 41 10 Bid Form – Article 2 – Bidders Acknowledgement

Revise article 2.01 to “The bid will remain subject to acceptance for **60 days** after the bid opening, or for such longer period of time that the bidder may agree to in writing upon request of owner.”

3. 00 41 10 Bid Form – Article 2 – Bid Schedule – Base Bid

Revise “Total Base Bid for Items 1 through 9” to Total Base Bid for Items 1 Through 8”

4. 00 45 13 Qualification Statement:

Delete Section 13 Equipment:

Major Equipment

List on Schedule C all pieces of major equipment available for use on Owner’s Project



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Plans

1. Plan Sheet G-2, Note 5 A:

Delete Note 5A which reads “City of Wynne Engineering Standard Specifications and Standard Terms and Conditions.”

2. Plan Sheet G-2 Note 8 C:

Delete Note 8C which reads “Existing materials labeled “To Be Removed” in these plans shall be removed and disposed of on site as directed by the owner or engineer. Removal and disposal considered subsidiary to all other items in the project, and will not be paid for separately.”

3. Plan Sheet C-2:

See revised Limits of Construction

For Information Purposes Only

Please see the attached Geotechnical Report.

END ADDENDUM NO. 03

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P:\2023 Projects\23016 - Wynne WWTP Emergency Response\06 - CADD\ADMIN AND MAINTENANCE\02 - Civil\23016 - GENERAL NOTES & CONTACTS_Package B-Admin_Build.dwg \$/15/2025 12:47 PM

