REPUBLIC MISSOURI

AGENDA

City Council Meeting
Municipal Court Building, 540 Civic Blvd
April 11, 2023 at 6:00 PM

Call Meeting to Order

Opening Prayer

Pledge of Allegiance

Citizen Participation

Election of Mayor Pro Tem

Consent Agenda

1. Approve March 21, 2023 City Council Minutes.
2. Approve March 2, 2023 City Council Work Session Minutes (Supervisor's Meeting).
3. Approve Vendor List.
4. As per RSMo. 109.230(4), City records that are on file in the City Clerk's office and have met the retention schedule will be destroyed in compliance with the guidelines established by the Secretary of State's office.
5. 23-R-22 A Resolution of the City Council Awarding the Bid for Aquatic Center Filtration System Repairs to Walden Chemical, Inc. D/B/A Bluewater CAS.

Board, Commission, and Committee Schedule

City Council Meeting-Cancelled	April 18, 2023
City Council Work Session 5:30 p.m.	May 2, 2023
City Council Meeting-Cancelled	May 2, 2023
Board of Adjustment Meeting-Cancelled	May 4, 2023
Planning & Zoning Meeting	May 8, 2023
City Council Meeting	May 16, 2023

Old Business and Tabled Items

6. 23-12 An Ordinance of the City Council Vacating Approximately Six Thousand Nine Hundred and Twelve (6,912) Square Feet of Unoccupied Utility Easements in the Republic Storage LLC Subdivision.
7. 23-13 An Ordinance of the City Council Amending Bill No. 21-54 by Approving Amendment of the Zoning Code and Official Map by Changing the Classification of Approximately Ninety-Two Point Eight Five Acres of Property Located at 3456 South Farm Road 101 from Stone Creek Falls Planned Development District (PDD) to Amended Stone Creek Falls Planned Development District (PDD).

New Business (First Reading of Ordinances)

8. 23-14 An Ordinance of the City Council Vacating Approximately Eight Thousand Four Hundred and Forty-Three (8,443) Square Feet of Unoccupied Utility Easements at the 3000 Block of East Sawyer Road (VACA-003).

Individuals addressing the Council are asked to step to the microphone and clearly state their name and address before speaking. In accordance with ADA guidelines, if you need special accommodations to attend any city meeting, please notify the City Clerk's Office at 417-732-3101 at least three days prior to the scheduled meeting. **All meetings are recorded for public viewing**.

9. 23-15 An Ordinance of the City Council Vacating Approximately Five Hundred Thirty Seven (537) Square Feet of Utility Easement Owned by Republic 63, LLC at the 3000 Block of East Sawyer Road (VACA-004).

Other Business (Resolutions)

10. 23-R-23 A Resolution of The City Council Authorizing the BUILDS Department To Apply For Grants Through The Ozarks Transportation Organization for the Addition of Trails and Expansion of Pedestrian Facilities.

11. 23-R-24 A Resolution of The City Council Authorizing Execution of an Agreement with TLG Leasing, Inc. for the Lease of Dump Truck Vehicles.

12. 23-R-25 A Resolution of the City Council Approving a Preliminary Plat for Oakwood Heights Second Addition, a Residential Subdivision Consisting of Approximately 2.97 Acres Located at 602 North Oakwood Avenue.

13. 23-R-26 A Resolution of the City Council Authorizing Execution of a Phase 2 Contract Price Amendment with Burns and McDonnell Engineering Co., Inc. for the Wastewater Treatment Plant Blending Project.

14. 23-R-27 A Resolution of the City Council Authorizing Execution of a Phase 2 Contract Price Amendment with Burns and McDonnell Engineering Co., Inc. for Capital Improvement Project #7 (CIP #7).

15. 23-R-28 A Resolution of the City Council Awarding the Bid for a Portion of the City's 2023 Paving Overlays, Improvements to the Intersection of Hines and Lynn, and Full Depth Asphalt of the School Storage Lane.

Reports from Staff

Executive Session: *No further action, other than announcing adjournment by the Mayor, shall take place after an Executive Session that is scheduled as the last matter on the Agenda unless otherwise stated on the Agenda or as allowed per RSMo. 610.02.*

1. RSMo 610.021.1 Pending and/or potential litigation. Closed session. Closed vote. Closed record.

2. RSMo 610.021.2 Real estate acquisition. Closed session. Closed vote. Closed record.

3. RSMo 610.021.3 Hiring, firing, promotion, or disciplining personnel. Closed session. Closed vote. Closed record.

Adjournment

MINUTES

City Council Meeting
Municipal Court Building, 540 Civic Blvd
March 21, 2023 at 6:00 PM

Call Meeting to Order

The regular session meeting of the City Council of the City of Republic, Greene County, Missouri, was called to order by Mayor Matt Russell at 6:00 p.m. Council Members present included Eric Franklin, Garry Wilson, Eric Gerke, Chris Updike, Brandon Self, Jennifer Mitchell, Clint Gerlek, and Gerry Pool. Others in attendance were: City Administrator David Cameron, Deputy City Administrator Andrew Nelson, City Attorney Megan McCullough, BUILDS Administrator Karen Haynes, Principal Planner Chris Tabor, Police Chief Brian Sells, Assistant Parks and Recreation Director Jennafer Mayfield, Athletics Administrator Garrett Cline, Assistant BUILDS Administrator Garrett Brickner, Fire Chief Duane Compton, Chief of Staff Lisa Addington, Assistant City Administrator/Parks and Recreation Director Jared Keeling, City Clerk Laura Burbridge, Human Resources Coordinator Rachel Reich-Graef, Finance Director Bob Ford, Operations Coordinator Karsen Forbis, Aquatics Administrator/Recreation Coordinator Emma Dulin , and IT Director Chris Crosby.

Opening Prayer

Opening prayer was led by City Administrator David Cameron.

Pledge of Allegiance

The Pledge of Allegiance was led by Mayor Matt Russell.

Mayor's Announcements

Mayor Russell thanked Council Member Franklin for standing in for him for the last two meetings. The first meeting he was in Jefferson City asking for funding on behalf of the city. The second meeting he missed to attend his son Alex's last basketball game with the team he has played on since Kindergarten. Mayor Russell shared it was awesome to watch the last game and they got to honor Coach Tyler Porter. Mayor Russell thanked Mr. Porter for being there for the kids.

Mayor Russell reappointed John Alexander, Michael Mann, and Ransom Ellis to the Planning and Zoning Commission for a four-year term. Mayor Russel reappointed Garry Wilson as the Council Liaison for the Planning and Zoning Commission for a one-year term. Mayor Russell reappointed April Swanson to the Board of Adjustment for a five-year term. Mayor Russell thanked all the appointees for their willingness to serve on the boards for the city.

1. Reappoint John Alexander, Michael Mann, and Ransom Ellis to the Planning and Zoning Commission for a Four-Year Term.
2. Reappoint Garry Wilson as the Council Liaison for the Planning and Zoning Commission for a One-Year Term.
3. Reappoint April Swanson to the Board of Adjustment for a Five-Year Term.

Citizen Participation

Mayor Russell opened citizen participation at 6:03 p.m. No one came forward so Mayor Russell closed citizen participation at 6:03 p.m.

Consent Agenda

Motion was made by Council Member Franklin and seconded by Council Member Updike to approve the consent agenda. The vote was 8 Aye-Franklin, Gerke, Mitchell, Pool, Self, Updike, Gerlek, and Wilson. 0 Nay. Motion Carried.

4. Approve March 7, 2023 City Council Minutes.

Board, Commission, and Committee Schedule

City Council Meeting-Cancelled	April 4, 2023
Board of Adjustment Meeting-Cancelled	April 6, 2023
Planning & Zoning Meeting	April 10, 2023
City Council Meeting	April 11, 2023
City Council Meeting-Cancelled	April 18, 2023

Old Business and Tabled Items

5. **23-11 An Ordinance of the City Council Amending the Municipal Code of the City of Republic, Missouri by Amending Title II Public Health, Safety And Welfare, Chapter 212 "Special Events" Sections 212.001 "Permit Required", 212.003 "Definitions", 212.005 "Submission Of Special Events Application", 212.007 "Plan Review Meeting Notification To Applicant", and 212.009 "Terms And Conditions."**

   Motion was made by Council Member Pool and seconded by Council Member Updike to have the second reading of Bill 23-11 by title only. The vote was 8 Aye-Franklin, Gerke, Gerlek, Mitchell, Pool, Self, Updike, and Wilson. 0 Nay. Motion Carried. Chris Tabor was available to answer questions. Council Member Updike motioned for the passage of Bill 23-11. Council Member Mitchell seconded. A roll call vote was taken digitally. The vote was 8 Aye-Franklin, Gerke, Gerlek, Mitchell, Pool, Self, Updike, and Wilson. 0 Nay. Motion Carried.

New Business (First Reading of Ordinances)

6. **23-12 An Ordinance of the City Council Vacating Approximately Six Thousand Nine Hundred and Twelve (6,912) Square Feet of Unoccupied Utility Easements in the Republic Storage LLC Subdivision.**

   Motion was made by Council Member Mitchell and seconded by Council Member Updike to have the first reading of Bill 23-12 by title only. The vote was 8 Aye-Franklin, Gerke, Gerlek, Mitchell, Pool, Self, Updike, and Wilson. 0 Nay. Motion Carried. Chris Tabor provided an overview of the bill. Mayor Russell reminded Council that this is a first read and to get with staff prior to the next meeting with any questions.

7. **23-13 An Ordinance of the City Council Amending Bill No. 21-54 by Approving Amendment of the Zoning Code and Official Map by Changing the Classification of Approximately Ninety-Two Point Eight Five Acres of Property Located at 3456 South Farm Road 101 from Stone Creek Falls Planned Development District (PDD) to Amended Stone Creek Falls Planned Development District (PDD).**

   Motion was made by Council Member Wilson and seconded by Council Member Franklin to have the first reading of Bill 23-13 by title only. The vote was 8 Aye-Franklin, Gerke, Gerlek, Mitchell, Pool, Self, Updike, and Wilson. 0 Nay. Motion Carried. Chris Tabor provided an overview of the bill. Mayor Russell reminded Council that this is a first read and to get with staff prior to the next meeting with any questions.

Other Business (Resolutions)

8. **23-R-20 A Resolution of the City Council Authorizing Payment to Missouri Rural Services Workers' Compensation Insurance Trust for Coverage for 2023-2024.**

   Motion was made by Council Member Wilson and seconded by Council Member Pool to approve Resolution 23-R-20. Lisa Addington provided an overview of the Resolution. The vote was 8 Aye-Franklin, Gerke, Gerlek, Mitchell, Pool, Self, Updike, and Wilson. 0 Nay. Motion Carried.

9. **23-R-21 A Resolution of the City Council Awarding the Bid for the Aquatic Center Expansion to Branco, Enterprises, Inc.**

   Motion was made by Council Member Wilson and seconded by Council Member Mitchell to approve Resolution 23-R-21. Jared Keeling provided an overview of the Resolution. The vote was 8 Aye-Franklin, Gerke, Gerlek, Mitchell, Pool, Self, Updike, and Wilson. 0 Nay. Motion Carried.

Reports from Staff

City Administrator David Cameron thanked Jared Keeling and the Parks team for the great job on the Aquatic Center Expansion project. Mr. Cameron joked that we could appoint Garry Wilson as an aqua bouncer. Mr. Cameron noted the great work on value engineering, adding Branco is a great contractor and either company would do a great job on the project.

City Administrator David Cameron notified Council of an emergency purchase he authorized for the Aquatic Center pumps that service the Flow Rider and main pool. The failure was found during their inspection. Mr. Cameron notified Council he authorized up to $60,000.00 for the project, adding it is out for bid and will be brought back to Council on April 11th for their approval.

City Administrator David Cameron notified Council that the Administrator's Report is on our website, adding he hopes everyone is enjoying the information and discussions it presents.

City Administrator David Cameron reported that during the ELT Meeting, the banking market volatility was brought up for discussion. Finance Director Bob Ford has been in contact with our bank to ensure our financial position is secure. Mr. Cameron reported we are working on additional steps to protect the interest of the city. Mr. Cameron noted Mr. Ford had already reached out to the bank before the discussion due to the considerable amount of funds in the bank with all the projects in queue. We are working to diversify our accounts to provide further protection of our funds. Mr. Cameron thanked Mr. Ford for protecting our community.

City Administrator David Cameron thanked Chris Tabor for the great job explaining the easement process, adding all the staff do a fantastic job. Mr. Cameron noted the staging lane will be done in August before school starts. Mr. Cameron reported that Garrett Brickner and Karen Haynes presented upcoming projects to him this week that we will condense into a workshop before a meeting and live stream it to include project timelines. Mr. Cameron noted this is something we can do to communicate the information to the citizens through a well done presentation. Mr. Cameron noted the meeting went from the scheduled 1 1/2 hours to 4 hours. Mr. Cameron added we continue to work on recruitment for the PIO position, but Jennafer has done a great job keeping us going in that capacity.

Council Member Franklin thanked Mayor Russell for the opportunity to fill in for him as Mayor. Mr. Franklin added he appreciates staff and the work done putting the packet together.

Mayor Russell shared he has become friends with the Council Members; he knows the strengths, weaknesses, and the heart of the people on Council. Mayor Russell reported he has had routine conversations with Council Member Mitchell about the struggle of being a mom, teacher, business owner, and Council Member. Mayor Russell added he routinely talked her into staying on Council because her

heart helps reach out to those who are hurting. Mayor Russell noted his heart hurts losing someone so important, but she has said it is too much and we all know it is a lot. Mayor Russell added we will greatly miss Council Member Mitchell.

Council Member Mitchell acknowledged Mayor Russell's lawyer skills are great, adding he has become a good friend and she has grown under his leadership. Mrs. Mitchell noted it has been an honor to serve the last 3 years, adding she has grown as a woman. Mrs. Mitchell shared that she grew up in a small town and the Mayor was her bus driver. Mrs. Mitchell acknowledged how much she has learned serving on Council, adding she sweat through her clothes the first year. Mrs. Mitchell announced that logistically with the kids' sports and extracurriculars and a spouse who is on the move, she finds it increasingly hard to miss out on the events and difficult to coordinate. Mrs. Mitchell noted leaving is bittersweet but shared her appreciation of the staff.

Mayor Russell noted our loss is the gain of Mrs. Mitchell's family. Mayor Russell thanked Mrs. Mitchell for her service.

Executive Session: *No further action, other than announcing adjournment by the Mayor, shall take place after an Executive Session that is scheduled as the last matter on the Agenda unless otherwise stated on the Agenda or as allowed per RSMo. 610.02.*

1. RSMo 610.021.2 Real estate acquisition. Closed session. Closed vote. Closed record.

2. RSMo 610.021.13 Individually identifiable personnel records, performance ratings or records pertaining to employees or applicants for employment, except that this exemption shall not apply to the names, positions, salaries and lengths of service of officers and employees of public agencies. Closed session. Closed vote. Closed record.

Motion was made by Council Member Pool and seconded by Council Member Updike at 7:02 p.m. to go into Executive Session under RSMo 610.021.2 Real estate acquisition. Closed session. Closed vote. Closed record and RSMo 610.021.13 Individually identifiable personnel records, performance ratings or records pertaining to employees or applicants for employment, except that this exemption shall not apply to the names, positions, salaries and lengths of service of officers and employees of public agencies. Closed session. Closed vote. Closed record. A roll call vote was taken. The vote was 8 Aye – Self, Mitchell, Pool, Franklin, Updike, Gerlek, Gerke, and Wilson. 0 Nay. Motion carried.

Motion was made by Council Member Mitchell and seconded by Council Member Updike to adjourn the Executive Session Meeting at 7:24 p.m. A roll call vote was taken. The vote was 8 Aye – Mitchell, Pool, Wilson, Gerke, Self, Updike, Gerlek, and Franklin. 0 Nay. Motion carried.

ATTEST:

_____ _____

Laura Burbridge, City Clerk Matt Russell, Mayor

MINUTES

Supervisor's Meeting
Community Center, 711 E. Miller Road
March 02, 2023 at 10:30 AM

Call Meeting to Order

The work session meeting of the City Council of the City of Republic, Greene County, Missouri, was called to order by David Cameron at 10:37 a.m. Mayor Matt Russell was present, along with Council Members Eric Franklin, Garry Wilson, Eric Gerke, Chris Updike, and Clint Gerlek. City Administrators were present along with department directors and supervisors from each department.

Council Priority Review and Discussion

Mayor Russell led staff and Council in a discussion of the City Council Questionnaire Results from the January meeting. The discussion included frequent topics of complaints, Council's ability to obtain answers, the most frustrating or difficult parts of being on Council, communication preferences, threats to city progress, and the top priorities of the city for 2023.

The meeting recessed at 12:05 for lunch and resumed at 12:43. Council Members Gerke and Gerlek left during the lunch recess.

Sunshine Law and Charter Training

City Attorney Megan McCullough trained staff and Council on the Charter, the Anti-Corruption and Bribery Policy, and a Sunshine Law overview.

Cybersecurity Training

IT Director Chris Crosby and Systems Administrator Michael Sallee presented on cybersecurity, progress made by staff, and the biggest threats for 2023.

Adjournment

City Administrator David Cameron adjourned the meeting at 2:04 p.m.

ATTEST:

_____ _____

Laura Burbridge, City Clerk Matt Russell, Mayor

City of Republic

Vendor Audit Report

For Date Range 03/01/2023 - 04/30/2023

Vendor	Added	Added User	Deleted	Deleted User
08025 - Center for Internet Security Inc	03/01/2023	SHERRI WOODS		
08026 - Cristopher Obrien	03/02/2023	SHERRI WOODS		
08027 - Keizer-Morris International	03/02/2023	SHERRI WOODS		
08028 - Select Brands	03/08/2023	SHERRI WOODS		
08029 - Aaron Lesure	03/09/2023	SHERRI WOODS		
08030 - B&B Holdings LLC	03/09/2023	SHERRI WOODS		
08031 - Winter Equipment Company Inc	03/15/2023	SHERRI WOODS		
08032 - Benjamin Graven	03/15/2023	SHERRI WOODS		
08033 - Easy Ice LLC	03/15/2023	SHERRI WOODS		
08034 - CreedsTown Ranch	03/16/2023	SHERRI WOODS		
08035 - Douglas Putman	03/16/2023	SHERRI WOODS		
08036 - Mystaire	03/17/2023	SHERRI WOODS		
08037 - Justin H Paasch	03/23/2023	SHERRI WOODS		
08038 - Avery L Zinter	03/28/2023	SHERRI WOODS		
08039 - Trent McBride	03/28/2023	SHERRI WOODS		
08040 - Michaela E Eilola	03/29/2023	SHERRI WOODS		
08041 - Rachelle Morris	03/29/2023	SHERRI WOODS		
08042 - Ajna Panda Performance Art LLC	03/31/2023	SHERRI WOODS		
08043 - Lion Group Inc	04/04/2023	SHERRI WOODS		

Vendor Count: (19)

REPUBLIC
MISSOURI

Record Destruction Request Form

MISSOURI RETENTION MANUAL CODE	NAME/DATE OF RECORDS TO BE DISPOSED	DATE(S) OF DOCUMENTS	RETENTION TIME NEEDED FOR RECORD
0003 Annexation Records	Annexation Records	1978, 2003, 2009, 2011, 2012	6 years after recorded in minutes
GS 085 Meeting Records (Internal)	City School Partnership	1997	3 year
GS 047 Policy and Procedure Files	Storm Water Management	1992	Retain routine clerical manuals until superseded, updated or no longer needed for reference.
GS 047 Policy and Procedure Files	Protecting Water Quality Manual	1999	Retain routine clerical manuals until superseded, updated or no longer needed for reference.
GS 047 Policy and Procedure Files	Urban Conservation Policy Handbook	1998	Retain routine clerical manuals until superseded, updated or no longer needed for reference.
0003 Annexation Records	James River By-Pass Project – Annexations and Planning Materials	2002	6 years after recorded in minutes

REPUBLIC
MISSOURI

Record Destruction Request Form

0003 Annexation Records	Annexations for Brookline Village	1997-2002	6 years after recorded in minutes
0211 Street Address Log	HWY 60 Address Change Project	1998	Until superseded or no longer needed for reference.
0003 Annexation Records	HWY 60 Annexation	1998	6 years after recorded in minutes
0211 Street Address Log	Address Changes Various	2000-2002	Until superseded or no longer needed for reference.
1304 Sewage Treatment Monitoring Reports	Daily Operation Summary, Weather Data, Laboratory Sampling Records and Chain of Custody, Sludge Waste Records, Sludge Blanket Measurements.	1999-2017	5 years
028.006 Ballot Preparation Records	Wastewater Special Election	2007	22 Months
GS 123 Building Code Inspection and Enforcement File	Inspection Reports	1998	5 years
GS 012 Telecommunications Log	Telephone Logs-Public Works	2000	1 year

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-R-22 A Resolution of the City Council Awarding the Bid for Aquatic Center Filtration System Repairs to Walden Chemical, Inc. D/B/A Bluewater CAS.
Submitted By:	Jennafer Mayfield, Assistant Parks & Recreation Director
Date:	Tuesday, April 11, 2023

Issue Statement

A Resolution awarding the bid for filtration system repairs at the Republic Aquatic Center.

Discussion and/or Analysis

The current filtration systems at the Republic Aquatic Center are in need repair ahead of the 2023 season. We had several filtration issues in 2022 and our team worked diligently throughout the summer to keep the system functioning as best as possible. Due to the anticipated repairs, we allocated $45,000.00 in the 2023 budget for the work. In preparation for getting the repairs moving, staff met with several aquatic consultants in February, and it was determined that we would need to broaden the scope of repair work further than what was initially thought when the Aquatic Center closed in September 2022. The broadened scope of repairs was anticipated to equal approximately $60,000.00.

Due to the expenditure being expected to exceed $50,000.00, a formal Invitation for Bid (IFB) document was made available on March 14 with a deadline of March 28 at 2:00. The scope of services included repair and replacement of several valves, cylinders, air hoses, and filter media (sand) in the main system and a new pump and filter media (sand) for the Flow Rider system.

As a result of the time frame necessary for the formal bid process and the broadened scope of work, City Administrator David Cameron classified this as an emergency repair at the City Council meeting on March 21, 2023, allowing us to move quickly after the bid opening due to the timeliness of needing repairs completed by May.

We received one (1) bid from Walden Chemical, Inc. dba Bluewater CAS in the amount of $66,150.00. We have worked extensively with Walden Chemical (Bluewater) in the past and they are very familiar with our system.

Recommended Action

Staff recommends approval.

A RESOLUTION OF THE CITY COUNCIL AWARDING THE BID FOR THE AQUATIC CENTER FILTRATION SYSTEM REPAIRS TO WALDEN CHEMICAL, INC. D/B/A BLUEWATER CAS

WHEREAS, the City of Republic, Missouri ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, City staff have identified a need for a series of repairs to the Aquatic Center's filtration systems (the "Project"), including repair and replacement of several valves, cylinders, air hoses, and filter media (sand) in the main system and a new pump and filter media (sand) for the Flow Rider system; and

WHEREAS, the repairs are vital to ensuring safe functionality of the Aquatics Center during the 2023 pool season; and

WHEREAS, on March 14, 2023, the City solicited sealed bids for the Project;

WHEREAS, the City only received one response from Walden Chemical, Inc. d/b/a Bluewater CAS ("Bluewater"); and

WHEREAS, after hearing presentation and recommendations by City staff, the City Council desires to accept the bid submitted by Bluewater, as it appears to demonstrate the necessary qualifications for a responsible bid and is the lowest cost to the City at an estimated total expenditure of $66,150.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1. The submitted bid from Walden Chemical, Inc. d/b/a Bluewater CAS, attached hereto "Exhibit 1" and expressly incorporated herein, is accepted for the Project at the estimated cost(s) shown thereon, but in no event to exceed a total of $70,000 without separate approval from Council.

Section 2. The City Administrator, and his/her designee, on behalf of the City, is authorized to take the necessary steps to execute this Resolution.

Section 3: The whereas clauses are hereby specifically incorporated herein by reference.

Section 4: This Resolution shall become effective on and after the date of passage and approval as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____

Attest: Matt Russell, Mayor

_____

Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

CITY OF REPUBLIC
213 N. Main Avenue
Republic, MO 65738

PURCHASE ORDER

PO Number: PO00665 **Date:** 03/29/2023

Requisition #: REQ00869 **Vendor #:** 5349

ISSUED TO: Walden Chemical
4201 S Shackleford Rd Ste B
Little Rock, AR 72204

SHIP TO: City of Republic
213 N Main
Republic, MO 65738

ITEM	UNITS	DESCRIPTION	GL ACCT #	PROJ ACCT #	PRICE	AMOUNT
1	0	Repair Republic Aquatic Center filtration system	210-520-62031		0.00	66,150.00
		Labor and materials to replace and repair the filtration system of the Wave-Rider (surf simulator ride) and swimming pool at the Republic Aquatic Center. Includes components such as valves, linkages, pneumatic cylinders, air lines, pump, filter media and filter laterals.				

Authorized by: _____

SUBTOTAL:	66,150.00
TOTAL TAX:	0.00
SHIPPING:	0.00
TOTAL	66,150.00

1. Original invoice plus one copy must be sent to: City of Republic, 213 N. Main Avenue, Republic, MO 65738.
2. Payment may be expected within 30 days of receipt of goods, unless otherwise stated.
3. C.O.D. shipment will not be accepted.
4. Purchase Order numbers must appear on all shipping containers, packing slips and invoices.
5. The City is exempt from all state tax – Missouri Tax ID# 12492990

BID SPECIFICATIONS

Vendor shall complete repair work to the Republic Aquatic Center filtration system including repair to the Paddock Vac-Sand filter (to return to proper operating condition) and replacement of FlowRider filtration pump and filter media.

- Vendor shall complete work no later than April 28, 2023.
- Vendor shall warranty work for one (1) year from installation.
- Bids should include all travel, labor, and materials.

ITEM #1

Paddock Vacuum Sand Filter

- Replace butterfly valves that have failed with Bray Series 21 butterfly valves.
    - Two (2) 8" Valves
    - One (1) 10" Valve
    - Two (2) 12" Valves
- Replace five (5) air actuated cylinders with equivalent.
- Replace all air hoses with new ¼" tubing.
- Replace pneumatic fittings for proper operation.
- Repair/replace stainless steel linkage for valve operation.
- Remove and replace lateral collection assembly – new laterals.
- Provide new filter media*.
    - **Owner is responsible for removal and disposal of existing filter media.*
    - **Owner is responsible for installation of new filter media.*

ITEM #2

FlowRider

- Remove and replace filter media on FlowRider filtration system.
- Install new filter media.
- Install new filtration pump – Pentair Intelliflo 3hp Pump (208-230/460 – 3hp) or comparable.
- Dumping of filter media to be on-site*.
    - **Owner is responsible for disposal.*

ATTACHMENT A - BID SUBMISSION FORM

BIDDERS MUST PROVIDE THE FOLLOWING INFORMATION:

ITEM	DESCRIPTION OF WORK	PRICE
ITEM #1	**Paddock Vacuum Sand Filter** • Replace butterfly valves that have failed with Bray Series 21 butterfly valves. • Two (2) 8" Valves • One (1) 10" Valve • Two (2) 12" Valves • Replace five (5) air actuated cylinders with equivalent. • Replace all air hoses with new ¼" tubing. • Replace pneumatic fittings for proper operation. • Repair/replace stainless steel linkage for valve operation. • Remove and replace lateral collection assembly – new laterals. • Provide new filter media*. • **Customer responsible for removal and disposal of existing filter media.* • **Customer responsible for installation of new filter media* • Price should include all travel, labor, and materials.	$ 57,800 [illegible]
ITEM #2	**FlowRider** • Remove and replace filter media on FlowRider filtration system. • Install new filter media. • Install new filtration pump – Pentair Intelliflo 3hp Pump (208-230/460 – 3hp) or comparable. • Dumping of filter media to be on-site*. • **Customer responsible for disposal.* • Price should include all travel, labor, and materials.	$ 8,350 [illegible]

- Vendor shall complete work no later than April 28, 2023.
- Vendor shall warranty work for one (1) year from installation.
- Bids should include all travel, labor, and materials.

In compliance with this Invitation for Bid and to all terms, conditions, and specifications imposed therein and hereby incorporated byreference, the undersigned offers and agrees to furnish the goods and/or services described herein.

• **City of Republic Aquatic Center Filtration System Repair** **213 N Main St., Republic, MO 65738**	Walden Chemical, Inc. dbe **Company Legal Name:** Bluewater CAS
	11421 ~~Stagecoach~~ Rd. #1400 Little Rock, AR 72210 **Address:**
Telephone: 501.812.0011	**Signed**
Facsimile:	**Dated** 3/20/23
E-mail: phil@bluewatercas.com	
Cellular: 501.944.0586	**Printed Title** Phil Helms
	Bidders Federal ID Number: 71-0612506

To be submitted with Vendor's Bid

_____We DO NOT take exception to the IFB Documents/Requirements.

__X__We TAKE exception to the IFB Documents/Requirements as follows: deadline of 4/28 not possible parts are 2-4 weeks from order date.

CITY OF REPUBLIC STATEMENT OF "NO BID" * ADDENDA

Bidder acknowledges receipt of the following addendum: Completion by 5/15/23

RETURN THIS PAGE ONLY IF YOUR COMPANY PROVIDES THE PRODUCTS/SERVICES BEING BID AND DECLINES TO DOSO.

Addendum

No. _____ Addendum No. ____

WE, THE UNDERSIGNED, HAVE DECLINED TO BID ON YOUR IFB * FOR DESCRIPTION FOR THE FOLLOWINGREASON(S):

Addendum No. ____

_____SPECIFICATIONS ARE TOO "TIGHT," I.E. GEARED TOWARD ONE BRAND OR MANUFACTURER ONLY(PLEASE EXPLAIN BELOW).

Addendum

No. _____ Addendum No. ____

_____INSUFFICIENT TIME TO RESPOND TO INVITATION FOR BID.

_____OUR PRODUCT SCHEDULE WOULD NOT PERMIT US TO PREFORM.

Print Email phil@bluevalves.com

Print Federal Tax ID No. 71-0612506

CITY OF REPUBLIC STATEMENT OF "NO BID"

RETURN THIS PAGE ONLY IF YOUR COMPANY PROVIDES THE PRODUCTS/SERVICES BEING BID AND DECLINES TO DOSO.

WE, THE UNDERSIGNED, HAVE DECLINED TO BID ON YOUR IFB FOR THE FOLLOWING REASON(S):

_____SPECIFICATIONS ARE TOO "TIGHT," I.E. GEARED TOWARD ONE BRAND OR MANUFACTURER ONLY(PLEASE EXPLAIN BELOW).
_____INSUFFICIENT TIME TO RESPOND TO INVITATION FOR BID.
_____OUR PRODUCT SCHEDULE WOULD NOT PERMIT US TO PERFORM.
_____UNABLE TO MEET SPECIFICATIONS.
_____UNABLE TO MEET INSURANCE REQUIREMENTS.
_____SPECIFICATIONS UNCLEAR (PLEASE EXPLAIN BELOW).
_____OTHER (PLEASE SPECIFY BELOW).

REMARKS:

_____
_____
_____
_____
_____

COMPANY NAME: _____ ADDRESS:_____
SIGNATURE AND TITLE: _____
TELEPHONE NUMBER: _____ DATE: _____

N/A

State of Missouri

EXEMPTION FROM MISSOURI SALES AND USE TAX ON PURCHASES

Issued to:

CITY OF REPUBLIC
213 N. MAIN AVENUE
REPUBLIC, MO 65738

Missouri Tax ID Number: 12492990
Effective Date: 07/11/2002

Your application for sales/use tax exempt status has been approved, pursuant to Section 144.030.1, RSMo. This letter is issued as documentation of your exempt status.

Purchases by your Agency are not subject to sales or use taxif within the conduct of your Agency's exempt functions and activities. When purchasing with this exemption, furnishall sellers or vendors a copy of this letter. This exemptionmay not be used by individuals making personal purchases.

A contractor may purchase and pay for construction materials exemptfrom sales tax when fulfilling a contract with your Agency only if your Agency issues a project exemption certificate and thecontractor makes purchases in compliance with the provisions of Section 144.062,RSMo.

Sales by your Agency are subject to all applicable state and local sales taxes. If you engage in the business of selling tangible personal property or taxable services at retail, you must obtain a Missouri Retail Sales Tax License and collect andremit sales tax.

This is a continuing exemption subject to legislative changes and review by the Director of Revenue. If your Agency ceases to qualify as an exempt entity, this exemption will cease to bevalid. This exemption is not assignable or transferable.

It is an exemption from sales and use taxes only and is not an exemption from real or personal property tax.

Any alteration to this exemption letter renders it invalid.

If you have any questions regarding the use of this letter, pleasecontact the Division of Taxation and Collection, P.O. Box 3300, Jefferson City, MO 65105-3300, phone 573-751-2836.

MISSOURI PROJECT EXEMPTION CERTIFICATE

Authorization for Purchasing Construction Materials for Tax Exempt Project
(The Form and Content of this Exemption Certificate have been approved by the Missouri Department of Revenue)

EXEMPT ENTITY ISSUING CERTIFICATE

Name: City of Republic, Missouri
Address: 213 N. Main Avenue
City/State/Zip: Republic, Missouri
65738

MO Tax Exempt I.D. #: 12492990
Contract Date:
Contract #:_____
Letter Effective Date:
Certificate Expiration Date:
Revised Expiration Date: _____

Project Description: Police & Fire Facilities – HVAC Replacement
Project Location: 540 Civic Boulevard, 701 US Hwy 60, 3425 E. Sawyer Road
Project Completion Date: TBD
Auth. Signature:_____,Mayor Date: _
_____

The Missouri exempt entity named above hereby authorizes the purchase, without sales tax, of tangible personal propertyto be incorporated or consumed in the construction of the project identified herein and no other, pursuant to Section
144.62 RSMo.

PURCHASING CONTRACTOR OR SUBCONTRACTOR

Name:
Address:
City/Stat
e/Zip:

INSTRUCTIONS

EXEMPT ENTITY - A signed copy of this certificate, along with your MO Tax Exemption Letter, must be furnished toeach contractor and/or subcontractor who will be purchasing tangible personal property for use in the project. It is the
exempt entity's responsibility to ensure the validity of the certificate. You must issue a certificate with a Revised Expiration Date if purchases will be required to complete the project beyond the original Project Exemption Date.

CONTRACTOR OR SUBCONTRACTOR - The contractor shall furnish a completed copy of this exemption certificate, along with a copy of the exempt entity's MO Tax Exemption Letter, to all subcontractors, and any contractoror subcontractor purchasing materials shall present copies of such documents to all material suppliers as authorization topurchase, on behalf of the exempt entity, all tangible personal property and materials to be incorporated or consumed in the construction of that project and no other on a tax-exempt basis. A copy of each certificate must be retained by the purchaser for a period of five years.

MATERIAL SUPPLIER - A completed copy of this exemption certificate, along with the MO Tax Exemption Letter ofthe exempt entity contracting for the project, must be obtained from the contractor or subcontractor making purchases of tangible personal property for use in the project, and retained for audit purposes. Invoices issued for such purchases must reflect the name of the exempt entity and the project number assigned by the exempt entity shown above.

NOTICE AND INSTRUCTIONS TO CONTRACTORS/SUBCONTRACTORS REGARDING SECTIONS 285.525 THROUGH 285.550 RSMO, EFFECTIVE JANUARY 1, 2009

Effective January 1, 2009, and pursuant to the State of Missouri's RSMO 285.530(1), No business entity or employer shallknowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the State of Missouri.

As a condition for the award of any contract or grant in excess of five thousand dollars by the state or by any political subdivision of the state (e.g., City of Republic, MO) to a business entity, the business entity (Company) shall, by swornaffidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall signan affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. [RSMO 285-530(2)]

The City of Republic, Missouri, in order to comply with sections 285.525 through 285.550 RSMO, requires the followingBid and contract documents:

Required Affidavit for Contracts Over $5,000.00 (US) – Effective 1-1-2009, Company shall comply with the provisions of Section 285.525 through 285.550 R.S.Mo. Contract award is contingent on Company providing an acceptable notarized affidavit stating:

1. that Company is enrolled in and participates in a federal work authorization program with respect to the
   employees working in connection with the contracted services; and

2. that Company does not knowingly employ any person who is an unauthorized alien in connection with
   the contracted services.

Copies of affidavit can be found and downloaded on the City of Republic Missouri Public Works website;

The City of Republic encourages companies that are not enrolled and participating in a federal work authorization program to do so. E-Verify is an example of this type of program. Information regarding E-Verify is available at http://www.dhs.gov/xprevprot/programs/gc 1185221678150.shtm or by calling **888-464-4218**.

AFFIDAVIT OF COMPLIANCE WITH SECTION 285.500 R.S.MO., ET SEQ.FOR ALL AGREEMENTS IN EXCESS OF $5,000.00

EFFECTIVE 1/1/2009

STATE OF Arkansas)
) ss.
_____)
COUNTY OF Pulaski)

Before me, the undersigned Notary Public, in and for the County of Pulaski, State of Arkansas, personally appeared John Helms (Name) who is Manager (Title) of Weldon Chemical, Inc dba Blackwater Cts (Name of company), (corporation), (partnership), (sole proprietorship), (limited liability company), and after being dulysworn did depose and say:

(1) that said company is enrolled in and participates in a federal work authorization programwith respect to the employees working in connection with the contracted services; and

(2) that said company does not knowingly employ any person who is an unauthorized alienin connection with the contracted services.

The terms used in this affidavit shall have the meaning set forth in Section 285.500 R.S. Mo., et seq.

Documentation of participation in a federal work authorization program is attached to this affidavit.

Signature

Printed Name: John P. Helms

Subscribed and sworn to before me this 20 day of March 2023.

Notary Public

My commission expires: 3-14-2032

JEFFREY MOSLEY
STATE OF ARKANSAS
NOTARY PUBLIC
#12718012
EXPIRES
MAR. 14, 2032
PULASKI COUNTY

E-VERIFY IS A SERVICE OF DHS AND SSA

Company ID Number: 2108028

THE E-VERIFY MEMORANDUM OF UNDERSTANDING FOR EMPLOYERS

ARTICLE I PURPOSE AND AUTHORITY

The parties to this agreement are the Department of Homeland Security (DHS) and Walden Chemical, Inc. (Employer). The purpose of this agreement is to set forth terms and conditions which the Employer will follow while participating in E-Verify.

E-Verify is a program that electronically confirms an employee's eligibility to work in the United States after completion of Form I-9, Employment Eligibility Verification (Form I-9). This Memorandum of Understanding (MOU) explains certain features of the E-Verify program and describes specific responsibilities of the Employer, the Social Security Administration (SSA), and DHS.

Authority for the E-Verify program is found in Title IV, Subtitle A, of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), Pub. L. 104-208, 110 Stat. 3009, as amended (8 U.S.C. § 1324a note). The Federal Acquisition Regulation (FAR) Subpart 22.18, "Employment Eligibility Verification" and Executive Order 12989, as amended, provide authority for Federal contractors and subcontractors (Federal contractor) to use E-Verify to verify the employment eligibility of certain employees working on Federal contracts.

ARTICLE II RESPONSIBILITIES

A. RESPONSIBILITIES OF THE EMPLOYER

1. The Employer agrees to display the following notices supplied by DHS in a prominent place that is clearly visible to prospective employees and all employees who are to be verified through the system:

   a. Notice of E-Verify Participation

   b. Notice of Right to Work

2. The Employer agrees to provide to the SSA and DHS the names, titles, addresses, and telephone numbers of the Employer representatives to be contacted about E-Verify. The Employer also agrees to keep such information current by providing updated information to SSA and DHS whenever the representatives' contact information changes.

3. The Employer agrees to grant E-Verify access only to current employees who need E-Verify access. Employers must promptly terminate an employee's E-Verify access if the employer is separated from the company or no longer needs access to E-Verify.

4. The Employer agrees to become familiar with and comply with the most recent version of the E-Verify User Manual.

5. The Employer agrees that any Employer Representative who will create E-Verify cases will complete the E-Verify Tutorial before that individual creates any cases.

a. The Employer agrees that all Employer representatives will take the refresher tutorials when prompted by E-Verify in order to continue using E-Verify. Failure to complete a refresher tutorial will prevent the Employer Representative from continued use of E-Verify.

6. The Employer agrees to comply with current Form I-9 procedures, with two exceptions:

a. If an employee presents a "List B" identity document, the Employer agrees to only accept "List B" documents that contain a photo. (List B documents identified in 8 C.F.R. § 274a.2(b)(1)(B)) can be presented during the Form I-9 process to establish identity.) If an employee objects to the photo requirement for religious reasons, the Employer should contact E-Verify at 888-464-4218.

b. If an employee presents a DHS Form I-551 (Permanent Resident Card), Form I-766 (Employment Authorization Document), or U.S. Passport or Passport Card to complete Form I-9, the Employer agrees to make a photocopy of the document and to retain the photocopy with the employee's Form I-9. The Employer will use the photocopy to verify the photo and to assist DHS with its review of photo mismatches that employees contest. DHS may in the future designate other documents that activate the photo screening tool.

Note: Subject only to the exceptions noted previously in this paragraph, employees still retain the right to present any List A, or List B and List C, document(s) to complete the Form I-9.

7. The Employer agrees to record the case verification number on the employee's Form I-9 or to print the screen containing the case verification number and attach it to the employee's Form I-9.

8. The Employer agrees that, although it participates in E-Verify, the Employer has a responsibility to complete, retain, and make available for inspection Forms I-9 that relate to its employees, or from other requirements of applicable regulations or laws, including the obligation to comply with the anti-discrimination requirements of section 274B of the INA with respect to Form I-9 procedures.

a. The following modified requirements are the only exceptions to an Employer's obligation to not employ unauthorized workers and comply with the anti-discrimination provision of the INA: (1) List B identity documents must have photos, as described in paragraph 6 above; (2) When an Employer confirms the identity and employment eligibility of newly hired employee using E-Verify procedures, the Employer establishes a rebuttable presumption that it has not violated section 274A(a)(1)(A) of the Immigration and Nationality Act (INA) with respect to the hiring of that employee; (3) If the Employer receives a final nonconfirmation for an employee, but continues to employ that person, the Employer must notify DHS and the Employer is subject to a civil money penalty between $550 and $1,100 for each failure to notify DHS of continued employment following a final nonconfirmation; (4) If the Employer continues to employ an employee after receiving a final nonconfirmation, then the Employer is subject to a rebuttable presumption that it has knowingly

employed an unauthorized alien in violation of section 274A(a)(1)(A); and (5) no E-Verify participant is civilly or criminally liable under any law for any action taken in good faith based on information provided through the E-Verify.

b. DHS reserves the right to conduct Form I-9 compliance inspections, as well as any other enforcement or compliance activity authorized by law, including site visits, to ensure proper use of E-Verify.

9. The Employer is strictly prohibited from creating an E-Verify case before the employee has been hired, meaning that a firm offer of employment was extended and accepted and Form I-9 was completed. The Employer agrees to create an E-Verify case for new employees within three Employer business days after each employee has been hired (after both Sections 1 and 2 of Form I-9 have been completed), and to complete as many steps of the E-Verify process as are necessary according to the E-Verify User Manual. If E-Verify is temporarily unavailable, the three-day time period will be extended until it is again operational in order to accommodate the Employer's attempting, in good faith, to make inquiries during the period of unavailability.

10. The Employer agrees not to use E-Verify for pre-employment screening of job applicants, in support of any unlawful employment practice, or for any other use that this MOU or the E-Verify User Manual does not authorize.

11. The Employer must use E-Verify for all new employees. The Employer will not verify selectively and will not verify employees hired before the effective date of this MOU. Employers who are Federal contractors may qualify for exceptions to this requirement as described in Article II.B of this MOU.