GENERAL NOTES		GENERAL CONSTRUCTION NOTES - SITE PIPING																
1. DEFINITIONS a. OWNER - CITY OF WYNNE, ARKANSAS b. ENGINEER - CRIST ENGINEERS, INC. c. GOVERNMENT - ANY CITY, COUNTY, STATE OR FEDERAL GOVERNMENTAL ENTITY. 2. SAFETY a. JOBSITE SAFETY IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE GENERAL CONTRACTOR. b. THIS RESPONSIBILITY COVERS CONTRACTOR'S OWN WORK FORCE, ALL SUBCONTRACTORS, VISITING PERSONNEL, OFFICIALS, AND THE GENERAL PUBLIC WHICH MAY HAVE ACCESS TO THE JOBSITE. c. THE CONTRACTOR SHALL EXERCISE COMPLETE CONTROL OVER WHO HAS ACCESS TO THE JOBSITE TO ENSURE JOBSITE SAFETY. d. THE CONTRACTOR SHALL CONFORM TO ALL SECURITY AND SAFETY REQUIREMENTS OF THE OWNER. e. ANY SAFETY OR OTHER TRAINING REQUIRED BY THE OWNER FOR THE WORK FORCE MUST BE PROVIDED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. f. CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING TEMPORARY EXCAVATION SUPPORT SYSTEMS, INCLUDING SHEETING, SHORING, AND BRACING TO INSURE THE SAFETY OF PERSONNEL AND PROTECT ADJACENT STRUCTURES, PIPING, ETC. IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS, REGULATIONS, AND REQUIREMENTS. 3. PERMITS a. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY STATE, CITY OR COUNTY REQUIRED PERMITS FOR THIS WORK. b. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COMPLYING WITH THE TERMS AND CONDITIONS ASSOCIATED WITH EACH PERMIT, AS WELL AS ADHERING TO THE RULES AND REGULATIONS OF EACH REGULATING AUTHORITY. 4. CONTRACT DOCUMENTS a. ALL WORK SHALL CONFORM TO THE PLANS, THESE NOTES, AND SPECIFICATIONS IN ALL RESPECTS AND SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER. b. THESE GENERAL NOTES SHALL BE CONSIDERED AS PART OF THE CONTRACT DOCUMENT AND AS SUPPLEMENTAL CONDITIONS. 5. CONSTRUCTION PROCEDURES, MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING STANDARDS UNLESS OTHERWISE MODIFIED ON THE DRAWINGS OR IN THESE NOTES OR SPECIFICATIONS. a. TECHNICAL SPECIFICATIONS - ATTACHED SEPARATELY (SEE PROJECT MANUAL) b. ARKANSAS DEPARTMENT OF TRANSPORTATION - STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (BY REFERENCE IN THE TECHNICAL SPECIFICATIONS) c. INTERNATIONAL BUILDING CODE d. LOCAL BUILDING CODES, SPECIFICATIONS, AND REGULATIONS 6. CONSTRUCTION LIMITS a. UNDER NO CIRCUMSTANCES IS THE CONTRACTOR TO PERFORM WORK OR CAUSE DAMAGE BEYOND THE DESIGNATED WORK LIMITS. b. SURVEYING AND DEMARKATION OF THE PROJECT LIMITS WILL BE PROVIDED BY THE CONTRACTOR. 7. UTILITIES a. UNDERGROUND UTILITIES EXIST WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. NOT ALL EXISTING UTILITIES MAY BE SHOWN ON THE DRAWINGS, AND ACTUAL LOCATION OF THE UTILITIES MAY VARY FROM THE LOCATION SHOWN ON THE DRAWINGS. PRIOR TO BEGINNING ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT ARKANSAS ONE CALL, AND MAKE ARRANGEMENTS FOR THE LOCATION OF ALL UTILITIES UNDER THE GROUND. THE CONTRACTOR SHALL MAINTAIN THE UTILITY MARKINGS UNTIL THEY ARE NO LONGER NECESSARY. b. LOCATIONS OF EXISTING UTILITIES WERE DETERMINED IN THE FIELD WHERE POSSIBLE, SUCH AS MANHOLE LOCATIONS, VALVE BOXES ON EXISTING PIPING, AND DRAINAGE CULVERTS. BEFORE ANY TRENCHING COMMENCES, THE CONTRACTOR SHALL EXPOSE ALL EXISTING UTILITY AND PROCESS LINES WHICH ARE TO BE CROSSED OR CONNECTED WITH NEW PIPING, AND DETERMINE THE POTENTIAL FOR CONFLICTS. CONFLICTS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY AND TRENCHING SHALL NOT COMMENCE UNTIL ALL CONFLICTS ARE RESOLVED. c. NO EXCAVATIONS WERE MADE TO CONFIRM SUB-SURFACE UTILITIES. NEITHER THE SURVEYOR NOR PROJECT ENGINEER GUARANTEES THAT ALL UTILITIES HAVE BEEN SHOWN, OR THAT THOSE SHOWN ARE FULLY ACCURATE. d. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ADJUSTMENTS AND/OR RELOCATION OF EXISTING UTILITIES THAT ARE DAMAGED AS A RESULT OF WORK OF THIS PROJECT.	e. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND PROPERLY DISCONNECTING, ABANDONING, RELOCATING, AND/OR ADJUSTING ALL AFFECTED UTILITIES WITHIN THE PROJECT AREA. f. ALL UTILITY WORK SHALL BE COORDINATED AND EXECUTED IN ACCORDANCE WITH THE OWNER AND/OR GOVERNING UTILITY COMPANY CODES, SPECIFICATIONS, STANDARDS, AND REQUIREMENTS. 8. DISPOSAL OF DEBRIS, WASTE OR SPOIL a. BURNING OF DEBRIS AND WASTE IS NOT ALLOWED. b. CONTRACTOR MAY BE REQUIRED TO PROPERLY HAUL AWAY AND DISPOSE OF ANY WASTE MATERIAL REMOVED FROM THE SITE. c. ANY WASTE OR SPOIL MATERIAL WHICH IS EXCAVATED FROM THE JOB SITE IS TO BE DISPOSED OFFSITE AS DIRECTED BY THE OWNER. d. UNLESS OTHERWISE NOTED ON THE DRAWINGS, DEMOLISHED ASPHALT PAVEMENT AND CONCRETE AND UNCLASSIFIED EXCAVATION SHALL BE REMOVED OFFSITE AND CONSTRUCTION MATERIAL SHALL BE DISPOSED OF AT AN APPROVED LANDFILL OR SITE. 10. SUBSTITUTIONS a. SUBSTITUTIONS ARE NOT ALLOWED WITHOUT PRIOR APPROVAL FROM THE PROJECT ENGINEER OR OWNER. SUBSTITUTIONS SHALL BE SUBMITTED FOR APPORVAL IN ACCORDANCE WITH SECTION 013000. 11. MAINTENANCE OF TRAFFIC a. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC THROUGHOUT THE LIFE OF THE PROJECT. 12. LAYDOWN AREA a. LAYDOWN AREAS MAY BE CONSTRUCTED AND/OR DESIGNATED FOR USE DURING CONSTRUCTION OF THIS PROJECT. b. LAYDOWN AREAS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. 13. FIELD OFFICE a. A FIELD OFFICE BUILDING IS REQUIRED FOR THIS PROJECT. SEE SECTION 015000. 14. ENVIRONMENTAL a. THE CONTRACTOR IS TO MEET ALL ENVIRONMENTAL REQUIREMENTS OF THE OWNER AND ANY REGULATORY AGENCY. b. THE CONTRACTOR IS RESPONSIBLE FOR PREPARING A STORM WATER POLLUTION PREVENTION PLAN MEETING ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS. c. ALL AREAS DISTURBED BY THIS WORK SHALL BE CLEANED, GRADED, TOPSOIL REPLACED, FERTILIZED, SEEDED, MULCHED, AND WATERED FOLLOWING COMPLETION AS REQUIRED IN THE STANDARD SPECIFICATIONS FOR SEEDING, TOPSOIL, AND CLEANUP, BEST MANAGEMENT PRACTICES, AND THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). d. ANY DISTURBED AREAS THAT ARE LEFT UNATTENDED FOR TWO WEEKS OR MORE, BUT MORE WORK IS ANTICIPATED AT A LATER TIME, MUST BE STABILIZED IN ACCORDANCE WITH THE SWPPP. e. PER THE REQUIREMENTS SHOWN IN THE SWPPP, CONTRACTOR SHALL ERECT TEMPORARY SEDIMENT AND EROSION CONTROLS PRIOR TO STARTING WORK; AND SHALL MAINTAIN DRAINAGE AND EROSION CONTROLS FOR THE DURATION OF THE CONSTRUCTION WORK. THE TEMPORARY EROSION CONTROL DEVICES ARE TO BE REMOVED UPON COMPLETION OF THE WORK AS PART OF OVERALL CLEANUP ACTIVITIES. f. CONTRACTOR SHALL KEEP CURRENT COPY OF THE SWPPP ON SITE AT ALL TIMES. g. A NOTICE OF INTENT (NOI) SHALL BE FILED WITH THE ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) BY THE CONTRACTOR FOR THE PROJECT TO BE COVERED UNDER THE ARKANSAS GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. h. CONTRACTOR SHALL KEEP WORK AREA CLEAN AND FREE OF ACCUMULATED TRASH AND DEBRIS. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING MEASURES TO AVOID TRACKING OF MUD, DIRT, ROCKS, AND DEBRIS ONTO AREAS OUTSIDE THE PROJECT AREA. CONTRACTOR SHALL CLEAN PAVEMENTS WHEN NECESSARY OR AS OTHERWISE DIRECTED, AND SHALL CONTROL DUST BY SWEEPING AND WATERING AS NEEDED. DE-TRACKING MAY BE REQUIRED AT ALL ENTRANCES. i. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL PAY ALL COSTS ASSOCIATED WITH FINES OR PENALTIES THAT MAY BE IMPOSED BY THE GOVERNMENTAL AUTHORITY FOR THE FAILURE OF THE CONTRACTOR, THE CONTRACTOR'S SUBCONTRACTORS, THE CONTRACTOR'S SUPPLIERS, OR THE CONTRACTOR'S AGENTS HAVING ACCESS TO THE SITE TO COMPLY WITH THE REQUIREMENTS OF THE GENERAL PERMIT AND/OR COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN. THE OWNER SHALL BE ENTITLED TO WITHHOLD SUCH FROM CONTRACT FUNDS THAT MAY BE DUE TO THE CONTRACTOR AND/OR CLAIM THROUGH THE APPROPRIATE COURT HAVING JURISDICTION.	j. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE POSTING AND MAINTENANCE OF NOTICES IN THE AREA OF THE CONSTRUCTION WITH INFORMATION AS REQUIRED BY ADEQ REGULATION. k. THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN AND UPDATE RECORDS AND INSPECTIONS REPORTS REQUIRED BY THE GENERAL PERMIT FROM STORM WATER DISCHARGES AND THE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN. COPIES OF ALL DOCUMENTS SHALL BE AVAILABLE AT ALL TIMES AND PROVIDED TO THE OWNER AND/OR THE OWNER'S REPRESENTATIVE UPON DEMAND AND SHALL BE DELIVERED TO THE OWNER PRIOR TO FINAL PAYMENT. l. INFORMATION REGARDING THE STORM WATER POLLUTION PREVENTION PLAN AND THE PERTINENT REGULATION MAY BE ACCESSED AT WWW.ADEQ.STATE.AR.US 15. CONFLICT IN CONTRACT DOCUMENTS a. IN THE CASE THAT CONFLICT BETWEEN THESE NOTES AND THE TECHNICAL SPECIFICATIONS OCCURS, THESE GENERAL NOTES WILL PREVAIL. b. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE STARTING WORK. SHOULD CONDITIONS EXIST WHICH ARE CONTRARY TO THOSE SHOWN ON THE PLANS, THE ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH THE WORK. c. CONTRACTOR SHALL IMMEDIATELY REPORT AND DOCUMENT ANY KNOWN OR SUSPECTED ERRORS, OVERSIGHTS, INCONSISTENCIES, CONFLICTS, OR AMBIGUOUS INFORMATION TO THE PROJECT ENGINEER THAT THE CONTRACTOR DISCOVERS WITHIN THE CONTRACT DOCUMENTS AND/OR FIELD CONDITIONS; AND SHALL NOT PROCEED WITH ANY WORK THAT IS AFFECTED BY THE MATTER OF CONCERN UNTIL IT HAS BEEN FULLY RESOLVED AND ANY COST ADJUSTMENTS HAVE BEEN MET. THE PROJECT ENGINEER AND THE OWNER SHALL BE HELD HARMLESS IN THE EVENT THE PROJECT ENGINEER IS NOT IMMEDIATELY NOTIFIED OF CONFLICTS OR PROBLEMS, OR IF THE CONTRACTOR SHOULD FAIL TO CEASE WORK AND PROVIDE IMMEDIATE NOTIFICATION UPON ITS DISCOVERY.	1. ALL DUCTILE IRON PIPE LINES SHALL BE CONSTRUCTED BY ONE OF THE FOLLOWING METHODS: a. UNRESTRAINED PUSH-ON JOINT PIPE, SIMILAR AND EQUAL TO FASTITE JOINT PIPE (AMERICAN), WITH MECHANICAL JOINT FITTINGS (AWWA C110 OR C153) WITH CONCRETE THRUST BLOCKING. b. RESTRAINED PUSH-ON JOINT PIPE, SIMILAR AND EQUAL TO FLEX-RING JOINT PIPE (AMERICAN) WITH RESTRAINED PUSH-ON OR RESTRAINED MECHANICAL JOINT FITTINGS (AWWA C110 OR C153). c. ALL MECHANICAL JOINTS SHALL UTILIZE MECHANICAL JOINT RESTRAINT SYSTEM; EBBA IRON MEGALUG SERIES 1100 OR APPROVED EQUAL. d. ALL BURIED DUCTILE IRON PIPING SHALL MEET THE PRESSURE CLASS SCHEDULE INDICATED IN SECTION 331100 OF THE SPECIFICATIONS, UNLESS SHOWN OTHERWISE, AND INSTALLED WITH POLYETHYLENE WRAP. 3. ALL TRENCHING, BACKFILL AND BEDDING TO MEET REQUIREMENTS SHOWN IN THE DETAILS AND SPECIFICATIONS FOR THIS PROJECT. 4. THE MINIMUM DEPTH OF COVER FOR PIPING IS 36 INCHES (36"). 5. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 48 HOURS PRIOR TO SCHEDULED CONNECTIONS OF ANY WORK INVOLVING WATER PIPING. INTERRUPTION OF WATER SERVICE SHALL BE KEPT TO A MINIMUM. SCHEDULING SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER AND THE ENGINEER. 6. TESTING LINES - ALL LINES SHALL BE TESTED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER OR THE ENGINEER'S REPRESENTATIVE. ALL LINES SHALL BE CLEAN PRIOR TO PERFORMING TESTS. TESTING SHALL INCLUDE HYDROSTATIC TESTING AS REQUIRED IN THE SPECIFICATIONS. 7. THE CONTRACTOR SHALL MAINTAIN ALL ADJACENT WATER LINES IN SERVICE DURING CONSTRUCTION, EXCEPT AS ALLOWED BY THE OWNER AND THE ENGINEER. IN ALL CASES, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING, PIPE SUPPORT, AND/OR TRENCH BOXES TO MAINTAIN THE INTEGRITY OF THE EXISTING PIPING. 8. ALL SITE PIPING THAT CONNECTS TO STRUCTURES SHALL INCLUDE A DOUBLE FLEXIBLE PIPE CONNECTION TO ACCOMMODATE DIFFERENTIAL SETTLING OF THE STRUCTURE. CONCRETE ENCASED PIPES UNDER STRUCTURES SHALL BE TERMINATED OUTSIDE THE STRUCTURE WITH A DOUBLE FLEXIBLE CONNECTION. THE DOUBLE FLEXIBLE CONNECTION SHALL BE A MJ X MJ SLEEVE JOINT OR DOUBLE MJ BELL, NO MORE THAN 24 INCHES APART. 9. MAINTAIN TEN (10) FEET HORIZONTAL DISTANCE BETWEEN WATER MAIN AND STORM DRAIN OR SANITARY SEWER MAIN, AS A MINIMUM. SHALL FULLY COMPLY WITH THE ARKANSAS RULES PERTAINING TO PUBLIC WATER SYSTEMS SECTION XIV PART A. 10. STORM AND SANITARY SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF EIGHTEEN (18) INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN TEN (10) FEET BETWEEN ANY TWO JOINTS AND BOTH PIPES SHALL BE DUCTILE IRON (DI). 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3. ALL TRENCHING, BACKFILL AND BEDDING TO MEET REQUIREMENTS SHOWN IN THE DETAILS AND SPECIFICATIONS FOR THIS PROJECT.

4. THE MINIMUM DEPTH OF COVER FOR PIPING IS 36 INCHES (36").

5. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 48 HOURS PRIOR TO SCHEDULED CONNECTIONS OF ANY WORK INVOLVING WATER PIPING. INTERRUPTION OF WATER SERVICE SHALL BE KEPT TO A MINIMUM. SCHEDULING SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER AND THE ENGINEER.

6. TESTING LINES - ALL LINES SHALL BE TESTED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER OR THE ENGINEER'S REPRESENTATIVE. ALL LINES SHALL BE CLEAN PRIOR TO PERFORMING TESTS. TESTING SHALL INCLUDE HYDROSTATIC TESTING AS REQUIRED IN THE SPECIFICATIONS.