12. The Employer agrees to follow appropriate procedures (see Article III below) regarding tentative nonconfirmations. The Employer must promptly notify employees in private of the finding and provide them with the notice and letter containing information specific to the employee's E-Verify case. The Employer agrees to provide both the English and the translated notice and letter for employees with limited English proficiency to employees. The Employer agrees to provide written referral instructions to employees and instruct affected employees to bring the English copy of the letter to the SSA. The Employer must allow employees to contest the finding, and not take adverse action against employees if they choose to contest the finding, while their case is still pending. Further, when employees contest a tentative nonconfirmation based upon a photo mismatch, the Employer must take additional steps
(see Article III.B. below) to contact DHS with information necessary to resolve the challenge.

13. The Employer agrees not to take any adverse action against an employee based upon the employee's perceived employment eligibility status while SSA or DHS is processing the verification request unless the Employer obtains knowledge (as defined in 8 C.F.R. § 274a.1(l)) that the employee is not work authorized. The Employer understands that an initial inability of the SSA or DHS automated verification system to verify work authorization, a tentative nonconfirmation, a case in continuance
(indicating the need for additional time for the government to resolve a case), or the finding of a photo mismatch, does not establish, and should not be interpreted as, evidence that the employee is not work authorized. In any of such cases, the employee must be provided a full and fair opportunity to contest the finding, and if he or she does so, the employee may not be terminated or suffer any adverse employment consequences based upon the employee's perceived employment eligibility status

(including denying, reducing, or extending work hours, delaying or preventing training, requiring an employee to work in poorer conditions, withholding pay, refusing to assign the employee to a Federal contract or other assignment, or otherwise assuming that he or she is unauthorized to work) until and unless secondary verification by SSA or DHS has been completed and a final nonconfirmation has been issued. If the employee does not choose to contest a tentative nonconfirmation or a photo mismatch or if a secondary verification is completed and a final nonconfirmation is issued, then the Employer can find the employee is not work authorized and terminate the employee's employment. Employers or employees with questions about a final nonconfirmation may call E-Verify at 1-888-464-4218 (customer service) or 1-888-897-7781 (worker hotline).

14. The Employer agrees to comply with Title VII of the Civil Rights Act of 1964 and section 274B of the INA as applicable by not discriminating unlawfully against any individual in hiring, firing, employment eligibility verification, or recruitment or referral practices because of his or her national origin or citizenship status, or by committing discriminatory documentary practices. The Employer understands that such illegal practices can include selective verification or use of E-Verify except as provided in part D below, or discharging or refusing to hire employees because they appear or sound "foreign" or have received tentative nonconfirmations. The Employer further understands that any violation of the immigration-related unfair employment practices provisions in section 274B of the INA could subject the Employer to civil penalties, back pay awards, and other sanctions, and violations of Title VII could subject the Employer to back pay awards, compensatory and punitive damages. Violations of either section 274B of the INA or Title VII may also lead to the termination of its participation in E-Verify. If the Employer has any questions relating to the anti-discrimination provision, it should contact OSC at 1-800-255-8155 or 1-800-237-2515 (TDD).

15. The Employer agrees that it will use the information it receives from E-Verify only to confirm the employment eligibility of employees as authorized by this MOU. The Employer agrees that it will safeguard this information, and means of access to it (such as PINS and passwords), to ensure that it is not used for any other purpose and as necessary to protect its confidentiality, including ensuring that it is not disseminated to any person other than employees of the Employer who are authorized to perform the Employer's responsibilities under this MOU, except for such dissemination as may be authorized in advance by SSA or DHS for legitimate purposes.

16. The Employer agrees to notify DHS immediately in the event of a breach of personal information. Breaches are defined as loss of control or unauthorized access to E-Verify personal data. All suspected or confirmed breaches should be reported by calling 1-888-464-4218 or via email at E-Verify@uscis.dhs.gov. Please use "Privacy Incident – Password" in the subject line of your email when sending a breach report to E-Verify.

17. The Employer acknowledges that the information it receives from SSA is governed by the Privacy Act (5 U.S.C. § 552a(i)(1) and (3)) and the Social Security Act (42 U.S.C. 1306(a)). Any person who obtains this information under false pretenses or uses it for any purpose other than as provided for in this MOU may be subject to criminal penalties.

18. The Employer agrees to cooperate with DHS and SSA in their compliance monitoring and evaluation of E-Verify, which includes permitting DHS, SSA, their contractors and other agents, upon

reasonable notice, to review Forms I-9 and other employment records and to interview it and its employees regarding the Employer's use of E-Verify, and to respond in a prompt and accurate manner to DHS requests for information relating to their participation in E-Verify.

19. The Employer shall not make any false or unauthorized claims or references about its participation in E-Verify on its website, in advertising materials, or other media. The Employer shall not describe its services as federally-approved, federally-certified, or federally-recognized, or use language with a similar intent on its website or other materials provided to the public. Entering into this MOU does not mean that E-Verify endorses or authorizes your E-Verify services and any claim to that effect is false.

20. The Employer shall not state in its website or other public documents that any language used therein has been provided or approved by DHS, USCIS or the Verification Division, without first obtaining the prior written consent of DHS.

21. The Employer agrees that E-Verify trademarks and logos may be used only under license by DHS/USCIS (see M-795 (Web)) and, other than pursuant to the specific terms of such license, may not be used in any manner that might imply that the Employer's services, products, websites, or publications are sponsored by, endorsed by, licensed by, or affiliated with DHS, USCIS, or E-Verify.

22. The Employer understands that if it uses E-Verify procedures for any purpose other than as authorized by this MOU, the Employer may be subject to appropriate legal action and termination of its participation in E-Verify according to this MOU.

B. RESPONSIBILITIES OF FEDERAL CONTRACTORS

1. If the Employer is a Federal contractor with the FAR E-Verify clause subject to the employment verification terms in Subpart 22.18 of the FAR, it will become familiar with and comply with the most current version of the E-Verify User Manual for Federal Contractors as well as the E-Verify Supplemental Guide for Federal Contractors.

2. In addition to the responsibilities of every employer outlined in this MOU, the Employer understands that if it is a Federal contractor subject to the employment verification terms in Subpart 22.18 of the FAR it must verify the employment eligibility of any "employee assigned to the contract" (as defined in FAR 22.1801). Once an employee has been verified through E-Verify by the Employer, the Employer may not create a second case for the employee through E-Verify.

a. An Employer that is not enrolled in E-Verify as a Federal contractor at the time of a contract award must enroll as a Federal contractor in the E-Verify program within 30 calendar days of contract award and, within 90 days of enrollment, begin to verify employment eligibility of new hires using E-Verify. The Employer must verify those employees who are working in the United States, whether or not they are assigned to the contract. Once the Employer begins verifying new hires, such verification of new hires must be initiated within three business days after the hire date. Once enrolled in E-Verify as a Federal contractor, the Employer must begin verification of employees assigned to the contract within 90 calendar days after the date of enrollment or within 30 days of an employee's assignment to the contract, whichever date is later.

b. Employers enrolled in E-Verify as a Federal contractor for 90 days or more at the time of a contract award must use E-Verify to begin verification of employment eligibility for new hires of the Employer who are working in the United States, whether or not assigned to the contract, within three business days after the date of hire. If the Employer is enrolled in E-Verify as a Federal contractor for 90 calendar days or less at the time of contract award, the Employer must, within 90 days of enrollment, begin to use E-Verify to initiate verification of new hires of the contractor who are working in the United States, whether or not assigned to the contract. Such verification of new hires must be initiated within three business days after the date of hire. An Employer enrolled as a Federal contractor in E-Verify must begin verification of each employee assigned to the contract within 90 calendar days after date of contract award or within 30 days after assignment to the contract, whichever is later.

c. Federal contractors that are institutions of higher education (as defined at 20 U.S.C. 1001(a)), state or local governments, governments of Federally recognized Indian tribes, or sureties performing under a takeover agreement entered into with a Federal agency under a performance bond may choose to only verify new and existing employees assigned to the Federal contract. Such Federal contractors may, however, elect to verify all new hires, and/or all existing employees hired after November 6, 1986. Employers in this category must begin verification of employees assigned to the contract within 90 calendar days after the date of enrollment or within 30 days of an employee's assignment to the contract, whichever date is later.

d. Upon enrollment, Employers who are Federal contractors may elect to verify employment eligibility of all existing employees working in the United States who were hired after November 6, 1986, instead of verifying only those employees assigned to a covered Federal contract. After enrollment, Employers must elect to verify existing staff following DHS procedures and begin

E-Verify verification of all existing employees within 180 days after the election.

e. The Employer may use a previously completed Form I-9 as the basis for creating an E-Verify case for an employee assigned to a contract as long as:

i. That Form I-9 is complete (including the SSN) and complies with Article II.A.6,

ii. The employee's work authorization has not expired, and

iii. The Employer has reviewed the Form I-9 information either in person or in communications with the employee to ensure that the employee's Section 1, Form I-9 attestation has not changed (including, but not limited to, a lawful permanent resident alien having become a naturalized U.S. citizen).

f. The Employer shall complete a new Form I-9 consistent with Article II.A.6 or update the previous Form I-9 to provide the necessary information if:

i. The Employer cannot determine that Form I-9 complies with Article II.A.6,

ii. The employee's basis for work authorization as attested in Section 1 has expired or changed, or

iii. The Form I-9 contains no SSN or is otherwise incomplete.

Note: If Section 1 of Form I-9 is otherwise valid and up-to-date and the form otherwise complies with

Article II.C.5, but reflects documentation (such as a U.S. passport or Form I-551) that expired after completing Form I-9, the Employer shall not require the production of additional documentation, or use the photo screening tool described in Article II.A.5, subject to any additional or superseding instructions that may be provided on this subject in the E-Verify User Manual.

g. The Employer agrees not to require a second verification using E-Verify of any assigned employee who has previously been verified as a newly hired employee under this MOU or to authorize verification of any existing employee by any Employer that is not a Federal contractor based on this Article.

3. The Employer understands that if it is a Federal contractor, its compliance with this MOU is a performance requirement under the terms of the Federal contract or subcontract, and the Employer consents to the release of information relating to compliance with its verification responsibilities under this MOU to contracting officers or other officials authorized to review the Employer's compliance with Federal contracting requirements.

C. RESPONSIBILITIES OF SSA

1. SSA agrees to allow DHS to compare data provided by the Employer against SSA's database. SSA sends DHS confirmation that the data sent either matches or does not match the information in SSA's database.

2. SSA agrees to safeguard the information the Employer provides through E-Verify procedures. SSA also agrees to limit access to such information, as is appropriate by law, to individuals responsible for the verification of Social Security numbers or responsible for evaluation of E-Verify or such other persons or entities who may be authorized by SSA as governed by the Privacy Act (5 U.S.C. § 552a), the Social Security Act (42 U.S.C. 1306(a)), and SSA regulations (20 CFR Part 401).

3. SSA agrees to provide case results from its database within three Federal Government work days of the initial inquiry. E-Verify provides the information to the Employer.

4. SSA agrees to update SSA records as necessary if the employee who contests the SSA tentative nonconfirmation visits an SSA field office and provides the required evidence. If the employee visits an SSA field office within the eight Federal Government work days from the date of referral to SSA, SSA agrees to update SSA records, if appropriate, within the eight-day period unless SSA determines that more than eight days may be necessary. In such cases, SSA will provide additional instructions to the employee. If the employee does not visit SSA in the time allowed, E-Verify may provide a final nonconfirmation to the employer.

Note: If an Employer experiences technical problems, or has a policy question, the employer should contact E-Verify at 1-888-464-4218.

D. RESPONSIBILITIES OF DHS

1. DHS agrees to provide the Employer with selected data from DHS databases to enable the Employer to conduct, to the extent authorized by this MOU:

a. Automated verification checks on alien employees by electronic means, and

b. Photo verification checks (when available) on employees.

2. DHS agrees to assist the Employer with operational problems associated with the Employer's participation in E-Verify. DHS agrees to provide the Employer names, titles, addresses, and telephone numbers of DHS representatives to be contacted during the E-Verify process.

3. DHS agrees to provide to the Employer with access to E-Verify training materials as well as an E-Verify User Manual that contain instructions on E-Verify policies, procedures, and requirements for both SSA and DHS, including restrictions on the use of E-Verify.

4. DHS agrees to train Employers on all important changes made to E-Verify through the use of mandatory refresher tutorials and updates to the E-Verify User Manual. Even without changes to E-Verify, DHS reserves the right to require employers to take mandatory refresher tutorials.

5. DHS agrees to provide to the Employer a notice, which indicates the Employer's participation in E-Verify. DHS also agrees to provide to the Employer anti-discrimination notices issued by the Office of Special Counsel for Immigration-Related Unfair Employment Practices (OSC), Civil Rights Division, U.S. Department of Justice.

6. DHS agrees to issue each of the Employer's E-Verify users a unique user identification number and password that permits them to log in to E-Verify.

7. DHS agrees to safeguard the information the Employer provides, and to limit access to such information to individuals responsible for the verification process, for evaluation of E-Verify, or to such other persons or entities as may be authorized by applicable law. Information will be used only to verify the accuracy of Social Security numbers and employment eligibility, to enforce the INA and Federal criminal laws, and to administer Federal contracting requirements.

8. DHS agrees to provide a means of automated verification that provides (in conjunction with SSA verification procedures) confirmation or tentative nonconfirmation of employees' employment eligibility within three Federal Government work days of the initial inquiry.

9. DHS agrees to provide a means of secondary verification (including updating DHS records) for employees who contest DHS tentative nonconfirmations and photo mismatch tentative nonconfirmations. This provides final confirmation or nonconfirmation of the employees' employment eligibility within 10 Federal Government work days of the date of referral to DHS, unless DHS determines that more than 10 days may be necessary. In such cases, DHS will provide additional verification instructions.

ARTICLE III
REFERRAL OF INDIVIDUALS TO SSA AND DHS

A. REFERRAL TO SSA

1. If the Employer receives a tentative nonconfirmation issued by SSA, the Employer must print the notice as directed by E-Verify. The Employer must promptly notify employees in private of the finding and provide them with the notice and letter containing information specific to the employee's E-Verify case.

The Employer also agrees to provide both the English and the translated notice and letter for employees with limited English proficiency to employees. The Employer agrees to provide written referral instructions to employees and instruct affected employees to bring the English copy of the letter to the SSA. The Employer must allow employees to contest the finding, and not take adverse action against employees if they choose to contest the finding, while their case is still pending.

2. The Employer agrees to obtain the employee's response about whether he or she will contest the tentative nonconfirmation as soon as possible after the Employer receives the tentative nonconfirmation. Only the employee may determine whether he or she will contest the tentative nonconfirmation.

3. After a tentative nonconfirmation, the Employer will refer employees to SSA field offices only as directed by E-Verify. The Employer must record the case verification number, review the employee information submitted to E-Verify to identify any errors, and find out whether the employee contests the tentative nonconfirmation. The Employer will transmit the Social Security number, or any other corrected employee information that SSA requests, to SSA for verification again if this review indicates a need to do so.

4. The Employer will instruct the employee to visit an SSA office within eight Federal Government work days. SSA will electronically transmit the result of the referral to the Employer within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary.

5. While waiting for case results, the Employer agrees to check the E-Verify system regularly for case updates.

6. The Employer agrees not to ask the employee to obtain a printout from the Social Security Administration number database (the Numident) or other written verification of the SSN from the SSA.

B. REFERRAL TO DHS

1. If the Employer receives a tentative nonconfirmation issued by DHS, the Employer must promptly notify employees in private of the finding and provide them with the notice and letter containing information specific to the employee's E-Verify case. The Employer also agrees to provide both the English and the translated notice and letter for employees with limited English proficiency to employees. The Employer must allow employees to contest the finding, and not take adverse action against employees if they choose to contest the finding, while their case is still pending.

2. The Employer agrees to obtain the employee's response about whether he or she will contest the tentative nonconfirmation as soon as possible after the Employer receives the tentative nonconfirmation. Only the employee may determine whether he or she will contest the tentative nonconfirmation.

3. The Employer agrees to refer individuals to DHS only when the employee chooses to contest a tentative nonconfirmation.

4. If the employee contests a tentative nonconfirmation issued by DHS, the Employer will instruct the

employee to contact DHS through its toll-free hotline (as found on the referral letter) within eight Federal Government work days.

5. If the Employer finds a photo mismatch, the Employer must provide the photo mismatch tentative nonconfirmation notice and follow the instructions outlined in paragraph 1 of this section for tentative nonconfirmations, generally.

6. The Employer agrees that if an employee contests a tentative nonconfirmation based upon a photo mismatch, the Employer will send a copy of the employee's Form I-551, Form I-766, U.S. Passport, or passport card to DHS for review by:

   a. Scanning and uploading the document, or

   b. Sending a photocopy of the document by express mail (furnished and paid for by the employer).

7. The Employer understands that if it cannot determine whether there is a photo match/mismatch, the Employer must forward the employee's documentation to DHS as described in the preceding paragraph. The Employer agrees to resolve the case as specified by the DHS representative who will determine the photo match or mismatch.

8. DHS will electronically transmit the result of the referral to the Employer within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary.

9. While waiting for case results, the Employer agrees to check the E-Verify system regularly for case updates.

ARTICLE IV
SERVICE PROVISIONS

A. NO SERVICE FEES

1. SSA and DHS will not charge the Employer for verification services performed under this MOU. The Employer is responsible for providing equipment needed to make inquiries. To access E-Verify, an Employer will need a personal computer with Internet access.

ARTICLE V
MODIFICATION AND TERMINATION

A. MODIFICATION

1. This MOU is effective upon the signature of all parties and shall continue in effect for as long as the SSA and DHS operates the E-Verify program unless modified in writing by the mutual consent of all parties.

2. Any and all E-Verify system enhancements by DHS or SSA, including but not limited to E-Verify checking against additional data sources and instituting new verification policies or procedures, will be covered under this MOU and will not cause the need for a supplemental MOU that outlines these changes.

B. TERMINATION

1. The Employer may terminate this MOU and its participation in E-Verify at any time upon 30 days prior written notice to the other parties.

2. Notwithstanding Article V, part A of this MOU, DHS may terminate this MOU, and thereby the Employer's participation in E-Verify, with or without notice at any time if deemed necessary because of the requirements of law or policy, or upon a determination by SSA or DHS that there has been a breach of system integrity or security by the Employer, or a failure on the part of the Employer to comply with established E-Verify procedures and/or legal requirements. The Employer understands that if it is a Federal contractor, termination of this MOU by any party for any reason may negatively affect the performance of its contractual responsibilities. Similarly, the Employer understands that if it is in a state where E-Verify is mandatory, termination of this by any party MOU may negatively affect the Employer's business.

3. An Employer that is a Federal contractor may terminate this MOU when the Federal contract that requires its participation in E-Verify is terminated or completed. In such cases, the Federal contractor must provide written notice to DHS. If an Employer that is a Federal contractor fails to provide such notice, then that Employer will remain an E-Verify participant, will remain bound by the terms of this MOU that apply to non-Federal contractor participants, and will be required to use the E-Verify procedures to verify the employment eligibility of all newly hired employees.

4. The Employer agrees that E-Verify is not liable for any losses, financial or otherwise, if the Employer is terminated from E-Verify.

ARTICLE VI
PARTIES

A. Some or all SSA and DHS responsibilities under this MOU may be performed by contractor(s), and SSA and DHS may adjust verification responsibilities between each other as necessary. By separate agreement with DHS, SSA has agreed to perform its responsibilities as described in this MOU.

B. Nothing in this MOU is intended, or should be construed, to create any right or benefit, substantive or procedural, enforceable at law by any third party against the United States, its agencies, officers, or employees, or against the Employer, its agents, officers, or employees.

C. The Employer may not assign, directly or indirectly, whether by operation of law, change of control or merger, all or any part of its rights or obligations under this MOU without the prior written consent of DHS, which consent shall not be unreasonably withheld or delayed. Any attempt to sublicense, assign, or transfer any of the rights, duties, or obligations herein is void.

D. Each party shall be solely responsible for defending any claim or action against it arising out of or related to E-Verify or this MOU, whether civil or criminal, and for any liability wherefrom, including (but not limited to) any dispute between the Employer and any other person or entity regarding the applicability of Section 403(d) of IIRIRA to any action taken or allegedly taken by the Employer.

E. The Employer understands that its participation in E-Verify is not confidential information and may be disclosed as authorized or required by law and DHS or SSA policy, including but not limited to, Congressional oversight, E-Verify publicity and media inquiries, determinations of compliance with Federal contractual requirements, and responses to inquiries under the Freedom of Information Act (FOIA).

F. The individuals whose signatures appear below represent that they are authorized to enter into this MOU on behalf of the Employer and DHS respectively. The Employer understands that any inaccurate statement, representation, data or other information provided to DHS may subject the Employer, its subcontractors, its employees, or its representatives to: (1) prosecution for false statements pursuant to 18 U.S.C. 1001 and/or; (2) immediate termination of its MOU and/or; (3) possible debarment or suspension.

G. The foregoing constitutes the full agreement on this subject between DHS and the Employer.

To be accepted as an E-Verify participant, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify at 1-888-464-4218.

E-VERIFY IS A SERVICE OF DHS AND SSA

Company ID Number: 2108028

Approved by:

Employer Walden Chemical, Inc.	
Name (Please Type or Print) Phil Helms	**Title**
Signature Electronically Signed	**Date** 03/20/2023
Department of Homeland Security – Verification Division	
Name (Please Type or Print) USCIS Verification Division	**Title**
Signature Electronically Signed	**Date** 03/20/2023

E-VERIFY IS A SERVICE OF DHS AND SSA

Company ID Number: 2108028

Information Required for the E-Verify Program	
Information relating to your Company:	
Company Name	Walden Chemical, Inc.
Company Facility Address	11421 Stagecoach Rd. #1400 Little Rock, AR 72210
Company Alternate Address	
County or Parish	PULASKI
Employer Identification Number	710612506
North American Industry Classification Systems Code	541
Parent Company	
Number of Employees	5 to 9
Number of Sites Verified for	1 site(s)

Company ID Number: 2108028

Are you verifying for more than 1 site? If yes, please provide the number of sites verified for in each State:

AR	1

E-VERIFY IS A SERVICE OF DHS AND SSA

Company ID Number: 2108028

Information relating to the Program Administrator(s) for your Company on policy questions or operational problems:

Name	Phil Helms
Phone Number	5019440586
Fax	
Email	phil@bluewatercas.com

E-Verify

E-VERIFY IS A SERVICE OF DHS AND SSA

Company ID Number: 2108028

This list represents the first 20 Program Administrators listed for this company.

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-12 An Ordinance of the City Council Vacating Approximately Six Thousand Nine Hundred and Twelve (6,912) Square Feet of Unoccupied Utility Easements in the Republic Storage LLC Subdivision.
Submitted By:	Chris Tabor, Principal Planner
Date:	April 11, 2023

Issue Statement

The BUILDS Department is requesting the vacation of approximately (6,912) square feet of unoccupied Utility Easements in the Republic Storage LLC Subdivision.

Discussion and/or Analysis

The BUILDS Department is requesting the vacation of approximately (6,912) square feet of utility easement currently present on the site of the Republic Storage LLC Subdivision.

The vacated portion of the property will be returned to the owner of the underlying land and will be incorporated into the development of the Republic Storage LLC Subdivision.

The City has no utilities occupying these easements and no plans for future utilities to occupy these easements. It has been determined that their holding is no longer necessary.

The following contains brief analyses of present site conditions as well as the proposal's relationship to adopted plans of the City:

Transportation: The proposal has no anticipated adverse impact on the City's transportation system.

Land Use: The proposal has positive development impact to adjacent properties.

Municipal Utilities: The proposal has no anticipated adverse impact on the City's water, wastewater, or stormwater systems currently in place.

Other Public Services: The proposal is not anticipated to have any impact on any other public services.

Emergency Services: The proposal has no anticipated impact on emergency services.

Recommended Action

The BUILDS Department recommends approval of the requested Utility Easement Vacation.

AN ORDINANCE OF THE CITY COUNCIL VACATING APPROXIMATELY SIX THOUSAND NINE HUNDRED AND TWELVE (6,912) SQUARE FEET OF UNOCCUPIED UTILITY EASEMENTS IN THE REPUBLIC STORAGE LLC SUBDIVISION

WHEREAS, the City of Republic, Missouri, ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, the City has requested that Council vacate approximately six thousand nine hundred and twelve (6,912) square feet of unoccupied Utility Easements in the Republic Storage LLC Subdivision ("Proposed Vacated Area"); and

WHEREAS, the Proposed Vacated Area, which runs contiguously across two parcels of real property located adjacent to one another within City limits, is more fully identified in the legal descriptions as follows:

Description #1:

VACATING A PART OF THE EXISTING 10-FOOT WIDE UTILITY EASEMENTS AS SHOWN ON THE MINOR SUBDIVISION FOR ROBERT MARK TROUT AND JULIE A. TROUT RECORDED IN PLAT BOOK ZZ, AT PAGE 291 WHERE THEY CROSS LOT 2 OF THE MINOR SUBDIVISION OF REPUBLIC STORAGE, LLC, RECORDED IN PLAT BOOK AAA, AT PAGE 856, BEING A PART OF THE PROPERTY DESCRIBED IN BOOK 2021, AT PAGE 047578-21 AND BOOK 2022, AT PAGE 033829-22 AND BEING A PART OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHWEST QUARTER (SW1/4) OF SECTION 17, TOWNSHIP 28 NORTH, RANGE 23 WEST, REPUBLIC, GREENE COUNTY, MISSOURI, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT AN EXISTING 5/8" IRON BAR (LS 1911), AT THE SOUTHEAST CORNER OF SAID NW1/4, SW1/4; ALSO BEING THE MOST SOUTHEAST CORNER OF LOT 1 IN SAID MINOR SUBDIVISION OF REPUBLIC STORAGE, LLC AND THE SOUTHEAST CORNER OF TRACT 2 OF SAID TROUT MINOR SUBDIVISION; THENCE N88°33'15"W, ALONG THE SOUTH LINE OF SAID NW1/4, SW1/4, AND THE SOUTH LINE OF SAID LOT 1 AND SAID TRACT 2, A DISTANCE OF 1,105.44 FEET, TO THE SOUTHEAST CORNER OF TRACT 1 OF SAID TROUT MINOR SUBDIVISION; THENCE N02°24'30"E, ALONG THE EAST LINE OF SAID TRACT 1, A DISTANCE OF 35.00 FEET TO THE POINT OF BEGINNING; THENCE N88°33'15"W, LEAVING SAID EAST LINE, A DISTANCE OF 10.00 FEET; THENCE N02°24'30"E, A DISTANCE OF 101.96 FEET, TO A POINT ON THE NORTH LINE OF SAID TRACT 1; THENCE S88°32'07"E, ALONG THE NORTH LINE OF SAID TRACT 1, A DISTANCE OF 10.00 FEET, TO THE NORTHEAST CORNER OF SAID TRACT 1; THENCE S02°24'30"W, LEAVING SAID NORTH LINE, AND ALONG SAID EAST LINE OF TRACT 1, A DISTANCE OF 101.96 FEET, TO THE POINT OF BEGINNING, CONTAINING 1,020 SQUARE FEET, MORE OR LESS, SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS, AND RESTRICTIONS OF RECORD.

ALSO

COMMENCING AT AN EXISTING 5/8" IRON BAR (LS 1911), AT THE SOUTHEAST CORNER OF SAID NW1/4, SW1/4; ALSO BEING THE MOST SOUTHEAST CORNER OF LOT 1 IN SAID MINOR SUBDIVISION OF REPUBLIC STORAGE, LLC AND THE

SOUTHEAST CORNER OF TRACT 2 OF SAID TROUT MINOR SUBDIVISION; THENCE N88°33'15"W, ALONG THE SOUTH LINE OF SAID NW1/4, SW1/4, AND THE SOUTH LINE OF SAID LOT 1, A DISTANCE OF 1,278.97 FEET; THENCE N02°51'12"E, LEAVING SAID SOUTH LINE, A DISTANCE OF 35.01 FEET, TO THE POINT OF BEGINNING; THENCE N88°33'15"W, A DISTANCE OF 10.00 FEET, TO A POINT ON THE EAST RIGHT-OF-WAY LINE OF MAIN STREET, AS SHOWN ON SAID TROUT MINOR SUBDIVISION; THENCE N02°51'12"E, ALONG SAID EAST RIGHT-OF-WAY LINE, A DISTANCE OF 152.07 FEET, TO A POINT ON THE NORTH LINE OF SAID TRACT 2 OF SAID TROUT MINOR SUBDIVISION; THENCE S88°33'15"E, LEAVING SAID EAST RIGHT-OF-WAY LINE, AND ALONG SAID NORTH LINE OF TRACT 2, A DISTANCE OF 10.00 FEET; THENCE S02°51'12"W, LEAVING SAID NORTH LINE, A DISTANCE OF 152.07 FEET, TO THE POINT OF BEGINNING, CONTAINING 1,521 SQUARE FEET, MORE OR LESS, SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS, AND RESTRICTIONS OF RECORD.

Description #2:

VACATING A PART OF THE EXISTING 10-FOOT WIDE UTILITY EASEMENTS AS SHOWN ON THE MINOR SUBDIVISION FOR ROBERT MARK TROUT AND JULIE A. TROUT RECORDED IN PLAT BOOK ZZ, AT PAGE 291 WHERE THEY CROSS LOT 1 OF THE MINOR SUBDIVISION OF REPUBLIC STORAGE, LLC, RECORDED IN PLAT BOOK AAA, AT PAGE 856, ALSO BEING DESCRIBED IN BOOK 2022, AT PAGE 051904-22 AND BEING A PART OF THE NORTHWEST QUARTER (NW1/4) OF THE SOUTHWEST QUARTER (SW1/4) OF SECTION 17, TOWNSHIP 28 NORTH, RANGE 23 WEST, REPUBLIC, GREENE COUNTY, MISSOURI, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN EXISTING 5/8" IRON BAR (LS 1911), AT THE SOUTHEAST CORNER OF SAID NW1/4, SW1/4; ALSO BEING THE MOST SOUTHEAST CORNER OF SAID LOT 1 AND THE SOUTHEAST CORNER OF TRACT 2 IN SAID TROUT MINOR SUBDIVISION; THENCE N88°33'15"W, ALONG THE SOUTH LINE OF SAID NW1/4, SW1/4, AND THE SOUTH LINE OF SAID LOT 1 AND THE SOUTH LINE OF TRACT 2, A DISTANCE OF 10.00 FEET; THENCE N02°29'36"E, LEAVING SAID SOUTH LINE, A DISTANCE OF 332.09 FEET TO THE NORTH LINE OF SAID LOT 1 , THE NORTH LINE OF SAID TRACT 2 AND THE NORTH LINE OF THE SOUTH HALF (S1/2) OF THE SOUTH HALF (S1/2) OF SAID NW1/4, SW1/4; THENCE S88°33'21"E, ALONG SAID NORTH LINE, A DISTANCE OF 10.00 FEET TO AN EXISTING 5/8" IRON BAR (LS 2153) MARKING THE MOST NORTHEAST CORNER OF SAID LOT 1, AND THE NORTHEAST CORNER OF SAID TRACT 2, ALSO BEING A POINT ON THE EAST LINE OF SAID NW1/4, SW1/4; THENCE S02°29'36"W, LEAVING SAID NORTH LINE AND ALONG SAID EAST LINE, A DISTANCE OF 332.09 FEET, TO THE POINT OF BEGINNING, CONTAINING 3,321 SQUARE FEET, MORE OR LESS, SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS, AND RESTRICTIONS OF RECORD.

ALSO

COMMENCING AT AN EXISTING 5/8" IRON BAR (LS 1911), AT THE SOUTHEAST CORNER OF SAID NW 1/4, SW 1/4; ALSO BEING THE MOST SOUTHEAST CORNER OF SAID LOT 1 AND THE SOUTHEAST CORNER OF TRACT 2 IN SAID TROUT MINOR SUBDIVISION; THENCE N88°33'15"W, ALONG THE SOUTH LINE OF SAID NW 1/4, SW 1/4, AND THE SOUTH LINE OF SAID LOT 1 AND TRACT 2, A DISTANCE OF 1,105.44 FEET, TO THE SOUTHEAST CORNER OF TRACT 1 IN SAID TROUT MINOR

SUBDIVISION, FOR THE POINT OF BEGINNING; THENCE N88°33'15"W, CONTINUING ALONG SAID SOUTH LINE, AND THE SOUTH LINE OF SAID LOT 1 AND TRACT 1, A DISTANCE OF 10.00 FEET; THENCE N02°24'30"E, LEAVING SAID SOUTH LINE, A DISTANCE OF 35.00 FEET; THENCE S88°33'15"E, A DISTANCE OF 10.00 FEET, TO A POINT ON THE EAST LINE OF SAID TRACT 1; THENCE S02°24'30"W, ALONG THE EAST LINE OF SAID TRACT 1, A DISTANCE OF 35.00 FEET, TO THE POINT OF BEGINNING, CONTAINING 350 SQUARE FEET, MORE OR LESS, SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS, AND RESTRICTIONS OF RECORD.

ALSO

COMMENCING AT AN EXISTING 5/8" IRON BAR (LS 1911), AT THE SOUTHEAST CORNER OF SAID NW 1/4, SW 1/4; ALSO BEING THE MOST SOUTHEAST CORNER OF SAID LOT 1 AND THE SOUTHEAST CORNER OF TRACT 2 IN SAID TROUT MINOR SUBDIVISION; THENCE N88°33'15"W, ALONG THE SOUTH LINE OF SAID NW1/4, SW1/4, AND THE SOUTH LINE OF SAID LOT 1 AND SAID TRACT 2 AND TRACT 1 IN SAID TROUT MINOR SUBDIVISION, A DISTANCE OF 1,278.97 FEET, TO THE POINT OF BEGINNING; THENCE N88°33'15"W, CONTINUING ALONG SAID SOUTH LINE OF SAID LOT 1 AND TRACT 1, A DISTANCE OF 10.00 FEET, TO A POINT ON THE EAST RIGHT-OF-WAY LINE OF MAIN STREET, AS SHOWN ON SAID TROUT MINOR SUBDIVISION; THENCE N02°51'12"E, LEAVING SAID SOUTH LINE, AND ALONG SAID EAST RIGHT-OF-WAY LINE, A DISTANCE OF 35.01 FEET; THENCE S88°33'15"E, LEAVING SAID EAST RIGHT-OF-WAY LINE, A DISTANCE OF 10.00 FEET; THENCE S02°51'12"W, A DISTANCE OF 35.01 FEET, TO THE POINT OF BEGINNING, CONTAINING 350 SQUARE FEET, MORE OR LESS, SUBJECT TO ANY RIGHTS-OF-WAY, EASEMENTS, AND RESTRICTIONS OF RECORD.

WHEREAS, the City previously submitted its application to vacate the Proposed Vacated Area to the Planning and Zoning Commission ("P&Z Commission"), which then set a public hearing on the application for March 13, 2023; and

WHEREAS, a notice of the time and date of the public hearing was given by publication on February 22, 2023 in the *Greene County Commonwealth*, a newspaper of general circulation in the City, at least fifteen (15) days in advance of the public hearing; and

WHEREAS, the City gave notice of the public hearing to the record owners of all properties adjacent to the Proposed Vacated Area and to all record owners within 185 feet of the Parcel; and

WHEREAS, on March 13, 2023, the P&Z Commission conducted the public hearing on the City's application; and after which the P&Z Commission rendered written findings and submitted the same, together with its recommendations, to the City Council; and

WHEREAS, the P&Z Commission submitted written findings to the City Council recommending approval of the application to vacate by a vote of five (5) Ayes to zero (0) Nays; and

WHEREAS, the request to vacate was first presented to the City Council at its regular meeting on March 21, 2023, and was again presented for its final read to the City Council at its regular meeting on April 4, 2023, at which time the Council approved the vacation of the Proposed Vacated Area, as requested in the initial application and as recommended by the P&Z Commission.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1: The approximately six thousand nine hundred and twelve (6,912) square feet of unoccupied Utility Easements in the Republic Storage LLC Subdivision, fully described in the Legal Descriptions herein above, is hereby vacated, and the same shall revert to the affected owner(s) in the same proportion(s) as it was originally taken.

Section 2: The City Clerk is hereby directed to record a certified copy of this Ordinance with the Recorder of Deeds for Greene County, Missouri.

Section 3: The whereas clauses are hereby specifically incorporated herein by reference.

Section 4: The provisions of this Ordinance are severable, and if any provision hereof is declared invalid, unconstitutional, or unenforceable, such determination shall not affect the validity of the remainder of this Ordinance.

Section 5: This Ordinance shall take effect and be in force from and after its passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Matt Russell, Mayor

Attest:

_____
Laura Burbridge, City Clerk

Approved as to Form:

_____
Megan McCullough, City Attorney

Final Passage and Vote:

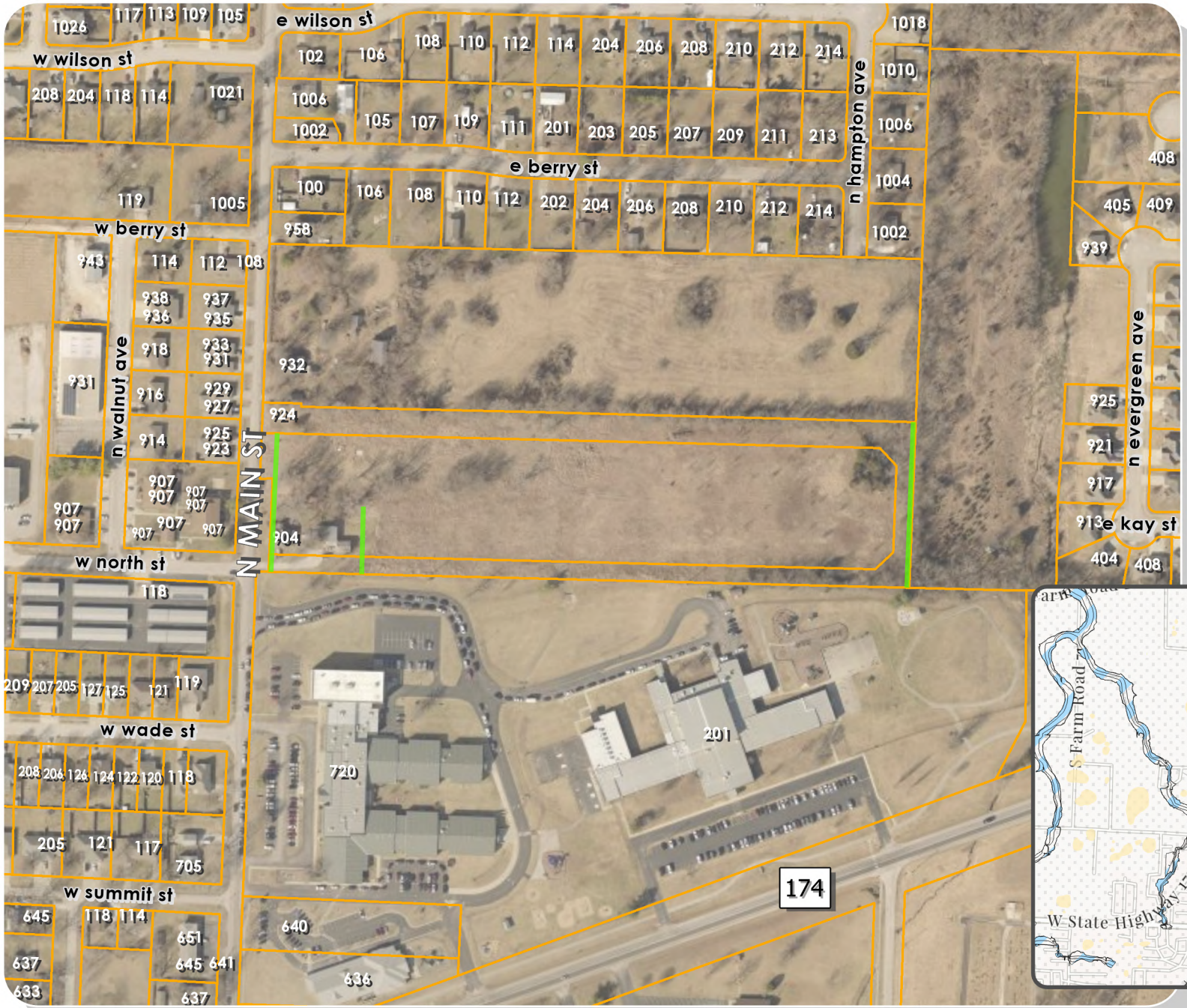
REPUBLIC MISSOURI

Project
Easement Vacation

Zoning
R1-Z

Requested Zoning
N/A

Acreage
0.2



0 260 520 Feet

VACA 23-002

Sinkholes
Floodplain
City Limits
Parcels Greene County

EXHIBIT A

Vacating a part of the existing 10-foot wide utility easements as shown on the Minor Subdivision for Robert Mark Trout and Julie A. Trout recorded in Plat Book ZZ, at Page 291 where they cross Lot 2 of the Minor Subdivision of Republic Storage, LLC, recorded in Plat Book AAA, at Page 856, being a part of the property described in Book 2021, at Page 047578-21 and Book 2022, at Page 033829-22 and being a part of the Northwest Quarter (NW1/4) of the Southwest Quarter (SW1/4) of Section 17, Township 28 North, Range 23 West, Republic, Greene County, Missouri, being more particularly described as follows:

COMMENCING at an existing 5/8" iron bar (LS 1911), at the Southeast corner of said NW1/4, SW1/4; also being the most Southeast corner of Lot 1 in said Minor Subdivision of Republic Storage, LLC and the Southeast corner of Tract 2 of said Trout Minor Subdivision; Thence N88°33'15"W, along the South line of said NW1/4, SW1/4, and the South line of said Lot 1 and said Tract 2, a distance of 1,105.44 feet, to the Southeast corner of Tract 1 of said Trout Minor Subdivision; Thence N02°24'30"E, along the East line of said Tract 1, a distance of 35.00 feet to the POINT OF BEGINNING; Thence N88°33'15"W, leaving said East line, a distance of 10.00 feet; Thence N02°24'30"E, a distance of 101.96 feet, to a point on the North line of said Tract 1; Thence S88°32'07"E, along the North line of said Tract 1, a distance of 10.00 feet, to the Northeast corner of said Tract 1; Thence S02°24'30"W, leaving said North line, and along said East line of Tract 1, a distance of 101.96 feet, to the POINT OF BEGINNING, containing 1,020 square feet, more or less, subject to any rights-of-way, easements, and restrictions of record.