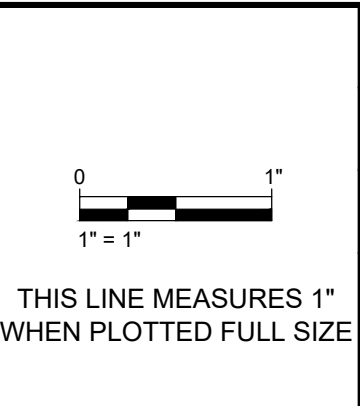
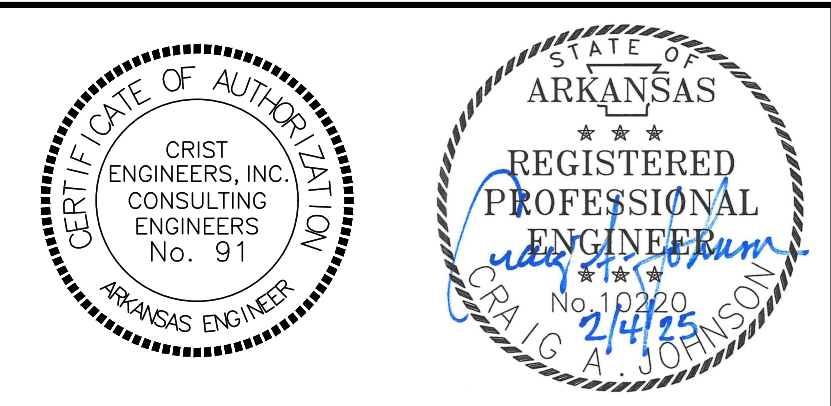
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8. ALL SITE PIPING THAT CONNECTS TO STRUCTURES SHALL INCLUDE A DOUBLE FLEXIBLE PIPE CONNECTION TO ACCOMMODATE DIFFERENTIAL SETTLING OF THE STRUCTURE. CONCRETE ENCASED PIPES UNDER STRUCTURES SHALL BE TERMINATED OUTSIDE THE STRUCTURE WITH A DOUBLE FLEXIBLE CONNECTION. THE DOUBLE FLEXIBLE CONNECTION SHALL BE A MJ X MJ SLEEVE JOINT OR DOUBLE MJ BELL, NO MORE THAN 24 INCHES APART.

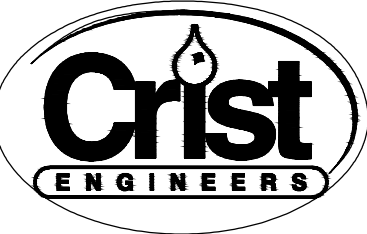
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REV. NO.	DATE	DRWN	CHKD	REMARKS



DESIGNED:	MLU
DRAFTED:	MAB
CHECKED:	CAJ
DATE:	JAN 2025



CRIST ENGINEERS, INC.
CONSULTING ENGINEERS

1 EXECUTIVE CENTER COURT
LITTLE ROCK, ARKANSAS 72211
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
WWW.CRISTENGINEERS.COM

WYNNE, ARKANSAS

WYNNE WASTEWATER TREATMENT IMPROVEMENTS
PACKAGE B - ADMINISTRATION BUILDING

BID SET

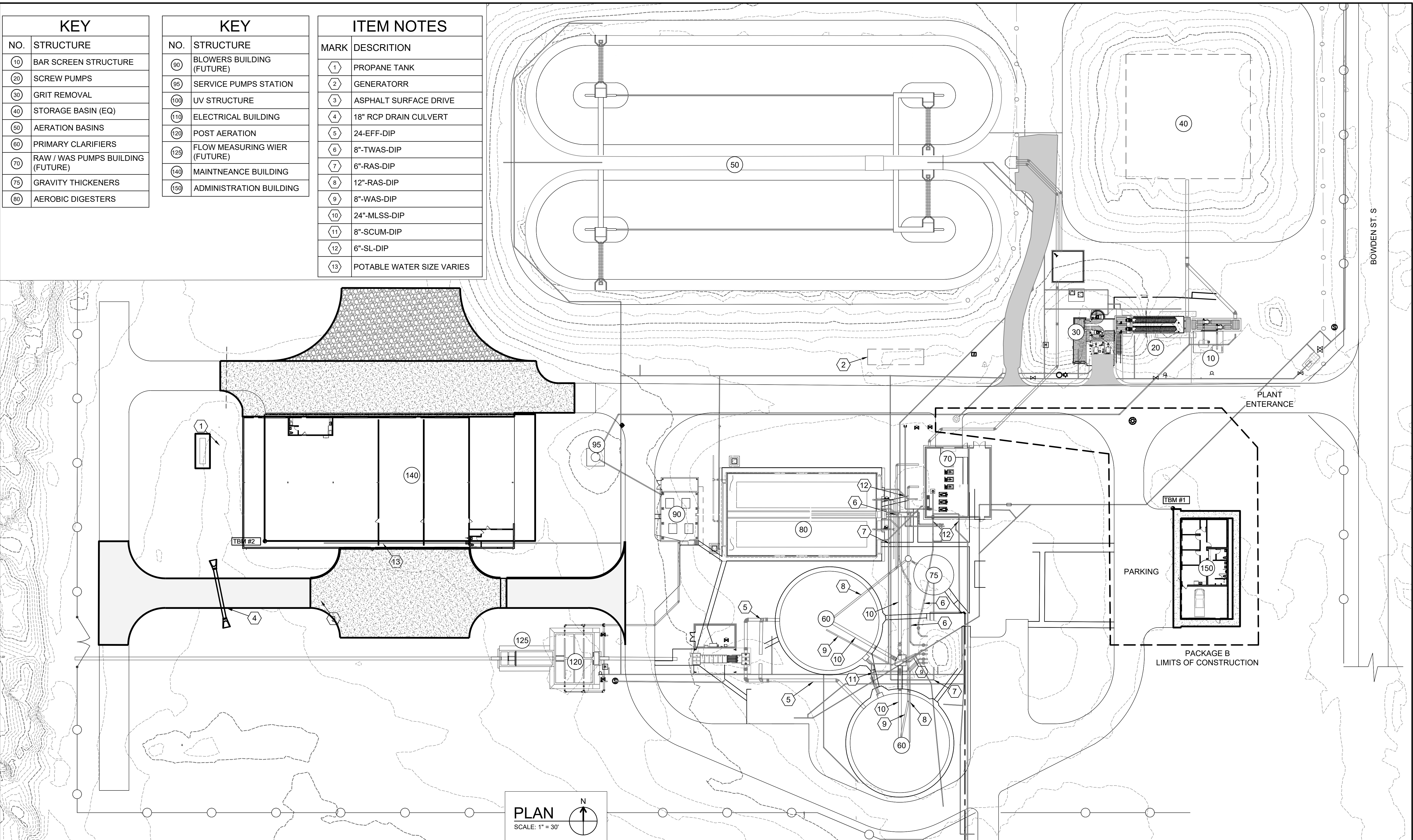
GENERAL NOTES & CONTACTS

JOB NO.	23016
SHEET NO.	G-2

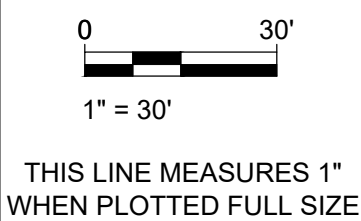
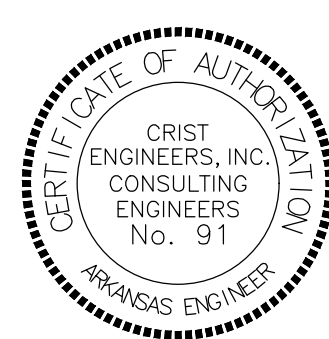
KEY	
NO.	STRUCTURE
(10)	BAR SCREEN STRUCTURE
(20)	SCREW PUMPS
(30)	GRIT REMOVAL
(40)	STORAGE BASIN (EQ)
(50)	AERATION BASINS
(60)	PRIMARY CLARIFIERS
(70)	RAW / WAS PUMPS BUILDING (FUTURE)
(75)	GRAVITY THICKENERS
(80)	AEROBIC DIGESTERS

KEY	
NO.	STRUCTURE
(90)	BLOWERS BUILDING (FUTURE)
(95)	SERVICE PUMPS STATION
(100)	UV STRUCTURE
(110)	ELECTRICAL BUILDING
(120)	POST AERATION
(125)	FLOW MEASURING WIER (FUTURE)
(140)	MAINTNEANCE BUILDING
(150)	ADMINISTRATION BUILDING

ITEM NOTES	
MARK	DESCRIPTION
①	PROPANE TANK
②	GENERATOR
③	ASPHALT SURFACE DRIVE
④	18" RCP DRAIN CULVERT
⑤	24-EFF-DIP
⑥	8"-TWAS-DIP
⑦	6"-RAS-DIP
⑧	12"-RAS-DIP
⑨	8"-WAS-DIP
⑩	24"-MLSS-DIP
⑪	8"-SCUM-DIP
⑫	6"-SL-DIP
⑬	POTABLE WATER SIZE VARIES



REV. NO.	DATE	DRWN	CHKD	REMARKS



DESIGNED:	MLU
DRAFTED:	MAB
CHECKED:	CAJ
DATE:	JAN 2025



CRIST ENGINEERS, INC.
CONSULTING ENGINEERS

1 EXECUTIVE CENTER COURT
LITTLE ROCK, ARKANSAS 72211
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
WWW.CRISTENGINEERS.COM

WYNNE, ARKANSAS

WYNNE WASTEWATER TREATMENT IMPROVEMENTS
PACKAGE B - ADMINISTRATION BUILDING

PROPOSED SITE PLAN KEY MAP

OBJ NO.	23016
SHEET NO.	C-2

Memo

To: Morgan Ussery / Craig Johnson
Company: Crist Engineers, Inc.
From: Vellea Scott
Date: October 1, 2024
Job No: A24184.00367
Re: Interim Recommendations
Wastewater Treatment Plant Improvements
Wynne, Arkansas

Morgan and Craig,

This memorandum provides the interim results of the geotechnical investigation and preliminary foundation recommendations for the headworks, RAS/WAS pump building, and the UV structure for the wastewater treatment plant in Wynne, Arkansas.

The project facets addressed in this memorandum are summarized below.

- Headworks. The headworks bottom is planned at about El 216, approximately 16 ft below existing grade.
- RAS/WAS pump building. It is expected to be an at-grade structure.
- UV structure. This new unit bottom is planned at El 226, which is approximately 6 ft below existing grade.

Specific information on structural loads has not been developed as of this writing. However, foundation loads of the new units are anticipated to be light.

SUBSURFACE EXPLORATION

Subsurface conditions at the WWTP have been investigated by drilling eleven (11) sample borings to 15 to 25 ft depth. The site vicinity is shown on Plate 1 in Attachment 1. The approximate boring locations are shown on the Plan of Borings, Plate 2. The boring locations were selected by the Engineer. Preliminary logs of these borings, presenting descriptions of the subsurface strata encountered and the results of field tests, are also included in Attachment 1. The location of the RAS/WAS pump building was relocated after the field operations had concluded. The ground surface elevations at the boring locations, as inferred from the topographic information provided by the Engineer, are also shown on the logs. It must be recognized that the elevations shown are approximate and actual elevations may vary. A key to the terms and symbols used on the boring logs is presented as Plate 14.



Groundwater levels were measured in the borings during and after completion of drilling. To obtain long-term groundwater data, open standpipe piezometers were installed at two (2) locations (Borings 1 and 5). The piezometers consist of 2-inch-diameter, Schedule 40 PVC, flush-thread well pipe placed in 6-in.-diameter boreholes. Each piezometer included a 5- to 10-ft-long, 0.010-in. slotted screen section, a 20/40 filter sand pack and a bentonite seal. The borehole annulus above the bentonite seal was backfilled to near the ground surface with bentonite. Flush mount covers were set at the top of each piezometer. Piezometer details are provided in Attachment 2.

GENERAL SITE and SUBSURFACE CONDITIONS

Seismic Conditions

The Cross County, Arkansas site is located in Seismic Zone 3, defined by the Arkansas Building Authority (2005) as the zone of greatest seismic potential. Based on the subsurface conditions encountered in the boring and the site geology, a Seismic Site Class D (stiff soil profile) is considered applicable in accordance with the criteria of the International Building Code (IBC 2012) and AWWA D100-11. The liquefaction potential is considered very low for the predominantly cohesive soils encountered in the borings.

Subsurface Conditions

The results of the borings indicate the surface soils are locally comprised of on-site fill extending to about 2 ft depth (see Borings 1 and 4). The on-site fill consists of firm to stiff brown, tan, and grayish brown silty clay with silt pockets, ferrous nodules, and a trace of fine gravel. The on-site fill has variable poor to fair compaction. The depth, content, and compaction of the on-site fill could vary across the site.

Below the fill or at the surface is natural soft to very stiff tan, reddish tan, brown, light brown, brownish gray, and gray clayey silt and silty clay to 23- to 24-ft. The clayey silt and silty clay contain silt partings and pockets, occasional fine sand, organic inclusions and stains, and ferrous nodules and stains. The clayey silt and silty clay exhibit low to moderate shear strength and high to low compressibility.

The basal stratum encountered within the exploration range of the borings is loose to medium dense tan slightly silty fine sand. The fine sand has low to moderate relative density and moderate to high compressibility.

Groundwater was not encountered within the exploration range of the borings in September 2024. Shallow perched groundwater could be present around the existing units, in unit backfill, and in the backfill of underground utility lines.

PRELIMINARY CONCLUSIONS and RECOMMENDATIONS

Foundation Design

Foundations for the new structures must satisfy two (2) basic and independent design criteria. First, the maximum bearing pressure transmitted to the supporting strata must not exceed the allowable bearing pressure based on an allowable factor of safety with respect to bearing stratum shear strength. Second, foundation movements resulting from consolidation, shrinkage, or swelling of the supporting strata should be within tolerable limits for the structure. Construction factors such as installation of foundation units, fill placement, excavation procedures, and surface and groundwater conditions must also be considered.



Based on the results of the borings and the anticipated light foundation loads, the structural loads of the new units may appropriately be supported on footing or mat foundation systems. Preliminary recommendations for foundations are discussed in the following report sections.

Headworks and UV Structure (Borings 1 and 5)

The headworks and UV structure may be supported on continuous footings or a rigid mat founded in the stiff tan, brown, light brown, and gray silty clay. It is expected that foundation elements will be supported at depths between 6 and 16 ft below existing grades.

Continuous footings or mats supported in the firm to stiff silty clay as recommended may be sized based on a maximum net allowable soil bearing pressure of 2000 lbs per sq foot. The recommended bearing value includes a minimum factor of safety of 3.0 with respect to the measured shear strength of the firm to stiff silty clay. Long-term settlement of foundations proportioned based on these allowable pressures should be less than 1 in. and within tolerable limits for the structure. Differential settlement may be estimated as about one-half of the total values.

For mats supported on the silty clay, mat design may be based on a modulus of subgrade reaction (k) value of 100 lbs per sq in. per in. for the silty clay bearing stratum. An increased modulus of subgrade reaction value can be developed by utilizing crushed stone base (ARDOT Standard Specifications Section 303, Class 7) below the mat. With a minimum of 6 in. of crushed stone base under mats, a modified k value of 150 lbs per sq in. per in. may be used in design. With a minimum of 12 in. of crushed stone base under mats, a modified k value of 200 lbs per sq in. per in. is considered fitting.

Uplift resistance of the headworks and UV structure foundations will be provided by the weight of the unit and the foundations. Resistance to lateral forces will be developed by the passive resistance of the foundation soils and sliding resistance at the foundation bottoms. The passive resistance of the soil within about 3 ft of the ground surface should be neglected. Below 3-ft depth, an ultimate passive resistance value of 500 lbs per sq ft may be assumed for the stable on-site firm to stiff silty clay and compacted select fill. Resistance to sliding may also be evaluated using an ultimate friction value ($\tan \delta$) of 0.33 for concrete on the recommended bearing stratum. An appropriate factor of safety must be included in analysis of sliding.

RAS/WAS Pump Building (Borings 4 and 7)

We recommend that the foundation loads of the RAS/WAS pump building be supported on a shallow footing foundation system. Continuous or individual footings should be founded in the natural stiff light tan, brown, and brownish gray silty clay or in compacted select fill at a minimum depth of 2 ft below lowest adjacent grade. Footings founded as recommended may be sized based on maximum net allowable bearing pressures of 2000 and 2500 lbs per sq ft for continuous and individual footings, respectively.

The recommended bearing values include a minimum factor of safety of 3.0 with respect to measured shear strength of the stiff silty clay and the anticipated shear strength of properly compacted select fill. Post-construction settlement of foundations supported as recommended should be less than 1.0 inch. Differential settlement should be less than about one-half of the total value.

The depth to the stiff silty clay that is suitable for bearing varies from 2 to 4 ft below existing grades. The as-built footing depth will vary with specific subsurface conditions. Footings must not be founded in the on-site fill or weak natural soils. Footing excavations or undercuts must extend through the on-site fill and any weak natural soils to the natural stiff silty clay. The required footing or undercut depth is expected to be 2 to 4 ft below existing grades but may be deeper.



Footings excavations may be undercut to the suitable bearing stratum and backfilled with select fill, flowable fill (minimum compressive strength 300 psi), or lean concrete. Footings supported on undercut backfill as recommended may be sized for the previously recommended bearing pressures. Total or differential settlement of foundations proportioned based on the recommended allowable bearing pressures should be less than 1.0 inch.

Footings undercuts backfilled with select fill should have a minimum width determined by a 1-horizontal to 2-vertical (1H:2V) projection from the edge of the footing to the undercut bottom. Undercuts backfilled with flowable fill or lean concrete may be excavated neat to plan footing dimensions. Where site conditions warrant mass undercut, footings may be founded in the compacted undercut backfill. Mass undercuts should extend at least 5 ft outside the building limits to the extent possible.

Uplift resistance of footings will be developed by structure dead loads and the weight of foundation units. Resistance to lateral forces will be developed by the passive resistance of the foundation soils and sliding resistance at the footing bottom. The passive resistance of the soil within the upper 2 ft should be neglected. Below 2-ft depth, an ultimate passive resistance value of 500 lbs per sq ft may be assumed for the stable on-site soils and compacted select fill. Resistance to sliding may also be evaluated using an ultimate friction value ($\tan \delta$) of 0.33 for concrete on the recommended bearing strata. An appropriate factor of safety must be included in analysis of sliding.

Continuous footings should have a minimum width of 18 in. and individual footings should have a minimum dimension of 24 inches. Perimeter footings and footings in unheated areas should extend a minimum of 2 ft below final grade for embedment and frost protection. Interior footings or thickened sections can be founded in compacted fill at shallower depths consistent with structural requirements for thickness. All footing excavations and undercuts should be observed by the Geotechnical Engineer to verify adequate bearing capacity.

Below-Grade Walls – Lateral Earth Pressures

It is expected that the headworks and UV structure's below-grade walls will be fixed at the top by inside corners, interior baffle walls, top slabs and/or other features. Consequently, the below-grade walls will be acted on by at-rest lateral earth pressures. The below-grade walls are anticipated to be supported on continuous footings or mat foundations as previously recommended.