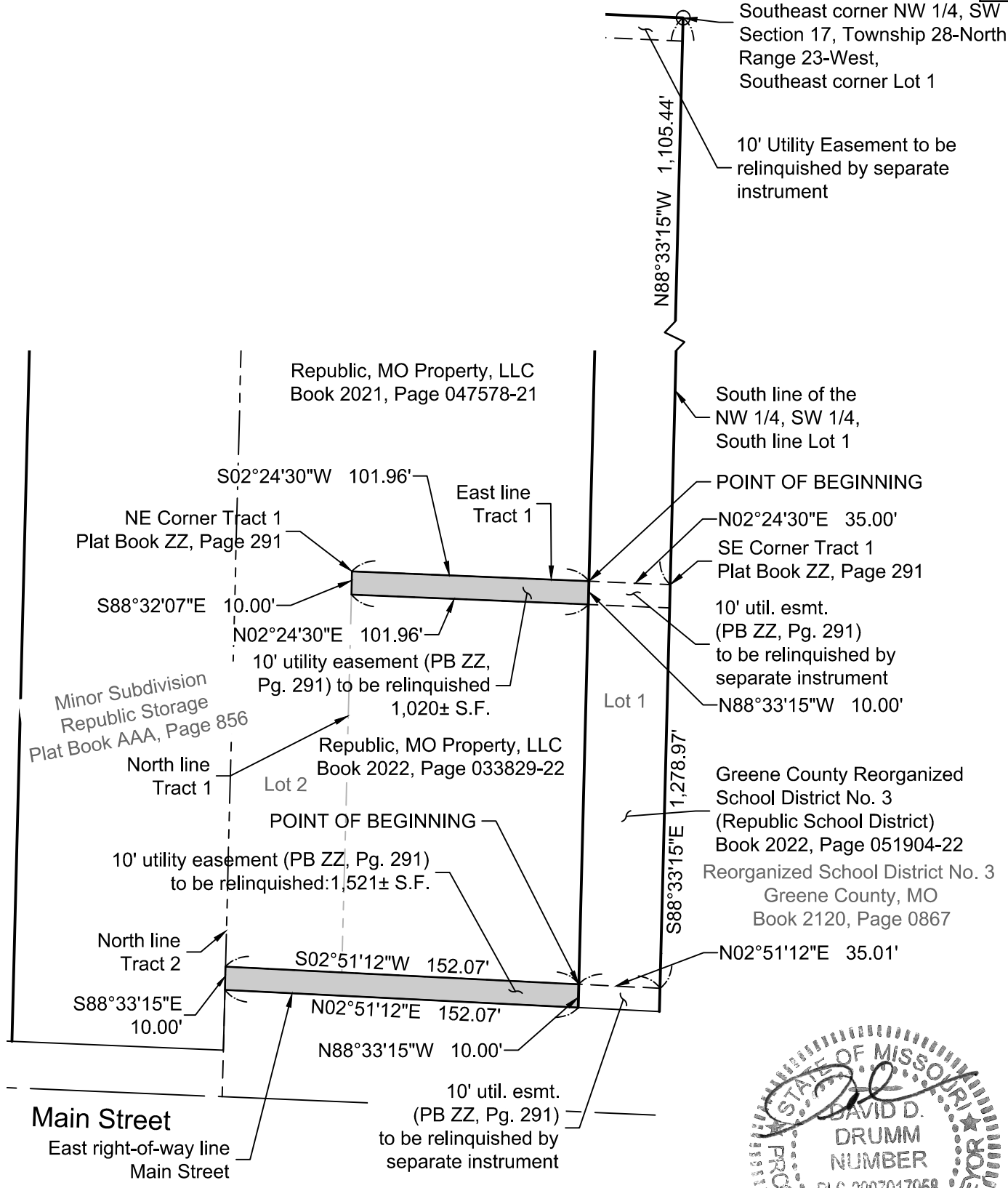
Also

COMMENCING at an existing 5/8” iron bar (LS 1911), at the Southeast corner of said NW1/4, SW1/4; also being the most Southeast corner of Lot 1 in said Minor Subdivision of Republic Storage, LLC and the Southeast corner of Tract 2 of said Trout Minor Subdivision; Thence N88°33’15”W, along the South line of said NW1/4, SW1/4, and the South line of said Lot 1, a distance of 1,278.97 feet; Thence N02°51’12”E, leaving said South line, a distance of 35.01 feet, to the POINT OF BEGINNING; Thence N88°33’15”W, a distance of 10.00 feet, to a point on the East right-of-way line of Main Street, as shown on said Trout Minor Subdivision; Thence N02°51’12”E, along said East right-of-way line, a distance of 152.07 feet, to a point on the North line of said Tract 2 of said Trout Minor Subdivision; Thence S88°33’15”E, leaving said East right-of-way line, and along said North line of Tract 2, a distance of 10.00 feet; Thence S02°51’12”W, leaving said North line, a distance of 152.07 feet, to the POINT OF BEGINNING, containing 1,521 square feet, more or less, subject to any rights-of-way, easements, and restrictions of record.

Prepared by: Olsson, Inc.
Survey MO Certificate of Authority #LC366
550 St. Louis Street
Springfield MO 65806
Tel 417.890.8802
Prepared for: Republic Storage, LLC
Project No.: 022-04236

02-14-2023

Digitally signed by David D. Drumm
Date: 2023.02.14 16:48:34-06'00'



STATE OF MISSOURI
DAVID D. DRUMM
NUMBER PLS-2007017958
PROFESSIONAL LAND SURVEYOR

02-14-2023

Digitally signed by David D. Drumm
Date: 2023.02.14 16:49:33-06'00'

This sketch is not a boundary survey. It is intended to show the configuration of a proposed easement. It should not be used to locate property lines and does not meet the Standards for Property Boundary Surveys.

DWG: F:\2022\04001-04500\022-04236\40-Design\Survey\SRVY\Sheets\V_ESM_Relinquishment Lot 2_2204236.dwg USER: ddrumm
DATE: Feb 07, 2023 9:52am XREFS: V_XBNDY_02204236

PROJECT NO: 022-04236	UTIL. ESMT. RELINQUISHMENT LOT 2 REPUBLIC STORAGE, LLC	olsson	EXHIBIT B
DRAWN BY: MN		Olsson, Inc. Survey MO Certificate of Authority #LC366 550 St. Louis Street Springfield, MO 65806 TEL 417.890.8802 FAX 417.890.8805	
DATE: 02.02.2023			

EXHIBIT A

Vacating a part of the existing 10-foot wide utility easements as shown on the Minor Subdivision for Robert Mark Trout and Julie A. Trout recorded in Plat Book ZZ, at Page 291 where they cross Lot 1 of the Minor Subdivision of Republic Storage, LLC, recorded in Plat Book AAA, at Page 856, also being described in Book 2022, at Page 051904-22 and being a part of the Northwest Quarter (NW1/4) of the Southwest Quarter (SW1/4) of Section 17, Township 28 North, Range 23 West, Republic, Greene County, Missouri, being more particularly described as follows:

BEGINNING at an existing 5/8" iron bar (LS 1911), at the Southeast corner of said NW1/4, SW1/4; also being the most Southeast corner of said Lot 1 and the Southeast corner of Tract 2 in said Trout Minor Subdivision; Thence N88°33'15"W, along the South line of said NW1/4, SW1/4, and the South line of said Lot 1 and the South line of Tract 2, a distance of 10.00 feet; Thence N02°29'36"E, leaving said South line, a distance of 332.09 feet to the North line of said Lot 1 , the North line of said Tract 2 and the North line of the South Half (S1/2) of the South Half (S1/2) of said NW1/4, SW1/4; Thence S88°33'21"E, along said North line, a distance of 10.00 feet to an existing 5/8" iron bar (LS 2153) marking the most Northeast corner of said Lot 1, and the Northeast corner of said Tract 2, also being a point on the East line of said NW1/4, SW1/4; Thence S02°29'36"W, leaving said North line and along said East line, a distance of 332.09 feet, to the POINT OF BEGINNING, containing 3,321 square feet, more or less, subject to any rights-of-way, easements, and restrictions of record.

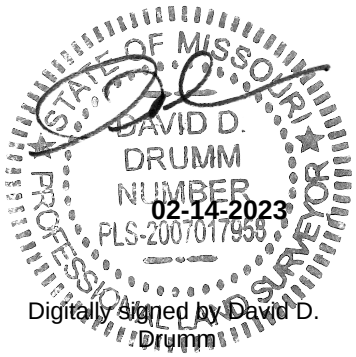
Also

COMMENCING at an existing 5/8" iron bar (LS 1911), at the Southeast corner of said NW 1/4, SW 1/4; also being the most Southeast corner of said Lot 1 and the Southeast corner of Tract 2 in said Trout Minor Subdivision; Thence N88°33'15"W, along the South line of said NW 1/4, SW 1/4, and the South line of said Lot 1 and Tract 2, a distance of 1,105.44 feet, to the Southeast corner of Tract 1 in said Trout Minor Subdivision, for the POINT OF BEGINNING; Thence N88°33'15"W, continuing along said South line, and the South line of said Lot 1 and Tract 1, a distance of 10.00 feet; Thence N02°24'30"E, leaving said South line, a distance of 35.00 feet; Thence S88°33'15"E, a distance of 10.00 feet, to a point on the East line of said Tract 1; Thence S02°24'30"W, along the East line of said Tract 1, a distance of 35.00 feet, to the POINT OF BEGINNING, containing 350 square feet, more or less, subject to any rights-of-way, easements, and restrictions of record.

Also

COMMENCING at an existing 5/8" iron bar (LS 1911), at the Southeast corner of said NW 1/4, SW 1/4; also being the most Southeast corner of said Lot 1 and the Southeast corner of Tract 2 in said Trout Minor Subdivision; Thence N88°33'15"W, along the South line of said NW1/4, SW1/4, and the South line of said Lot 1 and said Tract 2 and Tract 1 in said Trout Minor

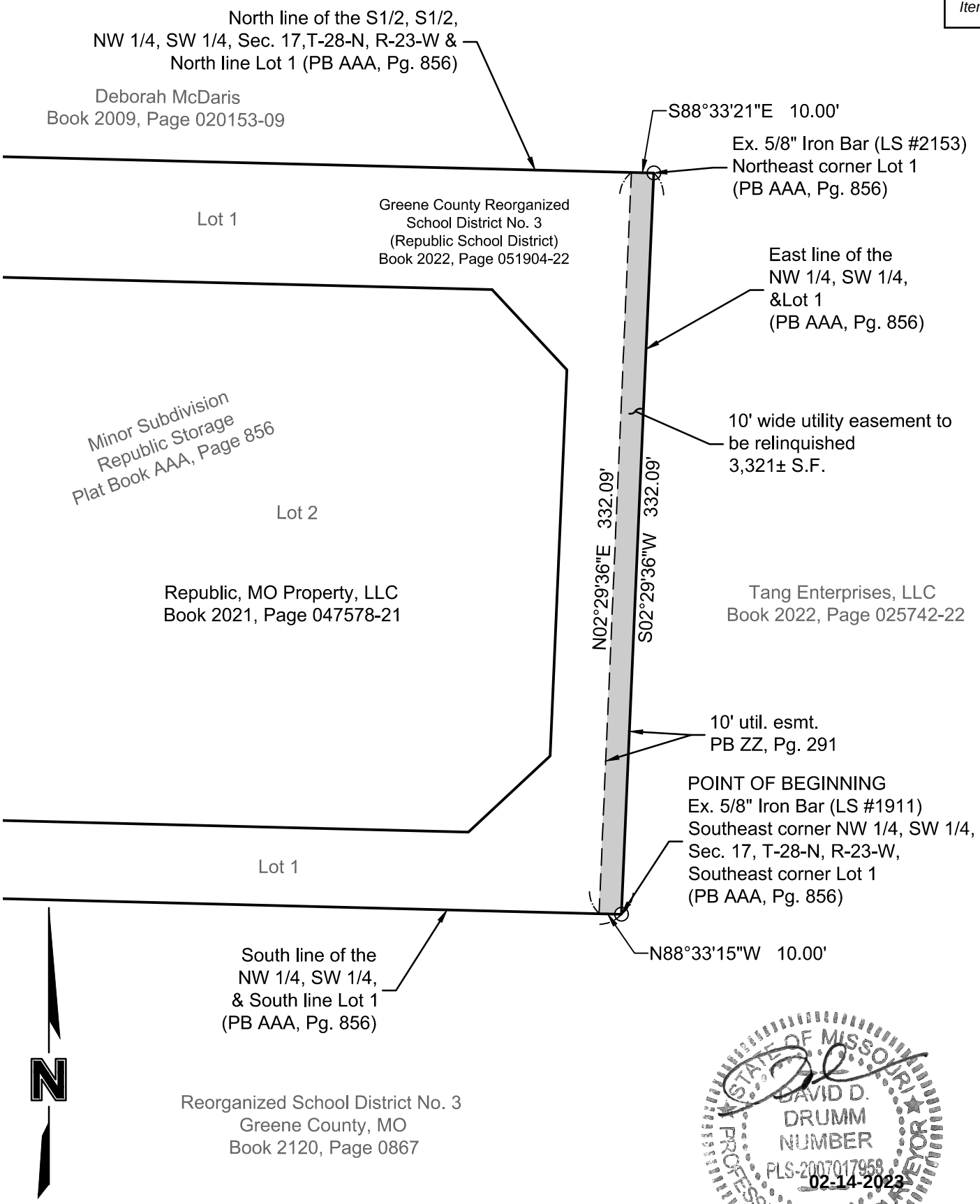
Subdivision, a distance of 1,278.97 feet, to the POINT OF BEGINNING; Thence N88°33’15”W, continuing along said South line of said Lot 1 and Tract 1, a distance of 10.00 feet, to a point on the East right-of-way line of Main Street, as shown on said Trout Minor Subdivision; Thence N02°51’12”E, leaving said South line, and along said East right-of-way line, a distance of 35.01 feet; Thence S88°33’15”E, leaving said East right-of-way line, a distance of 10.00 feet; Thence S02°51’12”W, a distance of 35.01 feet, to the POINT OF BEGINNING, containing 350 square feet, more or less, subject to any rights-of-way, easements, and restrictions of record.



02-14-2023

Digitally signed by David D. Drumm
Date: 2023.02.14 16:41:15-06'00'

Prepared by: Olsson, Inc.
Survey MO Certificate of Authority #LC366
550 St. Louis Street
Springfield MO 65806
Tel 417.890.8802
Prepared for: Republic Storage, LLC
Project No.: 022-04236



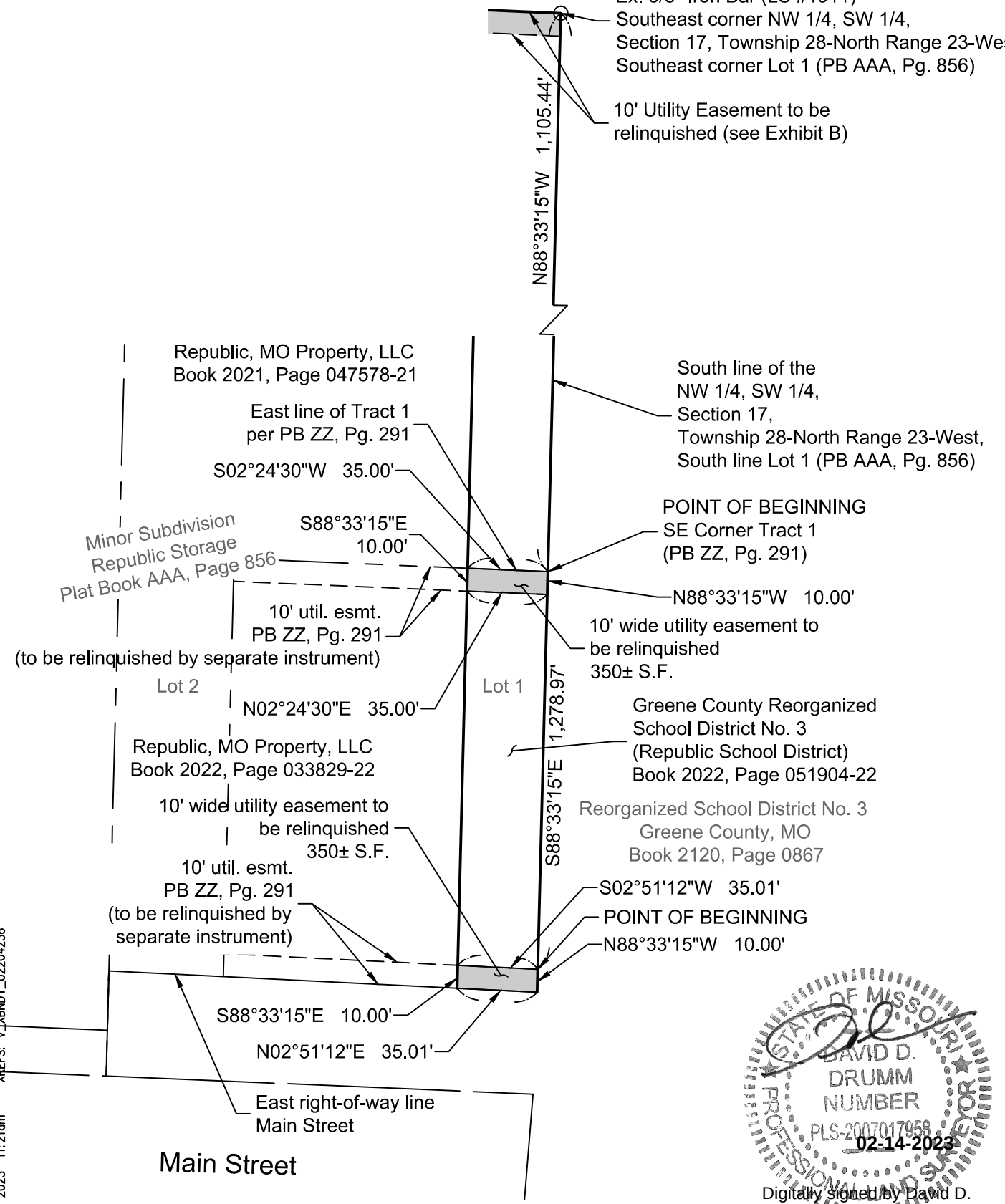
DWG: F:\2022\04001-04500\022-04236\40-Design\Survey\SRVY\Sheets\V_ESM_Relinquishment Lot 1_2204236.dwg USER: ddrumm
DATE: Feb 06, 2023 11:21am XREFS: V_XBNDY_02204236

This sketch is not a boundary survey. It is intended to show the configuration of a proposed easement. It should not be used to locate property lines and does not meet the Standards for Property Boundary Surveys.

STATE OF MISSOURI
DAVID D. DRUMM
NUMBER PLS-2007017958
PROFESSIONAL LAND SURVEYOR
02-14-2023

Digitally signed by David D. Drumm
Date: 2023.02.14 16:42:12-06'00'

PROJECT NO: 022-04236	UTIL. ESMT. RELINQUISHMENT LOT 1 REPUBLIC STORAGE, LLC	olsson	Olsson, Inc. Survey MO Certificate of Authority #LC366 550 St. Louis Street Springfield, MO 65806 TEL 417.890.8802 FAX 417.890.8805	EXHIBIT B
DRAWN BY: MN				
DATE: 02.02.2023				



STATE OF MISSOURI
DAVID D. DRUMM
NUMBER PLS-2007017958
PROFESSIONAL LAND SURVEYOR

02-14-2023

Digitally signed by David D. Drumm
Date: 2023.02.14 16:43:02-06'00'

This sketch is not a boundary survey. It is intended to show the configuration of a proposed easement. It should not be used to locate property lines and does not meet the Standards for Property Boundary Surveys.

DWG: F:\2022\04001-04500\022-04236\40-Design\Survey\SRVY\Sheets\V_ESM_Relinquishment Lot 1_2204236.dwg USER: ddrumm
DATE: Feb 06, 2023 11:21am XREFS: V_XBNDY_02204236

PROJECT NO: 022-04236	UTIL. ESMT. RELINQUISHMENT LOT 1 REPUBLIC STORAGE, LLC	olsson	EXHIBIT B
DRAWN BY: MN		Olsson, Inc. Survey MO Certificate of Authority #LC366 550 St. Louis Street Springfield, MO 65806 TEL 417.890.8802 FAX 417.890.8805	
DATE: 02.02.2023			

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing:	Time:	Type of Application:
03/13/2023	6:00	Vacation

Name of Applicant:	Location:
Republic Storage LLC Subdivison (VAC 23-002)	City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(●) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(●) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(●) Yes	( ) No
Compatible with surrounding land uses	(●) Yes	( ) No
Able to be adequately served by municipal infrastructure	(●) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(●) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (●) Approval ( ) Denial

Commissioner Name:	Commissioner Signature:	Date:
Dorsan Campbell		3-13-23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 03/13/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: Republic Storage LLC Subdivison (VAC 23-002)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ☑ Approval ○ Denial

Commissioner Name: Michael Mann

Commissioner Signature: Michael Mann

Date: 3/13/23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 03/13/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: Republic Storage LLC Subdivison (VAC 23-002)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ☑ Approval ○ Denial

Commissioner Name: Jeff Hays

Commissioner Signature:

Date: 3-13-2023

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing:	Time:	Type of Application:
03/13/2023	6:00	Vacation

Name of Applicant:	Location:
Republic Storage LLC Subdivison (VAC 23-002)	City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(X) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(X) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(X) Yes	( ) No
Compatible with surrounding land uses	(X) Yes	( ) No
Able to be adequately served by municipal infrastructure	(X) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(X) Yes	( ) No

Statement of Relevant Facts Found:

Current utility easements are vacant and not anticipated to be used/needed for future

Based on these findings, I have concluded to recommend the application to the City Council for: (X) Approval ( ) Denial

Commissioner Name:	Commissioner Signature:	Date:
Brian Dobbrava	B	3-13-23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 03/13/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: Republic Storage LLC Subdivison (VAC 23-002)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	◉ Yes	○ No
Conforming to the City's adopted Transportation Plan	◉ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	◉ Yes	○ No
Compatible with surrounding land uses	◉ Yes	○ No
Able to be adequately served by municipal infrastructure	◉ Yes	○ No
Aligned with the purposes of RSMo. 89.040	◉ Yes	○ No

Statement of Relevant Facts Found:

No comments

Based on these findings, I have concluded to recommend the application to the City Council for: ◉ Approval ○ Denial

Commissioner Name: John Alexander

Commissioner Signature:

Date: 3/13/23

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-13 An Ordinance of the City Council Amending Bill No. 21-54 by Approving Amendment of the Zoning Code and Official Map by Changing the Classification of Approximately Ninety-Two Point Eight Five Acres of Property Located at 3456 South Farm Road 101 from Stone Creek Falls Planned Development District (PDD) to Amended Stone Creek Falls Planned Development District (PDD).
Submitted By:	Chris Tabor, Principal Planner, BUILDS Department
Date:	April 11, 2023

Issue Statement

Stone Creek Development LLC, owner of the subject property, has applied to amend the prior adoption of the Zoning Classification of Stone Creek Falls PDD, concerning approximately **(92.85) acres** of property located at 3456 South Farm Road 101.

Discussion and/or Analysis

The Stone Creek Falls Planned Development District is comprised of approximately **(92.85) acres** of land located at 3456 South Farm Road 101. The property is currently undergoing development as Stone Creek Falls, a 16-lot subdivision, which consists of:

- 5 Commercial Lots, Lots 1-5:
    - Total Area: 15.55 Acres
    - Permitted Uses: Commercial Uses, as permitted in the Local Commercial (C-1), General Commercial (C-2), and General Commercial (C-3) Zoning Districts
    - Maximum Lot Coverage: 90%
    - Setbacks:
        - Front: 15 Feet
        - Rear: 15 Feet
        - Side Setback: 6 Feet

- Side Street Setback: 15 Feet

- 11 Multi-Family Residential Lots, Lots 6-16:
  - Total Area: 58.20 Acres
  - Permitted Uses: Multi-Family Residential
  - Maximum Building Height: 3-Stories
  - Density: 24 Units/Acre (approx. 1,396 Units)
  - Setbacks:
    - Front: 15 Feet
    - Rear: 15 Feet
    - Side Setback: 15 Feet
    - Side Street Setback: 15 Feet
    - US Hwy 60 Frontage: 25 Feet

The Applicant is requesting a change to the currently adopted planned development district, which was passed by City Council on August 3rd, 2021.

Applicant's Proposal

The Applicant seeks to continue the construction of the Stone Creek Falls subdivision with one requested change: the alteration of the maximum building height listed for the multi-family permitted use from 3 to 4 stories. This is not a request to increase dwelling units for the project; the density will remain the same at 24 units per acre. Rather, the change to building height allows the applicant to construct buildings with smaller footprints and leaves a greater amount of green space present in the final development.

Consistency with the Planned Development District (PDD) Ordinance

The purpose of the Planned Development District Regulations [*405-IV A Planned Development District*] is to allow for mixed-use, unconventional, or innovative arrangements of land and public facilities, which would be difficult to develop under the conventional land use and development regulations of the City.

The initial passage of the Stone Creek Falls PDD met this standard. Altering the height allowance for multi-family structures does not substantially alter the character of the previously adopted development plan. If adopted, the amended development plan would meet the standards of the Planned Development District ordinance.

Consistency with Land Use Regulations

The request to amend the Stone Creek Falls PDD Development Plan's height restriction for multi-family buildings is in line with *Chapter 405 Zoning Regulations*. At the time of passage of the Stone Creek Falls Planned Development District (August 3, 2021) Republic's municipal code limited the building height of multi-family structures to three stories. In October of 2021, City Council amended *Article 405-V "Height and Area Requirements, Exceptions, and Modifications"* by, among other changes, removing height restrictions on multi-family structures.

The Applicant's request for amendment is consistent with the City's Land Use Regulations.

Effects Municipal Utilities and Infrastructure

As there is no change to the density of the development, no additional capacity is required of the City's water and sewer systems.

For the same reasons, no additional trips are being generated by the development and, therefore, no added strain is being placed on the surrounding transportation system.

Stormwater retention and detention requirements are likewise unchanged by the proposed amendment.

Continued Site Development

Phase One of Stone Creek Falls subdivision is currently under construction. At-Risk New Commercial Building Permits have been issued for construction of multi-family buildings on Lot 8 and Lot 10. Full permits will be issued at the time of final platting for the phase.

Development of phase two must include site design providing for sufficient emergency vehicle access as well as fire protection facilities (e.g. fire hydrants). **Additional elements of code compliance, evaluated at the time of infrastructure design, impacting the development of the subject property, include, but are not limited to, the City's Zoning Regulations, adopted Fire Code, and adopted Building Code.** The next steps in the process of development of the subject parcel, upon a favorable outcome, will be the continued development of the ongoing continuation of the first phase and the initiated development of the second phase with respect to construction of utility services and roads.

Recommended Action

Staff considers the **proposed Amendment** to be generally consistent with the **goals and objectives of the City's Adopted Plans and Ordinances** and **able to be adequately served by municipal facilities.** Staff recommends the approval of this application.

AN ORDINANCE OF THE CITY COUNCIL AMENDING BILL NO. 21-54 BY APPROVING AMENDMENT OF THE ZONING CODE AND OFFICIAL MAP BY CHANGING THE CLASSIFICATION OF APPROXIMATELY NINETY-TWO POINT EIGHT FIVE ACRES OF PROPERTY LOCATED AT 3456 SOUTH FARM ROAD 101 FROM STONE CREEK FALLS PLANNED DEVELOPMENT DISTRICT (PDD) TO AMENDED STONE CREEK FALLS PLANNED DEVELOPMENT DISTRICT (PDD)

WHEREAS, the City of Republic, Missouri, ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, on August 3, 2021, via Bill No. 21-54, the Council approved a change to the Zoning Code and Official Map by amending the zoning classification of approximately 92.85 acres of property located at 3456 South Farm Road 101 ("the Property") from Agricultural (AG) and General Commercial (C-2) to the Stone Creek Falls Planned Development District (PDD) ("Stone Creek Falls Planned Development"); and

WHEREAS, in approving of the zoning change, both the Planning and Zoning Commission ("Commission") and Council reviewed and approved of the Development Plan for the Stone Creek Falls Planned Development; and

WHEREAS, following passage of Bill No. 21-54, the City received an application ("Application") from the Property owner, Stone Creek Development LLC ("Owner"), to modify the maximum building height currently allowed under the Development Plan from three (3) stories to four (4) stories; and

WHEREAS, under City Code § 405.250(C), any proposed change to an approved development plan considered to be substantial as determined by City staff may be submitted to the Commission and Council for review under the same procedure required for the initial rezone and approval of the PDD;

WHEREAS, upon determination that the Applicant's request constitutes a substantial change to the Development Plan, the City submitted the Application to the Commission and set a public hearing on the application for March 13, 2023; and

WHEREAS, the City published notice of the time and date of the public hearing at least fifteen (15) days in advance, on February 22, 2023, in the *Greene County Commonwealth*, a newspaper of general circulation in the City; and

WHEREAS, the City gave notice of the public hearing on the application to the record owners of all properties within 185 feet of the property proposed to be rezoned; and

WHEREAS, the Commission conducted the public hearing on March 13, 2023 and subsequently recommended approval of the Application by a vote of Five Ayes to Zero Nays; and

WHEREAS, the Commission submitted written findings of fact and its recommendation on the Application to the Council; and

WHEREAS, having now reviewed the Application upon first read at its regular meeting on March 21, 2023, and second read at its regular meeting on April 4, 2023, the Council finds all requirements for the Application are met and approves amendment of the Development Plan and Zoning Code accordingly.

WHEREAS, the Council desires to amend Bill No. 21-54 to correctly show the Zoning Code classification of the Property as the Amended Stone Creek Falls Planned Development District and to adopted the Development Plan as amended herein.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1: The Zoning Code and Official Zoning Map are hereby amended to reflect the rezoning of the real property tract comprising of approximately 92.85 acres of property located at 3456 South Farm Road 101 ("the Property"), more fully described in the legal description herein below, from the Stone Creek Falls Planned Development District (PDD) to the Amended Stone Creek Falls Planned Development District (PDD):

A TRACT OF LAND, BEING A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, AND A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 NORTH 01°49'35" EAST, 46.90 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE NORTH 29°30'07" EAST A DISTANCE OF 1,320.77 FEET; THENCE CONTINUING ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 11,559.19 FEET, A DELTA OF 00°39'49", AN ARC LENGTH OF 133.85 FEET, AND A CHORD WHICH BEARS NORTH 29°10'12" EAST HAVING A CHORD DISTANCE OF 133.85 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG SAID NORTH LINE SOUTH 89°03'23" EAST, 646.94 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 SOUTH 01°47'15" WEST, 1,331.77 FEET TO A POINT ON THE NORTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 88°45'55" EAST ALONG SAID NORTH LINE 1,320.71 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 01°40'20" WEST ALONG THE EAST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11 A DISTANCE OF 388.84 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF U.S. HIGHWAY 60; THENCE SOUTH 57°27'19" WEST ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 1,694.96 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER; THENCE NORTH 88°52'01" WEST ALONG SAID SOUTH LINE A DISTANCE OF 806.65 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE NORTH 32°25'12" WEST ALONG SAID EAST LINE A DISTANCE OF 780.16 FEET TO A POINT ON THE WEST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE NORTH 01°50'57" EAST ALONG SAID WEST LINE A DISTANCE OF 683.29 FEET TO THE POINT OF BEGINNING, AND CONTAINING 92.85 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

Section 2: The Development Plan for the Amended Stone Creek Falls Planned Development District, as incorporated and attached hereto, is hereby approved and adopted

by the Council along with any modifications and conditions noted and/or imposed herein.

Section 3: Bill No. 21-54 is hereby amended to show the Zoning Code classification of the Property as the Amended Stone Creek Falls Planned Development District and to adopt the Development Plan as amended herein.

Section 4: In all other respects, Bill 21-54 shall remain unchanged and in full force and effect.

Section 5: Unless otherwise specifically defined by the approved Development Plan, the development of the tracts of realty contained in the Amended Stone Creek Falls Planned Development District will be regulated according to the rules and requirements of the City of Republic's Municipal Code.

Section 6: The City Administrator or his/her designee, on behalf of the City, is authorized to take the necessary steps to execute this Ordinance.

Section 7: The WHEREAS clauses above are specifically incorporated herein by reference.

Section 8: The provisions of this Ordinance are severable, and if any provisions hereof are declared invalid, unconstitutional, or unenforceable, such determination shall not affect the validity of the remainder of this Ordinance.

Section 9: This Ordinance shall take effect and be in force from and after its passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Attest: Matt Russell, Mayor

_____
Laura Burbridge, City Clerk

Approved as to Form:

_____
Megan McCullough, City Attorney

PLANNED DEVELOPMENT DISTRICT

STONE CREEK FALLS

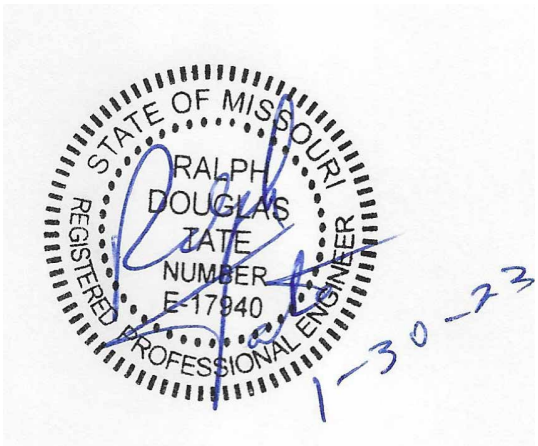
A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11
A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST
CITY OF REPUBLIC, GREENE COUNTY, MISSOURI

June 2, 2021
Revised January 30, 2023

PROJECT NO. 2103-041

TATE ENGINEERING CONSULTANTS

RALPH D. TATE, P.E. MO. E-17940
4054 W PAGE PLACE
SPRINGFIELD, MO 65802
(417)-862-5684



STONE CREEK FALLS

PLANNED DEVELOPMENT DISTRICT (PDD)

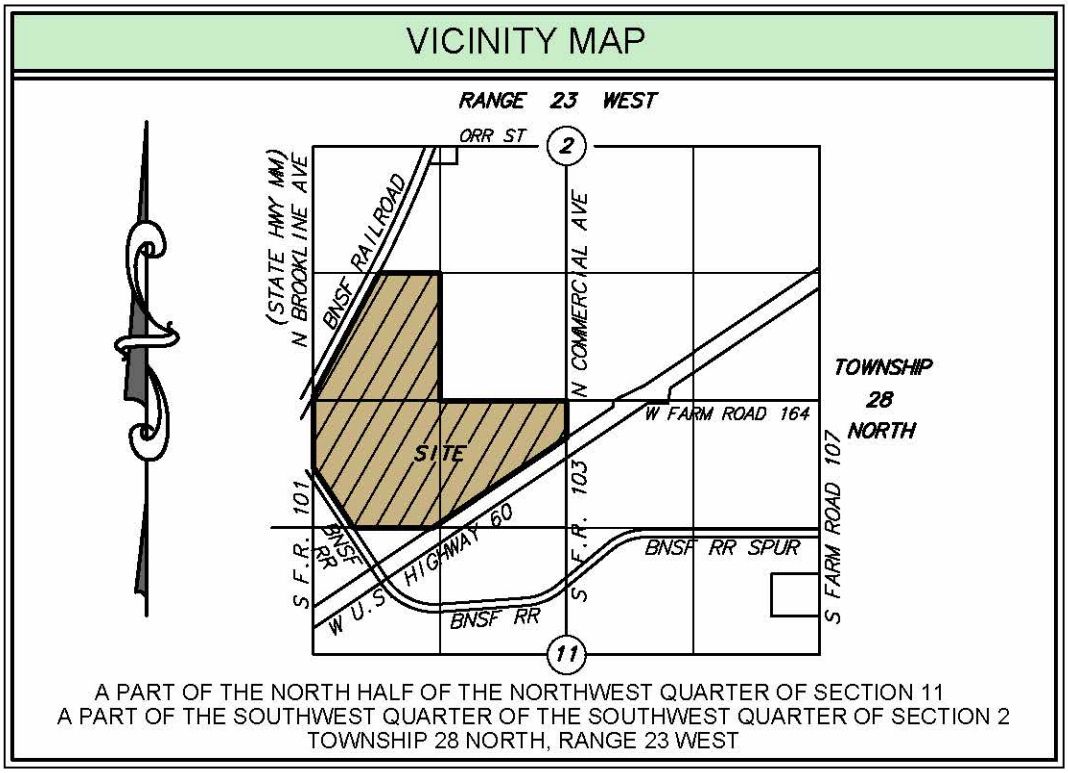
TABLE OF CONTENTS

STONE CREEK FALLS

PLANNED DEVELOPMENT DISTRICT (PDD)

1. PROJECT DESCRIPTION AND LOCATION

This project consists of 92.85 acres of land and is located along the north side of US 60 Highway and west of Farm Road 103.



STONE CREEK FALLS PROPERTY DESCRIPTION

A TRACT OF LAND, BEING A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, AND A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QAURTER OF SECTION 2 NORTH 01°49'35" EAST, 46.90 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE NORTH 29°30'07" EAST A DISTANCE OF 1,320.77 FEET; THENCE CONTINUING ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 11,559.19 FEET, A DELTA OF 00°39'49", AN ARC LENGTH OF 133.85 FEET, AND A CHORD WHICH BEARS NORTH 29°10'12" EAST HAVING A CHORD DISTANCE OF 133.85 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG SAID NORTH LINE SOUTH 89°03'23" EAST, 646.94 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 SOUTH 01°47'15" WEST, 1,331.77 FEET TO A POINT ON THE NORTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 88°45'55" EAST ALONG SAID NORTH LINE 1,320.71 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 01°40'20" WEST ALONG THE EAST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11 A DISTANCE OF 388.84 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF U.S. HIGHWAY 60; THENCE SOUTH 57°27'19" WEST ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 1,694.96 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER; THENCE NORTH 88°52'01" WEST ALONG SAID SOUTH LINE A DISTANCE OF 806.65 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE NORTH 32°25'12" WEST ALONG SAID EAST LINE A DISTANCE OF 780.16 FEET TO A POINT ON THE WEST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE NORTH 01°50'57" EAST ALONG SAID WEST LINE A DISTANCE OF 683.29 FEET TO THE POINT OF BEGINNING, AND CONTAINING 92.85 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

2. LAND USE SUMMARY

The current zoning of the southern 62.44 acres is C-2 General Commercial District. The remaining north 30.41 acres is currently zoned AG Agriculture District. The proposed land uses, land allocations and their relationships are shown on the Land Use Plan (Exhibit 1).

The following table presents the proposed land uses and development areas for this development.

Table 2.1 Land Allocation Summary Table

Total Project Area: 92.85 Acres

Lot Number	Area S.F.	Area Acres	Land Use
1	108,900	2.50	Commercial
2	118,693	2.72	Commercial
3	177,500	4.07	Commercial
4	152,124	3.49	Commercial
5	120,039	2.76	Commercial
6	217,800	5.00	Multi-Family
7	222,901	5.12	Multi-Family
8	217,767	5.00	Multi-Family
9	294,317	6.76	Multi-Family
10	218,467	5.02	Multi-Family
11	217,883	5.00	Multi-Family
12	217,800	5.00	Multi-Family
13	217,801	5.00	Multi-Family
14	217,800	5.00	Multi-Family
15	217,800	5.00	Multi-Family
16	274,836	6.31	Multi-Family
Common Area 1	276,755	6.35	Common Area
Common Area 2	158,468	3.64	Common Area
Street Right of Way	396,884	9.11	Right of Way
Total	4,044,536	92.85	
Lot Number	Area S.F.	Area Acres	Land Use
Total Commercial (Lots 1-5)	677,256	15.55	Commercial
Total Multi-Family (Lots 6-16)	2,535,173	58.20	Multi-Family
Total Common Area	435,223	9.99	Common Area
Street Right of Way	396,884	9.11	Right of Way

Proposed Multi-Family Residential Density

1,396 Units Land Area 58.20 Acres 24 Units/Acre

Building Setbacks:

U.S. Highway 60 Frontage -- 25 Feet

All other Front, Rear and Sides -- 15 Feet

Maximum Building Height -- 4 Story

Commercial Land Area 15.66 Acres.

Maximum Lot Coverage 90 percent

Building Setbacks:

Front -- 15 Feet

Rear -- 15 Feet

Side Street -- 15 Feet

Interior Side -- 6 Feet

The type of commercial uses anticipated will compliment the residential uses. Pedestrian sidewalks and access throughout the entire development as shown on the development plan will help encourage pedestrian access and interaction with the mixed commercial areas in the development.

Permitted Commercial Uses:

Permitted uses as listed in the City of Republic Municipal Code Article 405.150 “C-1” Commercial District Regulations, Article 405.160 “C-2” General Commercial District Regulations and Article 405.165 “C-3” General Commercial District including, but not limited to the following:

- Miscellaneous store retailers such as florists, office supplies, stationery, gift stores, novelty and souvenir stores, used merchandise stores, pet and pet supplies stores, art dealers, tobacco stores, electronics and appliance stores, health and personal care stores, clothing and clothing accessories stores, sporting goods, hobby and music stores.

- General retail businesses including pawn shops and second-hand stores; pet stores; print shops and photocopying establishments; restaurants including drive-in, pick-up, and drive-up facilities; doughnut shops; package

liquor; book; tobacco; furniture; appliance; drug; grocery; flower; jewelry; clothing.

- Office or office buildings including health clinics, medical doctors and dental offices, accountants, real-estate, engineering, architecture, finance, insurance, and other professional service offices.

- Personal service establishments including beauty parlors; barbershops; custom tailoring; dry cleaning and laundry pick-up; shoe repair; self-service laundromats; express or mailing offices; hearing aid and eye glass shops, professional, scientific and technical services.

- Private schools and studios for art, dance, drama, music or photography and private and publicly funded schools, preschools and daycare facilities.

- Veterinarian, dog grooming, boarding or similar place of animal care, provided that only treatment be given to animals kept within the building or office. No outside cages, kennels, fences, equipment, materials, etc. associated with livestock or other large animals shall be stored on the premises.

- Government buildings and associated uses.

3. ARCHITECTURAL THEME

Architectural exterior building materials covering outside walls may consist of brick veneer, pre-cast elements, stone veneer, architectural style LP Wood siding, and/or EIFS. Buildings shall have a minimum of 30% of brick, stone or equivalent masonry product on exterior walls. All roofs shall contain shadow line type (or equivalent) architectural shingles. Structures shall be two, three, and four-story units with wood frame construction.

The apartments will be studio, one, two or three bedroom units.

CONCEPT RENDERING

4. STORMWATER MANAGEMENT

A lake is proposed in the lower portion of this development. Stormwater detention will be provided in the area above the normal pool of the proposed lake and the top of the detention berm and outlet spillway. The proposed detention will control the peak runoff from the developed area and detain flows to not exceed predeveloped conditions. Downstream conditions will be analyzed and necessary measures take to assure no adverse effects result from the construction of this development. An “Engineers Report for Storm Water Detention” is included in Exhibit 2.

Existing storm piping will be extended from the detention basin to capture runoff from the site and offsite runoff from north to convey drainage to the detention basin. The site will be graded and drainage system extended to convey runoff across the site while maintaining allowable depths of flow and velocity.

There are no identified flood zones on the property based on the Flood Insurance Rate Maps 29077 C 0318 E and 29077 C 0316 E Dated 12-17-2010 prepared by the Federal Emergency Management Agency.

A sediment and erosion control plan will be required for this development. The Missouri Department of Natural Resources requires the development of a storm

water pollution prevention plan (SWPPP) to address erosion control requirements both during and after completion of construction.

Undisturbed vegetation will be left wherever possible to filter runoff as sheet flow. Best Management Practices for sediment/erosion control will be used where necessary to prevent sediment runoff.

5. UTILITIES

The development will utilize all current municipal utilities. Water service is available via an existing water main along the north right of way line of US 60 Highway, and along the west right of way line of Farm Road 103. Water mains will be sized and extended into the development to provide water supply and fire protection. See Infrastructure Plan. (Exhibit 1)

Liberty Utilities will provide electric power. All utilities will be constructed underground.

Natural gas supply will be provided by Spire Inc.