Lateral earth pressure envelopes for static and dynamic loading have been developed for below-grade walls. Lateral earth pressures will vary with soil backfill type, degree of backfill compaction, and drainage conditions. We recommend that wall backfill consist of clean crushed stone or the on-site silty clay. ASTM D448 Size 57 or Size 67 stone is suitable for clean stone backfill. Alternative gradations can be considered, but should be reviewed by the Geotechnical Engineer and approved by the Engineer. All clean stone backfill must be separated from the native soils by a suitable geotextile filter fabric.

Pressure envelopes illustrating equivalent fluid pressures, dynamic (seismic) lateral pressures, and lateral earth pressure coefficients are provided in Attachment 3 for below-grade walls backfilled with either clean crushed stone or the on-site soils. The lateral earth pressure values have been calculated based on both drained and undrained conditions. Undrained conditions assume that the walls will be subject to full hydrostatic pressure. Drained conditions assume positive and continuous drainage of infiltrated water from the backfill. Where drainage cannot be assured, then undrained conditions should be assumed.

To reduce lateral earth pressures, the clean crushed stone backfill should be placed in a zone extending on a 1-horizontal to 1-vertical (1H:1V) configuration from the base of the wall to the ground



surface. Temporary excavation configurations must be adjusted as required for adequate short-term stability. Where a retention system is utilized to retain temporary cuts, and is designed as a permanent structure, the clean stone backfill may be limited to backfilling to the retention system.

Clean granular backfill should be placed in maximum 10- to 12-in.-thick lifts and densified by vibrating equipment, rodding, or other suitable means. Granular backfill should be separated from the on-site soils and fine-grained backfill soils by a suitable filter fabric. A geotextile such as Mirafi 140N or approved equal is recommended.

For walls backfilled with low-plasticity select fill, wall backfill should be compacted to a minimum of 95 percent of the maximum dry density as determined by Standard Proctor (ASTM D698) procedures. Maximum particle size in wall backfill should be limited to about 1.5 inches. Compaction within 5 ft of walls should be performed with hand compaction equipment. Care should be taken when compacting as overcompaction may cause damage to walls.

Design of bottom mats should consider uplift forces equivalent to a water level at the ground surface unless positive drainage is assured at a lower elevation. A buoyant unit weight of 60 lbs per cu ft is recommended for undrained on-site borrow backfill and 40 lbs per cu ft for crushed stone backfill. Use of pressure relief valves may also be considered.

It should be recognized that there will be some settlement of below-grade wall backfill. Concrete flatwork and other features constructed over wall backfill will be subject to variable amounts of post-construction settlement. Locating foundation elements in wall backfill should be avoided. Where necessary to place foundations in wall backfill, special consideration must be given to the settlement potential. We recommend that this situation be evaluated by the Structural Engineer and the Geotechnical Engineer on a case-by-case basis.

Construction Considerations

Groundwater Control. Groundwater was not encountered within the borings in September 2024. Nevertheless, shallow groundwater could be encountered in excavations for unit construction and trenches for piping. Limited seepage into shallow excavations, if encountered, can probably be controlled by ditching or via sump-and-pump methods. If seepage infiltration cannot be controlled, construction of drains and/or the use of granular backfill (i.e., No. 57 stone) will be warranted. Granular backfill should be fully encapsulated in a filter fabric and vented to positive discharge into storm lines or to daylight.

Temporary Excavations. All excavations must comply with Local, State and Federal requirements for worker safety. Based on the results of the borings, the on-site soils typically classify as Type C soils by OSHA criteria (OSHA Regulations 29 CFR 1926 subpart P – Excavation). Consequently, temporary open-cut excavations in these areas can probably be made on 1-1/2-horizontal to 1-vertical (1.5H:1V) configurations. Where left open for extended periods, the open cuts should be flattened to provide for long-term stability.

Stability of short-term excavations must be evaluated in the field by qualified persons based on specific site observations. Soil stockpiles and equipment should not be allowed near the edges of temporary cuts. Where excavations will remain open for extended periods or where groundwater seepage is encountered, temporary slopes must be monitored on a continuous basis and flattened as warranted by site conditions.

Where space constraints limit use of open cuts, excavations may be cut with near-vertical side walls. Temporary support for vertical cut excavations may utilize cantilevered soldier piles or drilled shaft retention walls, cantilevered or tied-back steel piles with lagging, steel sheeting with helical or deadman tie-back systems, or other suitable systems. Depending on the system and design criteria



selected, support systems are subject to lateral movements and potential loss of ground at the top of excavations. Soil movement and settlement related to the selected support system must be evaluated based on the proximity of adjacent foundations and structures.

Closing

The conclusions and preliminary recommendations for foundations and below-grade walls provided in this memorandum have been developed based on the results of the borings drilled for this study and our understanding of the project. Depending on final plant layout and site grading plans, modification or revision of the conclusions and recommendations discussed herein could be warranted.

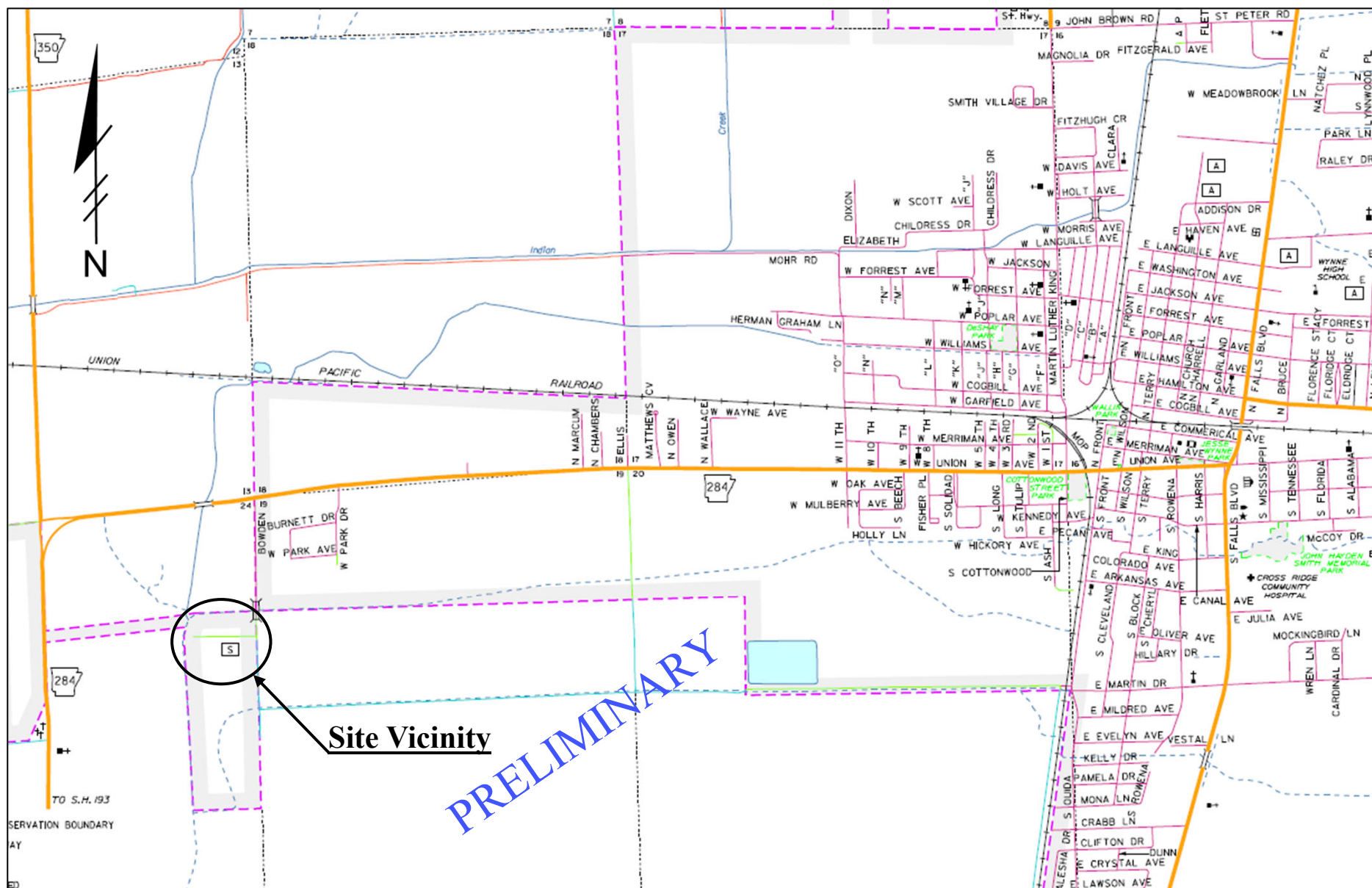
The following illustrations are attached and complete this submittal.

Attachment 1	Plan of Borings, Preliminary Boring Logs
Attachment 2	Piezometer Logs
Attachment 3	Lateral Earth Pressures

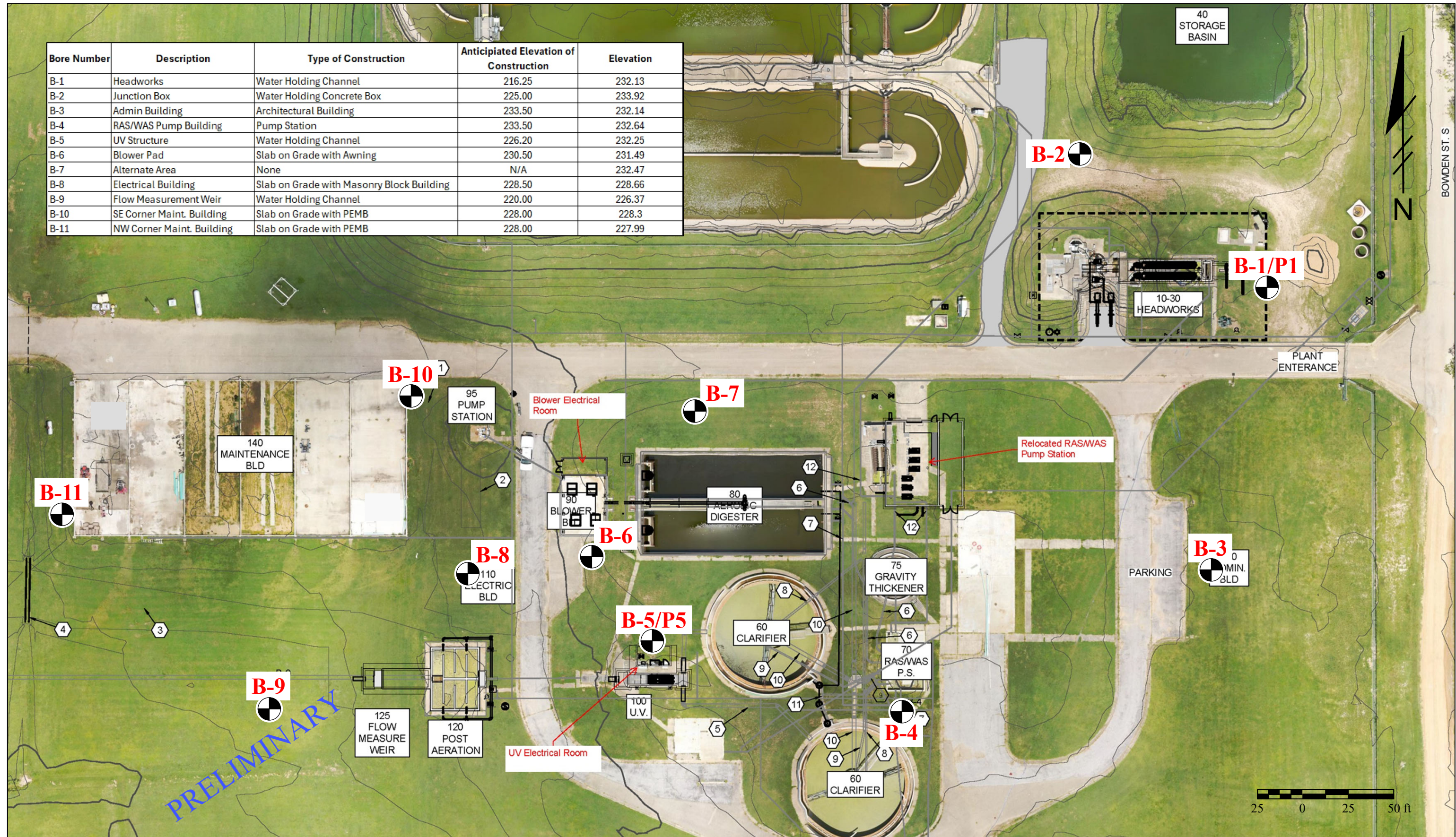
* * * * *

We appreciate the opportunity to be of continued service on this project. Should you have any questions regarding this information, please call on us. We will be working on the final report.

ATTACHMENT 1



Bore Number	Description	Type of Construction	Anticipiated Elevation of Construction	Elevation
B-1	Headworks	Water Holding Channel	216.25	232.13
B-2	Junction Box	Water Holding Concrete Box	225.00	233.92
B-3	Admin Building	Architectural Building	233.50	232.14
B-4	RAS/WAS Pump Building	Pump Station	233.50	232.64
B-5	UV Structure	Water Holding Channel	226.20	232.25
B-6	Blower Pad	Slab on Grade with Awning	230.50	231.49
B-7	Alternate Area	None	N/A	232.47
B-8	Electrical Building	Slab on Grade with Masonry Block Building	228.50	228.66
B-9	Flow Measurement Weir	Water Holding Channel	220.00	226.37
B-10	SE Corner Maint. Building	Slab on Grade with PEMB	228.00	228.3
B-11	NW Corner Maint. Building	Slab on Grade with PEMB	228.00	227.99





**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 1

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Headworks

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT							- No. 200 %
						0.2	0.4	0.6	0.8	1.0	1.2	1.4	
			SURF. EL: 232±										
			Firm grayish brown silty clay w/silt pockets and occasional ferrous nodules and stains (fill)	9									
			Stiff tan and reddish tan silty clay w/silt pockets and partings, dry	23									
5			- very stiff, brownish gray w/occasional ferrous nodules and stains below 4 ft	29									
				29									
10			Stiff light brown and gray silty clay, slightly sandy w/organic stains	16									
15			- firm with occasional ferrous nodules and stains below 13 ft	9									
20			Firm tan silty clay	9									
25			Medium dense tan fine sand, slightly silty	13									
			Notes: 1. Set Piezometer P1 2. Drilled with CME-55										

COMPLETION DEPTH: 25.0 ft
DATE: 9-17-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/17/2024



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 2

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Junction Box

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT							- No. 200 %
						0.2	0.4	0.6	0.8	1.0	1.2	1.4	
			SURF. EL: 234±			PLASTIC LIMIT + 10 20 30 40 50 60 70 WATER CONTENT ● 40 LIQUID LIMIT + 70							
			Stiff grayish brown and brownish gray silty clay w/silt pockets and occasional ferrous nodules and stains	18									
			Stiff light tan clayey silt, dry	23									
5			Very stiff brown, tan, and light gray silty clay w/silt pockets	26									
			Very stiff brownish gray and reddish tan silty clay w/silt pockets and ferrous nodules and stains	28									
10				25									
			- stiff below 13 ft										
15				18									
			- with more silt below 18 ft										
20				21									
			Note: Drilled with CME-55										
25													

COMPLETION DEPTH: 20.0 ft
DATE: 9-18-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/18/2024



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 3
Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Admin Building

[illegible]

COMPLETION DEPTH: 15.0 ft
DATE: 9-18-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/18/2024



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 4

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - RAS/WAS Pump Building

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT							- No. 200 %
						0.2	0.4	0.6	0.8	1.0	1.2	1.4	
			SURF. EL: 233±			PLASTIC LIMIT: 10 WATER CONTENT: 40 LIQUID LIMIT: 70							
			Stiff brown and tan silty clay, slightly sandy w/trace fine gravel (fill)	15									
			Stiff brown and light tan silty clay, slightly sandy w/silt partings	15									
5			- with fewer silt partings below 4 ft	13									
				14									
			- firm to stiff, brown below 8 ft	10									
10													
			Stiff light brown and reddish tan silty clay w/occasional organic inclusions	11									
15													
			Firm tan clayey silt	7									
20			Note: Drilled with CME-55										
25													

COMPLETION DEPTH: 20.0 ft
DATE: 9-18-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/18/2024



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 5

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - UV Structure

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT							- No. 200 %
						0.2	0.4	0.6	0.8	1.0	1.2	1.4	
			SURF. EL: 232±			PLASTIC LIMIT +			WATER CONTENT ●				LIQUID LIMIT +
						10	20	30	40	50	60	70	
			Soft grayish brown and brown silty clay	6									
			Stiff brown and tan silty clay w/silt pockets and partings, dry	15									
5				13									
			- with organic stains below 6 ft	15									
			Firm brown silty clay	9									
10													
			- stiff, light brown, slightly sandy below 13 ft	16									
15													
			Firm light brown clayey silt, moist	7									
20													
			Loose tan fine sand, slightly silty	9									
25													
			Notes: 1. Set Piezometer P5 2. Drilled with CME-55										
COMPLETION DEPTH: 25.0 ft				DEPTH TO WATER				DATE: 9/18/2024					
DATE: 9-18-24				IN BORING: Dry									

PRELIMINARY



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 6

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Blower Pad

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT			- No. 200 %	
						0.2	0.4	0.6		0.8
			SURF. EL: 231±			PLASTIC LIMIT: 10 WATER CONTENT: 40 LIQUID LIMIT: 70				
			Stiff brown clayey silt, slightly sandy w/occasional ferrous nodules and stains	14						
			Stiff brown and grayish tan silty clay w/silt pockets and ferrous nodules and stains	17						
5			Soft brown silty clay w/occasional decayed organics	5						
			- firm at 6 to 13 ft	8						
10				7						
			- stiff, tan below 13 ft	16						
15			Note: Drilled with CME-55							
20										
25										

COMPLETION DEPTH: 15.0 ft
DATE: 9-19-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/19/2024

LGBNEW A24184.00367.GPJ 9-24-24



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 7

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Alternate Area

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT			- No. 200 %	
						0.2	0.4	0.6		0.8
			SURF. EL: 232±			PLASTIC LIMIT: 10 WATER CONTENT: 40 LIQUID LIMIT: 70				
			Soft brown clayey silt, slightly sandy	6						
			Firm brown, brownish gray, and light tan silty clay w/silt pockets	8						
5			- stiff below 4 ft	12						
			Firm brown, tan, and gray silty clay w/occasional organic stains	9						
10			- stiff at 8 to 13 ft	12						
			- firm to stiff with silt pockets and occasional ferrous nodules and stains below 13 ft	10						
15			Note: Drilled with CME-55							
20										
25										

COMPLETION DEPTH: 15.0 ft
DATE: 9-19-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/19/2024