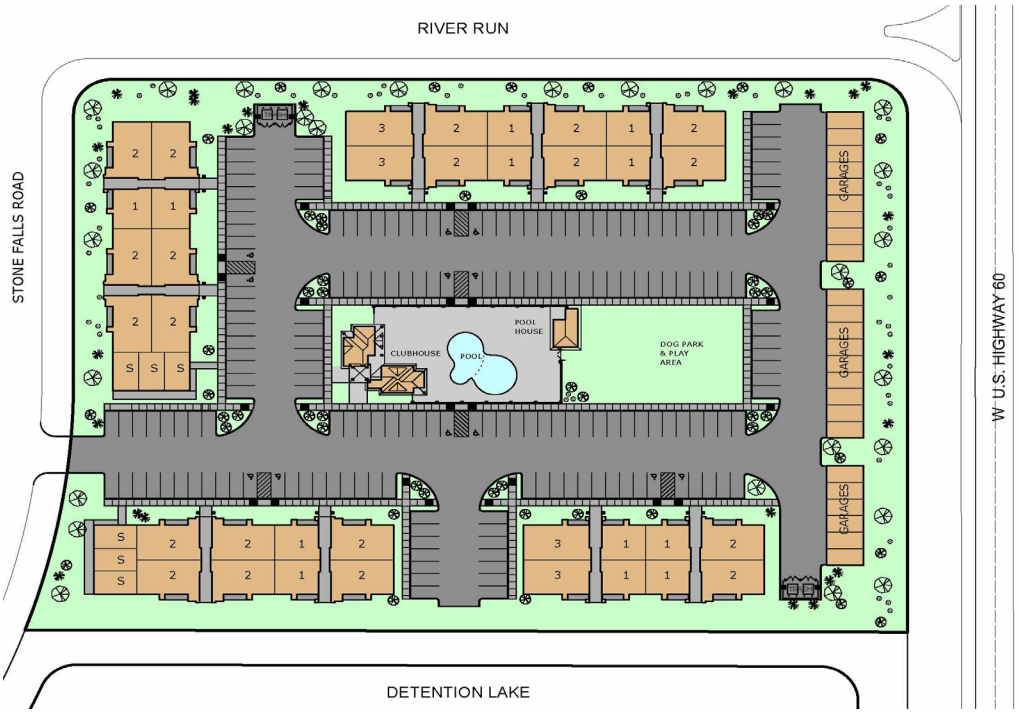
6. WASTEWATER DISPOSAL

This development will connect to the City of Republic's existing collection system. An existing sanitary sewer line is located onsite. A portion of the existing sanitary sewer is located in the area of the proposed lake. This sanitary sewer line will be relocated around the lake to allow access for maintenance purposes. Sanitary sewer mains will be extend to each lot and service laterals will be extended to each building from the existing sanitary sewer mains. See Infrastructure Plan. (Exhibit 1)

7. PARKING REQUIREMENTS

The parking requirements of the commercial lots shall comply with the zoning requirements set forth in The City of Republic Municipal Code for the specific use of each site.

The parking requirements of the multi-family lots shall be computed based on the number of units and the unit mix of each lot as follows:



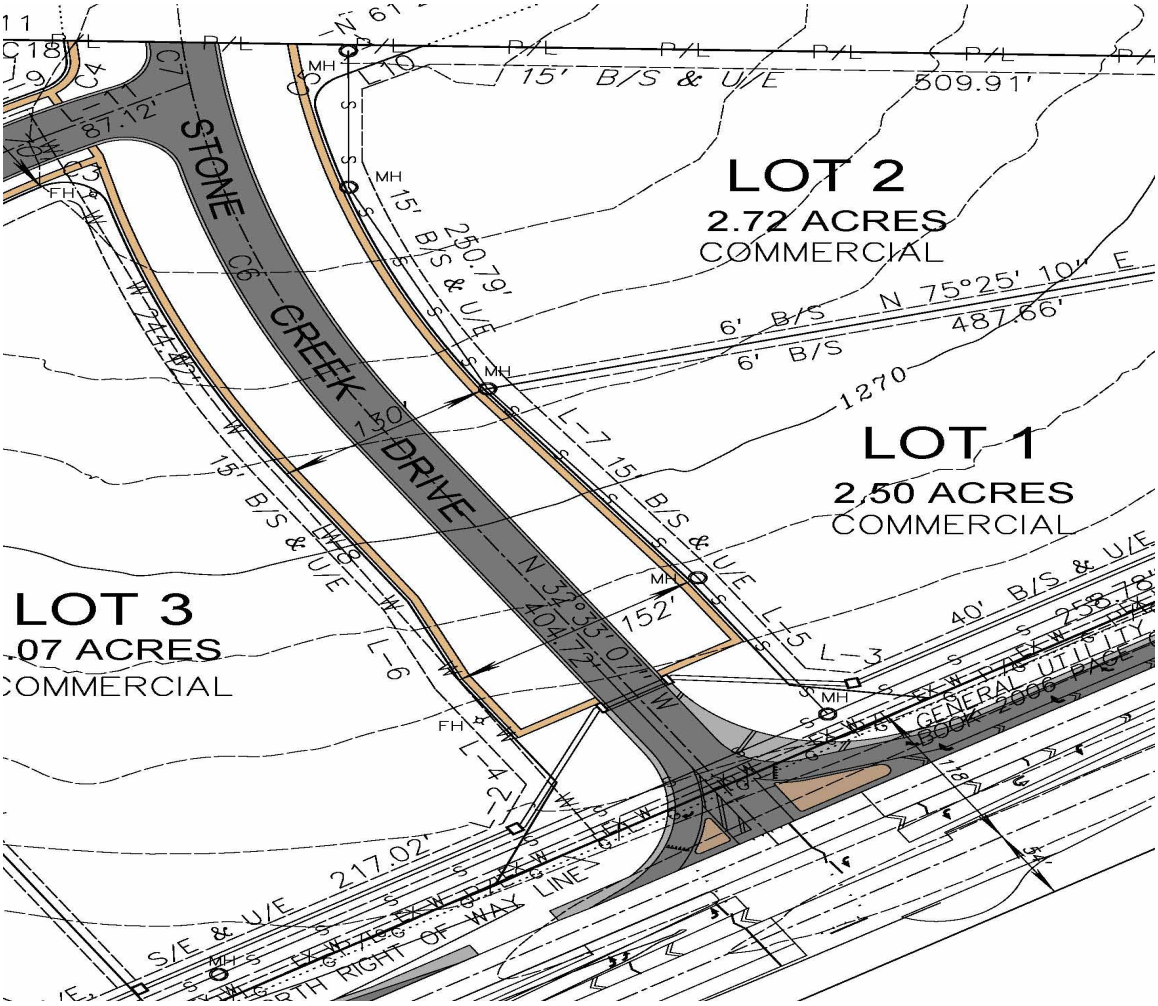
A typical unit/mix as shown above has 120 units on 5.00 acres. (24 Units Per Acre). This unit / parking tabulation is as follows:

UNIT MIX	NUMBER	SPACES/UNIT	SPACES REQUIRED
STUDIO UNITS	12	1	12
1 BEDROOM UNITS	36	1.5	54
2 BEDROOM UNITS	60	2	120
3 BEDROOM UNITS	12	2	24
TOTAL	120		210
Total Spaces/Unit			1.75

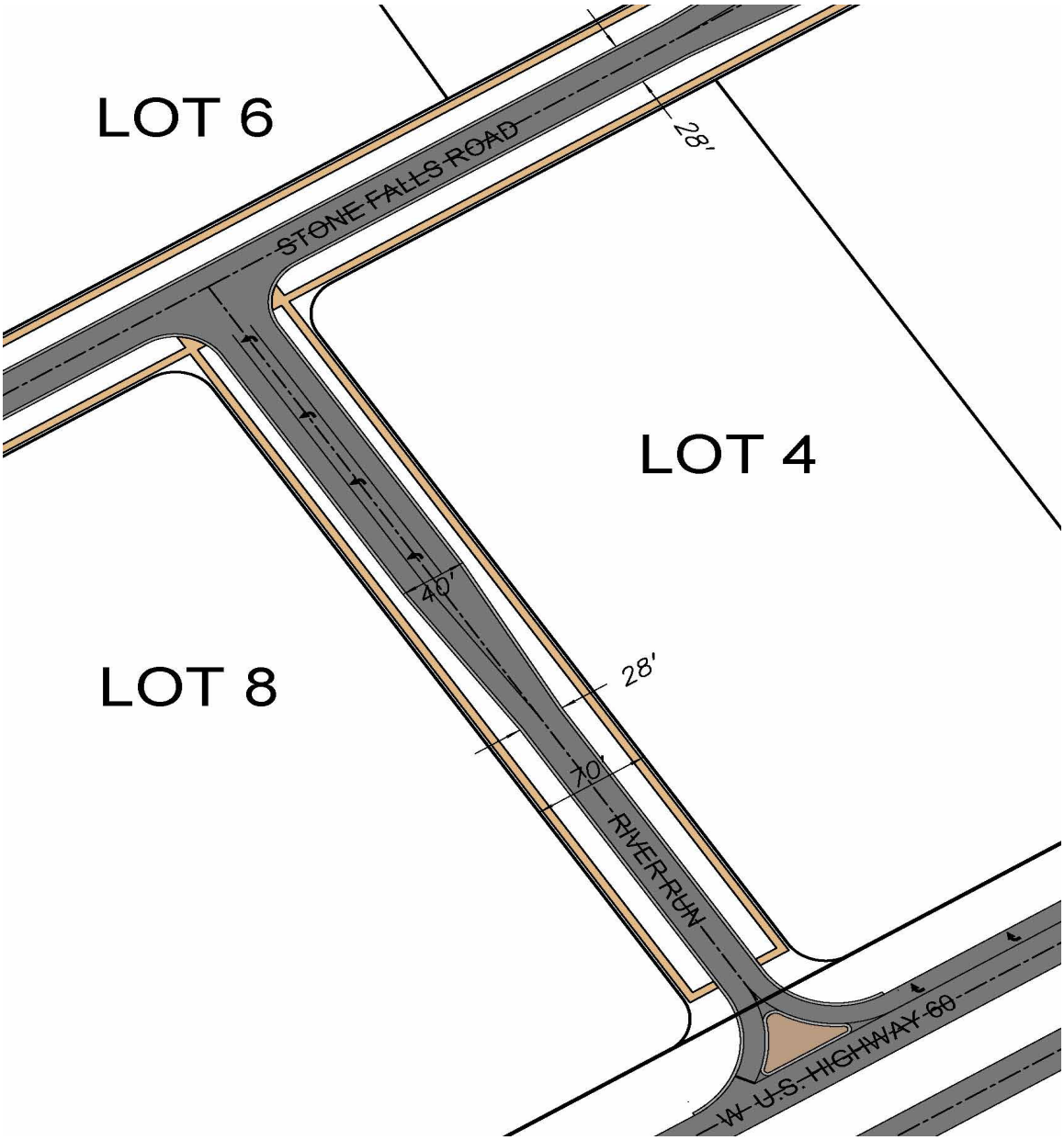
Two parking spaces per unit are required for two and three bedroom units, but since many of the units will be studio or single bedroom apartments, two parking spaces per apartment unit is not necessary. Proposed rental contracts will not allow for multiple people to reside in these smaller studio units.

8. PROPOSED PUBLIC STREETS, DRIVES, AND SIDEWALKS

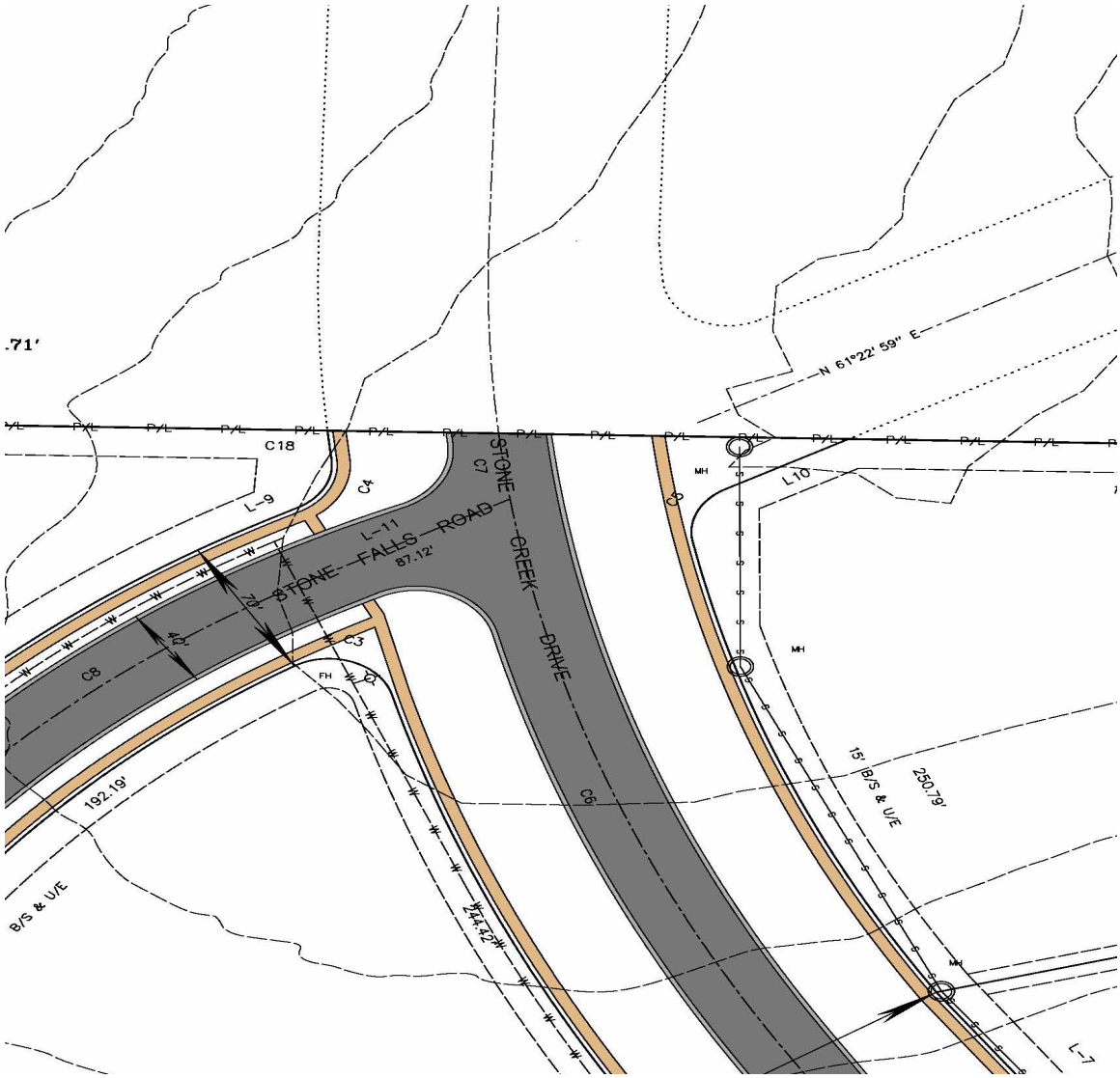
The development will access U.S. Highway 60 at two locations:



Stone Creek Drive is proposed as a primary arterial. This road is also the possible future right of way of State Highway MM. Proposed pavement widths for this road will be provided to meet what is required by this development. The widths of right of way provided will allow for future widening by MODOT for the new alignment of State Highway MM. This road will also be the new alignment of Farm Road 103 and allow for crossing U.S. Highway 60 at 90 degrees and eliminate the existing Farm Road 103 entrance. The intersection of Stone Creek Drive and U.S. Highway 60 will be a signalized intersection. A traffic impact assessment has been completed by Dane Seiler with CJW Dated May 21, 2021.



River Run is proposed as a collector with 70 feet of right of way and 28 feet minimum pavement width from back of curb to back of curb widening to 40 feet to provide a left turn lane unto Stone Falls Road. This street will have access to U.S. Highway 60 with a right-in right-out. A right turn lane will be provided on U.S. Highway 60.

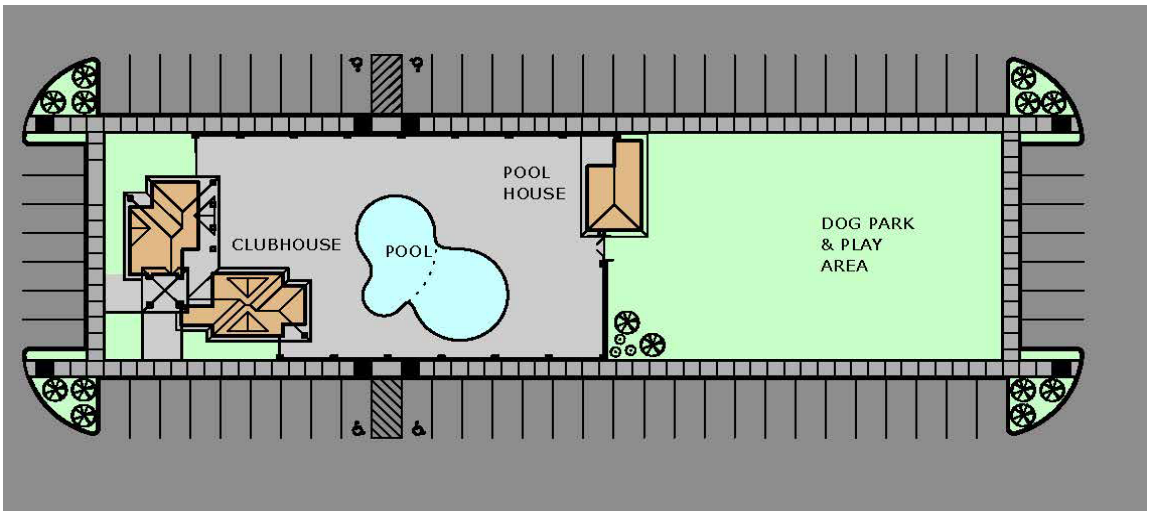


Stone Falls Road is proposed as a collector with 70 feet of right of way width and 28 feet minimum pavement width from back of curb to back of curb widening to 40 feet to provide a left turn lane unto Stone Creek Drive. This street will continue in the future to existing Farm Road 103 as shown on the Land Use Plan (Exhibit 1).

Sidewalks are proposed on both sides of the public streets and are 5 feet in width. Sidewalks will be extensive throughout the development with pedestrian access to every building and facility amenity. Pedestrian sidewalks and access throughout the entire development will help encourage pedestrian access and interaction with the commercial areas in the development.

9. OPEN SPACE AND LANDSCAPING

The proposed development will include a considerable amount of open space. Stone Creek will feature approximately 10 acres of common area containing two large lake areas with fountains, aeration, paved hiking trails, docks for fishing and viewing the lake, and manmade water falls circulated by pumping water from the lower lake. Each multi-family lot will also contain open space with amenities such as a clubhouse, pool, pool house, dog park, and play area.



10. PRELIMINARY COVENANTS

The developer desires to provide for the orderly and quality development of the subdivision by way of the filing of Declaration of Covenants, Conditions and Restrictions applicable to all portions of the development. Said Declaration of Covenants, Conditions and Restrictions will provide for requirements for improving the development and prohibit certain uses, for the mutual benefit of all residents in the development.

Letter Of Intent

Stone Creek Falls PDD

To Whom It May Concern:

Countryland would like to request a hearing regarding the proposed zoning application to the PDD Development known as Stone Creek Falls.

Stone Creek Falls is a new Multi-Family and Commercial district for the City of Republic, with a true Live, Shop, Dine, design concept and with a Life With a View life style.

Our plan is to make this an exciting new concept, the first of its kind in the City of Republic. Stone Creek will feature an 8-10 acre lake, complete with fountains, aeration, paved hiking trails, docks for fishing and viewing the lake, and north end of lake will be a man- made Stone Creek Falls that will be pumped from bottom of Lake to create creek and water falls and help with water quality and aquatic life. Our Commercial pad sites are of the size to attract types of businesses that require larger parking areas that are needed for our area.

We intend for this community to be one that catches the eye of West bound traffic to Republic and would be the Gateway to the City of Republic's East entry corridor. We are adjacent to the new City of Republic public sign project, also Countryland and the City of Republic along with the MODOT have entered into discussions to be a development partner, to help complete the State MM Hwy access across 60 Hwy to move the existing problem of MM & 60 with the trains and stop light issues. Our New City Street will eventually become MM. These improvements are vital to 60 & MM corridor, one of the most active in the entire area for growth. Countryland and staff feel this development is perhaps the most important of all parcels in the new MM corridor. This property gives path for the future MM to cross 60 Hwy in areas that assist to achieve the connections the ZZ to the south. Even the current traffic at MM & 60 is already untenable and dangerous, with traffic lights, trains, and the amount of construction traffic north on MM, the traffic, and all traffic on 60 & MM is going to grow substantially in the next five years. This Development paves the way for all this growth.

Thanks for your consideration in this matter, any questions or comments are greatly appreciated. My team and I would do our best to help, just let us know.

Sean Coatney Owner of Countryland Homes & ATW,LLC

LAND USE AND INFRASTRUCTURE PLAN

STONE CREEK FALLS

A PLANNED DEVELOPMENT DISTRICT

A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11
A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST
CITY OF REPUBLIC, GREENE COUNTY, MISSOURI

SURVEY DESCRIPTION

SOURCE OF DESCRIPTION – BOOK 2020 PAGE 026224–20

A TRACT OF LAND, BEING A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, AND A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 NORTH 01°49'35" EAST, 46.90 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE NORTH 29°30'07" EAST A DISTANCE OF 1,320.77 FEET; THENCE CONTINUING ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 11,559.19 FEET, A DELTA OF 00°39'49", AN ARC LENGTH OF 133.85 FEET, AND A CHORD WHICH BEARS NORTH 29°10'12" EAST HAVING A CHORD DISTANCE OF 133.85 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG SAID NORTH LINE SOUTH 89°03'23" EAST, 646.94 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 SOUTH 01°47'15" WEST, 1,331.77 FEET TO A POINT ON THE NORTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 88°45'55" EAST ALONG SAID NORTH LINE 1,320.71 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 01°40'20" WEST ALONG THE EAST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11 A DISTANCE OF 388.84 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF U.S. HIGHWAY 60; THENCE SOUTH 57°27' 19" WEST ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 1,694.96 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER; THENCE NORTH 88°52'01" WEST ALONG SAID SOUTH LINE A DISTANCE OF 806.65 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE NORTH 32°25'12" WEST ALONG SAID EAST LINE A DISTANCE OF 780.16 FEET TO A POINT ON THE WEST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE NORTH 01°50'57" EAST ALONG SAID WEST LINE A DISTANCE OF 683.29 FEET TO THE POINT OF BEGINNING, AND CONTAINING 92.85 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

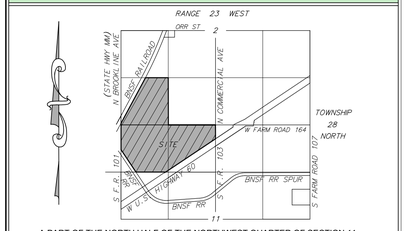
CURVE DATA

#	Radius	Delta	Length	Chord	Tangent	Chord Bearing
1	500.00'	62°38' 18"	546.82'	519.80'	304.23'	S 01°49' 02" E
2	500.00'	89°24' 30"	780.23'	703.45'	494.86'	S 77°50' 24" E
3	25.00'	106°39' 53"	46.54'	40.11'	33.58'	N 68°31' 52" W
4	25.00'	67°50' 37"	29.60'	27.90'	16.81'	N 27°27' 41" W
5	25.00'	72°42' 36"	31.73'	29.64'	18.40'	S 25°01' 41" W
6	742.00'	23°56' 06"	309.97'	307.72'	157.28'	S 20°35' 04" E
7	742.00'	02°37' 21"	33.96'	33.96'	16.98'	S 07°18' 21" E
8	500.00'	26°55' 38"	234.98'	232.83'	119.70'	S 47°55' 10" W
9	500.00'	22°59' 58"	200.71'	199.36'	101.72'	N 45°57' 20" E
10	25.00'	90°00' 00"	39.27'	35.36'	25.00'	N 12°27' 19" E
11	25.00'	90°00' 00"	39.27'	35.36'	25.00'	S 77°32' 41" E
12	25.00'	90°00' 00"	39.27'	35.36'	25.00'	S 12°27' 19" W
13	25.00'	90°00' 00"	39.27'	35.36'	25.00'	N 77°32' 41" W
14	25.00'	45°05' 57"	19.68'	19.17'	10.38'	N 06°57' 08" E
15	25.00'	45°05' 57"	19.68'	19.17'	10.38'	S 68°50' 24" E
16	25.00'	61°26' 30"	26.81'	25.54'	14.86'	S 60°13' 22" W
17	60.00'	151°38' 24"	158.80'	116.34'	237.47'	S 60°13' 22" W
18	807.00'	01°03' 03"	14.80'	14.80'	7.40'	S 05°56' 06" E

LAND USE SUMMARY

Lot Number	Area S.F.	Area Acres	Land Use
1	108,900	2.50	Commercial
2	118,693	2.72	Commercial
3	177,500	4.07	Commercial
4	152,124	3.49	Commercial
5	120,039	2.76	Commercial
6	217,800	5.00	Multi-Family
7	222,901	5.12	Multi-Family
8	217,767	5.00	Multi-Family
9	294,317	6.76	Multi-Family
10	218,467	5.02	Multi-Family
11	217,883	5.00	Multi-Family
12	217,800	5.00	Multi-Family
13	217,801	5.00	Multi-Family
14	217,800	5.00	Multi-Family
15	217,800	5.00	Multi-Family
16	274,836	6.31	Multi-Family
Common Area 1	276,755	6.35	Common Area
Common Area 2	158,468	3.64	Common Area
Street Right of Way	396,884	9.11	Right of Way
Total	4,044,536	92.85	
Lot Number	Area S.F.	Area Acres	Land Use
Total Commercial (Lots 1-5)	677,256	15.55	Commercial
Total Multi-Family (Lots 6-16)	2,535,173	58.20	Multi-Family
Total Common Area	435,223	9.99	Common Area
Street Right of Way	396,884	9.11	Right of Way

VICINITY MAP



A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11
A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST

CONTOUR INTERVAL 2'

0 150' 300'
75' SCALE 1" = 150'

BASIS OF BEARINGS

BEARINGS ARE BASED UPON GRID NORTH, MISSOURI COORDINATE SYSTEM OF 1983, CENTRAL ZONE MISSOURI GEOGRAPHIC REFERENCE SYSTEM CONTROL MONUMENTS GR-50 & GR-50A.

BENCHMARK

MISSOURI GEOGRAPHIC REFERENCE SYSTEM MONUMENT GR-50
STANDARD DNR DISK SET IN 12" CONCRETE POST
EAST ROW LINE ROUTE ZZ
ELEVATION= 1227.69 NAVD 1988

POINT OF BEGINNING
NW COR. N 1/2 NW 1/4 SEC. 11, T28N, R23W

COURSE TABLE

LINE	BEARING	DISTANCE
L–1	N 01°49' 35" E	46.90'
L–2	N 21°57' 11" E	89.98'
L–3	S 82°13' 24" E	78.53'
L–4	N 32°33' 07" W	100.45'
L–5	N 32°33' 07" W	101.94'
L–6	N 23°34' 55" W	70.55'
L–7	S 35°46' 51" E	195.29'
L–8	S 32°33' 07" E	125.29'
L–9	N 61°22' 59" E	13.81'
L–10	S 61°22' 59" W	53.74'
L–11	N 61°22' 59" E	87.12'

LEGEND

B/S	BUILDING SETBACK
U/E	UTILITY EASEMENT
D/E	DRAINAGE EASEMENT
S/E	SANITARY SEWER EASEMENT
1250	EXISTING CONTOURS
PA PA PA	PROPERTY LINE
OHE OHE OHE	OVERHEAD ELECTRIC
EXS EXS EXS	EXISTING SANITARY SEWER LINE
S S S	PROPOSED SANITARY SEWER LINE
EXW EXW EXW	EXISTING WATER LINE
W W W	PROPOSED WATER LINE
EXG EXG EXG	EXISTING GAS LINE
UGC UGC UGC	UNDERGROUND CABLE
MH	SANITARY SEWER MANHOLE
PP	POWER POLE
FH	FIRE HYDRANT
CI	CURB INLET

The City of Republic is not responsible to build, improve, maintain, or otherwise service the ingress and egress way, driveway, drainage improvements, common areas, lakes, trails, and other appurtenances. Maintenance of all common areas and detention basin will be provided by a property owners association

Proposed Multi–Family Residential Density
1,396 Units — Land Area 58.20 Acres — 24 Units/Acre
Building Setbacks:
U.S. Highway 60 Frontage — 25 Feet
All other Front, Rear and Sides — 15 Feet
Maximum Building Height — 4 Story

Commercial Land Area 15.66 Acres.
Maximum Lot Coverage 90 percent
Building Setbacks:
Front — 15 Feet
Rear — 15 Feet
Side Street — 15 Feet
Interior Side — 6 Feet

KNOWN ALL MEN BY THESE PRESENTS THAT I, LAWRENCE E JANSEN, DO HEREBY DECLARE THAT THIS PLAT WAS PREPARED UNDER MY SUPERVISION FROM AN ACTUAL SURVEY OF THE LAND HEREIN DESCRIBED, AND THAT THE CORNER MONUMENTS AND LOT CORNER PINS SHOWN HEREON WERE PLACED UNDER THE PERSONAL SUPERVISION OF LAWRENCE E JANSEN LS 2385 IN ACCORDANCE WITH THE MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS, AND IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF REPUBLIC, MISSOURI.

Lawrence E Jansen 1-30-23
LAWRENCE E. JANSEN PLS 2385 DATE

CLASS "URBAN" SURVEY
EIP ● — EXISTING IRON PIN
SIP ○ — SET IRON PIN
—X—X— FENCELINE
P – PLAT DISTANCE
M – MEASURED DISTANCE
D– DEED DISTANCE
Job No.: 2103–041
Date: 1–30–2023
Location: HWY 60 & F.R. 103 REPUBLIC, MO

STATE OF MISSOURI
LAWRENCE EUGENE JANSEN
NUMBER LS–2385
REGISTERED LAND SURVEYOR
1-30-23

GLOBAL
PRECISION SURVEYING, L.L.C.
P.O. BOX 790, REPUBLIC, MO 65738
PHONE (417) 883-0300 FAX (417) 883-0335
CERTIFICATE OF AUTHORITY
NUMBER LS-2010000563

EXHIBIT 1

PINNACLE DESIGN CONSULTANTS
CIVIL • STRUCTURAL ENGINEERING
417-501-8820 • pinnacledc.com

ENGINEERS REPORT

FOR
STORM WATER DETENTION

STONE CREEK FALLS
A NEW COMMERCIAL SUBDIVIONS IN REPUBLIC, MISSOURI

February 9, 2021

TO: Ms. Karen Haynes
Principal Planner
Community Development Department
City of Republic, Missouri

BY: David Bodeen, PE
Pinnacle Design Consultants
304-B W. Erie St.
Springfield, MO 65807

TABLE OF CONTENTS

May 25, 2021

Ms. Haynes:

The purpose of this preliminary report is to provide information as to the capacity and discharge of the proposed detention basin serving Stone Creek Falls development, and to show that the proposed basin has the capacity meet all of the required city of Republic criteria for detention.

The site generally drains from north to south to an existing natural depression. The existing and proposed drainage area is considered to be 156 acres. It is the developer's intent to create a large lake, with flood detention above the water level of the lake. For the purposes of this report, the surface area of the lake(s) is 7.0 acres, and the water elevation is an assumed elevation of 100.00.

A review of the soil analysis shows a mixed soil type of B & C over the entire drainage area.

TABLE 1E. EAST WATERSHED DATA

Conditions/Parameter	Area, acres Site (total watershed)	Curve Number site (total watershed)	Time of Concentration. min
Pre-project	156	65	48
Post-project	156	79	44

See * Worksheets for Curve Number calculations.
See soil maps for soil data and rating tables.

TABLE 2. PEAK FLOW CALCULATION / COMPARISON

Return Frequency	Q (pre-dev) c.f.s.	Dev Q to Basin	Discharge Out of Basin	Stage
2yr.	14	66	4	100.68
10 yr.	55	153	33	101.41
100 yr.	148	311	88	102.43

*Top of berm = 103.43

See the pond report at the end of the data sheets for the east side for a stage / storage / discharge table, and structure data.

SUMMARY:

In summary, in my professional opinion that the proposed design meets all required design criteria. It is our hope that the City of Republic agrees with this opinion.

Respectfully Submitted:

DDB

David Bodeen, PE
Pinnacle Design Consultants, LLC

Search

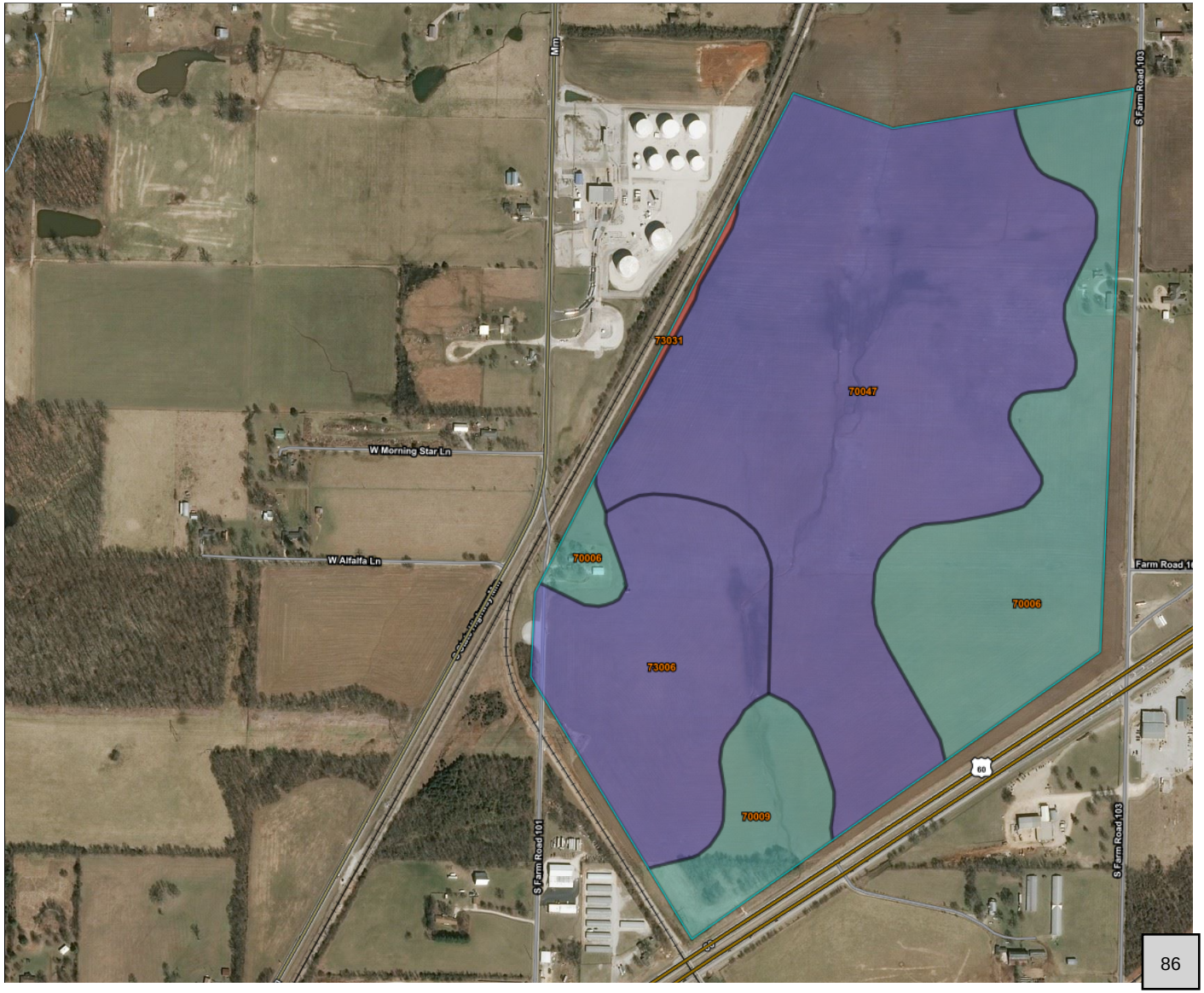
Properties and Qualities Ratings

Open All | Close All

- Soil Chemical Properties
- Soil Erosion Factors
- Soil Health Properties
- **Soil Physical Properties**
  - Available Water Capacity
  - Available Water Storage
  - Available Water Supply, 0 to 100 cm
  - Available Water Supply, 0 to 150 cm
  - Available Water Supply, 0 to 25 cm
  - Available Water Supply, 0 to 50 cm
  - Bulk Density, One-Third Bar
  - Linear Extensibility
  - Liquid Limit
  - Organic Matter
  - Percent Clay
  - Percent Sand
  - Percent Silt
  - Plasticity Index
  - Saturated Hydraulic Conductivity (Ksat)
  - Saturated Hydraulic Conductivity (Ksat), Standard Classes
  - Surface Texture
  - Water Content, 15 Bar
  - Water Content, One-Third Bar
- **Soil Qualities and Features**
  - AASHTO Group Classification (Surface)
  - AASHTO Group Index
  - Depth to a Selected Soil Restrictive Layer
  - Depth to Any Soil Restrictive Layer
  - Drainage Class
  - Frost Action
  - Frost-Free Days
  - Hydrologic Soil Group

Map — Hydrologic Soil Group

Scale (not to scale)



View Description | View Rating

View Options

Map ☑

Table ☑

Description of Rating ☑

Rating Options ☑

☐ Detailed Description

Advanced Options

Aggregation Method: Dominant Condition

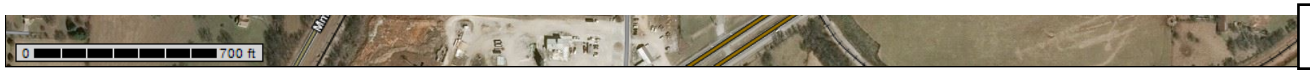
Component Percent Cutoff:

Tie-break Rule: ○ Lower ◉ Higher

View Description | View Rating

- Map Unit Name
- Parent Material Name
- Representative Slope
- Soil Slippage Potential
- Subsidence, Initial
- Subsidence, Total
- Unified Soil Classification (Surface)

Water Features



Warning: Soil Ratings Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surv design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do been shown at a more detailed scale.