PRELIMINARY



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 8

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Electrical Building

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT							- No. 200 %
						0.2	0.4	0.6	0.8	1.0	1.2	1.4	
			SURF. EL: 229±										
			Stiff brown silty clay w/silt pockets and ferrous stains	15									
			Medium dense light tan silt, dry										
				25									
5			Very stiff tan and light tan silty clay w/silt pockets and partings, dry	31									
			- brown and light tan below 6 ft	43									
				33									
10													
			Very stiff tan and reddish tan silty clay w/occasional ferrous nodules and stains	25									
15													
			Note: Drilled with CME-55										
20													
25													

COMPLETION DEPTH: 15.0 ft
DATE: 9-19-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/19/2024



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 9

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Flow Measurement Weir

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT		PLASTIC LIMIT	WATER CONTENT	LIQUID LIMIT	- No. 200 %
						0.2	0.4				
			SURF. EL: 226±								
			Soft brown silty clay w/occasional silt pockets	6							
			- very soft below 2 ft	3							
5			Firm gray and tan silty clay w/ferrous nodules and stains, moist	7							
				9							
10			Firm brown and gray silty clay w/occasional organic stains	9							
15			Stiff tan and grayish tan silty clay w/numerous ferrous nodules and stains	12							
20			Stiff tan and reddish tan clayey silt w/ferrous nodules and stains								
25			Very soft to soft grayish brown clayey silt	4							
			Note: Drilled with CME-55								

COMPLETION DEPTH: 25.0 ft
DATE: 9-19-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/19/2024



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 10

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Maintenance Building

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT			- No. 200 %	
						0.2	0.4	0.6		0.8
			SURF. EL: 228±			PLASTIC LIMIT: 10 WATER CONTENT: 40 LIQUID LIMIT: 70				
			Stiff brown and tan silty clay	12						
			Firm tan and light tan silty clay w/silt pockets, dry	7						
5			- soft, brown and grayish tan below 4 ft	5						
			Firm to stiff gray clayey silt, moist	10						
10			Firm to stiff brownish gray silty clay w/silt pockets	10						
			Stiff gray, tan, and reddish tan silty clay w/ferrous nodules and stains	18						
15			Note: Drilled with CME-55							
20										
25										

COMPLETION DEPTH: 15.0 ft
DATE: 9-19-24

DEPTH TO WATER
IN BORING: Dry

DATE: 9/19/2024

PRELIMINARY



**Grubbs, Hoskyn,
Barton & Wyatt, Inc.**
Consulting Engineers

LOG OF BORING NO. 11

Wastewater Treatment Plant Improvements
Wynne, Arkansas

TYPE: Auger

LOCATION: See Plate 2 - Maintenance Building

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WT LB/CU FT	COHESION, TON/SQ FT			- No. 200 %	
						0.2	0.4	0.6		0.8
SURF. EL: 228±						PLASTIC LIMIT: 10 WATER CONTENT: 40 LIQUID LIMIT: 70				
5			Firm light brown silty clay w/ferrous nodules and stains	7						
			- stiff with silt pockets below 2 ft	15						
			- light brown and tan below 4 ft	16						
10			Stiff brownish gray and brown clayey silt w/occasional organic stains	12						
			- firm, brown below 8 ft	9						
15			Stiff tan, brown, and reddish tan silty clay w/ferrous nodule sand stains	13						
			Note: Drilled with CME-55							
20										
25										

COMPLETION DEPTH: 15.0 ft DEPTH TO WATER IN BORING: Dry DATE: 9/19/2024

PRELIMINARY

SYMBOLS AND TERMS USED ON BORING LOGS

SOIL TYPES

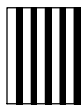
(SHOWN IN SYMBOLS COLUMN)



Gravel



Sand



Silt

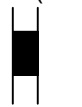


Clay

Predominant type shown heavy

SAMPLER TYPES

(SHOWN ON SAMPLES COLUMN)



Shelby
Tube



Rock
Core



Split
Spoon



No
Recovery



Cutting

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS (major portion retained on No. 200 sieve): Includes (1) Clean gravels and sands, and (2) silty or clayey gravels and sands. Condition is rated according to relative density, as determined by laboratory tests.

DESCRIPTIVE TERM

N-VALUE

RELATIVE DENSITY

VERY LOOSE

0-4

0-15%

LOOSE

4-10

15-35%

MEDIUM DENSE

10-30

35-65%

DENSE

30-50

65-85%

VERY DENSE

50 and above

85-100%

FINE GRAINED SOILS (major portion passing No. 200 sieve): Includes (1) Inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests.

DESCRIPTIVE TERM

UNCONFINED COMPRESSIVE STRENGTH TON/SQ. FT.

VERY SOFT

Less than 0.25

SOFT

0.25-0.50

FIRM

0.50-1.00

STIFF

1.00-2.00

VERY STIFF

2.00-4.00

HARD

4.00 and higher

NOTE: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of planes of weakness or cracks in the soil. The consistency ratings of such soils are based on penetrometer readings.

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance.

FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

LAMINATED - composed of thin layers of varying color and texture.

INTERBEDDED - composed of alternate layers of different soil types.

CALCAREOUS - containing appreciable quantities of calcium carbonate.

WELL GRADED - having a wide range in grain sizes and substantial amounts of all intermediate particle sizes.

POORLY GRADED - predominantly of one grain size, or having a range of sizes with some intermediate sizes missing.

Terms used on this report for describing soils according to their texture or grain size distribution are in accordance with the UNIFIED SOIL CLASSIFICATION SYSTEM, as described in Technical Memorandum No.3-357, Waterways Experiment Station, March 1953

APPENDIX A

LOG OF PIEZOMETER NO. P1
Wastewater Treatment Plant Improvements
Wynne, Arkansas

[illegible]

PLATE

PIEZO A24184.00367.GPJ 9-23-24

LOG OF PIEZOMETER NO. P5
Wastewater Treatment Plant Improvements
Wynne, Arkansas

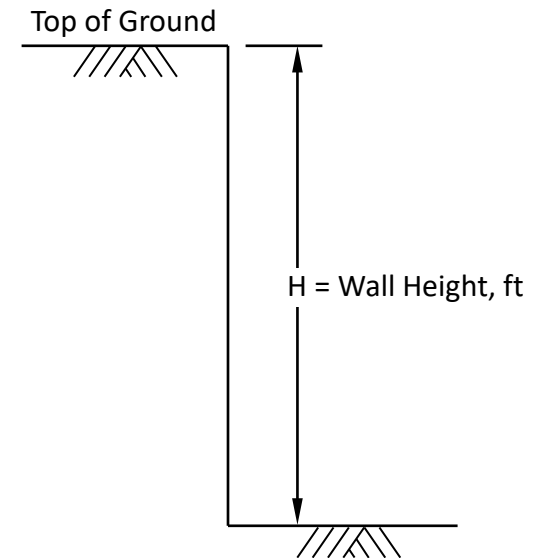
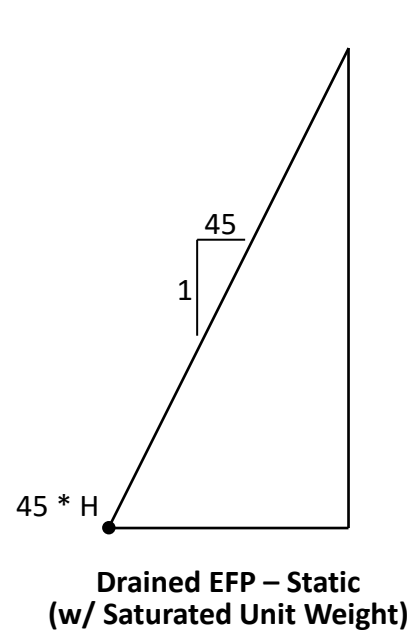
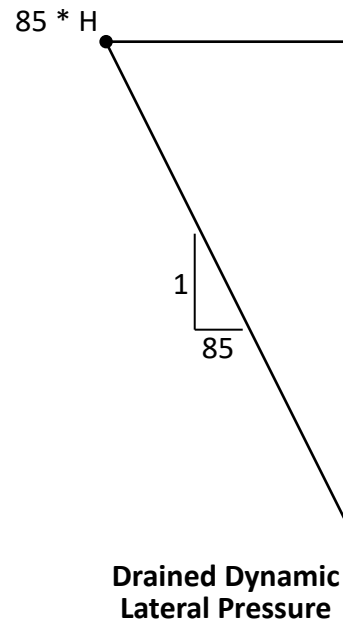
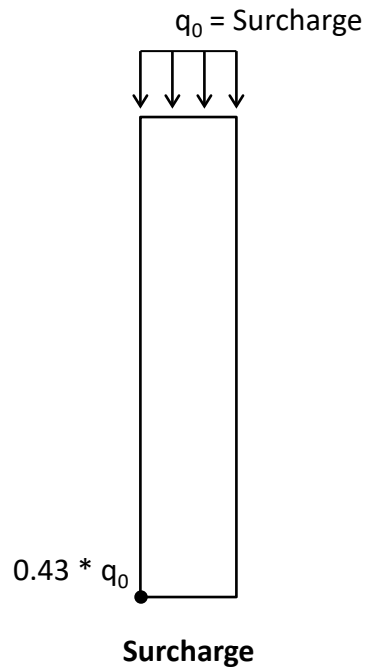
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PLATE