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Greene County, Missouri (MO077)

Summary by Map Unit — Greene County, Missouri (MO077)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
70006	Creldon silt loam, 1 to 3 percent slopes	C	34.0	21.7%
70009	Goss gravelly silt loam, 8 to 15 percent slopes	C	10.2	6.5%
70047	Wanda silt loam, 2 to 5 percent slopes	B	84.3	53.8%
73006	Peridge silt loam, 2 to 5 percent slopes	B	27.4	17.5%
73031	Gerald silt loam, 0 to 2 percent slopes	D	0.7	0.5%
Totals for Area of Interest			**156.7**	**100.0%**

Description — Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options — Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 1

Pre-Developed

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.130		0.011		
Flow length (ft)	= 200.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.77		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 30.20**	**+**	**0.00**	**+**	**0.00**	**=**	**30.20**
Shallow Concentrated Flow							
Flow length (ft)	= 1600.00		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.28		0.00		0.00		
Travel Time (min)	**= 11.69**	**+**	**0.00**	**+**	**0.00**	**=**	**11.69**
Channel Flow							
X sectional flow area (sqft)	= 10.00		0.00		0.00		
Wetted perimeter (ft)	= 10.00		0.00		0.00		
Channel slope (%)	= 2.00		0.00		0.00		
Manning's n-value	= 0.030		0.030		0.015		
Velocity (ft/s)	=7.02						
			0.00				
					0.00		
Flow length (ft)	({0})2500.0		0.0		0.0		
Travel Time (min)	**= 5.93**	**+**	**0.00**	**+**	**0.00**	**=**	**5.93**

Total Travel Time, Tc ..... 47.82 min

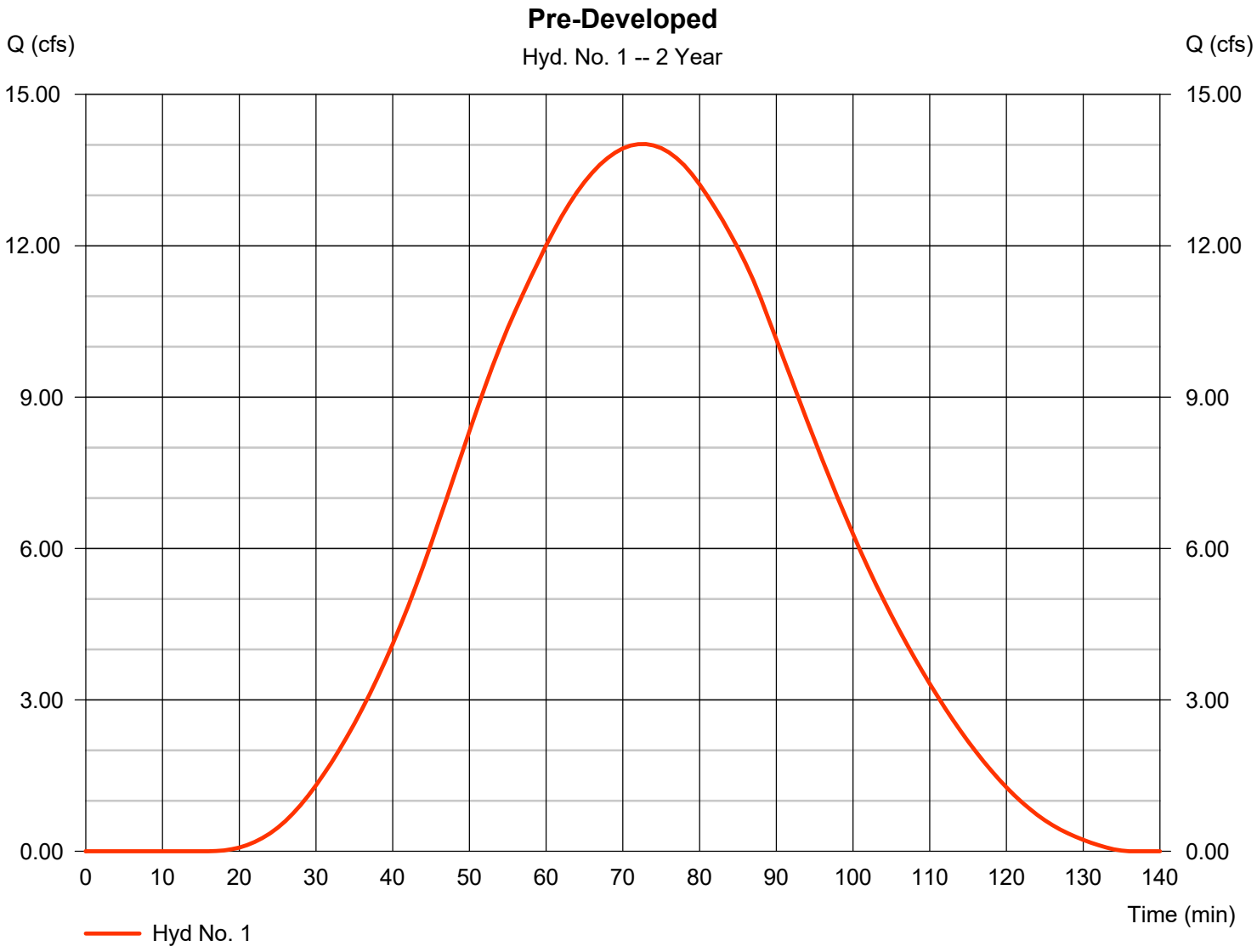
Hydrograph Report

Hyd. No. 1

Pre-Developed

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.02 cfs
Storm frequency	=	2 yrs	Time to peak	=	73 min
Time interval	=	1 min	Hyd. volume	=	44,540 cuft
Drainage area	=	156.000 ac	Curve number	=	65*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	47.80 min
Total precip.	=	1.77 in	Distribution	=	Huff-1st
Storm duration	=	1.00 hrs	Shape factor	=	484

* Composite (Area/CN) = [(44.000 x 74) + (112.000 x 61)] / 156.000



Hydrograph Report

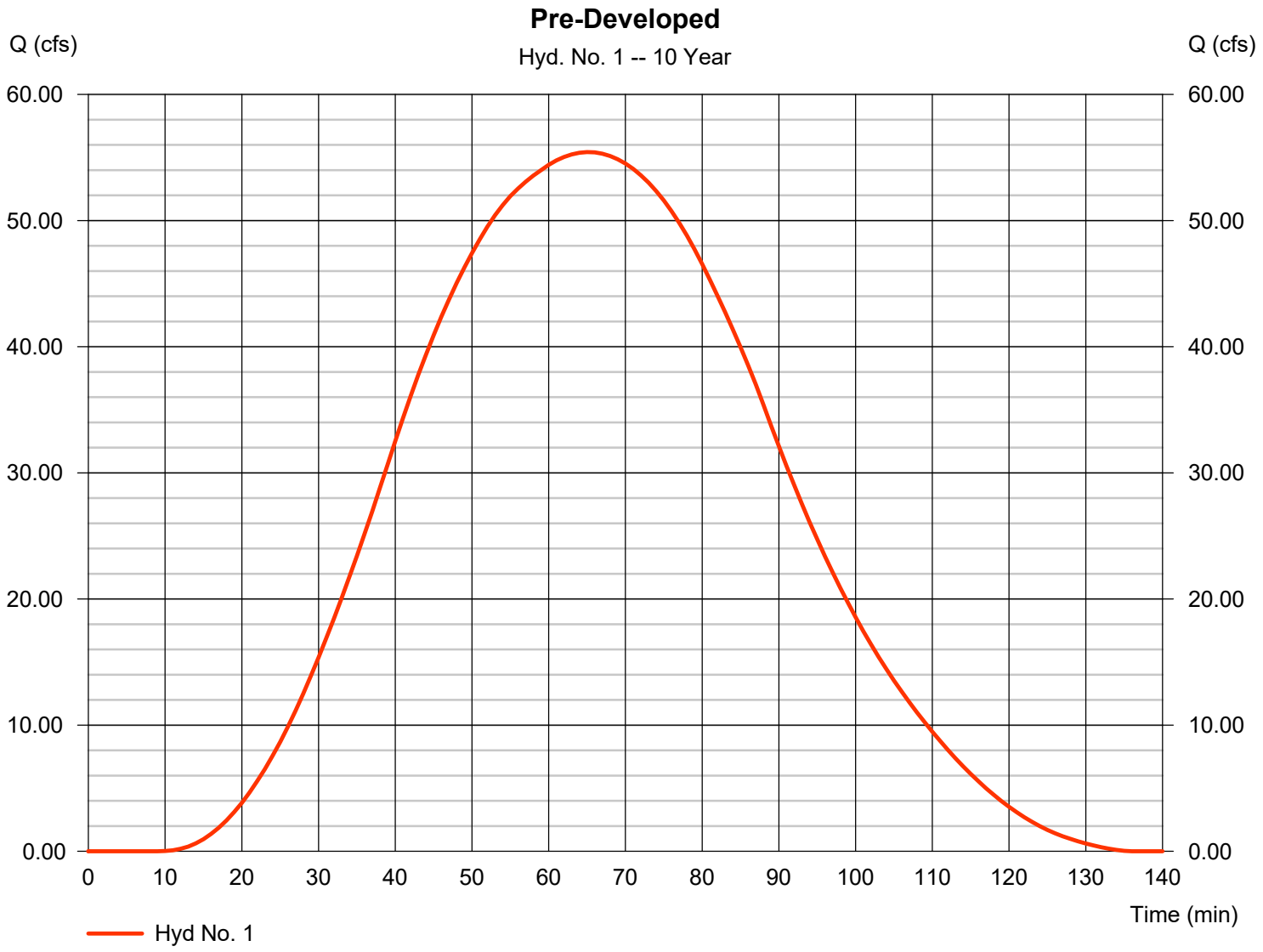
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Wednesday, 05 / 19 / 2021

Hyd. No. 1

Pre-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 55.43 cfs
Storm frequency	= 10 yrs	Time to peak	= 65 min
Time interval	= 1 min	Hyd. volume	= 191,385 cuft
Drainage area	= 156.000 ac	Curve number	= 65*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 47.80 min
Total precip.	= 2.61 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(44.000 x 74) + (112.000 x 61)] / 156.000



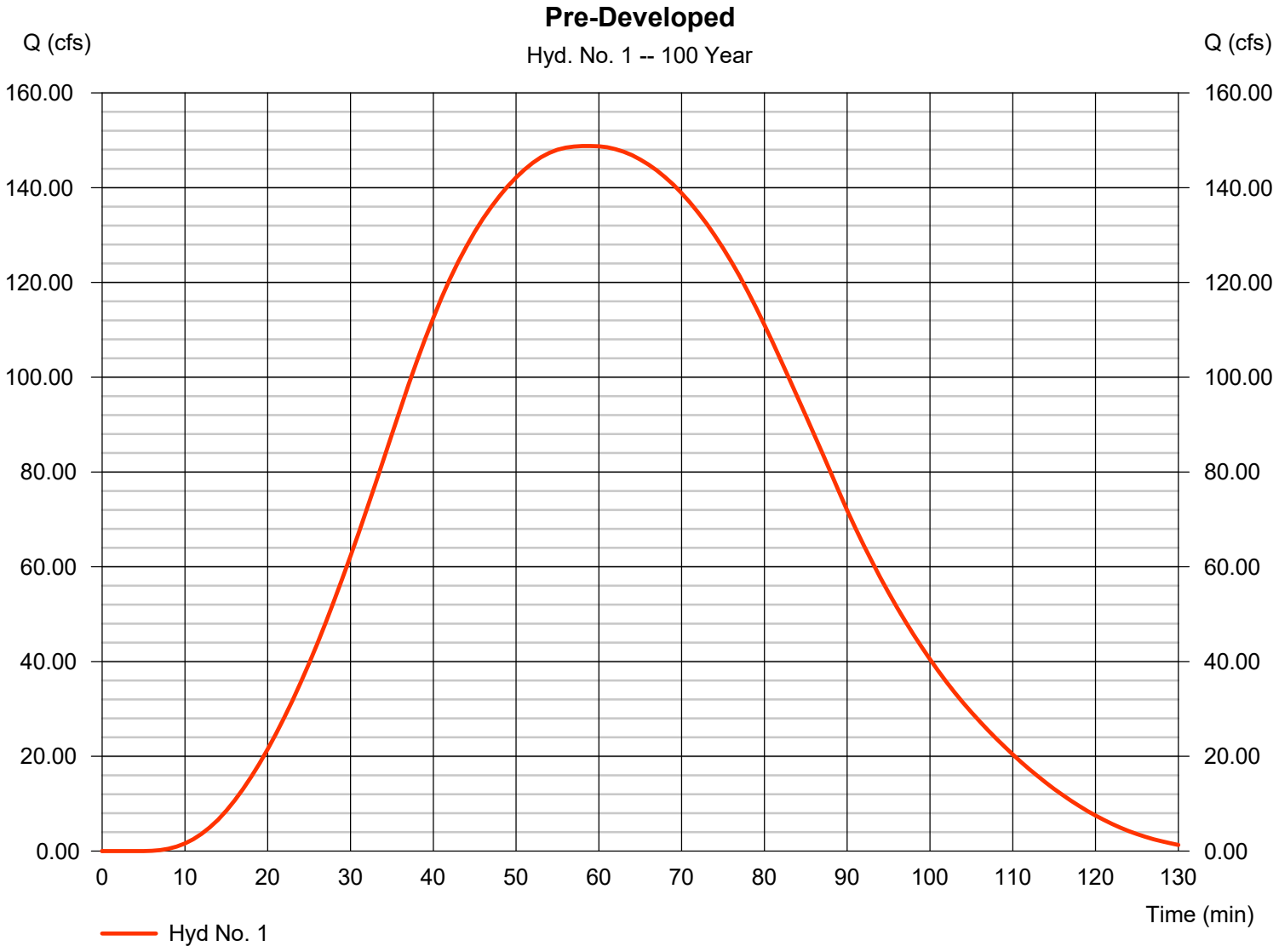
Hydrograph Report

Hyd. No. 1

Pre-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 148.80 cfs
Storm frequency	= 100 yrs	Time to peak	= 58 min
Time interval	= 1 min	Hyd. volume	= 528,253 cuft
Drainage area	= 156.000 ac	Curve number	= 65*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 47.80 min
Total precip.	= 3.84 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(44.000 x 74) + (112.000 x 61)] / 156.000



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Hyd. No. 2

Post-Developed

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.050		0.011		
Flow length (ft)	= 200.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.77		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 30.20**	**+**	**0.00**	**+**	**0.00**	**=**	**30.20**
Shallow Concentrated Flow							
Flow length (ft)	= 1600.00		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=2.28		0.00		0.00		
Travel Time (min)	**= 11.69**	**+**	**0.00**	**+**	**0.00**	**=**	**11.69**
Channel Flow							
X sectional flow area (sqft)	= 10.00		0.00		0.00		
Wetted perimeter (ft)	= 10.00		0.00		0.00		
Channel slope (%)	= 2.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=14.05						
			0.00				
					0.00		
Flow length (ft)	({0})1800.0		0.0		0.0		
Travel Time (min)	**= 2.14**	**+**	**0.00**	**+**	**0.00**	**=**	**2.14**
Total Travel Time, Tc ..... 44.03 min							

Hydrograph Report

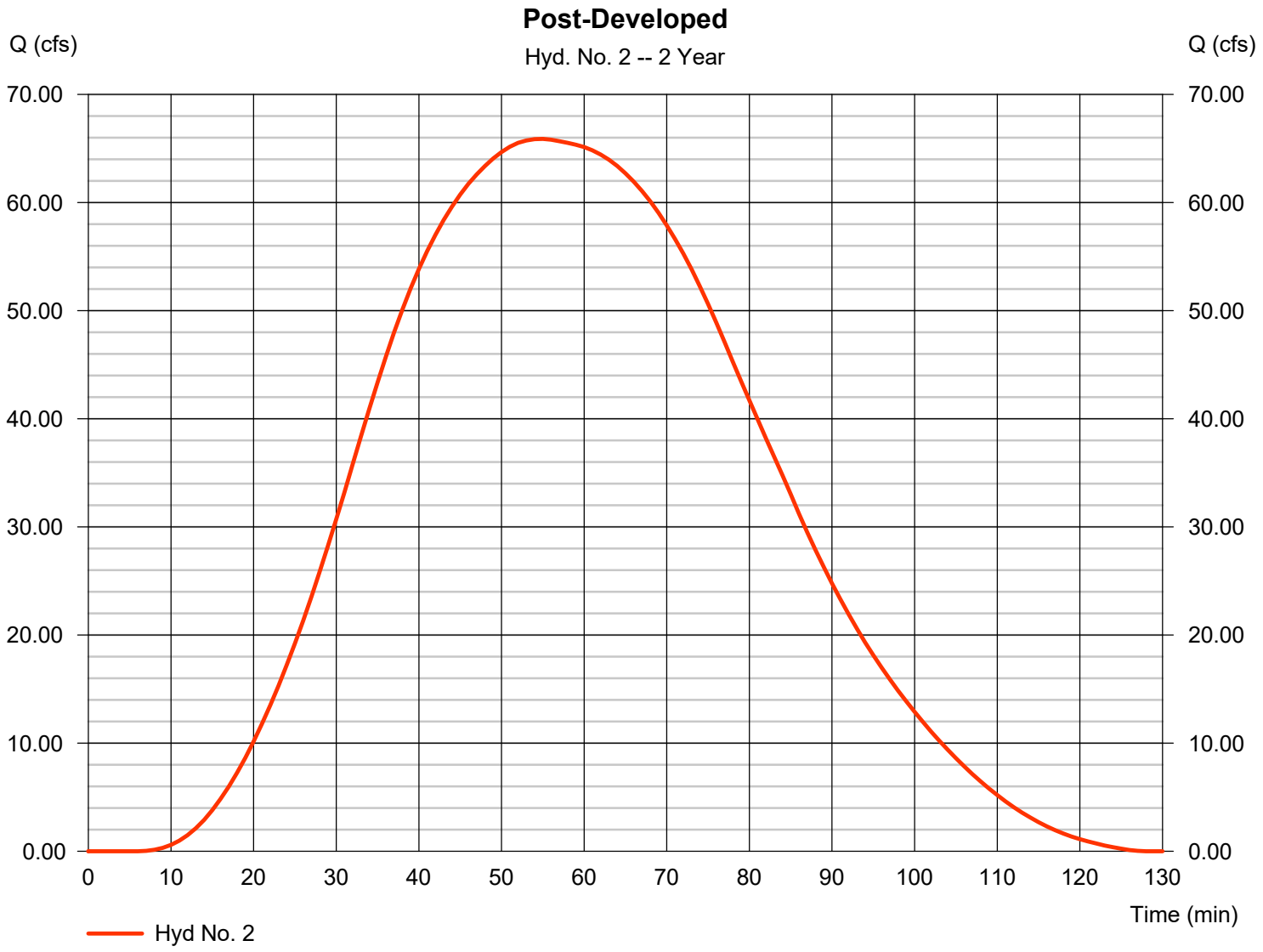
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 2

Post-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 65.89 cfs
Storm frequency	= 2 yrs	Time to peak	= 55 min
Time interval	= 1 min	Hyd. volume	= 221,297 cuft
Drainage area	= 156.000 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 44.00 min
Total precip.	= 1.77 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(67.000 x 86) + (27.000 x 91) + (42.000 x 61) + (20.000 x 74)] / 156.000



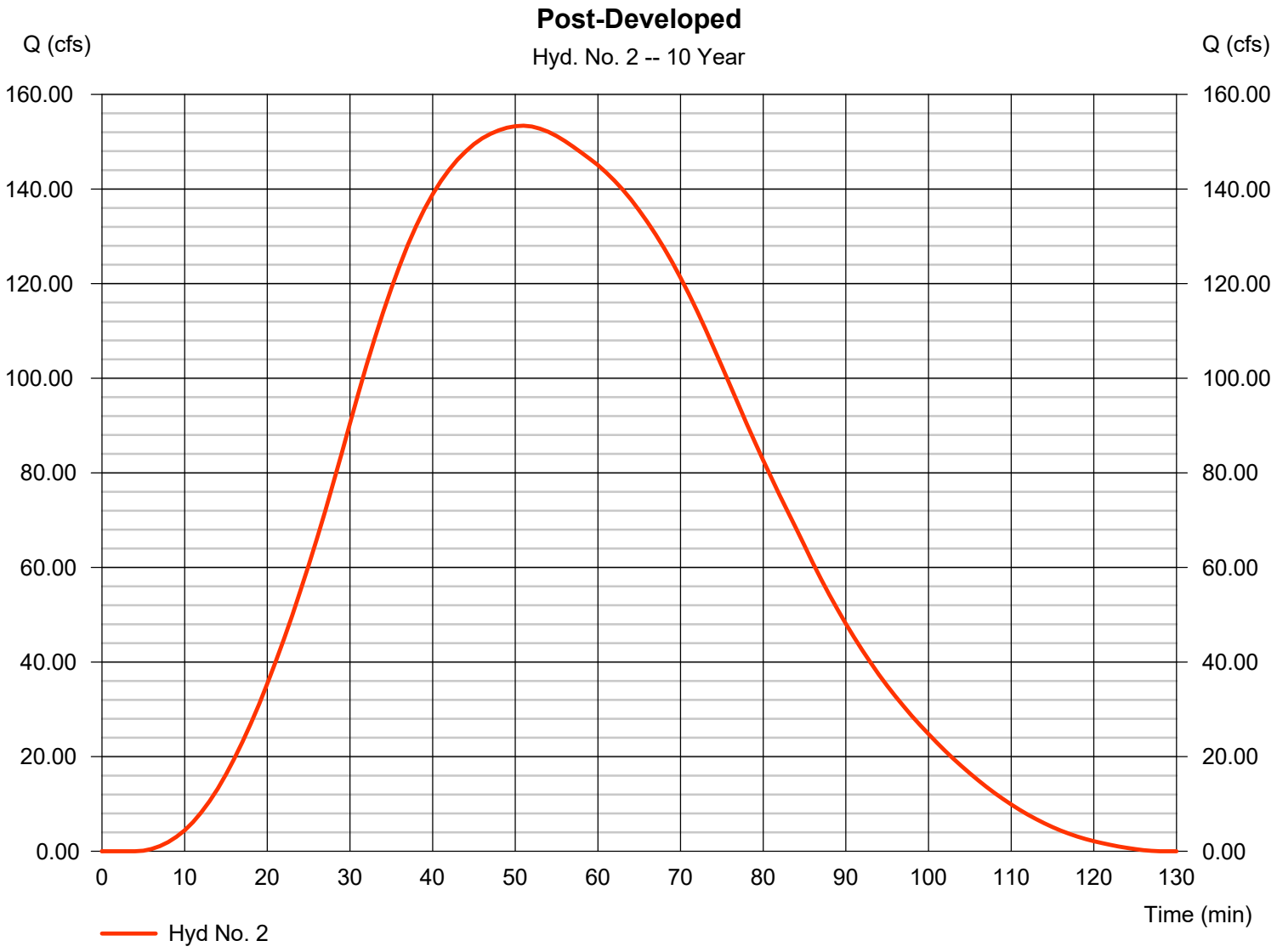
Hydrograph Report

Hyd. No. 2

Post-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 153.38 cfs
Storm frequency	= 10 yrs	Time to peak	= 51 min
Time interval	= 1 min	Hyd. volume	= 513,700 cuft
Drainage area	= 156.000 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 44.00 min
Total precip.	= 2.61 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(67.000 x 86) + (27.000 x 91) + (42.000 x 61) + (20.000 x 74)] / 156.000



Hydrograph Report

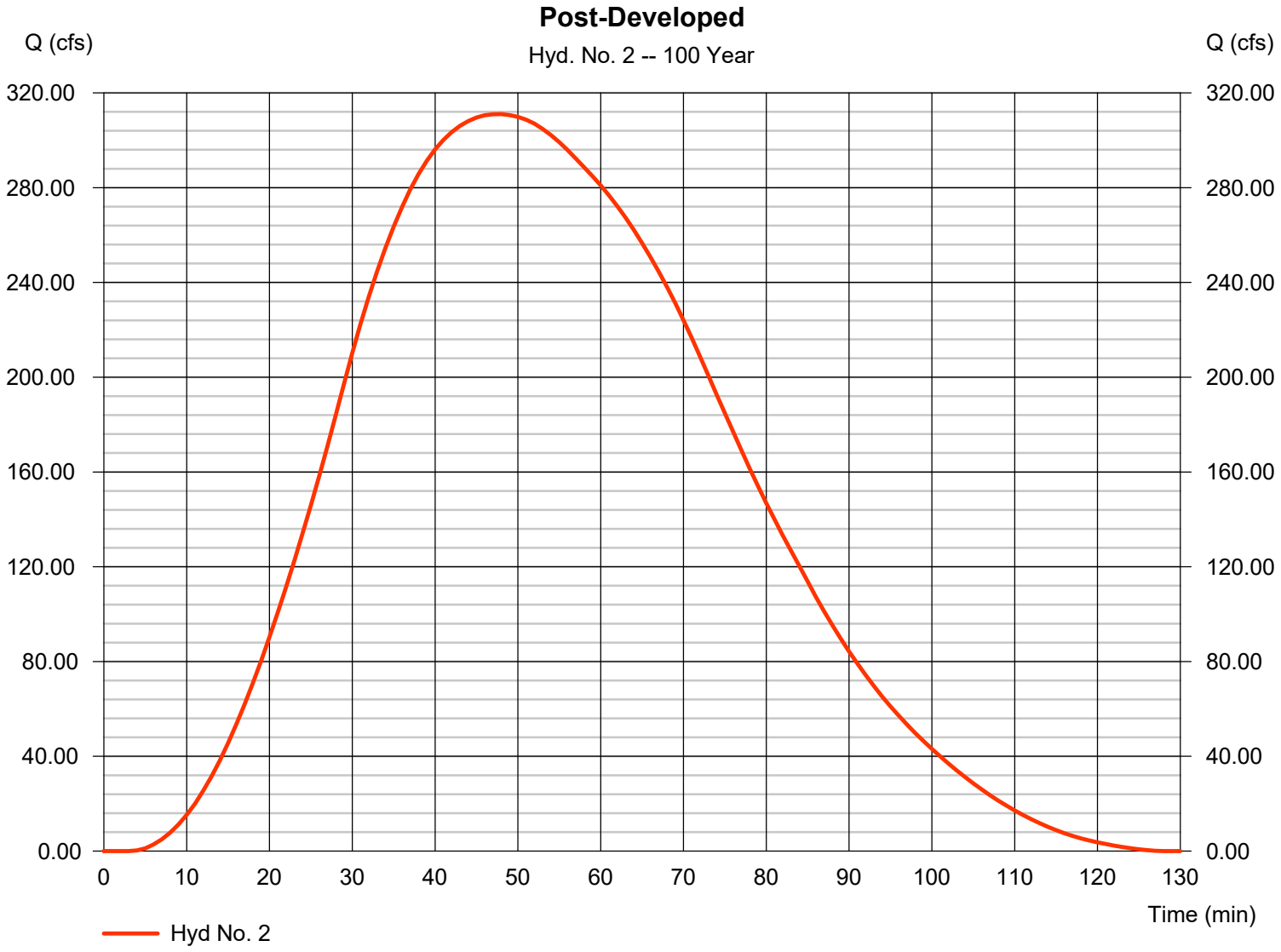
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 2

Post-Developed

Hydrograph type	=	SCS Runoff	Peak discharge	=	311.02 cfs
Storm frequency	=	100 yrs	Time to peak	=	48 min
Time interval	=	1 min	Hyd. volume	=	1,032,393 cuft
Drainage area	=	156.000 ac	Curve number	=	79*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	44.00 min
Total precip.	=	3.84 in	Distribution	=	Huff-1st
Storm duration	=	1.00 hrs	Shape factor	=	484

* Composite (Area/CN) = [(67.000 x 86) + (27.000 x 91) + (42.000 x 61) + (20.000 x 74)] / 156.000



Hydrograph Report

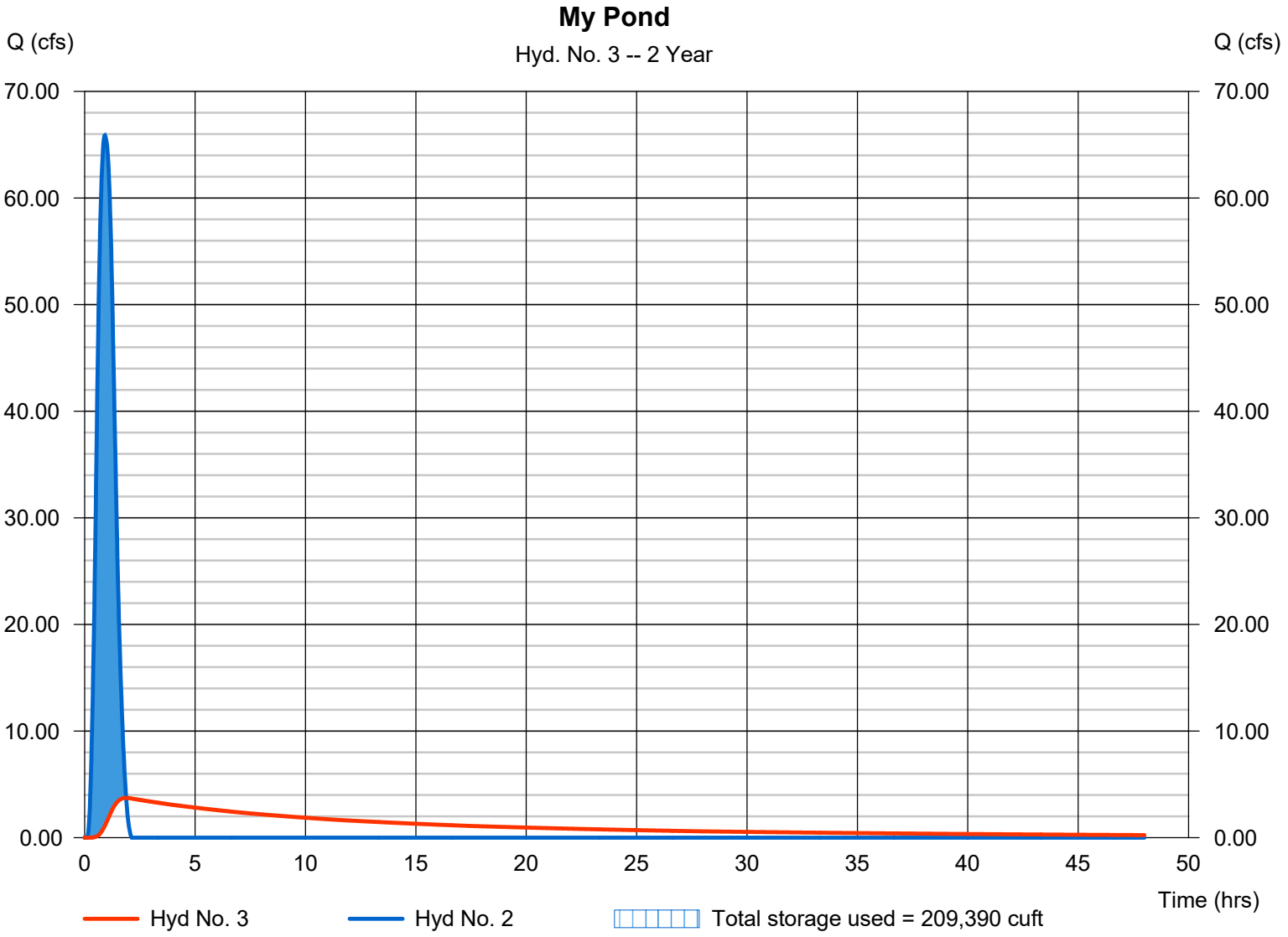
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 3

My Pond

Hydrograph type	= Reservoir	Peak discharge	= 3.725 cfs
Storm frequency	= 2 yrs	Time to peak	= 1.88 hrs
Time interval	= 1 min	Hyd. volume	= 186,787 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 100.68 ft
Reservoir name	= My Pond	Max. Storage	= 209,390 cuft

Storage Indication method used.



Hydrograph Report

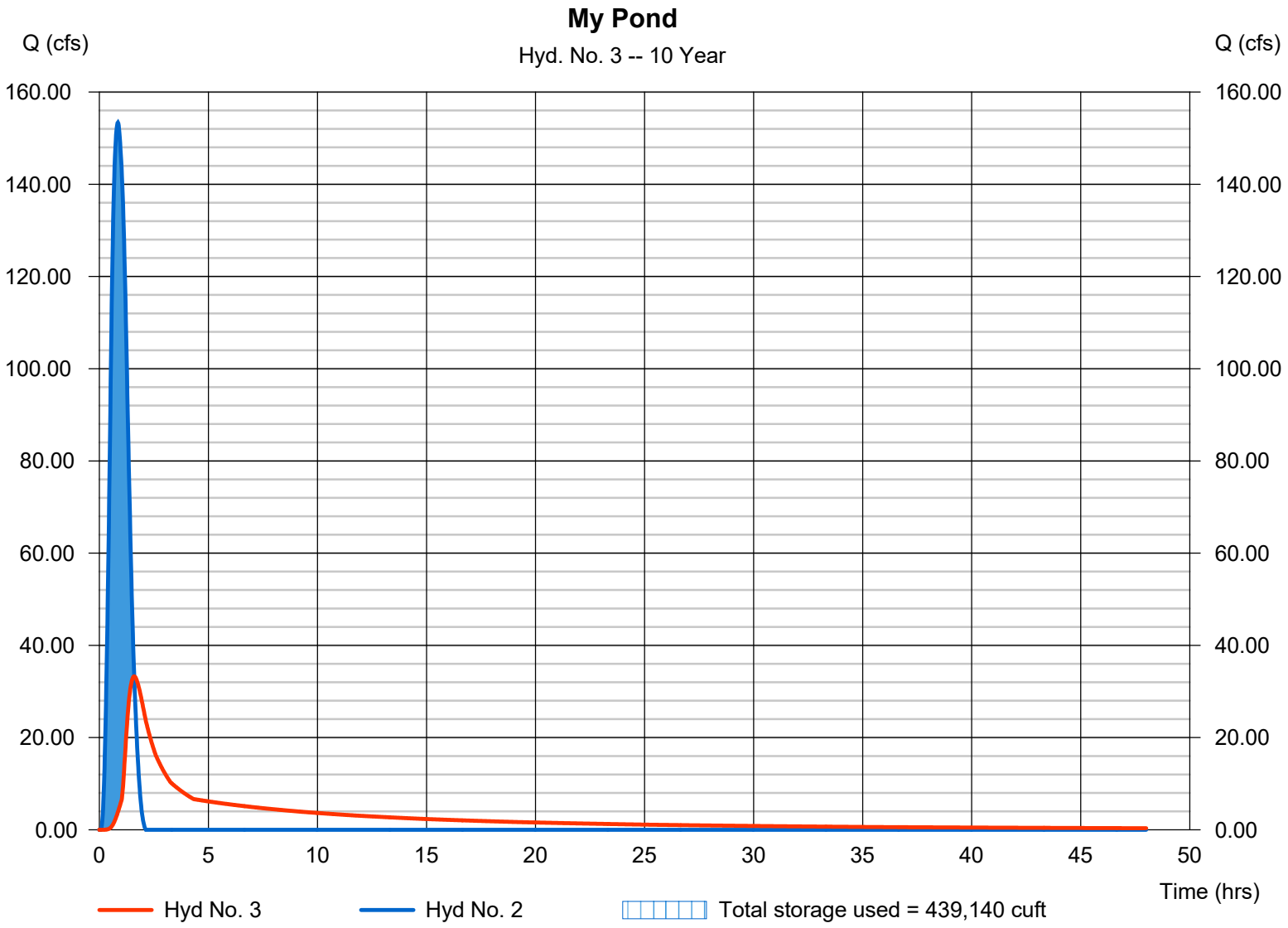
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 3

My Pond

Hydrograph type	= Reservoir	Peak discharge	= 33.28 cfs
Storm frequency	= 10 yrs	Time to peak	= 1.60 hrs
Time interval	= 1 min	Hyd. volume	= 471,073 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 101.41 ft
Reservoir name	= My Pond	Max. Storage	= 439,140 cuft

Storage Indication method used.



Hydrograph Report

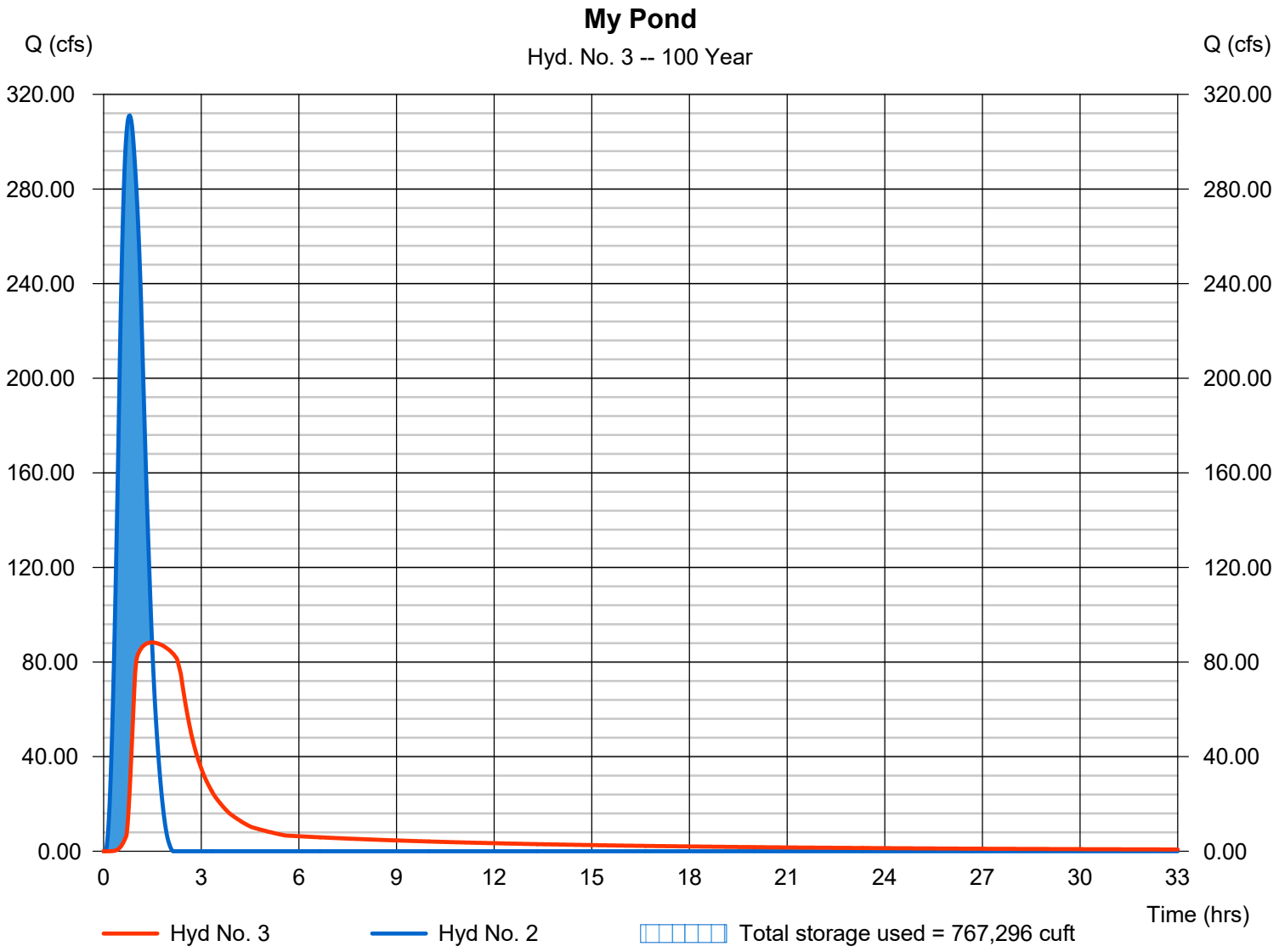
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 3

My Pond

Hydrograph type	= Reservoir	Peak discharge	= 88.27 cfs
Storm frequency	= 100 yrs	Time to peak	= 1.48 hrs
Time interval	= 1 min	Hyd. volume	= 988,160 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 102.43 ft
Reservoir name	= My Pond	Max. Storage	= 767,296 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - My Pond

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 99.99 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	99.99	00	0	0
0.01	100.00	300,000	1,500	1,500
1.01	101.00	313,000	306,500	308,000
2.01	102.00	323,000	318,000	626,000
3.01	103.00	332,000	327,500	953,500
4.01	104.00	333,000	332,500	1,286,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	Inactive	Inactive	Inactive
Span (in)	= 36.00	15.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 94.00	1240.00	0.00	0.00
Length (ft)	= 100.00	1.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .010	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	25.00	Inactive	Inactive
Crest El. (ft)	= 100.00	101.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Rect	---	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	99.99	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.01	1,500	100.00	72.11 ic	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.01	308,000	101.00	72.11 ic	0.00	---	---	6.66	0.00	---	---	---	---	6.660
2.01	626,000	102.00	83.31 ic	0.00	---	---	12.64 s	70.67 s	---	---	---	---	83.31
3.01	953,500	103.00	92.65 ic	0.00	---	---	10.36 s	82.26 s	---	---	---	---	92.62
4.01	1,286,000	104.00	99.02 ic	0.00	---	---	9.83 s	89.11 s	---	---	---	---	98.94

LAND USE AND INFRASTRUCTURE PLAN

STONE CREEK FALLS

A PLANNED DEVELOPMENT DISTRICT

A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11
A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST
CITY OF REPUBLIC, GREENE COUNTY, MISSOURI

SURVEY DESCRIPTION

SOURCE OF DESCRIPTION – BOOK 2020 PAGE 026224–20

A TRACT OF LAND, BEING A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, AND A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 NORTH 01°49'35" EAST, 46.90 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE NORTH 29°30'07" EAST A DISTANCE OF 1,320.77 FEET; THENCE CONTINUING ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 11,559.19 FEET, A DELTA OF 00°39'49", AN ARC LENGTH OF 133.85 FEET, AND A CHORD WHICH BEARS NORTH 29°10'12" EAST HAVING A CHORD DISTANCE OF 133.85 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG SAID NORTH LINE SOUTH 89°03'23" EAST, 646.94 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 SOUTH 01°47'15" WEST, 1,331.77 FEET TO A POINT ON THE NORTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 88°45'55" EAST ALONG SAID NORTH LINE 1,320.71 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 01°40'20" WEST ALONG THE EAST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11 A DISTANCE OF 388.84 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF U.S. HIGHWAY 60; THENCE SOUTH 57°27' 19" WEST ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 1,694.96 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER; THENCE NORTH 88°52'01" WEST ALONG SAID SOUTH LINE A DISTANCE OF 806.65 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE NORTH 32°25'12" WEST ALONG SAID EAST LINE A DISTANCE OF 780.16 FEET TO A POINT ON THE WEST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE NORTH 01°50'57" EAST ALONG SAID WEST LINE A DISTANCE OF 683.29 FEET TO THE POINT OF BEGINNING, AND CONTAINING 92.85 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

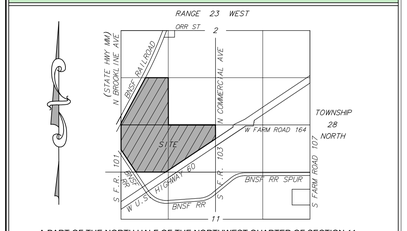
CURVE DATA

#	Radius	Delta	Length	Chord	Tangent	Chord Bearing
1	500.00'	62°38' 18"	546.82'	519.80'	304.23'	S 01°49' 02" E
2	500.00'	89°24' 30"	780.23'	703.45'	494.86'	S 77°50' 24" E
3	25.00'	106°39' 53"	46.54'	40.11'	33.58'	N 68°31' 52" W
4	25.00'	67°50' 37"	29.60'	27.90'	16.81'	N 27°27' 41" W
5	25.00'	72°42' 36"	31.73'	29.64'	18.40'	S 25°01' 41" W
6	742.00'	23°56' 06"	309.97'	307.72'	157.28'	S 20°35' 04" E
7	742.00'	02°37' 21"	33.96'	33.96'	16.98'	S 07°18' 21" E
8	500.00'	26°55' 38"	234.98'	232.83'	119.70'	S 47°55' 10" W
9	500.00'	22°59' 58"	200.71'	199.36'	101.72'	N 45°57' 20" E
10	25.00'	90°00' 00"	39.27'	35.36'	25.00'	N 12°27' 19" E
11	25.00'	90°00' 00"	39.27'	35.36'	25.00'	S 77°32' 41" E
12	25.00'	90°00' 00"	39.27'	35.36'	25.00'	S 12°27' 19" W
13	25.00'	90°00' 00"	39.27'	35.36'	25.00'	N 77°32' 41" W
14	25.00'	45°05' 57"	19.68'	19.17'	10.38'	N 06°57' 08" E
15	25.00'	45°05' 57"	19.68'	19.17'	10.38'	S 68°50' 24" E
16	25.00'	61°26' 30"	26.81'	25.54'	14.86'	S 60°13' 22" W
17	60.00'	151°38' 24"	158.80'	116.34'	237.47'	S 60°13' 22" W
18	807.00'	01°03' 03"	14.80'	14.80'	7.40'	S 05°56' 06" E

LAND USE SUMMARY

Lot Number	Area S.F.	Area Acres	Land Use
1	108,900	2.50	Commercial
2	118,693	2.72	Commercial
3	177,500	4.07	Commercial
4	152,124	3.49	Commercial
5	120,039	2.76	Commercial
6	217,800	5.00	Multi-Family
7	222,901	5.12	Multi-Family
8	217,767	5.00	Multi-Family
9	294,317	6.76	Multi-Family
10	218,467	5.02	Multi-Family
11	217,883	5.00	Multi-Family
12	217,800	5.00	Multi-Family
13	217,801	5.00	Multi-Family
14	217,800	5.00	Multi-Family
15	217,800	5.00	Multi-Family
16	274,836	6.31	Multi-Family
Common Area 1	276,755	6.35	Common Area
Common Area 2	158,468	3.64	Common Area
Street Right of Way	396,884	9.11	Right of Way
Total	4,044,536	92.85	
Lot Number	Area S.F.	Area Acres	Land Use
Total Commercial (Lots 1-5)	677,256	15.55	Commercial
Total Multi-Family (Lots 6-16)	2,535,173	58.20	Multi-Family
Total Common Area	435,223	9.99	Common Area
Street Right of Way	396,884	9.11	Right of Way

VICINITY MAP



A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11
A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST

CONTOUR INTERVAL 2'

0 150' 300'
75' SCALE 1" = 150'

BASIS OF BEARINGS

BEARINGS ARE BASED UPON GRID NORTH, MISSOURI COORDINATE SYSTEM OF 1983, CENTRAL ZONE MISSOURI GEOGRAPHIC REFERENCE SYSTEM CONTROL MONUMENTS GR-50 & GR-50A.

BENCHMARK

MISSOURI GEOGRAPHIC REFERENCE SYSTEM MONUMENT GR-50
STANDARD DNR DISK SET IN 12" CONCRETE POST
EAST ROW LINE ROUTE ZZ
ELEVATION= 1227.69 NAVD 1988

POINT OF BEGINNING
NW COR. N 1/2 NW 1/4 SEC. 11, T28N, R23W

COURSE TABLE

LINE	BEARING	DISTANCE
L–1	N 01°49' 35" E	46.90'
L–2	N 21°57' 11" E	89.98'
L–3	S 82°13' 24" E	78.53'
L–4	N 32°33' 07" W	100.45'
L–5	N 32°33' 07" W	101.94'
L–6	N 23°34' 55" W	70.55'
L–7	S 35°46' 51" E	195.29'
L–8	S 32°33' 07" E	125.29'
L–9	N 61°22' 59" E	13.81'
L–10	S 61°22' 59" W	53.74'
L–11	N 61°22' 59" E	87.12'

LEGEND

B/S	BUILDING SETBACK
U/E	UTILITY EASEMENT
D/E	DRAINAGE EASEMENT
S/E	SANITARY SEWER EASEMENT
1250	EXISTING CONTOURS
PA PA PA	PROPERTY LINE
OHE OHE OHE	OVERHEAD ELECTRIC
EXS EXS EXS	EXISTING SANITARY SEWER LINE
S S S	PROPOSED SANITARY SEWER LINE
EXW EXW EXW	EXISTING WATER LINE
W W W	PROPOSED WATER LINE
EXG EXG EXG	EXISTING GAS LINE
UGC UGC UGC	UNDERGROUND CABLE
MH	SANITARY SEWER MANHOLE
PP	POWER POLE
FH	FIRE HYDRANT
CI	CURB INLET

The City of Republic is not responsible to build, improve, maintain, or otherwise service the ingress and egress way, driveway, drainage improvements, common areas, lakes, trails, and other appurtenances. Maintenance of all common areas and detention basin will be provided by a property owners association

Proposed Multi–Family Residential Density
1,396 Units — Land Area 58.20 Acres — 24 Units/Acre
Building Setbacks:
U.S. Highway 60 Frontage — 25 Feet
All other Front, Rear and Sides — 15 Feet
Maximum Building Height — 4 Story

Commercial Land Area 15.66 Acres.
Maximum Lot Coverage 90 percent
Building Setbacks:
Front — 15 Feet
Rear — 15 Feet
Side Street — 15 Feet
Interior Side — 6 Feet

KNOWN ALL MEN BY THESE PRESENTS THAT I, LAWRENCE E JANSEN, DO HEREBY DECLARE THAT THIS PLAT WAS PREPARED UNDER MY SUPERVISION FROM AN ACTUAL SURVEY OF THE LAND HEREIN DESCRIBED, AND THAT THE CORNER MONUMENTS AND LOT CORNER PINS SHOWN HEREON WERE PLACED UNDER THE PERSONAL SUPERVISION OF LAWRENCE E JANSEN LS 2385 IN ACCORDANCE WITH THE MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS, AND IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF REPUBLIC, MISSOURI.

Lawrence E Jansen 1-30-23
LAWRENCE E. JANSEN PLS 2385 DATE

CLASS "URBAN" SURVEY
EIP ● – EXISTING IRON PIN
SIP ○ – SET IRON PIN
–X–X– FENCELINE
P – PLAT DISTANCE
M – MEASURED DISTANCE
D– DEED DISTANCE
Job No.: 2103–041
Date: 1–30–2023
Location: HWY 60 & F.R. 103 REPUBLIC, MO

STATE OF MISSOURI
LAWRENCE EUGENE JANSEN
NUMBER LS–2385
REGISTERED LAND SURVEYOR
1-30-23

GLOBAL
PRECISION SURVEYING, L.L.C.
P.O. BOX 790, REPUBLIC, MO 65738
PHONE (417) 883-0300 FAX (417) 883-0335
CERTIFICATE OF AUTHORITY
NUMBER LS-2010000563

EXHIBIT 1

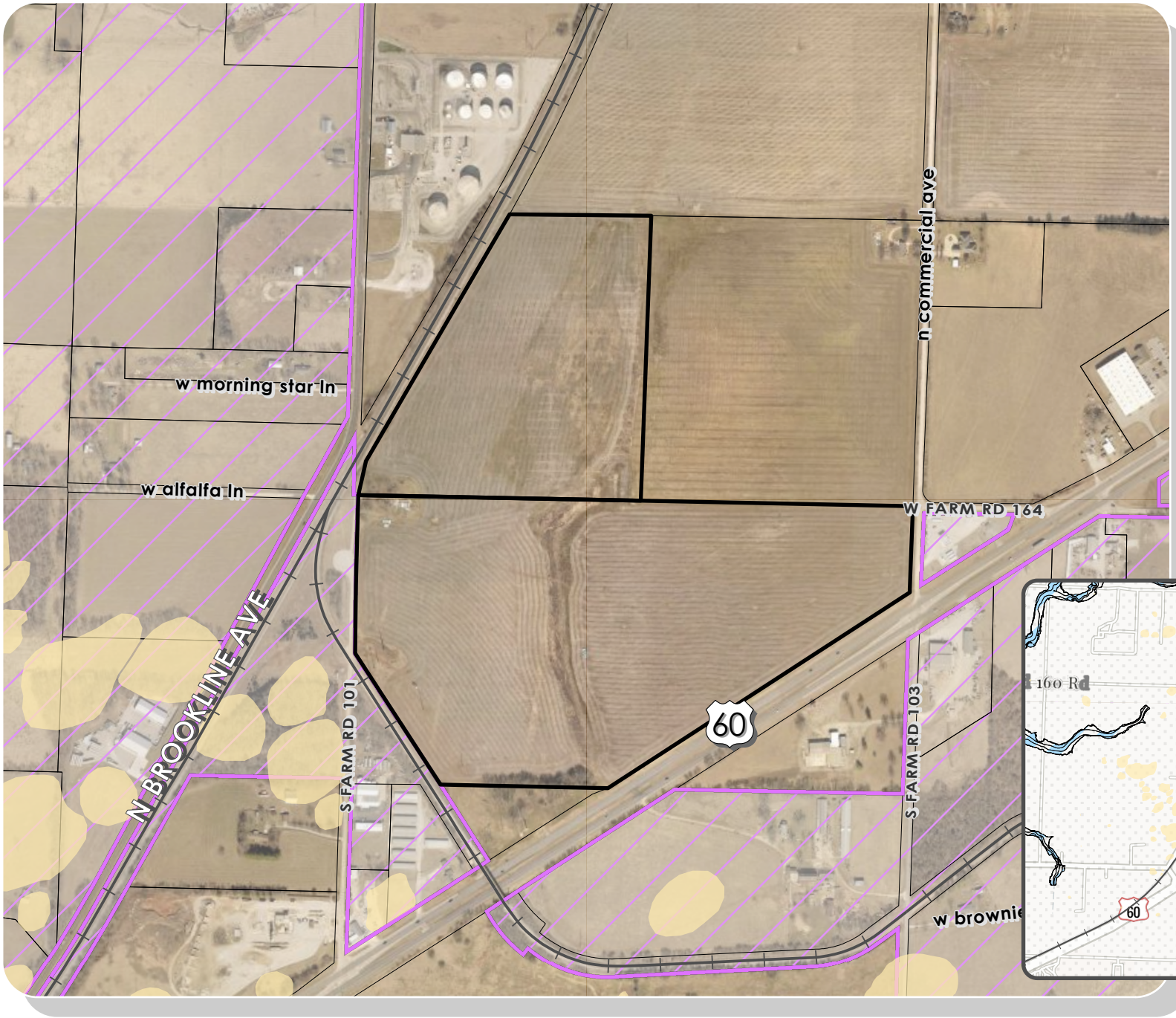
REPUBLIC MISSOURI

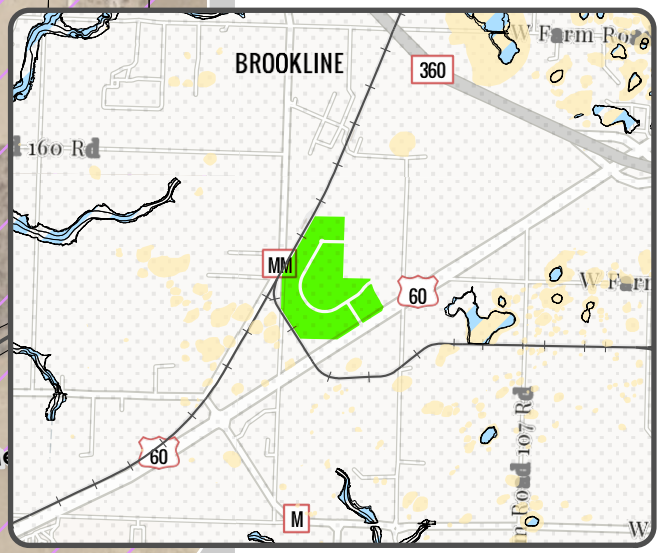
Project
Stone Creek Falls

Zoning
PDD

Requested Zoning
PDD

Acreage
92.85





0 575 1,150 Feet

PDD 23-001

Sinkholes
City Limits
Floodplain
Parcels Greene County

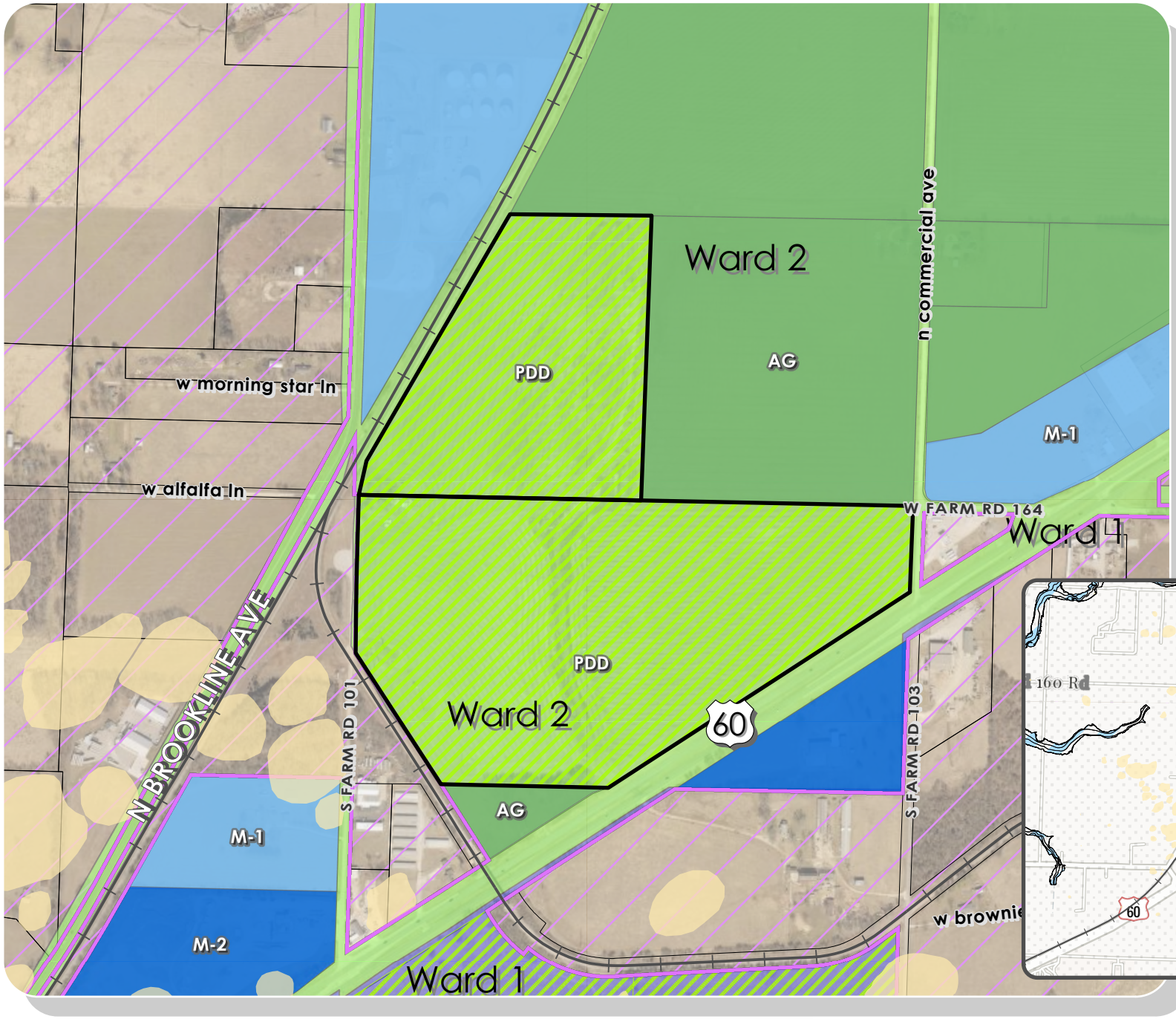
REPUBLIC MISSOURI

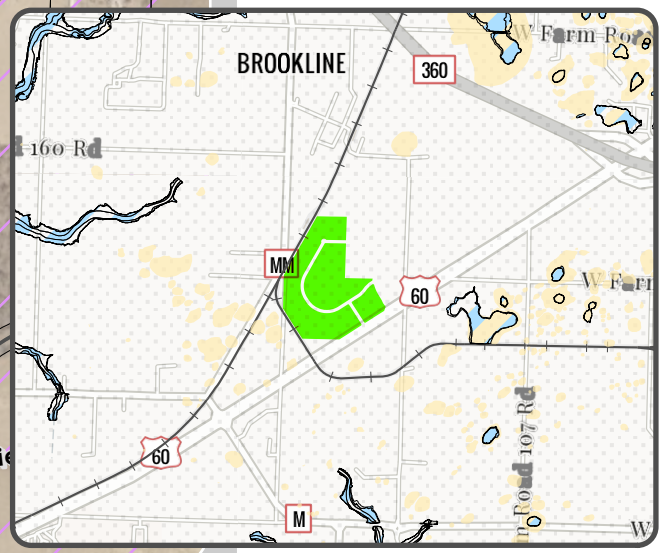
Project
Stone Creek Falls

Zoning
PDD

Requested Zoning
PDD

Acreage
92.85





0 575 1,150 Feet

PDD 23-001

Sinkholes
City Limits
Floodplain
Parcels Greene County

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 03/13/2023

Time: 6:00

Type of Application: Planned Development District

Name of Applicant: Stone Creek Falls PDD (PDD 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	◉ Yes	○ No
Conforming to the City's adopted Transportation Plan	◉ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	◉ Yes	○ No
Compatible with surrounding land uses	◉ Yes	○ No
Able to be adequately served by municipal infrastructure	◉ Yes	○ No
Aligned with the purposes of RSMo. 89.040	◉ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ◉ Approval ○ Denial

Commissioner Name:	Commissioner Signature:	Date:
Darran Campbell	Dana Cuccia	3-13-23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing:	Time:	Type of Application:
03/13/2023	6:00	Planned Development District

Name of Applicant:	Location:
Stone Creek Falls PDD (PDD 23-001)	City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ☑ Approval ○ Denial

Commissioner Name:	Commissioner Signature:	Date:
Michael Mann	Michael Mann	3/13/23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 03/13/2023

Time: 6:00

Type of Application: Planned Development District

Name of Applicant: Stone Creek Falls PDD (PDD 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ☑ Approval ○ Denial

Commissioner Name: Jeff Hays

Commissioner Signature:

Date: 3-13-2023

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 03/13/2023

Time: 6:00

Type of Application: Planned Development District

Name of Applicant: Stone Creek Falls PDD (PDD 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(X) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(X) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(X) Yes	( ) No
Compatible with surrounding land uses	(X) Yes	( ) No
Able to be adequately served by municipal infrastructure	(X) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(X) Yes	( ) No

Statement of Relevant Facts Found:

PDD already approved - looking for alteration

4 story permitted usage

Fire ability to service 4 story building? Yes

Based on these findings, I have concluded to recommend the application to the City Council for: (X) Approval ( ) Denial

Commissioner Name: Brian Daubraya

Commissioner Signature: [signature]

Date: 3-13-23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 03/13/2023

Time: 6:00

Type of Application: Planned Development District

Name of Applicant: Stone Creek Falls PDD (PDD 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☒ Yes	○ No
Conforming to the City's adopted Transportation Plan	☒ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☒ Yes	○ No
Compatible with surrounding land uses	☒ Yes	○ No
Able to be adequately served by municipal infrastructure	☒ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☒ Yes	○ No

Statement of Relevant Facts Found:

No comments

Based on these findings, I have concluded to recommend the application to the City Council for: ☒ Approval ○ Denial

Commissioner Name: John Alexander

Commissioner Signature:

Date: 3/13/23

BILL NO. 21-54 ORDINANCE NO. 21-54

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, APPROVING AMENDING THE ZONING CODE AND OFFICIAL MAP BY CHANGING THE CLASSIFICATION OF APPROXIMATELY 92.85 ACRES FROM AGRICULTURAL (AG) AND GENERAL COMMERCIAL (C-2) TO PLANNED DEVELOPMENT DISTRICT (PDD), LOCATED AT 3456 SOUTH FARM ROAD 101

WHEREAS, the City of Republic, Missouri, ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, an application for an amendment to the Zoning Code and Official Zoning Map to rezone real estate located at 3456 South Farm Road 101, and comprising approximately 92.85 acres from Agricultural (AG) and General Commercial (C-2) to Planned Development District (PDD), was submitted to the City's BUILDS Department by United Bank & Trust("Applicant"); and

WHEREAS, an application for approval of a development plan for the Stone Creek Falls Planned Development District identified as PDD 21-004 ("Development Plan") was received from Applicant; and

WHEREAS, the City did thereafter submit said application and Development Plan to the Planning and Zoning Commission, which did set July 12, 2021, as the date a public hearing would be held on such application and proposed amendment; and

WHEREAS, a notice of the time and date of the public hearing was given by publication on June 23, 2021, in *The Greene County Commonwealth,* a newspaper of general circulation in the City, such notice being at least 15 days before the date set for the public hearing; and

WHEREAS, the City gave notice of such public hearing to the record owners of all properties within the area proposed to be rezoned and within 185 feet of the property proposed to be rezoned; and

WHEREAS, a public hearing was conducted by the Planning and Zoning Commission on July 12, 2021, after which the Commission rendered written findings of fact on the proposed amendment, Development Plan, and rezoning and, thereafter, submitted the same, together with its recommendations, to the Council; and

WHEREAS, the Planning and Zoning Commission, by a vote of 5 Ayes to 0 Nay, recommended the approval of such application and Development Plan for rezoning; and

WHEREAS, the application for rezoning, Development Plan, and to amend the Zoning Code and Official Zoning Map was submitted to the City Council at its regular meeting on July 20, 2021, after which the City Council did proceed to vote to rezone such property, approve the Development Plan, and amend the Zoning Code accordingly.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1. The Zoning Code and Official Zoning Map are hereby amended insofar as the same relates to a certain tract of realty located located at 3456 South Farm Road 101, and comprising approximately 92.85 acres from Agricultural (AG) and General Commercial (C-2) to Planned Development District (PDD), such tract being more fully described as follows:

A TRACT OF LAND, BEING A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, AND A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 NORTH 01°49'35" EAST, 46.90 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE NORTH 29°30'07" EAST A DISTANCE OF 1,320.77 FEET; THENCE CONTINUING ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 11,559.19 FEET, A DELTA OF 00°39'49", AN ARC LENGTH OF 133.85 FEET, AND A CHORD WHICH BEARS NORTH 29°10'12" EAST HAVING A CHORD DISTANCE OF 133.85 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG SAID NORTH LINE SOUTH 89°03'23" EAST, 646.94 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 SOUTH 01°47'15" WEST, 1,331.77 FEET TO A POINT ON THE NORTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 88°45'55" EAST ALONG SAID NORTH LINE 1,320.71 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 01°40'20" WEST ALONG THE EAST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11 A DISTANCE OF 388.84 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF U.S. HIGHWAY 60; THENCE SOUTH 57°27'19" WEST ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 1,694.96 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER; THENCE NORTH 88°52'01" WEST ALONG SAID SOUTH LINE A DISTANCE OF 806.65 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE NORTH 32°25'12" WEST ALONG SAID EAST LINE A DISTANCE OF 780.16 FEET TO A POINT ON THE WEST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE NORTH 01°50'57" EAST ALONG SAID WEST LINE A DISTANCE OF 683.29 FEET TO THE POINT OF BEGINNING, AND CONTAINING 92.85 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

Section 2. The Development Plan, as incorporated and attached to this Ordinance, is hereby approved and adopted by the Council along with any modifications and conditions imposed herein.

Section 3. Unless otherwise specifically defined by the approved Development Plan, the development of the tracts of realty contained herein will be regulated according to the requirements of the City of Republic's Municipal Code of Ordinances.

Section 4. In all other aspects other than those herein amended, modified, or changed, the Zoning Code and Official Zoning Map shall remain the same and continue in full force and effect.

Section 5. The whereas clauses are hereby specifically incorporated herein by reference.

Section 6. This Ordinance shall take effect and be in force from and after its passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this 3rd day of August 2021.

Matt Russell, Mayor

Attest:

Laura Burbridge, City Clerk

Approved as to Form: _____, City Attorney

Final Passage and Vote: The vote was 7 AyeUpdike, Deichman, Pool, Grooms, Mitchell, Wilson, and Franklin. 0 Nay. Motion Carried.

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-14 An Ordinance of the City Council Vacating Approximately Eight Thousand Four Hundred and Forty-Three (8,443) Square Feet of Unoccupied Utility Easements at the 3000 Block of East Sawyer Road (VACA-003).
Submitted By:	Chris Tabor, Principal Planner, BUILDS Department
Date:	April 11, 2023

Issue Statement

The BUILDS Department is requesting the vacation of approximately (8,443.73) square feet of Utility Easements at the 3000 Block of E Sawyer Rd (Parcel Identification Number: 1434400006).

Discussion and/or Analysis

The BUILDS Department is requesting the vacation of approximately (8,443.73) square feet of utility easement currently present on the site of the land owned by the City of Republic.

The City is in the process of decommissioning the Brookline South Lift Station and removing sewer main located within the easement. A new lift station is being constructed to the west side of the Hankins Subdivision. The move increases the coverage area of the wastewater system and enhances system capacity. It has been determined that the holding of these easements is no longer necessary.

The following contains brief analyses of present site conditions as well as the proposal's relationship to adopted plans of the City:

Transportation: The proposal has no anticipated adverse impact on the City's transportation system.

Land Use: The proposal has positive development impact to the subject property and to adjacent properties.

Municipal Utilities: The proposal has no anticipated adverse impact on the City's water, wastewater, or stormwater systems currently in place.

Other Public Services: The proposal is not anticipated to have any impact on any other public services.

Emergency Services: The proposal has no anticipated impact on emergency services.

Recommended Action

The BUILDS Department recommends approval of the requested Utility Easement Vacation.

AN ORDINANCE OF THE CITY COUNCIL VACATING APPROXIMATELY EIGHT THOUSAND FOUR HUNDRED AND FORTY-THREE (8,443) SQUARE FEET OF UNOCCUPIED UTILITY EASEMENTS AT THE 3000 BLOCK OF EAST SAWYER ROAD (VACA-003)

WHEREAS, the City of Republic, Missouri, ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, the City has requested that Council vacate approximately eight thousand four hundred and forty-three point seven three (8,443.73) square feet of utility easements on property currently owned by the City of Republic ("Proposed Vacated Area"); and

WHEREAS, the City is in the process of decommissioning the Brookline South Lift Station and removing sewer main located within the Proposed Vacated Area; and

WHEREAS, the Proposed Vacated Area is more fully identified in the legal description as follows:

> VACATING A PORTION OF A UTILITY EASEMENT RECORDED IN BOOK 2051, PAGE 1801. PORTION BEING VACATED DESRIBED AS FOLLOWS: LOCATED IN THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER SECTION 34, TOWNSHIP 29 NORTH, RANGE 23 WEST GREENE COUNTY, MISSOURI; COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 34, TOWNSHIP 29 NORTH, RANGE 23 WEST SITUATED IN THE CITY OF REPUBILC, GREENE COUNTY, MISSOURI; THENCE N88°13'40"W ALONG THE SOUTH LINE OF QUARTER SECTION 34, A DISTANCE OF 1230.43 FEET; THENCE N01°37'31"E A DISTANCE OF 16.70 FEET TO A POINT ON THE APPEARENT NORTH RIGHT-OF-WAY LINE OF FARM ROAD NO 156; FOR A POINT OF BEGINNING; THENCE N87°53'37"W ALONG SAID LINE A DISTANCE OF 25.00 FEET; THENCE N01°37'31"E A DISTANCE OF 181.36 FEET; THENCE N90°00'00"E A DISTANCE OF 18.00 FEET; THENCE N00°00'00"W A DISTANCE OF 48.87 FEET; THENCE S79°19'31"W A DISTANCE OF 25.59 FEET TO A POINT ON GRANTORS WEST LINE; THENCE ALONG SAID WEST LINE N01°45'58"E A DISTANCE OF 15.36 FEET; THENCE LEAVING SAID WEST LINE N79°19'31"E A DISTANCE OF 40.37 FEET; THENCE S00°00'00"E A DISTANCE OF 66.96 FEET; THENCE N90°00'00"E A DISTANCE OF 42.00 FEET; THENCE S00°00'00"E A DISTANCE OF 50.00 FEET; THENCE N90°00'00"W A DISTANCE OF 51.41 FEET; THENCE S01°37'31"W A DISTANCE OF 132.26 FEET; TO THE POINT OF BEGINNING.

WHEREAS, the City previously submitted its application ("Application") to vacate the Proposed Vacated Area to the Planning and Zoning Commission ("P&Z Commission"), which then set a public hearing on the Application for April 10, 2023; and

WHEREAS, a notice of the time and date of the public hearing was given by publication on March 22, 2023 in the *Greene County Commonwealth*, a newspaper of general circulation in the City, at least fifteen (15) days in advance of the public hearing; and

WHEREAS, the City gave notice of the public hearing to the record owners of all properties within 185 feet of the Proposed Vacated Area, including all properties adjacent to the Proposed Vacated Area; and

WHEREAS, the P&Z Commission conducted the public hearing on April 10, 2023 and subsequently recommended approval of the Application by a vote of 7 Ayes to 0 Nays; and

WHEREAS, the P&Z submitted written findings of fact and its recommendation on the Application to the Council; and

WHEREAS, the request to vacate was first presented to the City Council at its regular meeting on April 11, 2023, and was again presented for its final read to the City Council at its regular meeting on May 2, 2023, at which time the Council approved the vacation of the Proposed Vacated Area, as requested in the initial application and as recommended by the P&Z Commission.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1: The approximately eight thousand four hundred and forty-three point seven three (8,443.73) square feet of unoccupied utility easement, more fully described in the Legal Description contained herein above, is hereby vacated, and the same shall revert to the affected owner(s) in the same proportion(s) as it was originally taken.

Section 2: The City Clerk is hereby directed to record a certified copy of this Ordinance with the Recorder of Deeds for Greene County, Missouri.

Section 3: The whereas clauses are hereby specifically incorporated herein by reference.

Section 4: The provisions of this Ordinance are severable, and if any provision hereof is declared invalid, unconstitutional, or unenforceable, such determination shall not affect the validity of the remainder of this Ordinance.

Section 5: This Ordinance shall take effect and be in force from and after its passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Matt Russell, Mayor

Attest:

_____
Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

REPUBLIC MISSOURI

Project
Vacation

Zoning
PDD

Acreage
0.2

Ward
2

0 30 60 Feet

VACA 23-003 & 004

Property Line
Site Extent
Floodplain
Sinkholes

EXHIBIT "A"

GRANTOR(S): CITY OF REPUBLIC MO,
GRANTEE: CITY OF REPUBLIC MO,

VACATING A PORTION OF A UTILITY EASEMENT RECORDED IN BOOK 2051, PAGE 1801. PORTION BEING VACATED DESRIBED AS FOLLOWS:

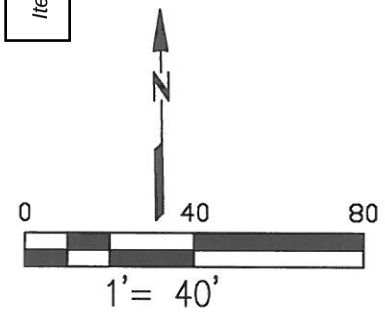
LOCATED IN THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER SECTION 34, TOWNSHIP 29 NORTH, RANGE 23 WEST GREENE COUNTY, MISSOURI;
COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 34, TOWNSHIP 29 NORTH, RANGE 23 WEST SITUATED IN THE CITY OF REPUBILC, GREENE COUNTY, MISSOURI; **THENCE** N88°13'40"W ALONG THE SOUTH LINE OF QUARTER SECTION 34, A DISTANCE OF 1230.43 FEET; THENCE N01°37'31"E A DISTANCE OF 16.70 FEET TO A POINT ON THE APPEARENT NORTH RIGHT-OF-WAY LINE OF FARM ROAD NO 156; **FOR A POINT OF BEGINNING; THENCE** N87°53'37"W ALONG SAID LINE A DISTANCE OF 25.00 FEET; **THENCE** N01°37'31"E A DISTANCE OF 181.36 FEET; **THENCE** N90°00'00"E A DISTANCE OF 18.00 FEET; **THENCE** N00°00'00"W A DISTANCE OF 48.87 FEET; **THENCE** S79°19'31"W A DISTANCE OF 25.59 FEET TO A POINT ON GRANTORS WEST LINE; **THENCE** ALONG SAID WEST LINE N01°45'58"E A DISTANCE OF 15.36 FEET; **THENCE** LEAVING SAID WEST LINE N79°19'31"E A DISTANCE OF 40.37 FEET; **THENCE** S00°00'00"E A DISTANCE OF 66.96 FEET; **THENCE** N90°00'00"E A DISTANCE OF 42.00 FEET; **THENCE** S00°00'00"E A DISTANCE OF 50.00 FEET; **THENCE** N90°00'00"W A DISTANCE OF 51.41 FEET; **THENCE** S01°37'31"W A DISTANCE OF 132.26 FEET; **TO THE POINT OF BEGINNING.**

CONTAINING 8,443.73 SQUARE FEET. (MORE OR LESS)

NEW AREA OF EASEMENT BEING SUBJECT TO ALL EXISTING EASEMENTS OF RECORD.

BEARINGS BASED ON GRID NORTH, CENTRAL ZONE OF THE MISSOURI COORDINATE SYSTEM OF 1983.

EXHIBIT "B"



N79°19'31"E
40.37'

N01°45'58"E
15.36'

PORTION OF GENERAL UTILITY EASEMENT TO BE VACATED BK. 2051, PG. 1801

15' GENERAL UTILITY EASEMENT

25.59'
S79°19'31"W

N00°00'00"W
48.87'

S00°00'00"E
66.96'

CITY OF REPUBLIC
BK. 2009 PG.044280-09

N90°00'00"E
42.00'

18.00'
N90°00'00"E

S00°00'00"E
50.00'

REPUBLIC 63 LLC
BK. 2021 PG. 004404-21

51.41'
N90°00'00"W

N01°37'31"E
181.36'

PROPERTY LINE

132.26'
S01°37'31"W

POINT OF BEGINNING

16.70'
N01°37'31"E

25.00'
N87°53'37"W

POINT OF COMMENCEMENT
SOUTHEAST CORNER OF
SECTIONS 34 TOWNSHIP 29 NORTH
RANGE 23 WEST

1230.43'
N88°13'40"W

E SAWYER RD

REPUBLIC BUILDS
Public Works - Community Development

THIS EXHIBIT WAS PRODUCED BY PUBLIC WORKS DEPARTMENT OF THE CITY OF REPUBLIC AS A VISUAL AID DEPICTING THE APPROXIMATE CONFIGURATION OF EASEMENT DESCRIBED IN EXHIBIT "A".

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing:	Time:	Type of Application:
04/10/2023	6:00	Vacation

Name of Applicant:	Location:
City of Republic (VAC 23-003)	City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(A) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(A) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(A) Yes	( ) No
Compatible with surrounding land uses	(A) Yes	( ) No
Able to be adequately served by municipal infrastructure	(A) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(A) Yes	( ) No

Statement of Relevant Facts Found:

City of Republic owned property
Decom of the lift station and removal of sewer

Based on these findings, I have concluded to recommend the application to the City Council for: (A) Approval ( ) Denial

Commissioner Name:	Commissioner Signature:	Date:
Brian Daubroud	B	4-10-23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-003)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	⊘ Yes	○ No
Conforming to the City's adopted Transportation Plan	⊘ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	⊘ Yes	○ No
Compatible with surrounding land uses	⊘ Yes	○ No
Able to be adequately served by municipal infrastructure	⊘ Yes	○ No
Aligned with the purposes of RSMo. 89.040	⊘ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ⊘ Approval ○ Denial

Commissioner Name: CYNTHIA HYDER

Commissioner Signature: C. Hyder

Date: 4/10/23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-003)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Property owned by City.

Based on these findings, I have concluded to recommend the application to the City Council for: ☑ Approval ○ Denial

Commissioner Name: Rawson Ellis III

Commissioner Signature:

Date: 4/10/23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-003)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(●) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(●) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(●) Yes	( ) No
Compatible with surrounding land uses	(●) Yes	( ) No
Able to be adequately served by municipal infrastructure	(●) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(●) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (●) Approval ( ) Denial

Commissioner Name: Darran Campbell

Commissioner Signature: [signature]

Date: 4-10-23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-003)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ○ Approval ○ Denial

Commissioner Name: Jeff Hays

Commissioner Signature:

Date: 4/10/23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-003)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(X) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(X) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(X) Yes	( ) No
Compatible with surrounding land uses	(X) Yes	( ) No
Able to be adequately served by municipal infrastructure	(X) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(X) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (X) Approval ( ) Denial

Commissioner Name: Michael Mann

Commissioner Signature: [signature]

Date: 4/10/23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-003)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☒ Yes	☐ No
Conforming to the City's adopted Transportation Plan	☒ Yes	☐ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☒ Yes	☐ No
Compatible with surrounding land uses	☒ Yes	☐ No
Able to be adequately served by municipal infrastructure	☒ Yes	☐ No
Aligned with the purposes of RSMo. 89.040	☒ Yes	☐ No

Statement of Relevant Facts Found:

Associated with move of sewer infra.

Based on these findings, I have concluded to recommend the application to the City Council for: ☒ Approval ☐ Denial

Commissioner Name: John Alexander

Commissioner Signature:

Date: 4/10/23

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-15 An Ordinance of the City Council Vacating Approximately Five Hundred Thirty Seven (537) Square Feet of Utility Easement Owned by Republic 63, LLC at the 3000 Block of East Sawyer Road (VACA-004).
Submitted By:	Chris Tabor, Principal Planner, BUILDS Department
Date:	April 11, 2023

Issue Statement

The BUILDS Department is requesting the vacation of approximately (537.22) square feet of Utility Easement at the 3000 Block of E Sawyer Rd (Parcel Identification Number: 1434400003).

Discussion and/or Analysis

The BUILDS Department is requesting the vacation of approximately (537.22) square feet of utility easement currently present on the site of the land owned by Republic 63 LLC.

The City is in the process of adjusting and improving the sewer infrastructure within the Hankins subdivision, including moving a lift station. The move is part of a connected project, which will see the Brookline South Lift Station relocated to the west on the Hankins property to increase the coverage area of the wastewater system while upgrading the lift station from its previous configuration. It has been determined that the holding of this easement is no longer necessary.

Once vacated, the rights associated with the easement will return to the property owner, Republic 63 LLC.

The following contains brief analyses of present site conditions as well as the proposal's relationship to adopted plans of the City:

Transportation: The proposal has no anticipated adverse impact on the City's transportation system.

Land Use: The proposal has positive development impact to the subject property and to adjacent properties.

Municipal Utilities: The proposal has no anticipated adverse impact on the City's water, wastewater, or stormwater systems currently in place.

Other Public Services: The proposal is not anticipated to have any impact on any other public services.

Emergency Services: The proposal has no anticipated impact on emergency services.

Recommended Action

The BUILDS Department recommends approval of the requested Utility Easement Vacation.

AN ORDINANCE OF THE CITY COUNCIL VACATING APPROXIMATELY FIVE HUNDRED THIRTY SEVEN (537) SQUARE FEET OF UTILITY EASEMENT OWNED BY REPUBLIC 63, LLC AT THE 3000 BLOCK OF EAST SAWYER ROAD (VACA-004)

WHEREAS, the City of Republic, Missouri, ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, the City has requested that Council vacate approximately five hundred thirty seven point twenty two (537.22) square feet of unoccupied utility easement ("Proposed Vacated Area") on property currently owned by Republic 63, LLC, located at the 3000 block of East Sawyer Road; and

WHEREAS, the Proposed Vacated Area is more fully identified in the legal description as follows:

> COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 34, TOWNSHIP 29 NORTH, RANGE 23 WEST SITUATED IN THE CITY OF REPUBILC, GREENE COUNTY, MISSOURI; THENCE N88°13'40"W ALONG THE SOUTH LINE OF QUARTER SECTION 34, A DISTANCE OF 1230.43 FEET; THENCE N01°37'31"E A DISTANCE OF 16.70 FEET TO A POINT ON THE APPEARENT NORTH RIGHT-OF-WAY LINE OF FARM ROAD NO 156; FOR A POINT OF BEGINNING; THENCE N87°53'37"W ALONG SAID LINE A DISTANCE OF 25.00 FEET; THENCE N01°37'31"E A DISTANCE OF 181.36 FEET; THENCE N90°00'00"E A DISTANCE OF 18.00 FEET; THENCE N00°00'00"W A DISTANCE OF 48.87 FEET; THENCE S79°19'31"W A DISTANCE OF 25.59 FEET TO A POINT ON GRANTORS WEST LINE; THENCE ALONG SAID WEST LINE N01°45'58"E A DISTANCE OF 15.36 FEET; THENCE LEAVING SAID WEST LINE N79°19'31"E A DISTANCE OF 40.37 FEET; THENCE S00°00'00"E A DISTANCE OF 66.96 FEET; THENCE N90°00'00"E A DISTANCE OF 42.00 FEET; THENCE S00°00'00"E A DISTANCE OF 50.00 FEET; THENCE N90°00'00"W A DISTANCE OF 51.41 FEET; THENCE S01°37'31"W A DISTANCE OF 132.26 FEET; TO THE POINT OF BEGINNING.

WHEREAS, the City previously submitted its application ("Application") to vacate the Proposed Vacated Area to the Planning and Zoning Commission ("P&Z Commission"), which then set a public hearing on the Application for April 10, 2023; and

WHEREAS, the City published notice of the time and date of the public hearing at least fifteen (15) days in advance, on March 22, 2023, in the *Greene County Commonwealth*, a newspaper of general circulation in the City; and

WHEREAS, the City gave notice of the public hearing to the record owners of all properties within 185 feet of the Proposed Vacated Area, including all properties adjacent to the Proposed Vacated Area; and

WHEREAS, the P&Z Commission conducted the public hearing on April 10, 2023 and subsequently recommended approval of the Application by a vote of 7 Ayes to 0 Nays; and

WHEREAS, the P&Z submitted written findings of fact and its recommendation on the Application to the Council; and

WHEREAS, having now reviewed the Application upon first read at its regular meeting on April 11, 2023, and second read at its regular meeting on May 2, 2023, the Council finds all requirements for the Application are met and approves vacation of the Proposed Vacated Area as requested in the Application.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1: The approximately five hundred thirty seven point twenty two (537.22) square feet of unoccupied utility easement, more fully described in the Legal Description contained herein above, is hereby vacated, and the same shall revert to the affected owner(s) in the same proportion(s) as it was originally taken.

Section 2: The City Clerk is hereby directed to record a certified copy of this Ordinance with the Recorder of Deeds for Greene County, Missouri.

Section 3: The whereas clauses are hereby specifically incorporated herein by reference.

Section 4: The provisions of this Ordinance are severable, and if any provision hereof is declared invalid, unconstitutional, or unenforceable, such determination shall not affect the validity of the remainder of this Ordinance.

Section 5: This Ordinance shall take effect and be in force from and after its passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Matt Russell, Mayor

Attest:

_____
Laura Burbridge, City Clerk

Approved as to Form:

_____
Megan McCullough, City Attorney

Final Passage and Vote:

REPUBLIC MISSOURI

Project
Vacation

Zoning
PDD

Acreage
0.2

Ward
2

0 30 60 Feet

VACA 23-003 & 004

Property Line
Site Extent
Floodplain
Sinkholes

EXHIBIT "A"

GRANTOR(S): CITY OF REPUBLIC MO,
GRANTEE: REPUBLIC 63 LLC

VACATING A PORTION OF A UTILITY EASEMENT RECORDED IN BOOK 2051, PAGE 1801. PORTION BEING VACATED DESRIBED AS FOLLOWS:

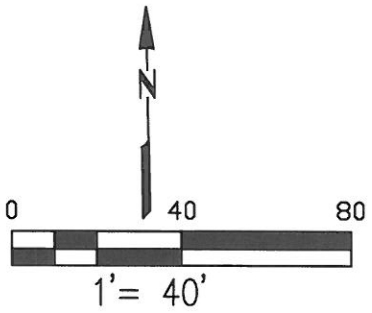
LOCATED IN THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER SECTION 34, TOWNSHIP 29 NORTH, RANGE 23 WEST GREENE COUNTY, MISSOURI;
COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 34, TOWNSHIP 29 NORTH, RANGE 23 WEST SITUATED IN THE CITY OF REPUBILC, GREENE COUNTY, MISSOURI; **THENCE** N88°13'40"W ALONG THE SOUTH LINE OF QUARTER SECTION 34, A DISTANCE OF 1264.42 FEET TO A POINT ON GRANTORS WEST LINE; **THENCE** N01°45'58"E ALONG SAID LINE A DISTANCE OF 242.09 FEET; **FOR A POINT OF BEGINNING; THENCE** S79°19'31"W LEAVING SAID WEST LINE A DISTANCE OF 35.80 FEET; **THENCE** N01°37'31"E A DISTANCE OF 15.35 FEET; **THENCE** N79°19'31"E A DISTANCE OF 35.84 FEET TO A POINT ON GRANTORS WEST LINE; **THENCE** S01°45'58"W ALONG SAID WEST LINE A DISTANCE OF 15.36 FEET; **TO THE POINT OF BEGINNING.**

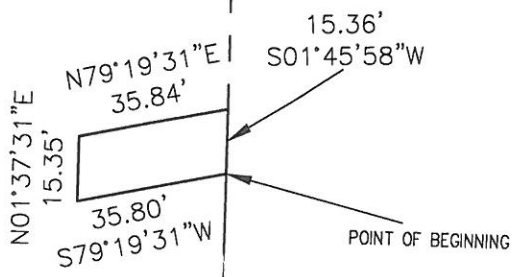
CONTAINING 537.22 SQUARE FEET. (MORE OR LESS)

NEW AREA OF EASEMENT BEING SUBJECT TO ALL EXISTING EASEMENTS OF RECORD.

BEARINGS BASED ON GRID NORTH, CENTRAL ZONE OF THE MISSOURI COORDINATE SYSTEM OF 1983.

EXHIBIT "B"





CITY OF REPUBLIC
BK. 2009 PG.044280-09

REPUBLIC 63 LLC
BK. 2021 PG. 004404-21

PROPERTY LINE

242.09'
N01°45'58"E

POINT OF COMMENCEMENT
SOUTHEAST CORNER OF
SECTIONS 34 TOWNSHIP 29 NORTH
RANGE 23 WEST

1264.42'
N88°13'40"W

E SAWYER RD

REPUBLIC BUILDS
Public Works • Community Development

THIS EXHIBIT WAS PRODUCED BY PUBLIC WORKS DEPARTMENT OF THE CITY OF REPUBLIC AS A VISUAL AID DEPICTING THE OXIMATE CONFIGURATION OF EASEMENT DESCRIBED IN T "A".

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing:	Time:	Type of Application:
04/10/2023	6:00	Vacation

Name of Applicant:	Location:
City of Republic (VAC 23-004)	City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(X) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(X) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(X) Yes	( ) No
Compatible with surrounding land uses	(X) Yes	( ) No
Able to be adequately served by municipal infrastructure	(X) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(X) Yes	( ) No

Statement of Relevant Facts Found:

Vacation of utility easement used for access to now decommissioned lift station

Based on these findings, I have concluded to recommend the application to the City Council for: (X) Approval ( ) Denial

Commissioner Name:	Commissioner Signature:	Date:
Brian Dorbrava	B	4-10-23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-004)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	◉ Yes	○ No
Conforming to the City's adopted Transportation Plan	◉ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	◉ Yes	○ No
Compatible with surrounding land uses	◉ Yes	○ No
Able to be adequately served by municipal infrastructure	◉ Yes	○ No
Aligned with the purposes of RSMo. 89.040	◉ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ◉ Approval ○ Denial

Commissioner Name: CYNTHIA HYDER

Commissioner Signature: C Hyder

Date: 4/10/23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-004)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Property owned by Republic 63,

Based on these findings, I have concluded to recommend the application to the City Council for: ☑ Approval ○ Denial

Commissioner Name: RANDAL ELLIS ICC

Commissioner Signature:

Date: 4/10/23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-004)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(●) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(●) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(●) Yes	( ) No
Compatible with surrounding land uses	(●) Yes	( ) No
Able to be adequately served by municipal infrastructure	(●) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(●) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (●) Approval ( ) Denial

Commissioner Name: Darran Campbell

Commissioner Signature: Darran Campbell

Date:

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-004)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ○ Approval ○ Denial

Commissioner Name: Jeff Hays

Commissioner Signature:

Date: 4/10/23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-004)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(X) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(X) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(X) Yes	( ) No
Compatible with surrounding land uses	(X) Yes	( ) No
Able to be adequately served by municipal infrastructure	(X) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(X) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (X) Approval ( ) Denial

Commissioner Name: Michael Mann

Commissioner Signature: Michael Mann

Date: 4/10/23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2023

Time: 6:00

Type of Application: Vacation

Name of Applicant: City of Republic (VAC 23-004)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☒ Yes	○ No
Conforming to the City's adopted Transportation Plan	☒ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☒ Yes	○ No
Compatible with surrounding land uses	☒ Yes	○ No
Able to be adequately served by municipal infrastructure	☒ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☒ Yes	○ No

Statement of Relevant Facts Found:

Associated with movement of sewer infra.