PIEZO A24184.00367.GPJ 9-23-24

ATTACHMENT 3

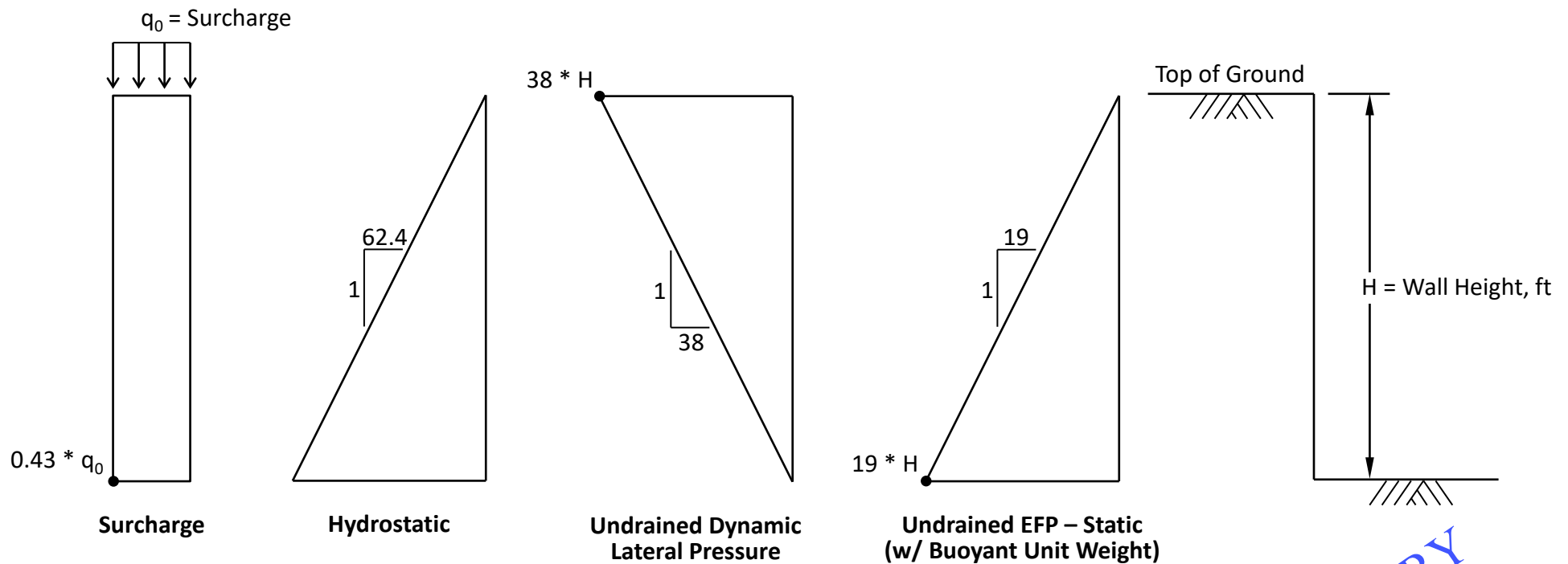
At-Rest Drained Earth Pressures



- NOTES: 1. EFP = equivalent fluid pressure, lbs per sq ft
2. Hydrostatic pressure can be adjusted for water depth
3. ASTM D448 #67 or #57: TUW < 110 pcf

PRELIMINARY

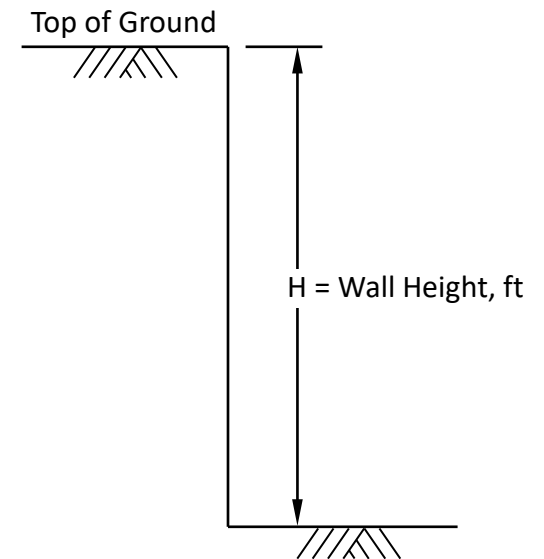
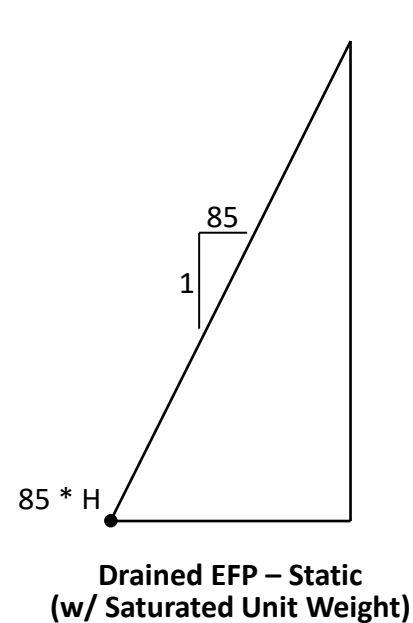
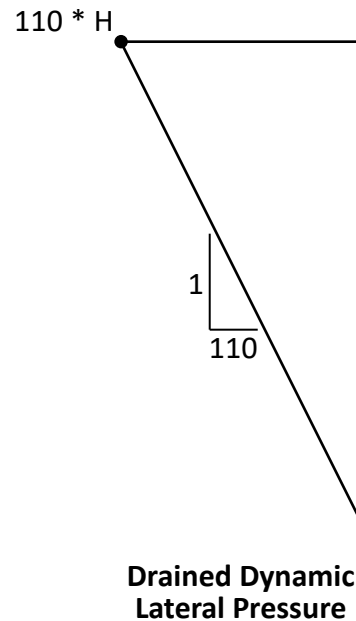
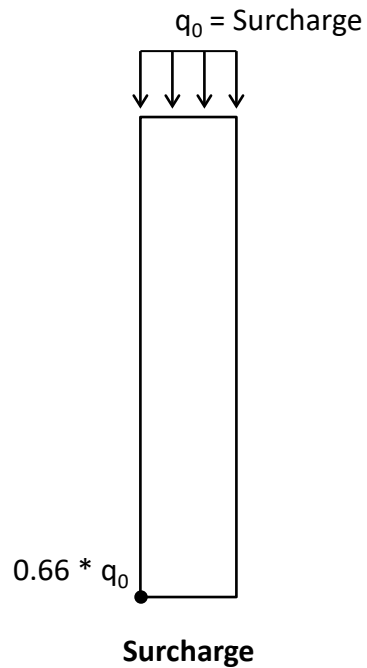
At-Rest Undrained Earth Pressures



- NOTES:
1. EFP = equivalent fluid pressure, lbs per sq ft
 2. Hydrostatic pressure can be adjusted for water depth
 3. ASTM D448 #67 or #57: BUW < 48 pcf

PRELIMINARY

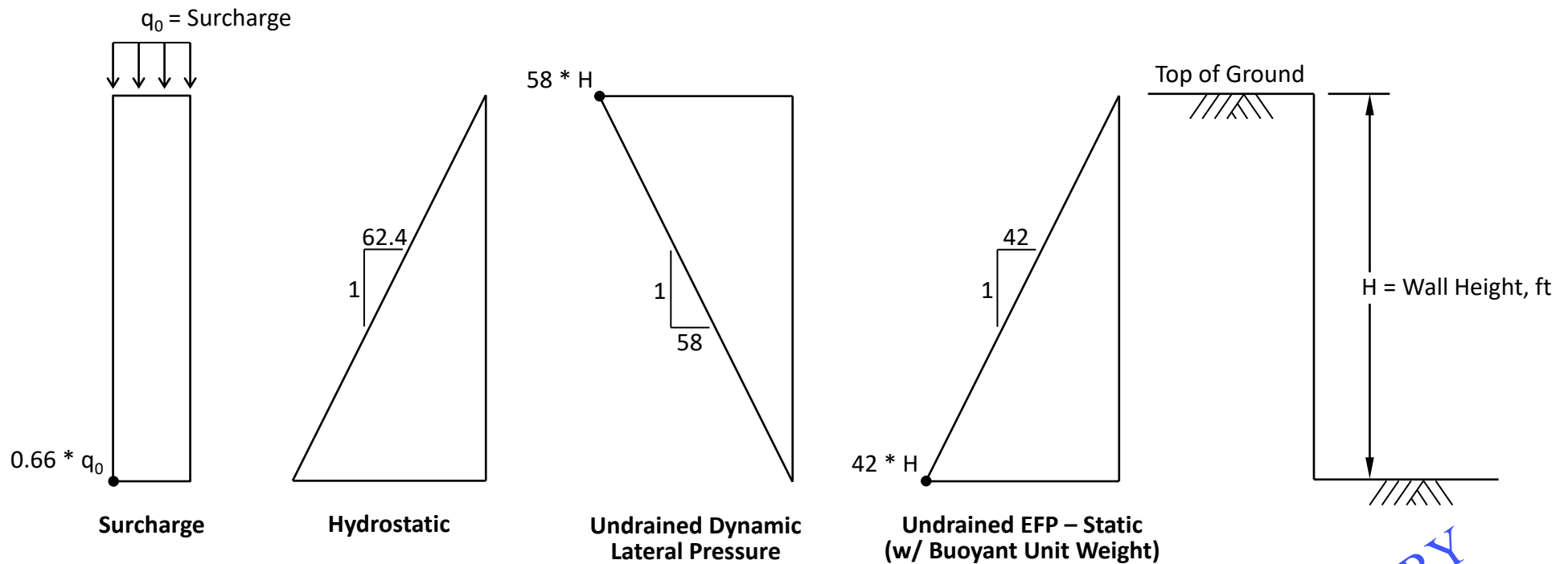
At-Rest Drained Earth Pressures



- NOTES: 1. EFP = equivalent fluid pressure, lbs per sq ft
2. Hydrostatic pressure can be adjusted for water depth

PRELIMINARY

At-Rest Undrained Earth Pressures



- NOTES: 1. EFP = equivalent fluid pressure, lbs per sq ft
2. Hydrostatic pressure can be adjusted for water depth

PRELIMINARY