Based on these findings, I have concluded to recommend the application to the City Council for: ☒ Approval ○ Denial

Commissioner Name: John Alexander

Commissioner Signature:

Date: 4/10/23

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-R-23 A Resolution of The City Council Authorizing the BUILDS Department To Apply For Grants Through The Ozarks Transportation Organization for the Addition of Trails and Expansion of Pedestrian Facilities.
Submitted By:	Garrett Brickner, Assistant BUILDS Administrator
Date:	April 11, 2023

Issue Statement

The BUILDS Department would like to apply for Multiple Grants Through The Ozarks Transportation Organization To Be Used For Trail, Side Path, and Pedestrian Facility Expansion.

Discussion and/or Analysis

Grant 1 - OTO/MoDOT Sidewalk Cost Share Program
Project – Addition of Trail/Side Path along new MM alignment from US 60 to termination to be determined in design. This will be part of the overall trail plan for the City and will be a major connection from the existing/planned trail network and the City's new Park Facility near James River Freeway. Constructed and designed by MoDOT as part of the MM job.
Cost Estimated by MoDOT: $855,000
Distribution: MoDOT 50% - $427,500 OTO 40% - 342,000 COR 10% - $85,500

Grant 2 – OTO – Spring Call for projects funded through Transportation Alternatives Plan and Carbon Reduction Funding
Project – Addition of Pedestrian underpass on new MM alignment at end of Trail/Side path from "Grant 1" above to connect to sidewalks on other side of road before crossing bridge over RR. Constructed and designed by MoDOT as part of their job.
Cost Estimated by MoDOT: $292,295
Distribution: OTO 80% - $232,236 COR 20% - $58,459

Grant 3 – OTO – Spring Call for projects funded through Transportation Alternatives Plan and Carbon Reduction Funding
Project – Phase 2 of Shuyler Creek Trail from current termination to Wilson's Creek National Battlefield. Currently we have $866,099 in federal funds for this ~$2.4 Million project. What we will apply for is the remainder of the project, bringing the match back to the 80/20 required.

Estimated Total Cost Phase 1 & 2 By Olsson: $2,431,060.50
Current Distribution: OTO/MoDOT 43% - $866,099 COR 57% - $1,564,961.50
Phase 2 request total $1,078,749.40 from OTO
Final Distribution: OTO 80% - $1,944,848.40 COR 20% - $486,212.10

Approval of all three of these Grants would result in a net savings to the City of approximately $930,000.

Recommended Action

Staff recommends approval to apply for these three grants and will bring them back individually for approval if awarded.

A RESOLUTION OF THE CITY COUNCIL AUTHORIZING THE BUILDS DEPARTMENT TO APPLY FOR GRANTS THROUGH THE OZARKS TRANSPORTATION ORGANIZATION FOR THE ADDITION OF TRAILS AND EXPANSION OF PEDESTRIAN FACILITIES

WHEREAS, the City of Republic, Missouri, ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, the BUILDS Department desires to apply for three (3) grants through the Ozarks Transportation Organization (OTO); and

WHEREAS, if awarded, the City could receive up to $930,000 in total funds that would be used toward the addition of a trail/side path alongside the new Highway MM alignment, a pedestrian underpass at the end of the trail/side path, and extension of the Shuyler Creek trail from current termination to Wilson's Creek National Battlefield; and

WHEREAS, the City Council finds that participating in these grant opportunities will result in beneficial savings to the City taxpayers and the City, while improving safety and security for the City's citizens and guests.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1. The Republic BUILDS Department is authorized to apply for grants through the Ozarks Transportation Organization for the purpose of trail, side path, and pedestrian facility additions/expansions.

Section 2. The City Administrator, or designee, on behalf of the City, is authorized to take the necessary steps to execute this Resolution.

Section 3. The whereas clauses are hereby specifically incorporated herein by reference.

Section 4. This Resolution shall take effect after passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Matt Russell, Mayor

Attest:

_____
Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-R-24 A Resolution of The City Council Authorizing Execution of an Agreement with TLG Leasing, Inc. for the Lease of Dump Truck Vehicles.
Submitted By:	Karen Haynes, BUILDS Administrator
Date:	April 11, 2023

Issue Statement

A Resolution authorizing the execution of a Full-Service Lease Agreement for Dump Trucks.

Discussion and/or Analysis

In accordance with our Capital Improvement Plan (CIP), the BUILDS Department is requesting authorization to enter into a Full-Service Lease Agreement for four (4) Dump Trucks; three (3) Tandem-Axle Dump Trucks and one (1) Single-Axle Dump Truck. These Dump Trucks will be utilized for all City functions, including but not limited to, snow plowing, salt spreading, hauling construction materials, hauling asphalt and aggregate, and hauling trailers with equipment.

The BUILDS Department requested proposals for Full-Service Truck Leases and received two submittals, PacLease for Peterbilt Trucks and Rush Truck Center for International Trucks. The BUILDS Department Staff reviewed both submittals and determined PacLease best fit the intention of the Full-Service Lease Request. Rush was less expensive, but their submittal was for purchase only.

Staff is recommending leasing four (4) Dump Trucks versus purchasing due to current budget constraints and our needs. Our current fleet of Semi-Truck Chassis Vehicles (including Dump Trucks, Street Sweeper, Pump Trucks, and Utility Service Trucks) has an average age of just under fifteen (15) years old. In 2022, the City of Republic spent over $48,000 in repairs of our current Semi-Truck Chassis Fleet. As our Fleet continues to age, routine maintenance and extensive repairs are expected and alternatives, such as Leasing and Lease to Purchase will continue to be explored when considering replacements.

The Lease Contract provides for all routine maintenance and repairs, except for replacement of tires. PacLease is well-equipped and stocked to handle repairs and maintenance; the BUILDS Department does not currently have the expertise or equipment to provide repairs or maintenance on our larger fleet vehicles and equipment. At the end of the seven (7) years, the BUILDS Department will have the option to buy the Dump Trucks or return to PacLease; we do have the option to purchase the Dump Trucks at any time throughout the seven-year period, as outlined on the Schedule A.

Once the Dump Trucks have been added to the fleet, we will reevaluate the condition and remaining life span of our current Dump Trucks and sell any Dump Trucks no longer needed. Replacement of our oldest Dump Trucks will reduce the average age of our Fleet from (14.9) years old, to (9.1) years old and all Dump Trucks would be less than seven (7) years old.

The Cost for the Single-Axle Dump Truck for a Seven-Year Term is $3115 per month; the Tandem-Axle Trucks for a Seven-Year Term is $3665 per month; the total cost over the seven (7) years is $261,660 for the Single-Axel and $307,860 for the Tandem-Axle, per Dump Truck. The purchase price for comparison is $206,408 for the Single-Axel and $238,089 for the Tandem-Axel, not including financing costs.

The Dump Trucks Leases are included in the 2023 Approved Budget and will be split between the Water, Street, and Wastewater Divisions. Due to current lead times, we are anticipating delivery in January 2024.

Recommended Action

Staff recommends approval.

A RESOLUTION OF THE CITY COUNCIL AUTHORIZING EXECUTION OF AN AGREEMENT WITH TLG LEASING, INC. FOR THE LEASE OF DUMP TRUCK VEHICLES

WHEREAS, the City of Republic, Missouri ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly organized and existing under the laws of the State of Missouri; and

WHEREAS, in accordance with the City's approved Capital Improvement Plan (CIP), the BUILDS Department recently requested proposals for full-service lease options on four (4) Dump Trucks to be used by authorized City employees in performing a variety of tasks including, but not limited to, snow plowing, salt spreading, hauling construction materials, hauling asphalt and aggregate, and hauling trailers with equipment; and

WHEREAS, the City received two (2) proposals in response to its request – one from TLG Leasing, Inc. d/b/a TLG Peterbilt-PacLease ("PacLease") and one from Rush Truck Center; and

WHEREAS, after review of both proposals, City staff determined PacLease to be the best option for the City, as it was the only proposal that offered the lease option; and

WHEREAS, the BUILDS Department is requesting authorization to execute an agreement or agreements with PacLease for the seven-year lease of four (4) dump trucks – three (3) Peterbilt 548 Tandem-Axle Straight Trucks and one (1) Peterbilt 537 Single-Axle Straight Truck; and

WHEREAS, Council finds that an agreement to lease the trucks from PacLease is in the City's best interest, as the trucks are vital for various City operations, and the lease option is more cost efficient than other options explored by City staff, thus offering beneficial savings to the City and ultimately the citizens.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1. The City Administrator, or his designee(s), on behalf of the City, is authorized to enter into an agreement, or agreements, with TLG Leasing, Inc. d/b/a TLG Peterbilt-PacLease, said agreement to be in substantially the same form as the "Master Vehicle Lease and Service Terms," attached hereto as "Exhibit 1."

Section 2. The City Administrator, or his designee(s), on behalf of the City, is authorized to take all other reasonably necessary steps to execute this Resolution.

Section 3. The whereas clauses are hereby specifically incorporated herein by reference.

Section 4. This Resolution shall take effect after passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Matt Russell, Mayor

Attest:

_____
Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

SCHEDULE "A" Agreement between TLG Leasing, Inc. dba TLG Peterbilt-PacLease (hereinafter PacLease") and City of Republic (hereinafter "Customer")

Schedule No.
Lease Dated 02/08/2023
Location TLG Leasing, Inc.

SCHEDULE A

THIS SCHEDULE "A" AGREEMENT IS SUBJECT TO AND INCORPORATES BY REFERENCE THE MASTER VEHICLE LEASE AND SERVICE TERMS FOR CUSTOMER DATED 02/08/2023.

VEHICLE DESCRIPTION					SPECIFICATIONS			
							Axles	
Qty.	Year	Make / Model / Type	Max GVW and/or GCW (lbs)	Licensed Weight (lbs)	Engine	Transmission	Front	Rear
3	2024	Peterbilt 548 Tandem-Axle Truck Straight Truck	66000	66000	PACCAR PX-9 251-350 HP	Allison 3500RDS	PACCAR 20,000	Dana Spicer 46,000 Tandem (6X4)

LEASE TERMS								ETVs	
					Reefer Rate ($)				
Term In Mos.	Fixed Charge ($)	Consumer Price Index	Payment Timing	Mileage Rate ($) Per Miles	Reefer	Standby	Schedule "A" Original Value ($)	Mo	%
84	$3,665.00	293.700	Monthly in Advance	$0.0000	$0.000	$0.000	$238,089.11	12	106.12%
								24	97.19%
								36	87.61%
								48	77.27%
								60	66.14%
								72	54.15%
								84	Return to PacLease

LEASE SERVICES		
Service	Party Responsible	Amount Included
Annual Licensing Cost	PacLease	$0.00
Annual PacTrac	PacLease	$0.00
Communication Fees		
FHVUT	Paclease	$342.00
Fuel Tax Reporting	Paclease	Included
Liability Insurance	Customer	$0.00
Local Sales Tax	Customer	$0.00
Permitting	Paclease	$0.00
Personal Property Tax	PacLease	$0.00
Physical Damage Insurance	Customer	$0.00
Regional Sales Tax	Customer	$0.00
Repainting & Relettering	Customer	$0.00
Substitute Vehicles	Customer	$0.00
Vehicle Washing	Customer	0

Schedule A excludes tires and maintenance of the dump body, hydraulic system, plow and spreader.

Base State of Licensing:

Prorated States:

Customer Initials: _____ Date: _____

1. It is agreed that the Schedule A Original Value, Depreciation and Fixed Charge set forth on this Schedule A are based upon manufacturer's quoted price for the Vehicle(s) as of the date of execution by Customer of this Schedule A. In the event the manufacturer's quoted price for such Vehicle(s) is increased prior to the In-Service Date of the Vehicle(s), Customer agrees that for each $50 increase in price (or fraction thereof), the following shall be increased accordingly:

Schedule A Original Value	Fixed Charge Per Month	Monthly Depreciation
$50.00	$1.30	$0.65

2. It is agreed that the rate of interest as of the date of Customer signature of this Schedule A is 4.50% as set forth by the two-year U.S. Treasury rate as published in the Wall Street Journal. In the event the interest rate should increase or decreases prior to the In-Service Date of the Vehicle(s), Customer agrees that for each quarter-point change (0.25%) in the interest rate, the fixed charge per month will be adjusted $20.52.

3. Insurance

Liability

Responsibility	Customer
Combined Single Limits	$1,000,000.00 Per Occurrence
Excess or Umbrella	$0.00 Per Occurrence

Physical Damage Insurance

Responsibility	Customer
Maximum Deductible(s):	$2,500.00Comprehensive/Collision

If PacLease has responsibility for the coverage described in this paragraph, a copy of the insurance policy is available for inspection at its office upon request of Customer, and Customer, being an insured under said policy agrees to comply with and be bound by all the terms, conditions, liabilities and restrictions thereof, all of which are hereby incorporated by reference and made a part hereof as though fully set forth at length, including those terms, conditions and restrictions of which no specific mention is made hereunder.

4. The Vehicle(s) listed on this Schedule shall be domiciled at the following address:

213 N Main Avenue
Republic
Missouri, United States, 65738

5. The Vehicle(s) leased under this Schedule "A" Agreement shall be serviced/maintained at the following address:

TLG Leasing, Inc.
3026 North Mulroy
Strafford
Missouri,United States,65757

6. Minimum Annual Distance: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement will be operated a minimum of 22,500 Miles within each 12 month period (the "Minimum Annual Distance"). If miles actually operated during the period are less than the Minimum Mileage, Customer shall pay, in addition to regular mileage charges, for the number of miles less than the Minimum Annual Distance at a rate of $0.1000 per Miles.

7. Maximum Mileage: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement will be operated a maximum of 27,500 Miles within each 12 month period (the "Maximum Mileage"). If miles actually operated during the period are more than the Maximum Mileage, Customer shall pay, in addition to regular mileage charges, for the number of miles in excess of the Maximum Mileage at a rate of $0.1000 per Miles.

8. Maximum Engine Hours: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement will be operated a maximum number of engine hours within each 12-month period (the "Maximum Engine Hours"). The Maximum Engine Hours shall be calculated as follows: the Maximum Mileage (as set forth in Paragraph 7) divided by 35. If engine hours actually operated during the period are more than the Maximum Engine Hours, Customer shall pay, in addition to regular mileage/under mileage/over mileage charges, for the number of engine hours in excess of the Maximum Engine Hours at a rate of $0.0000 per engine hour

9. Maximum Refrigeration Hours: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement equipped with a refrigeration unit will be operated a maximum of 0 engine hours and 0 standby hours within each 12 month period (the "Maximum Refrigeration Hours"). If refrigeration hours actually operated are more than the Maximum Refrigeration Hours, Customer shall pay, in addition to regular hourly refrigeration charges, as follows: $0.000 per engine running hour and $0.000 per standby hour.

10. In-Service Notification and Vehicle Ownership. At the time of vehicle in-service, Customer will be provided an in-service notification that will list unit numbers, in-service date(s) and 17-digit serial number(s). The in-service notification, when provided, is hereby incorporated by reference into this Schedule "A" Agreement. The owner of the Vehicle(s) covered by this Schedule "A" Agreement is PACCAR Leasing Company, unless otherwise specified in the in-service notification or otherwise specified by PacLease in writing.

11. GPS Devices. Customer acknowledges and agrees that: (a) each Vehicle may be equipped with a GPS device that is owned by PacLease ("GPS Device"); (b) PacLease has the right to monitor each Vehicle through the GPS Device; (c) PacLease will have access to information regarding the use and operation of each Vehicle, including, but not limited to, information regarding the Vehicle's location, speed, distance traveled and operation ("Vehicle Data"); and (d) PacLease may, subject to applicable law, use the Vehicle Data to, among things: (i) monitor Vehicle performance and detect issues; (ii) repair and maintain the Vehicle; and (iii) communicate with Customer regarding its account with PacLease; (iv) enforce the Lease; and (v) comply with court orders and subpoenas. Customer agrees that it will not, or authorize any third party to, alter, disconnect, tamper with or remove the GPS Device from any Vehicle

BY ITS EXECUTION OF THIS SCHEDULE "A" AGREEMENT, CUSTOMER AUTHORIZES AND DIRECTS PACLEASE TO ORDER AND PURCHASE THE VEHICLE(S) DESCRIBED HEREIN, AND CUSTOMER IRREVOCABLY AGREES TO ACCEPT THE VEHICLE(S) UPON DELIVERY AND FULFILL ITS OBLIGATIONS UNDER THE LEASE.

TLG Leasing, Inc. dba TLG Peterbilt-PacLease

(PacLease)

(Signature)

Mike Napoliello / Director and VP of TLG Leasing Inc

(Print Name & Title of Signing Authority)

(Date Signed)

City of Republic

(Customer)

(Signature)

Garrett Brickner, Assistant BUILDS Administrator

(Print Name & Title of Signing Authority)

(Date Signed)

SCHEDULE "A" Agreement between TLG Leasing, Inc. dba TLG Peterbilt-PacLease (hereinafter PacLease") and City of Republic (hereinafter "Customer")

Schedule No.
Lease Dated **02/08/2023**
Location **TLG Leasing, Inc.**

SCHEDULE A

THIS SCHEDULE "A" AGREEMENT IS SUBJECT TO AND INCORPORATES BY REFERENCE THE MASTER VEHICLE LEASE AND SERVICE TERMS FOR CUSTOMER DATED 02/08/2023.

VEHICLE DESCRIPTION					SPECIFICATIONS			
							Axles	
Qty.	Year	Make / Model / Type	Max GVW and/or GCW (lbs)	Licensed Weight (lbs)	Engine	Transmission	Front	Rear
1	2024	Peterbilt 537 Single-Axle Truck Straight Truck	66000	66000	PACCAR PX-9 251-350 HP	Allison 3500RDS	Meritor 12,000	Meritor 21,000 Single(4X4)

LEASE TERMS								ETVs		LEASE SERVICES		
Term In Mos.	Fixed Charge ($)	Consumer Price Index	Payment Timing	Mileage Rate ($) Per Miles	Reefer Rate ($)		Schedule "A" Original Value ($)	Mo	%	Service	Party Responsible	Amount Included
					Reefer	Standby						
84	$3,115.00	293.700	Monthly in Advance	$0.0000	$0.000	$0.000	$206,408.35	12	105.39%			
								24	95.66%	Annual Licensing Cost	PacLease	$0.00
								36	85.22%	Annual PacTrac	PacLease	$0.00
								48	73.95%	Communication Fees		
								60	61.82%	FHVUT	Paclease	$342.00
								72	48.75%	Fuel Tax Reporting	Paclease	Included
								84	Return to PacLease	Liability Insurance	Customer	$0.00
										Local Sales Tax	Customer	$0.00
										Permitting	Paclease	$0.00
										Personal Property Tax	PacLease	$0.00
										Physical Damage Insurance	Customer	$0.00
										Regional Sales Tax	Customer	$0.00
										Repainting & Relettering	Customer	$0.00
										Substitute Vehicles	Customer	$0.00
										Vehicle Washing	Customer	0

Schedule A excludes tires and maintenance of the dump body, hydraulic system, plow and spreader.

Base State of Licensing:

Prorated States:

Customer Initials: _____ Date: _____

1. It is agreed that the Schedule A Original Value, Depreciation and Fixed Charge set forth on this Schedule A are based upon manufacturer's quoted price for the Vehicle(s) as of the date of execution by Customer of this Schedule A. In the event the manufacturer's quoted price for such Vehicle(s) is increased prior to the In-Service Date of the Vehicle(s), Customer agrees that for each $50 increase in price (or fraction thereof), the following shall be increased accordingly:

Schedule A Original Value	Fixed Charge Per Month	Monthly Depreciation
$50.00	$1.30	$0.65

2. It is agreed that the rate of interest as of the date of Customer signature of this Schedule A is 4.50% as set forth by the two-year U.S. Treasury rate as published in the Wall Street Journal. In the event the interest rate should increase or decreases prior to the In-Service Date of the Vehicle(s), Customer agrees that for each quarter-point change (0.25%) in the interest rate, the fixed charge per month will be adjusted $17.79.

3. Insurance

Liability

Responsibility	Customer
Combined Single Limits	$1,000,000.00 Per Occurrence
Excess or Umbrella	$0.00 Per Occurrence

Physical Damage Insurance

Responsibility	Customer
Maximum Deductible(s):	$2,500.00Comprehensive/Collision

If PacLease has responsibility for the coverage described in this paragraph, a copy of the insurance policy is available for inspection at its office upon request of Customer, and Customer, being an insured under said policy agrees to comply with and be bound by all the terms, conditions, liabilities and restrictions thereof, all of which are hereby incorporated by reference and made a part hereof as though fully set forth at length, including those terms, conditions and restrictions of which no specific mention is made hereunder.

4. The Vehicle(s) listed on this Schedule shall be domiciled at the following address:

213 N Main Avenue
Republic
Missouri, United States, 65738

5. The Vehicle(s) leased under this Schedule "A" Agreement shall be serviced/maintained at the following address:

TLG Leasing, Inc.
3026 North Mulroy
Strafford
Missouri,United States,65757

6. Minimum Annual Distance: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement will be operated a minimum of 22,500 Miles within each 12 month period (the "Minimum Annual Distance"). If miles actually operated during the period are less than the Minimum Mileage, Customer shall pay, in addition to regular mileage charges, for the number of miles less than the Minimum Annual Distance at a rate of $0.1000 per Miles.

7. Maximum Mileage: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement will be operated a maximum of 27,500 Miles within each 12 month period (the "Maximum Mileage"). If miles actually operated during the period are more than the Maximum Mileage, Customer shall pay, in addition to regular mileage charges, for the number of miles in excess of the Maximum Mileage at a rate of $0.1000 per Miles.

8. Maximum Engine Hours: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement will be operated a maximum number of engine hours within each 12-month period (the "Maximum Engine Hours"). The Maximum Engine Hours shall be calculated as follows: the Maximum Mileage (as set forth in Paragraph 7) divided by 35. If engine hours actually operated during the period are more than the Maximum Engine Hours, Customer shall pay, in addition to regular mileage/under mileage/over mileage charges, for the number of engine hours in excess of the Maximum Engine Hours at a rate of $0.0000 per engine hour

9. Maximum Refrigeration Hours: Customer agrees that each of the Vehicle(s) described on this Schedule "A" Agreement equipped with a refrigeration unit will be operated a maximum of 0 engine hours and 0 standby hours within each 12 month period (the "Maximum Refrigeration Hours"). If refrigeration hours actually operated are more than the Maximum Refrigeration Hours, Customer shall pay, in addition to regular hourly refrigeration charges, as follows: $0.000 per engine running hour and $0.000 per standby hour.

10. In-Service Notification and Vehicle Ownership. At the time of vehicle in-service, Customer will be provided an in-service notification that will list unit numbers, in-service date(s) and 17-digit serial number(s). The in-service notification, when provided, is hereby incorporated by reference into this Schedule "A" Agreement. The owner of the Vehicle(s) covered by this Schedule "A" Agreement is PACCAR Leasing Company, unless otherwise specified in the in-service notification or otherwise specified by PacLease in writing.

11. GPS Devices. Customer acknowledges and agrees that: (a) each Vehicle may be equipped with a GPS device that is owned by PacLease ("GPS Device"); (b) PacLease has the right to monitor each Vehicle through the GPS Device; (c) PacLease will have access to information regarding the use and operation of each Vehicle, including, but not limited to, information regarding the Vehicle's location, speed, distance traveled and operation ("Vehicle Data"); and (d) PacLease may, subject to applicable law, use the Vehicle Data to, among things: (i) monitor Vehicle performance and detect issues; (ii) repair and maintain the Vehicle; and (iii) communicate with Customer regarding its account with PacLease; (iv) enforce the Lease; and (v) comply with court orders and subpoenas. Customer agrees that it will not, or authorize any third party to, alter, disconnect, tamper with or remove the GPS Device from any Vehicle

BY ITS EXECUTION OF THIS SCHEDULE "A" AGREEMENT, CUSTOMER AUTHORIZES AND DIRECTS PACLEASE TO ORDER AND PURCHASE THE VEHICLE(S) DESCRIBED HEREIN, AND CUSTOMER IRREVOCABLY AGREES TO ACCEPT THE VEHICLE(S) UPON DELIVERY AND FULFILL ITS OBLIGATIONS UNDER THE LEASE.

TLG Leasing, Inc. dba TLG Peterbilt-PacLease

(PacLease)

(Signature)

Mike Napoliello / Director and VP of TLG Leasing Inc

(Print Name & Title of Signing Authority)

(Date Signed)

City of Republic

(Customer)

(Signature)

Garrett Brickner, Assistant BUILDS Administrator

(Print Name & Title of Signing Authority)

(Date Signed)

MASTER VEHICLE LEASE AND SERVICE TERMS
FOR
City of Republic ("Customer")

03/02/2023 11:42 AM PST

These Master Vehicle Lease and Service Terms (these "Master Terms") apply to the lease of all vehicle(s), trailer(s) and related equipment ("Vehicle(s)") by Customer from (i) PACCAR Leasing Company, a division of PACCAR Financial Corp., or (ii) any franchisee of PACCAR Leasing Company. The lessor of the Vehicle(s) will be designated as "PacLease" [1] on a separate Schedule "A" Agreement (each, a "Schedule A Agreement") executed by Customer and PacLease. These Master Terms are incorporated by reference into each Schedule A Agreement

Each Schedule A Agreement, these Master Terms and all other related exhibits and schedules are collectively referred to as a "Lease".

1. Lease of Vehicle(s)

Customer agrees to lease Vehicle(s) pursuant to a Lease, and the execution of a Schedule A Agreement by Customer constitutes Customer's authorization to PacLease to acquire the Vehicle(s) listed thereon. The lease term with respect to each Vehicle on a Schedule A Agreement will become effective when the Vehicle is tendered by PacLease to Customer, or 48 hours after the date PacLease notifies Customer that the Vehicle is available for use, whichever occurs first, and will continue for the term specified on the applicable Schedule A Agreement unless terminated earlier as provided hereafter. Acceptance of a Vehicle by Customer will constitute Customer's acknowledgement that the Vehicle complies with all applicable specifications, unless Customer gives PacLease notice no more than 24 hours after obtaining physical possession.

Any subsequent additions to or improvements in a Vehicle (i) must be approved in advance, in writing, by PacLease, (ii) will be at the cost and expense of Customer, and (iii) once installed, may not be removed without the prior written approval of PacLease. Further, if state or federal laws and regulations require any additional equipment (e.g. emission controls equipment) to be added to any Vehicle(s), the cost to obtain and install such equipment will be at Customer's expense, and any additional cost for the maintenance or service of such equipment will be charged to Customer. Customer, as operator of the Vehicle(s), is responsible to (i) determine the need for such equipment, (ii) notify PacLease in writing of the need for such equipment, and (iii) arrange with PacLease for the installation of such equipment All subsequent addition to or improvements in a Vehicle, when installed, will become the property of the owner of the Vehicle.

2. Charges and Payments

A. Payment Terms. Customer will pay PacLease within ten (10) days from the invoice date. Customer agrees to pay a late charge of 1.5% per month on past due amounts, or the maximum amount permitted by law. Customer's obligation to pay all amounts under a Lease is absolute and unconditional and is not subject to any counterclaim, defense, deferment, interruption, recoupment, reduction or setoff for any reason whatsoever.

B. Fixed Charge. The monthly fixed charge is set forth on the applicable Schedule A Agreement and will be invoiced by PacLease in advance.

[1] For purposes of these Master Terms, the term "PacLease" will mean any lessor of Vehicle(s), or any of their successors, designated on any Schedule A Agreement.

C. Mileage, Engine and Other Variable Charges. Mileage charges (including any minimum or maximum mileage charges) will be calculated as set forth on the applicable Schedule A Agreement and will be invoiced in arrears. Mileage will be determined from the Vehicle's odometer, which Customer will report to PacLease each month. If the odometer fails to function with respect to mileage reporting, mileage will be determined from the Vehicle's electronic control module (ECM) or a telematics device. If both the ECM/telematics device and odometer fail to function, which failure Customer will immediately report to PacLease in writing, the mileage for the period during which the failure existed may be determined at PacLease's option from Customer trip records, or from the amount of fuel consumed and the miles per gallon record of PacLease averaged for the previous thirty (30) days. Maximum engine hour and other variable charges will be calculated as set forth on the applicable Schedule A Agreement and invoiced in arrears.

D. Adjustments. Customer agrees that the fixed and variable charges for each Vehicle may be adjusted as of January 1 and July 1 of each calendar year. For each rise or fall of at least one percent (1.0%) in the U.S. Bureau of Labor Statistics Consumer Price Index, Vehicle charges will be proportionately adjusted as follows: Fifty percent (50%) of the fixed charge and one hundred percent (100%) of all variable charges.

3. Licenses, Permits, Fees and Taxes

A. Vehicle Licenses and Federal Heavy Vehicle Use Tax. PacLease will pay the state motor vehicle license and inspection fees for each Vehicle based upon the licensed weight of the Vehicle. PacLease will also pay the ad valorem tax and Federal Heavy Vehicle Use Tax for each Vehicle, exclusive of any for-hire taxes, tags or permits. Charges for taxes and license fees paid by PacLease that are in excess of amounts stipulated on the applicable Schedule A Agreement will be billed to the Customer. If PacLease agrees to allow Customer to file and pay Federal Heavy Vehicle Use Tax on behalf of PacLease, then Customer further agrees to provide evidence of payment of the tax to PacLease.

B. Fuel Permits and Related Taxes. PacLease will, solely upon Customer's written request and where permitted by law, apply for fuel tax permits, prepare and file fuel tax returns and pay the taxes imposed upon the purchase and consumption of such fuel by Customer's Vehicle(s), upon Customer providing PacLease with its trip records, fuel receipts or invoices, and other records or documents related to the use of the Vehicle as may be necessary for the preparation of the fuel tax returns. Customer will reimburse PacLease for the amount of fuel taxes and permits. Customer will also reimburse PacLease for any additional charges, assessments, tax or penalty or credit disallowed because of untimely or improper furnishing of such documents or information.

C. Other Fees or Taxes. Customer will be responsible to pay all other fees and taxes required by the business of Customer or resulting from the operation of the Vehicle(s) by Customer (including without limitation any axle mileage taxes, ton mileage taxes, use taxes, personal property taxes, county and municipal taxes, taxes designated as Customer's responsibility on any Schedule A Agreement, highway tolls or bridge tolls). Customer will keep and make available to PacLease all necessary records relating to the use of the Vehicle(s) and pertaining to such fees and taxes. Customer will be solely responsible to notify PacLease if PacLease is required to collect and remit any such fees or taxes. PacLease will not be liable to Customer or the applicable taxing authority if Customer fails to maintain sufficient records or fails to notify PacLease of an obligation to collect and remit such fees or taxes.

D. Adjustments for Changes in Taxes and Fees. Any increases in existing federal, state or local taxes, or license fees, or any new federal, state, or local taxes, or license fees, in each case relating to the use, operation or storage of any Vehicle, will also be paid by Customer to PacLease as incurred by PacLease. Any decreases in such amounts will be credited by PacLease to Customer as the decreases become effective.

Customer's obligations in this Section survive the expiration or termination of a Lease.

4. Maintenance and Repairs

A. PacLease's Responsibilities. PacLease will provide oil, lubricants, grease, antifreeze, tires (unless designated as Customer's responsibility on a Schedule A Agreement, and excluding replacement tires for tire damage resulting from road hazards or under inflation), tubes and all other operating supplies, excluding diesel exhaust fluid (DEF), and accessories necessary for the practical and efficient operation of Vehicle(s). PacLease will maintain the leased Vehicle(s) in good repair, will furnish all labor and parts which may be required to keep the Vehicle(s) in good operating condition, and will furnish road service for mechanical or tire failure (excluding tire failure resulting from road hazards or under inflation). Certain supplies, accessories and services will not apply to electric Vehicle(s).

B. Customer's Responsibilities. Customer agrees to return each Vehicle to PacLease's garage for a minimum of eight (8) hours for each scheduled maintenance, inspection, adjustments and repairs at such scheduled time as agreed upon by the parties. Customer agrees not to cause or permit Customer's drivers, employees or agents to make repairs or adjustments to Vehicle(s). In the event of any defect or failure that requires repair, Customer must immediately notify PacLease of the defect or failure and provide the location of the Vehicle. If such defect or failure requires immediate repair, Customer agrees to abide by PacLease's directions concerning emergency repair service. PacLease will not be responsible for any repair of, or service to, a Vehicle by a third party unless expressly authorized by PacLease in advance.

5. Substitute and Additional Vehicles

A. Substitute Vehicles. If designated as PacLease's responsibility on a Schedule A Agreement, PacLease will furnish Customer a substitute vehicle at no additional fixed charge if a Vehicle is temporarily rendered inoperable because of mechanical failure. The substitute vehicle will be as close as practicable to the inoperable Vehicle. A substitute vehicle, while used by Customer, will be subject to the terms of the Lease, and Customer will return the substitute vehicle to the facility from which it was provided upon notification that the inoperable Vehicle has been repaired or replaced. PacLease's failure to furnish a substitute Vehicle within a reasonable time where it is obligated to do so, will cause the charges applicable to the inoperable Vehicle to abate until the Vehicle is returned to Customer's service or until a substitute is tendered to Customer. The abatement of such charges will be the limit of PacLease's liability for such a failure. PacLease will have no obligation to provide a substitute Vehicle (i) if a Vehicle is inoperable because it (A) is out of service for ordinary maintenance and service; or (B) is out of service because of damage resulting from collision, accident, Customer's misuse, abuse, or other breach of a Lease by Customer; (ii) if the Vehicle is specialized or carries a truck body not owned by PacLease; (iii) if the Vehicle is stolen or converted; or (iv) if the Vehicle is out of service for repair or maintenance of special equipment or accessories for which PacLease is not responsible.

B. Additional Vehicles. PacLease will use commercially reasonable efforts to furnish additional Vehicle(s) as availability permits. The rate charged for the rental of all additional Vehicle(s) not covered by a Lease will be fifteen percent (15%) below PacLease's current rental rates then applicable to the type of Vehicle rented.

6. Vehicle Operation

A. Operational Requirements. Customer will operate all Vehicle(s) solely (i) in the normal and ordinary course of Customer's business, (ii) in a safe and careful manner, (iii) in compliance with all applicable laws and regulations, (iv) within the limits of the continental United States and Canada; (v) in compliance with all applicable insurance coverage requirements; (vi) by a fully licensed driver employed or engaged by Customer; and (vii) in accordance with all manufacturer operating guidelines.

B. Vehicle Abuse. Customer will be responsible for any loss, expense or diminution of value resulting from any violation of the above requirements or from any other reckless, careless, incompetent, noncompliant or abusive handling of the Vehicle(s) ("Vehicle Abuse"). A non-exclusive list of Vehicle Abuse is: operating any Vehicle with insufficient coolant or oil; driving any Vehicle in areas of insufficient width or height such as low bridges, roofs, trees and signs; miring in mud, snow or sand, including towing expense; operating off a paved road; overloading beyond the load capacity shown on the applicable Schedule A Agreement; pushing or towing any Vehicle; glass damage; operating any Vehicle with a flat tire or with a tire which does not contain sufficient air pressure; operation of any Vehicle by a driver who is in possession of or under the influence of alcohol or any drug that might impair the driver's ability.

7. Vehicle Damage

A. Accident Reporting. Customer will immediately notify PacLease of any accident or collision involving a Vehicle and cause the driver of the Vehicle to make a detailed written report. Customer agrees to provide all assistance requested by PacLease and/or the applicable insurer in investigating or defending all claims or suits involving a Vehicle accident.

B. Loss, Theft, Destruction or Major Damage. If any Vehicle is lost, stolen, destroyed or damaged beyond repair, Customer will be obligated to pay PacLease (i) all charges then due and payable with respect to such Vehicle *plus* (ii) the Early Termination Value as set forth in the applicable Schedule A Agreement, and will not be relieved or released from any of its obligations and liabilities under a Lease until PacLease has actually received (whether from insurance proceeds or otherwise) all amounts necessary to eliminate or satisfy Customer's obligations. For the avoidance of doubt, Customer will be liable to PacLease for any amount by which net insurance proceeds (or other payments for such loss or damage) are less than the Early Termination Value. In such an event, the Lease as to that Vehicle will terminate once all charges for the Vehicle have been paid, including all amounts due under this paragraph. PacLease will have no obligation to provide a replacement Vehicle. Customer is subrogated to all claims of PacLease, if any, against third parties, for damage to or loss of a Vehicle to the extent of the Early Termination Value of such Vehicle.

C. Minor Damage. If a Vehicle suffers physical damage which is less than $750 to repair, and Customer fails to repair such damage within sixty (60) days of its occurrence, then PacLease may repair the damage and invoice Customer for the cost of such repairs.

8. Assignment, Subletting and Transfers

Customer may not assign, transfer, convey, pledge, grant a security interest, or sublet any Vehicle(s) or any Lease (or any interest thereunder) (a "Transfer"), whether directly, by a change of control, by merger or by operation of law, without PacLease's prior written consent. Further, Customer's interests under a Lease will not inure to the benefit of any trustee, receiver, creditor or successor of Customer or of its property, whether or not in bankruptcy, by operation of law or otherwise. Customer will promptly notify PacLease in writing prior to any substantial changes in ownership or any material disposition of the assets of Customer's business.

9. Ownership and Security Interests

***For Schedule A Agreements with any franchisee of PACCAR Leasing Company**

Title and ownership to Vehicle(s) will at all times be and remain in PacLease, PACCAR Leasing Company or such other party as is designated on the applicable Schedule A Agreement or in-service notification. Customer is not the owner of the Vehicle(s) for federal income tax purposes, and understands that that the owner of the Vehicle intends to take federal tax depreciation deductions. Customer will not claim any tax depreciation deductions with respect to the Vehicle(s) or take any position inconsistent with the foregoing.

Customer understands and agrees that a Lease constitutes a "true lease" and not a "lease intended as security" under the UCC. Customer acquires no ownership, title, property, right, equity or interest in any Vehicle(s) other than its leasehold interest subject to the Lease. So long as the Customer is not in default under a Lease, Customer will and may and quietly and peacefully have, hold, enjoy and possess each Vehicle subject to and in accordance with the provisions hereof.

If PACCAR Leasing Company is the owner of the Vehicle(s), PacLease and Customer further acknowledge that all rights and benefits of ownership inure to PACCAR Leasing Company. Customer further agrees, upon receipt of written notice by PACCAR Leasing Company, to make all lease payments directly to PACCAR Leasing Company as may be designated in writing by PACCAR Leasing Company. In such an event, Customer will continue to look to PacLease for the performance of its obligations under all Lease(s), and in no event will PACCAR Leasing Company become liable or responsible to perform any such obligations. If PacLease defaults under any of the provisions of a Lease and PACCAR Leasing Company is unable to assign PacLease's obligations to another PacLease franchisee reasonably acceptable to Customer, then Customer may elect to (i) purchase the Vehicle(s) for the Early Termination Value set forth in applicable Schedule A Agreement, or (ii) assume all of PacLease's obligations to PACCAR Leasing Company with respect to the Vehicle(s) listed on the applicable Schedule A Agreement.

PacLease has assigned and granted PACCAR Leasing Company a security interest in the Lease(s) as chattel paper to secure all obligations due from PacLease to PACCAR Leasing Company under certain agreements between them, including without limitation the Lease for Re-Lease Agreement, the Inventory Financing and Purchase Money Security Agreement and the Franchise Agreement. This assignment and grant of security interest are for collateral and security purposes only.

***For Schedule A Agreements directly with PACCAR Leasing Company**

Title and ownership to Vehicle(s) will at all times be and remain in PACCAR Leasing Company, or such other party as is designated on the applicable Schedule A Agreement or in-service notification. Customer is not the owner of the Vehicle(s) for federal income tax purposes, and understands that that the owner of the Vehicle(s) intends to take federal tax depreciation deductions. Customer will not claim any tax depreciation deductions with respect to the Vehicle(s) or take any position inconsistent with the foregoing.

Customer understands and agrees that a Lease constitutes a "true lease" and not a "lease intended as security" under the UCC. Customer acquires no ownership, title, property, right, equity or interest in any Vehicle(s) other than its leasehold interest subject to the Lease. So long as the Customer is not in default under a Lease, Customer will and may and quietly and peacefully have, hold, enjoy and possess each Vehicle subject to and in accordance with the provisions hereof.

10. Warranties

PACLEASE WARRANTS ALL REPAIRS AND MAINTENANCE SERVICES PERFORMED BY IT UPON EACH VEHICLE TO BE FREE FROM DEFECTS IN WORKMANSHIP DURING THE TERM OF THE LEASE. THIS IS THE SOLE WARRANTY PROVIDED BY PACLEASE AND THE EXCLUSIVE REMEDY FOR A BREACH OF THIS WARRANTY IS THE REPAIR OF ANY DEFECTIVE WORKMANSHIP BY PACLEASE.

PACLEASE IS NOT THE MANUFACTURER, DESIGNER OR VENDOR OF ANY VEHICLE. ACCORDINGLY, PACLEASE MAKES NO WARRANTY OR REPRESENTATION AND EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, AS TO THE FITNESS, WORKMANSHIP, NON-INFRINGEMENT, DESIGN, CONFIGURATION OR CONDITION OF ANY VEHICLE, THE MERCHANTABILITY OF ANY VEHICLE, OR ANY VEHICLE'S FITNESS FOR ANY PARTICULAR PURPOSE.

11. Limitation of Liability

IN NO EVENT WILL PACLEASE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES (INCLUDING WITHOUT LIMITATION LOST PROFITS AND CARGO LOSSES) ARISING OUT OF ANY LEASE OR ARISING OUT OF CUSTOMER'S POSSESSION, USE, OPERATION, CONTROL OR STORAGE OF ANY VEHICLE, ANY SUBSTITUTE/REPLACEMENT VEHICLE, OR ANY ADDITIONAL VEHICLE.

WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, PACLEASE IS NOT LIABLE FOR ANY DIRECT OR INDIRECT DAMAGE OR CLAIM CAUSED BY OR ATTRIBUTABLE TO ANY DEFECT OR DEFICIENCY ARISING OUT OF ANY VEHICLE'S MANUFACTURE OR DESIGN. FURTHER CUSTOMER AGREES IT WILL NOT SET UP ANY SUCH CLAIMS AS DEFENSE, COUNTERCLAIM OR SET OFF AGAINST ANY OBLIGATIONS IT HAS ASSUMED UNDER THE TERMS OF THE LEASE.

12. Insurance

A. Liability Insurance. Unless otherwise agreed in a separate addendum executed by Customer and PacLease, Customer maintain a standard policy of automobile liability insurance (hereinafter "Liability Insurance") with limits specified on the applicable Schedule A Agreement. The insurance coverage will be written by a company having an AM Best rating of at least "A-" covering PacLease (and its affiliates) and PACCAR Leasing Company as additional insureds for the ownership, maintenance, use or operation of any Vehicle(s), any substitute or replacement vehicle(s), and any additional vehicle(s). Such policy shall be primary and not additional or excess coverage and shall not seek contribution from any other insurance otherwise available to either party. Upon request, Customer will furnish a certificate of insurance confirming compliance with this paragraph and confirming that coverage cannot be canceled or materially altered without thirty (30) days prior written notice to all parties. If Customer fails to do so, (i) Customer will be responsible for all third-party claims, liabilities, losses and expenses (regardless of the reason) relating to or arising out of the possession, use, operation, control or storage of any Vehicle(s), any substitute/replacement vehicle(s), or any additional vehicle(s), and (ii) PacLease is authorized but not obligated to procure such Liability Insurance, without prejudice to any other remedy PacLease may have, and Customer will pay PacLease, as additional rental, the amount of the insurance charges paid by PacLease.

B. Physical Damage Insurance. Unless otherwise agreed in a separate addendum executed by Customer and PacLease, Customer agrees to maintain physical damage insurance with limits specified on the applicable Schedule A Agreement. The insurance coverage will be written by a company having an AM Best rating of at least "A-" covering PacLease (and its affiliates) and PACCAR Leasing Company as loss payees. Such policy must have a deductible amount not to exceed the amount specified on the Schedule A Agreement. Upon request, Customer agrees to furnish a certificate of insurance confirming compliance with this paragraph, and providing that coverage cannot be canceled or materially altered without thirty (30) days prior notice to all parties. If Customer fails to do so, Customer, notwithstanding Section 2A-219(1) of the Uniform Commercial Code, (i) agrees to assume the risk of loss or damage to any Vehicle and to pay or reimburse PacLease for all losses, costs and expenses (regardless of the reason) resulting from loss or damage to any Vehicle(s), any substitute or replacement vehicle(s), and any additional vehicle(s), and (ii) PacLease is authorized, but not obligated, to procure such physical damage insurance, and Customer will pay PacLease the amount of the insurance charges.

C. Cargo Insurance and Losses. Customer will obtain any cargo insurance that Customer requires. Without limiting Sections 11 or 12, PacLease is not liable for any loss or damage to cargo, regardless of the reason of such loss or damage.

D. Waiver of Subrogation. Customer, on behalf of Customer's insurer(s), expressly waives all subrogation rights against PacLease and PACCAR Leasing Company. In the event a subrogation claim is brought by Customer's insurer(s), Customer agrees to indemnify, defend and hold PacLease and PACCAR Leasing Company (including their respective officers, directors, employees, agents, contractors and representatives) harmless from and against any such claim.

E. No Rights to Coverage Under PacLease's Insurance. Where Customer is obligated to maintain a standard policy of insurance, Customer on its own, behalf and on behalf of its contractors, employees or any permissive users of any Vehicle(s), acknowledge and waive any and all rights to coverage or defense under PacLease's policies of insurance regardless of any insufficiencies or limitations of coverage under Customer's insurance.

13. Indemnification

Customer agrees to indemnify, defend and hold PacLease and its affiliates (including their respective officers, directors, employees, agents, contractors and representatives) harmless from and against any and all claims, causes of action, damages, demands, liabilities, losses and expenses of any kind (including without limitation reasonable attorneys' fees, fines, taxes and penalties) (collectively "Losses") relating to or arising out of (i) the possession, use, operation, control or storage of any Vehicle(s), any substitute/replacement vehicle(s), or any additional vehicle(s), or (ii) any breach of a Lease by Customer. Customer's indemnification obligations will survive expiration or termination of the Lease.

Customer acknowledges that the duty to defend is a separate and distinct obligation from Customer's duty to indemnify, and an allegation or determination that persons other than Customer are responsible for any Losses does not relieve Customer from its separate and distinct obligation to defend under this Section. PacLease may, at its own cost, participate in the investigation, trial and defense of any such proceeding, and any appeal arising from the proceeding and employ its own counsel in connection therewith.

14. Early Termination

A. Early Termination - Anniversary Date. Either party may terminate a Lease with respect to any Vehicle(s) prior to its full lease term, which termination will be effective on the next anniversary of the in-service date of such Vehicle(s). A party may only exercise its early termination by giving the other party written notice at least sixty (60) days prior to such anniversary date and specifying the Vehicle(s) subject to termination.

B. Effect of Termination by Customer. PacLease may sell any Vehicle(s) subject to early termination at such price as may be obtainable, and Customer will be liable to PacLease for any amount by which the net sales proceeds are less than the Early Termination Value set forth on the

applicable Schedule A Agreement. Alternatively, PacLease may lease such Vehicle(s) to a third party and Customer will be liable to PacLease for any reduction of rental income under the new leases. Finally, PacLease may, but will not be obligated to, sell the terminated Vehicle(s) to Customer at the Early Termination Value as set forth in the applicable Schedule A Agreement; provided that in no event will the purchase price to Customer be less than twenty percent (20%) of the initial value of such Vehicle(s) as set forth on the applicable Schedule A Agreement. In addition to the purchase price, Customer will pay personal property taxes, federal highway vehicle use taxes, any sales, use or transfer taxes, or fees and other prepaid expenses previously paid by PacLease for each Vehicle (prorated to the date of sale).

C. Effect of Termination by PacLease. So long as Customer is not in default under the Lease, Customer will have the option to purchase any Vehicle for cash at the Early Termination Value as set forth in the applicable Schedule A Agreement.

15. Return of Vehicle(s)

Upon the expiration or termination of a Lease with respect to any Vehicle(s), Customer will return such Vehicle(s) to PacLease at the location designated on the applicable Schedule A Agreement or any other location reasonably designated by PacLease. If Customer' fails to timely return a Vehicle, then Customer will be required to pay rent for such Vehicle at PacLease's then-current rental rate. Each Vehicle must be returned in good working order, de-identified and free from physical damage, subject to reasonable wear and tear ("Return Condition"). If Customer fails to return a Vehicle in Return Condition, then Customer will be required to (i) pay or reimburse PacLease for all costs to repair and/or restore the Vehicle to Return Condition and (ii) continue to pay the monthly fixed charge for such Vehicle (pro-rated for any partial month(s)) until it has been repaired and/or restored to Return Condition.

16. Default

If: (i) Customer fails to pay any amount owing when due; (ii) Customer breaches any provision of a Lease; (iii) any proceeding or case is instituted by or against Customer under the U.S. Bankruptcy Code, any state insolvency law, or for the appointment of a receiver; (iv) Customer makes an assignment for the benefit of creditors; (v) Customer becomes insolvent, as that term is defined in the Uniform Commercial Code; or (vi) any execution, writ, or process is obtained whereby any Vehicle(s) may be taken or confiscated, then Customer will be in default under a Lease. Upon a default, PacLease will have all remedies provided by law and in equity and, without limiting the foregoing, will have the immediate right to exercise any or all of the remedies listed below, whether concurrently or separately. Additionally, Customer will be liable for all costs and expenses incurred by PacLease, including attorney's fees, in pursuing any remedy.

- Remedy - Termination. PacLease may terminate a Lease as to any or all Vehicle(s), and all remaining amounts owing through the end of the term of the Lease with respect to such Vehicle(s) will become immediately due and payable. Customer agrees to return all Vehicle(s) in accordance with Section 15.

- Remedy - Vehicle Repossession. PacLease or its representative may, with or without notice to Customer and subject to applicable law, enter the premises where any Vehicle is located, take possession of and remove it. In the event PacLease takes possession of or retains any Vehicle, and such Vehicle contains any property, goods or things of value belonging to Customer or in the custody or control of Customer, PacLease is authorized to take possession of and remove such items and will return such items to Customer at Customer's expense.

- Remedy – Sale or Lease of Vehicles. Without relieving Customer of any obligations or waiving any of PacLease's rights, PacLease may hold, lease or sell any Vehicle(s) at such time, place and in such manner and at such price and on such other terms determined by PacLease. Customer will be liable to PacLease for any amount by which the net sale proceeds of a Vehicle are less than the Early Termination Value of such Vehicle set forth in the applicable Schedule A Agreement. If any such Vehicle(s) are leased to a third party, Customer will be liable to PacLease for any reduction of income under the new leases.

17. Force Majeure

PacLease will not be liable for its failure to supply any Vehicle, repair or maintain any Vehicle, or provide fuel for any Vehicle, if PacLease is prevented by any national emergency, war, terrorism, natural disaster, riot, fire, epidemic, pandemic, public health crisis, labor dispute, law, regulation or any other cause beyond PacLease's reasonable control.

18. Financial Information

Customer agrees to provide PacLease with its most recent annual financial statements and other financial information requested from time to time.

19. Miscellaneous

Each Lease contains the entire Agreement and understanding between the parties and its terms will not be construed as altered by any verbal agreement or informal writing, nor by failure to insist upon performance or failure to exercise any right or privilege. Each Lease may only be modified in writing signed by both parties thereto, and any amendment(s) to these Master Terms will only be binding upon a lessor that has signed such amendment(s) or incorporated (either directly or by reference) such amendment(s) into a Lease. Each Lease will be binding on the parties hereto, their successors, legal representatives and assigns. If any provision of a Lease is invalid under the laws of any state when used, such provision will be deemed not to be a part of a Lease in such state, but will not invalidate any other provision hereof.

These Master Terms are accepted by Customer as of the date indicated above and will be incorporated into each Schedule A Agreement signed by Customer.

These Master Terms are presented to Customer by the undersigned. The undersigned acknowledges that these Master Terms will be incorporated into each Schedule "A" Agreement signed by it.

City of Republic
213 N Main Avenue, Republic, Missouri
65738

TLG Leasing, Inc. dba TLG Peterbilt-PacLease
3026 North Mulroy, Strafford, Missouri
65757

(SIGNATURE)

(SIGNATURE)

Garrett Brickner / Assistant BUILDS Administrator
(PRINT NAME/TITLE OF SIGNING AUTHORITY)

Mike Napoliello / Director and VP of TLG Leasing Inc
(PRINT NAME/TITLE OF SIGNING AUTHORITY)

(DATE SIGNED)

(DATE SIGNED)

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-R-25 A Resolution of the City Council Approving a Preliminary Plat for Oakwood Heights Second Addition, a Residential Subdivision Consisting of Approximately 2.97 Acres Located at 602 North Oakwood Avenue.
Submitted By:	Chris Tabor, Principal Planner, BUILDS Department
Date:	April 18, 2023

Issue Statement

Little Apple LLC has requested review and approval of a Preliminary Plat of approximately Two Point Nine Seven (2.97) acres, Oakwood Heights 2nd Addition, consisting of three (3) residential lots zoned Multi-Family Residential (R-3), streets, and infrastructure.

Conformity with Preliminary Plat Review Criteria: Preliminary Plats are reviewed for their conformance with the following review criteria to ensure the development, in the proposed location:

(1) Will not endanger the public health or safety;
(2) Will not injure the value of adjoining property or abutting property;
(3) Will be in conformity with the Comprehensive Plan, Transportation Plan, Zoning Code, Water System Master Plan, Wastewater System Facility Plan, or other plans officially adopted by the City Council; and
(4) Will be in harmony with the area in which it is located.

Preliminary Plats are reviewed by the City Planner and the City Engineer in conformance with the requirements of Chapter 410 of Republic's Municipal Code, the Comprehensive Plan, and all applicable City adopted codes and regulations.

Discussion and/or Analysis

The property subject to this Preliminary Plat Application is comprised of approximately Two Point Nine Seven (2.97) acres of land located 602 N Oakwood Ave. The property is zoned appropriately for the proposed plat, Multi-Family Residential (R-3).

The following paragraphs contain brief analyses of the application's conformity with the Preliminary Plat Review Criteria identified above.

Consistency with the Comprehensive Plan

The referenced Preliminary Plat contains three (3) lots, each with a minimum lot size of 2,500 SF. The Preliminary Plat also consists of streets, sidewalks, and open space.

Transportation Plan

The Preliminary Plat proposes the continuation of N Williams Ave southward to end with a cul-de-sac. This constructed street would be dedicated to the city during the Final Platting Process.

No Traffic Impact Study (TIS) was required in connection with this project due to the improvements previously completed by the city to nearby affected streets.

Water and Wastewater Master Plan

The referenced parcel is not currently connected to municipal utilities, development of the property will require connection to the City's water and sanitary sewer systems.
The development will be served through a looped water main system with connections coming south along the east side of Williams Avenue (8") and the north side of Hines St (10").

The sanitary sewer system will flow to the Shuyler Creek Lift Station before traveling to the Wastewater Treatment Facility. The water and sewer system currently have the capacity to serve the potential development.

Zoning Code

The Preliminary Plat of Olde Savannah has been platted for the construction of 3 multi-family residential lots and associated infrastructure, including public streets and sidewalks, public water and sanitary sewer mains, and stormwater conveyance.

Floodplain: The subject parcel **does not** contain a Special Flood Hazard Area (SFHA/Floodplain).

Sinkholes: The subject parcel **does not** contain any identified sinkholes.

Stormwater: The Preliminary Plat indicates utilizing the existing Stormwater Detention Areas in the Oakwood Heights Subdivision to the north and the New Vista Subdivision to the east. The detention area in New Vista was originally sized to accommodate some of the Multi-Family Residential development of the subject parcel, while the detention area in Oakwood Heights is projected to have capacity to serve the remaining area. The Stormwater Detention Area and all open space/common area will be maintained by a Homeowner's Association.

Infrastructure Design: The design of the streets, sidewalks, water and sanitary sewer systems, and stormwater detention will be reviewed and permitted during the Infrastructure Permitting process.

Recommended Action

Staff considers the **proposed Preliminary Plat in general conformity with the requirements for Preliminary Plats and is recommending approval of the application.**

A RESOLUTION OF THE CITY COUNCIL APPROVING A PRELIMINARY PLAT FOR OAKWOOD HEIGHTS SECOND ADDITION, A RESIDENTIAL SUBDIVISION CONSISTING OF APPROXIMATELY 2.97 ACRES LOCATED AT 602 NORTH OAKWOOD AVENUE

WHEREAS, the City of Republic, Missouri ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, the City's Planning and Zoning Commission ("Commission"), together with the City Council, have adopted Subdivision Regulations governing the subdivision of land within the City; and

WHEREAS, the Commission and the Council have passed resolutions adopting a Comprehensive Land Use Plan and a Transportation Plan for the City; and

WHEREAS, Little Apple Investment Company, LLC ("Applicant") submitted an application ("Application") for the review and approval of a preliminary plat ("Proposed Preliminary Plat") of approximately two point nine seven (2.97) acres located at 602 North Oakwood Avenue in Republic, Missouri, also known as the Oakwood Heights Second Addition ("Oakwood Second Addition Subdivision"); and

WHEREAS, under the Proposed Preliminary Plat, the Oakwood Heights Second Addition will consist of three (3) residential lots, each with a minimum lot size of 2,500 square feet, streets, sidewalks and open space, and is appropriately zoned as Multi-Family Residential (R-3) use; and

WHEREAS, pursuant to Republic Municipal Code Section 410.150, following review by the City's planner(s) and/or engineer(s), the Commission examines proposed preliminary plats to ensure the proposed development (1) will not endanger public health or safety, (2) will not injure the value of adjoining/abutting property, (3) will be in conformity with the Comprehensive Land Use Plan, Transportation Plan, Zoning Code, Water System Master Plan, Wastewater System Facility Plan, or other plans officially adopted by the City Council, and (4) will be in harmony with the surrounding area; and

WHEREAS, the City's planner(s) and/or engineer(s) have reviewed the Proposed Preliminary Plat and transmitted the Application to the Commission for review and approval; and

WHEREAS, the Commission has examined the Proposed Preliminary Plat and found it complies with applicable Republic Municipal Code Sections, Ordinances and Subdivision Regulations, and conforms to the City's Comprehensive Land Use Plan, Transportation Plan and other adopted plans; and

WHEREAS, at a regular meeting of the Commission held on April 10, 2023, the Commission recommended Council's approval of the Proposed Preliminary Plat by a vote of 7 Ayes to 0 Nays.

WHEREAS, the City Council finds the Proposed Preliminary Plat meets the requirements of Chapter 410, Republic Municipal Code, and all other applicable Regulations and adopted Plans, and therefore approves the Application accordingly.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1: The Preliminary Plat substantially conforms to Chapter 410, Republic Municipal Code, and all other applicable Ordinances, Regulations and adopted City Plans.

Section 2: The Application for approval of a preliminary plat for the Oakwood Second Addition Subdivision is hereby approved in all respects, and the Preliminary Plat, attached hereto and labeled "Exhibit 1", shall serve as the official guide for the development of the Oakwood Second Addition Subdivision.

Section 3: The whereas clauses are hereby specifically incorporated herein by reference.

Section 4: This Resolution shall become effective on and after the date of passage and approval as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Matt Russell, Mayor

Attest:

_____
Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

REPUBLIC MISSOURI

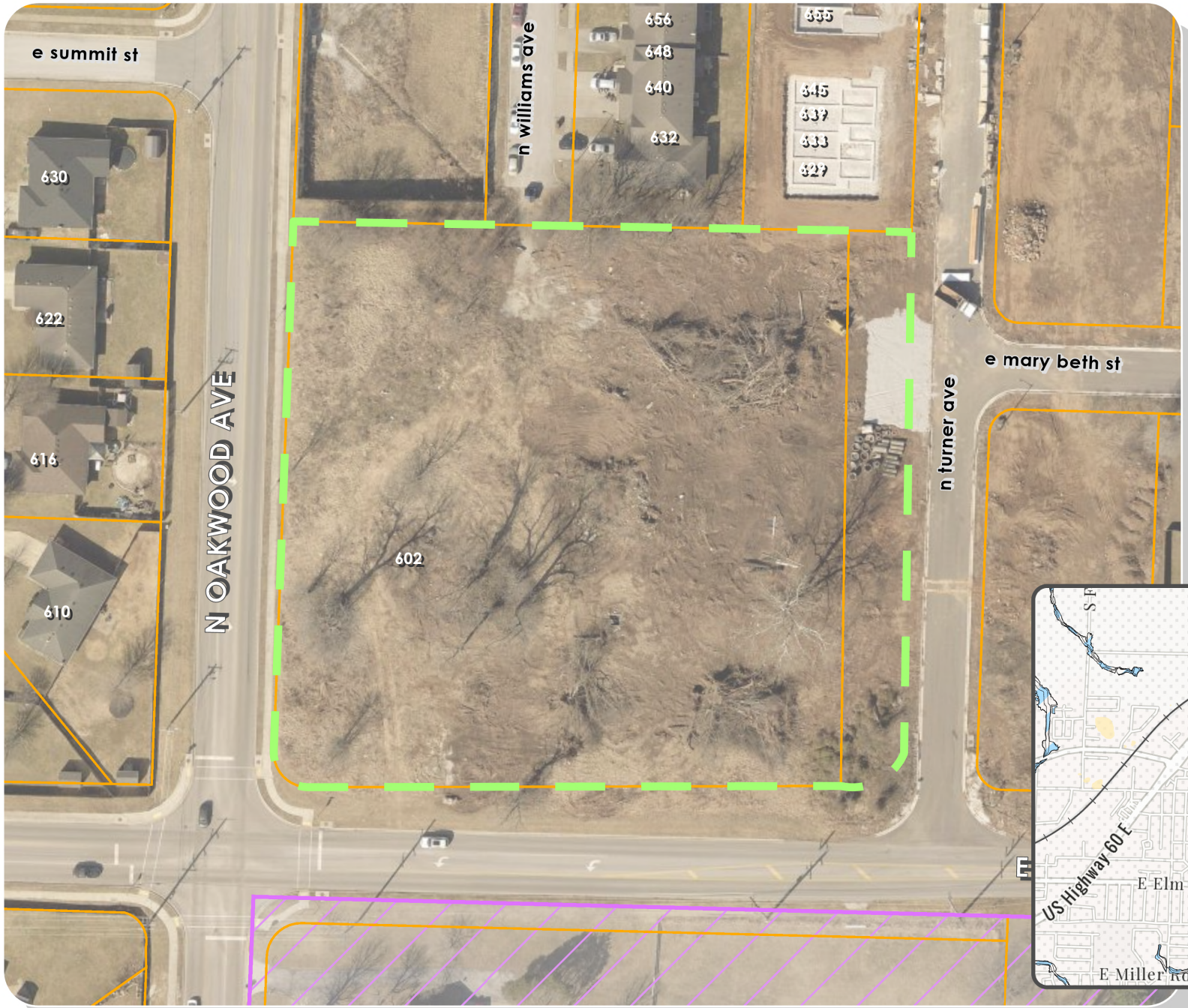
Project
SUBD-PRE 23-001

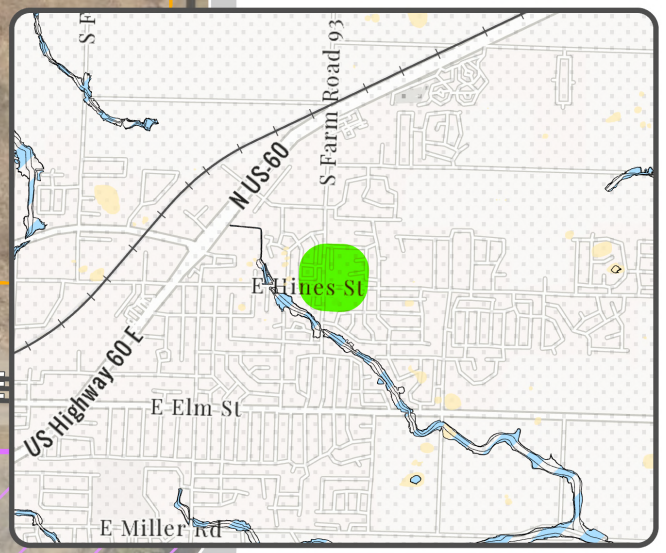
Zoning
R-3

PIN
881716401008

Acreage
2.7

Ward
2





0 70 140 Feet

N Williams Ave

Sinkholes
Floodplain
City Limits
Parcels Greene County

REPUBLIC MISSOURI

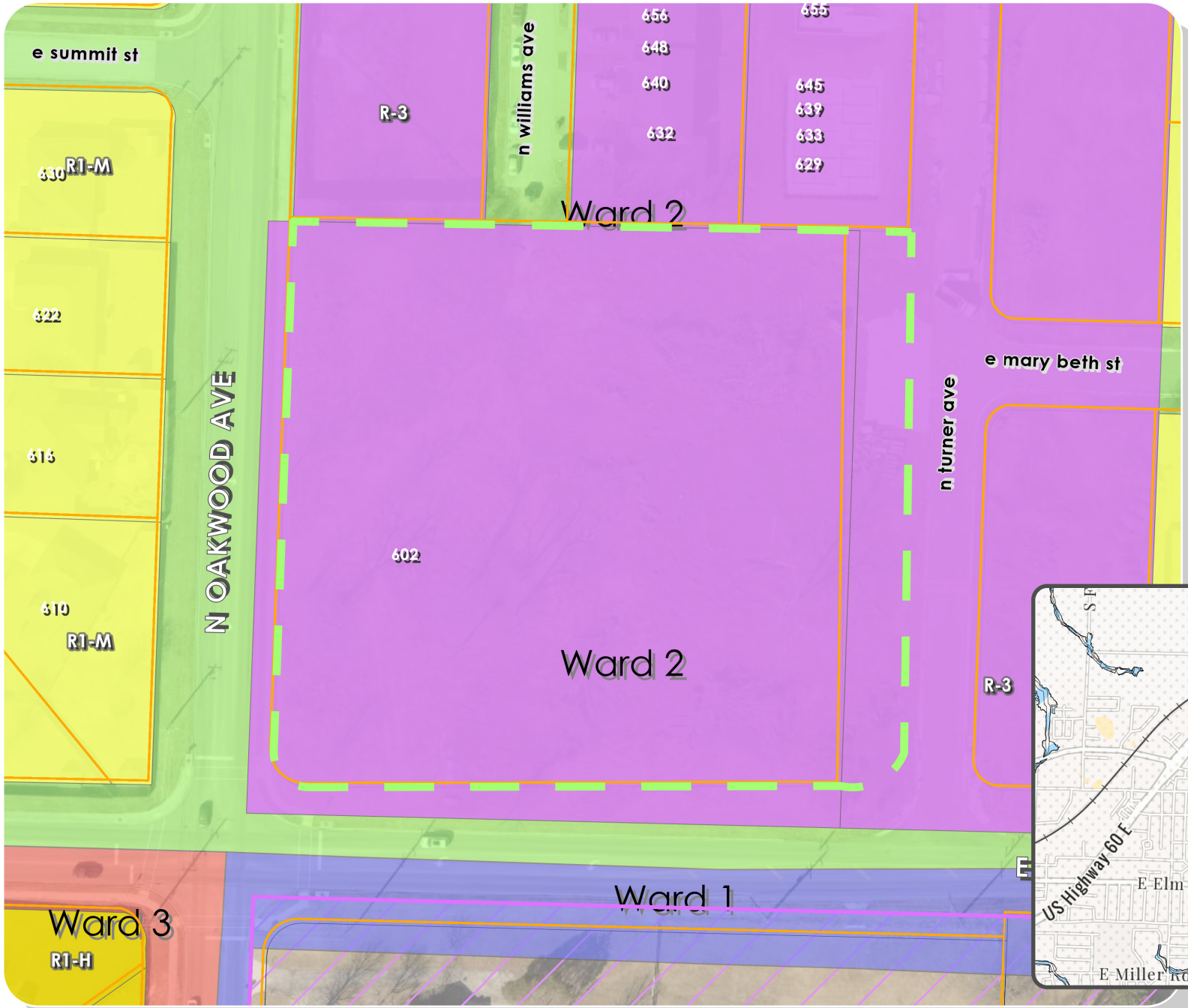
Project
SUBD-PRE 23-001

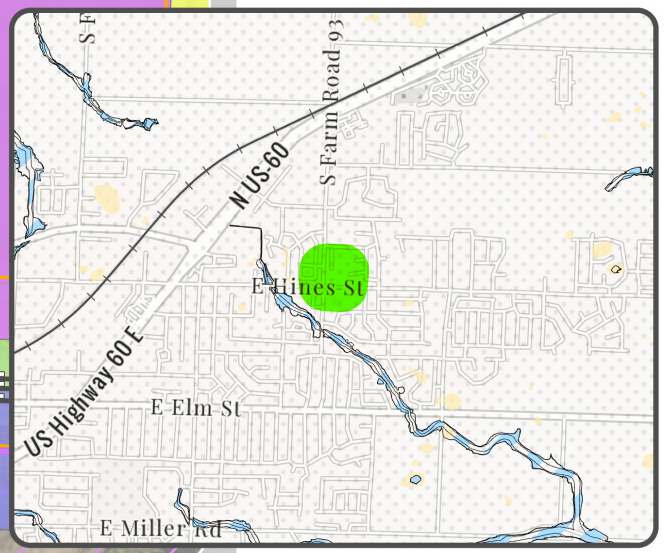
Zoning
R-3

PIN
881716401008

Acreage
2.7

Ward
2



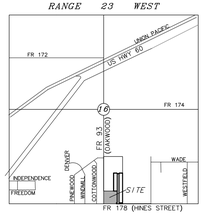


0 70 140 Feet

N Williams Ave

Sinkholes
Floodplain
City Limits
Parcels Greene County

RANGE 23 WEST



TOWNSHIP 28 NORTH

LOCATION SKETCH
SCALE 1" = 2000'

0 40' 80'
20' SCALE 1" = 40'

BASIS OF BEARINGS

GRID NORTH
MISSOURI COORDINATE
SYSTEM OF 1983
CENTRAL ZONE

NORTH LINE SW 1/4 SE 1/4 SEC. 16

S 88°30'11" E 549.17'

POINT OF COMMENCING
NW CORNER SW 1/4 SE 1/4
SEC 16, T 28 N , R 23 W

462.95'
S 01°58'53" W

NE COR. LOT 2
OAKWOOD HEIGHTS
1ST ADDITION

OAKWOOD HEIGHTS
REPLAT LOT 3
PLAT BOOK ZZ
PAGE 396

LOT 3A

EXISTING
DETENTION BASIN

WILLIAMS AVENUE

EXIST SIDEWALK

LOT 4
OAKWOOD HEIGHTS
PLAT BOOK ZZ
PAGE 296

LOT 3
OAKWOOD HEIGHTS
1ST ADDITION
PLAT BOOK AAA
PAGE 824

SUMMIT STREET

22

21

20

19

18

41

47

48

30.00'

40.00'

25' S/B, U/E, & D/E

EX 18" CPP

EX C.I.

15" RCP

S 88°56'51" E 376.59'

111.55'

50.01'

100.01'

100.01'

10' UTILITY EASEMENT
15' BUILDING SETBACK LINE

LOT 2
33,551 S.F.

LOT 3
28,821 S.F.

LOT 1
32,074 S.F.

LOT 2
OAKWOOD HEIGHTS
1ST ADDITION
PLAT BOOK AAA
PAGE 824

25' B/S

25' R.O.W.

MARY BETH ST

50' R.O.W.

EXISTING
18" RCP

EX 18" CPP EASEMENT

25' B/S & D/E

LOT 1
OAKWOOD HEIGHTS
1ST ADDITION
PLAT BOOK AAA
PAGE 824

NEW VISTA SUB
PLAT BOOK 24
PAGE 242

EXISTING
DETENTION BASIN

OAKWOOD AVENUE

N 02°07'24" E 344.04'

303.96'

EXIST 5' SIDEWALK

15' DRAINAGE & UTILITY EASEMENT

15' REAR SETBACK LINE

15' BUILDING SETBACK LINE

PROP 5' SIDEWALK

28'

50'

245.21'

S 01°58'53" W
245.28'

170.13'

194.87'

N 01°58'53" E
320.87'

306.68'

S 01°58'53" W 306.68'

S 01°58'53" W
270.98'

S 01°58'53" W 844.79'

1270

1271

1272

1273

1274

1275

LITTLE APPLE
INVESTMENT
PROPERTY LLC
BOOK 2021
PAGE 060774-21
ZONING
MULTI-FAMILY
RESIDENTIAL
R-3

WINDMILL PLACE
PLAT BOOK TT PAGE 024

NEW PROPOSED RIGHT OF WAY LINE

18" D/E

35.00'

50' RAD

60' RAD

84.44'

97.63'

149.53' 10' UTILITY EASEMENT

85.15'

15' BUILDING SETBACK LINE

PROP 5' SIDEWALK

NEW PROPOSED RIGHT OF WAY LINE

N 88°33'57" W 348.70'

N 88°33'57" W 178.72'

HINES STREET

POINT OF
BEGINNING

SW COR. SW 1/4 SE 1/4
SEC. 16, T 28 N, R 23 W

TURNER AVENUE

EX C.I.
18" RCP

EX 18" CPP

25' U/E, B/S & D/E

ROCK OUTCROPPING

EXISTING
DETENTION BASIN

C1 C2 C3 L1 L2 L3

PRELIMINARY PLAT

OAKWOOD HEIGHTS 2ND ADDITION

A PART OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 16, TOWNSHIP 28 NORTH, RANGE 23 WEST
REPUBLIC, GREENE COUNTY, MISSOURI

PROPERTY DESCRIPTION

ALL THAT PART OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 16, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER; THENCE SOUTH 88°30'11" EAST, WITH THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER, 549.17 FEET; THENCE SOUTH 01°58'53" WEST, 462.95 FEET TO THE NORTHEAST CORNER OF LOT 2 OF OAKWOOD HEIGHTS 1ST ADDITION, A SUBDIVISION RECORDED IN PLAT BOOK AAA PAGE 824, GREENE COUNTY RECORDER'S OFFICE; THENCE CONTINUING SOUTH 01°58'53" WEST ALONG THE EAST LINE OF SAID OAKWOOD HEIGHTS 1ST ADDITION 844.79 FEET; THENCE NORTH 88°33'57" WEST 178.72 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 88°33'57" WEST ALONG THE NORTH RIGHT OF WAY LINE OF HINES STREET A DISTANCE OF 348.70 FEET TO A POINT FOR CORNER; THENCE NORTH 02°07'24" EAST ALONG THE EAST RIGHT OF WAY LINE OF OAKWOOD AVENUE A DISTANCE OF 344.04 FEET TO A POINT FOR CORNER; THENCE SOUTH 88°56'51" EAST A DISTANCE OF 376.59 FEET TO A POINT FOR CORNER; THENCE SOUTH 01°58'53" WEST A DISTANCE OF 306.68 FEET TO A POINT OF CURVE; THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 15.00 FEET, A DELTA OF 89°27'10", AN ARC LENGTH OF 23.42 FEET, AND A CHORD WHICH BEARS SOUTH 46°42'28" WEST HAVING A CHORD DISTANCE OF 21.11 FEET TO A POINT OF TANGENCY; THENCE NORTH 88°33'57" WEST A DISTANCE OF 14.43 FEET TO A POINT FOR CORNER; THENCE SOUTH 00°40'00" WEST A DISTANCE OF 25.00 FEET TO THE POINT OF BEGINNING, AND CONTAINING 2.97 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

Total Area = 2.97 Acres

Total Number Of Lots – 3

Area in Lots 2.24 Acres

Area in Street Right of Way 0.73 Acres

Zoning = Multi-Family Residential (R-3)

Source of Title Book 2021 Page 060774-21

This Property Does Not Lie Withing A Flood Hazard Area As Determined By The Flood Insurance Rate Map Number 29077 C 0314 E Dated 12-17-2010.

No fences, plantings or obstructions other than mailboxes permitted within the limits of any right of way or drainage easement.

No structures are to be built between the right of way line and building setback line.

Minimum Building Setbacks:
Front – 15 Feet
Rear – 15 Feet
Side – 15 Feet
Side Adjacent to Street – 15 Feet

There is A 10' Utility Easement Adjacent To All Street Right Of Way And Along The Rear Of All Lots.

No Direct Access Permitted From Any Lot To Hines Street or Oakwood Avenue.

Proposed Street Right of Way Width 50 Feet.

Proposed Street Pavement Width 28 Feet (Back Curb to Back Curb)

5' Wide Sidewalk Proposed On Both Sides Of Williams Street.

COURSE TABLE

LINE	BEARING	DISTANCE
L-1	N 00°40'00" E	25.00'
L-2	N 88°33'57" W	14.43'
L-3	N 01°26'03" E	15.80'

CURVE DATA

#	Radius	Delta	Length	Chord	Tangent	Chord Bearing
1	15.00'	89°27'10"	23.42'	21.11'	14.86'	S 46°42'28" W
2	15.00'	90°41'21"	23.74'	21.34'	15.18'	S 43°13'16" E
3	15.00'	86°10'36"	22.56'	20.49'	14.03'	N 45°04'12" E

KNOWN ALL MEN BY THESE PRESENTS THAT I, LAWRENCE E JANSEN, DO HEREBY DECLARE THAT THIS PLAT WAS PREPARED UNDER MY SUPERVISION FROM AN ACTUAL SURVEY OF THE LAND HEREIN DESCRIBED, AND THAT THE CORNER MONUMENTS AND LOT CORNER PINS SHOWN HEREON WERE PLACED UNDER THE PERSONAL SUPERVISION OF LAWRENCE E JANSEN LS 2385 IN ACCORDANCE WITH THE MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS, AND IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF REPUBLIC, MISSOURI.

Lawrence E Jansen 3-17-23
LAWRENCE E. JANSEN PLS 2385 DATE

CLASS "URBAN" SURVEY

EIP ● -- EXISTING IRON PIN
SIP ○ -- SET IRON PIN
--X-- -- FENCELINE
P – PLAT DISTANCE
M – MEASURED DISTANCE
D– DEED DISTANCE

STATE OF MISSOURI
LAWRENCE EUGENE JANSEN
NUMBER LS-2385
REGISTERED LAND SURVEYOR
3-17-23

Job No.: 2212-008
Date: 3-17-2023
Location: 602 N OAKWOOD AVE REPUBLIC, MO

GLOBAL
PRECISION SURVEYING, L.L.C.
P.O. BOX 790, REPUBLIC, MO 65738
PHONE (417) 883-0300 FAX (417) 883-0335
CERTIFICATE OF AUTHORITY
NUMBER LS-2010000563

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2022

Time: 6:00

Type of Application: Other

Name of Applicant: Oakwood Heights 2nd Addition (SUBD-PRE 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	◯ Yes	◯ No
Conforming to the City's adopted Transportation Plan	◯ Yes	◯ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	◯ Yes	◯ No
Compatible with surrounding land uses	◯ Yes	◯ No
Able to be adequately served by municipal infrastructure	◯ Yes	◯ No
Aligned with the purposes of RSMo. 89.040	◯ Yes	◯ No

Statement of Relevant Facts Found:

3 lots min 2500 sqft

R-3 multi

Expansion of current subdivision Oakwood Heights

City facilities can handle storm, sewer, traffic etc.

Based on these findings, I have concluded to recommend the application to the City Council for: ⊘ Approval ◯ Denial

Commissioner Name: Brian Dorbrava

Commissioner Signature: [signature]

Date: 4-10-23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2022

Time: 6:00

Type of Application: Other

Name of Applicant: Oakwood Heights 2nd Addition (SUBD-PRE 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(X) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(X) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(X) Yes	( ) No
Compatible with surrounding land uses	(X) Yes	( ) No
Able to be adequately served by municipal infrastructure	(X) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(X) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (X) Approval ( ) Denial

Commissioner Name: CYNTHIA HYDER

Commissioner Signature: C. Hyder

Date: 4/10/23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2022

Time: 6:00

Type of Application: Other

Name of Applicant: Oakwood Heights 2nd Addition (SUBD-PRE 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	✓ Yes	○ No
Conforming to the City's adopted Transportation Plan	✓ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	✓ Yes	○ No
Compatible with surrounding land uses	✓ Yes	○ No
Able to be adequately served by municipal infrastructure	✓ Yes	○ No
Aligned with the purposes of RSMo. 89.040	✓ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ✓ Approval ○ Denial

Commissioner Name: RANSOM ELLIS III

Commissioner Signature:

Date: 4/10/23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2022

Time: 6:00

Type of Application: Other

Name of Applicant: Oakwood Heights 2nd Addition (SUBD-PRE 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(●) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(●) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(●) Yes	( ) No
Compatible with surrounding land uses	(●) Yes	( ) No
Able to be adequately served by municipal infrastructure	(●) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(●) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (●) Approval ( ) Denial

Commissioner Name: Darran Campbell

Commissioner Signature:

Date: 4-10-23

Findings of Fact

REPUBLIC MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2022

Time: 6:00

Type of Application: Other

Name of Applicant: Oakwood Heights 2nd Addition (SUBD-PRE 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☑ Yes	○ No
Conforming to the City's adopted Transportation Plan	☑ Yes	○ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☑ Yes	○ No
Compatible with surrounding land uses	☑ Yes	○ No
Able to be adequately served by municipal infrastructure	☑ Yes	○ No
Aligned with the purposes of RSMo. 89.040	☑ Yes	○ No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: ○ Approval ○ Denial

Commissioner Name: Jeff Hayes

Commissioner Signature:

Date: 4/10/23

Findings of Fact

REPUBLIC MISSOURI GROWING TOGETHER

Date of Hearing: 04/10/2022

Time: 6:00

Type of Application: Other

Name of Applicant: Oakwood Heights 2nd Addition (SUBD-PRE 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	(X) Yes	( ) No
Conforming to the City's adopted Transportation Plan	(X) Yes	( ) No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	(X) Yes	( ) No
Compatible with surrounding land uses	(X) Yes	( ) No
Able to be adequately served by municipal infrastructure	(X) Yes	( ) No
Aligned with the purposes of RSMo. 89.040	(X) Yes	( ) No

Statement of Relevant Facts Found:

Based on these findings, I have concluded to recommend the application to the City Council for: (X) Approval ( ) Denial

Commissioner Name: Michael Mann

Commissioner Signature: Michael Mann

Date: 4/10/23

Findings of Fact

REPUBLIC
MISSOURI
GROWING TOGETHER

Date of Hearing: 04/10/2022

Time: 6:00

Type of Application: Other

Name of Applicant: Oakwood Heights 2nd Addition (SUBD-PRE 23-001)

Location: City Council Chambers

Based upon the facts presented during the course of this hearing, I have found that the application is generally:

Conforming to the City's adopted Land Use Plan	☒ Yes	☐ No
Conforming to the City's adopted Transportation Plan	☒ Yes	☐ No
Conforming to other adopted plans of the City (i.e. water, wastewater, parks, etc.)	☒ Yes	☐ No
Compatible with surrounding land uses	☒ Yes	☐ No
Able to be adequately served by municipal infrastructure	☒ Yes	☐ No
Aligned with the purposes of RSMo. 89.040	☒ Yes	☐ No

Statement of Relevant Facts Found:

Plat seems reasonable, assuming building plans similar to existing multifamily.

Based on these findings, I have concluded to recommend the application to the City Council for: ☒ Approval ☐ Denial

Commissioner Name: John Alexander

Commissioner Signature:

Date: 4/10/23

REPUBLIC MISSOURI

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-R-26 A Resolution of the City Council Authorizing Execution of a Phase 2 Contract Price Amendment with Burns and McDonnell Engineering Co., Inc. for the Wastewater Treatment Plant Blending Project.
Submitted By:	Karen Haynes, BUILDS Administrator
Date:	April 11, 2023

Issue Statement

A Resolution authorizing the City Administrator to execute a contract with Burns & McDonnell for Phase 2 services for the Wastewater Treatment Plant Blending Project.

Discussion and/or Analysis

The City executed a Phase 1 Design-Build Contract with Burns & McDonnell for the Wastewater Treatment Plant Blending Project in February 2022, which included engineering design for the Project; the target price for construction of the project was $15,000,000.

The purpose of the Wastewater Treatment Plant Blending Project is for regulatory compliance for wet-weather flows, in which we are currently in an Administrative Order on Consent (AOC) with the Missouri Department of Natural Resources (DNR), expiring in April 2025. Currently, during wet weather events, excess influent arriving at the Wastewater Treatment Plant is greater in volume than the capacity of treatment through the Plant; because of this, the additional flow is diverted to a stormwater clarifier for additional storage, prior to treatment. During large rain events, the excess flow exceeds the storage capacity of the stormwater clarifier, and the influent is discharged to the creek, this process is a bypass and requires reporting to DNR.

The Phase 2 Contract includes completion of design services, procurement of all materials, and equipment, and construction of the improvements for a total contract price of $15,342,800, to be completed within (510) calendar days after the date of commencement of the contract. Completion of the Project will meet the requirements of the AOC, by upgrading the current Wastewater Treatment Plant to “blend” what now bypasses treatment, back into the treatment train prior to filtration and disinfection; this is an accepted industry practice for handling excess flows during wet weather events.

The contract also includes additional provisions for Allowances for unforeseen conditions, including unsuitable soils, rock excavation, precast sealer, SCADA upgrades, temporary alum injections, and road repairs, with an estimated total of $310,000 across all Allowances, not included in the total contract price. The work associated the Blending Project is budgeted and approved under the Master Services Contract with Burns & McDonnell for wastewater system improvements.

Recommended Action

Staff recommends approval.

A RESOLUTION OF THE CITY COUNCIL AUTHORIZING EXECUTION OF A PHASE 2 CONTRACT PRICE AMENDMENT WITH BURNS AND MCDONNELL ENGINEERING CO., INC. FOR THE WASTEWATER TREATMENT PLANT BLENDING PROJECT

WHEREAS, the City of Republic, Missouri, ("City" and/or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized and existing under the laws of the State of Missouri; and

WHEREAS, on February 15, 2022, via Resolution 22-R-09, the Council authorized the City to engage Burns & McDonnell Engineering Co., Inc. ("Engineer") to provide engineering design and construction services on five (5) separate Phase 1 projects as part of the various improvements to the City's wastewater system ("the Project"); and

WHEREAS, in Resolution 22-R-09, the Council acknowledged the City's intent to engage Engineer for five (5) additional projects to be known as "Phase 2", for the construction of the designed improvements following completion of Phase 2; and

WHEREAS, on February 18, 2022, the City and Engineer entered into a 'Progressive Design-Build Agreement for Water and Wastewater Projects' ("Master Agreement") for the wastewater treatment plant blending project ("WWTP Blending Project"); and

WHEREAS, pursuant to the Master Agreement, prior to beginning work on Phase 2, the City and Engineer are required to execute a 'Phase 2 Contract Price Amendment,' which includes completion of design services, procurement of all materials, and equipment, and construction of the WWTP Blending Project improvements for a total contract price of $15,342,800, to be completed within 510 calendar days after the date of commencement of the contract; and

WHEREAS, in advance of proceeding with construction on the WWTP Blending Project, the City now seeks Council's authorization to execute the Phase 2 Contract Price Amendment with Engineer, allowing the parties to move forward with construction pursuant to the terms therein.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1. The City Administrator, or designee, on behalf of the City, is authorized to execute the Phase 2 Contract Price Amendment for the WWTP Blending Project, to be in substantially the same form as that attached hereto as "Attachment 1," and provide or execute any other documents required to effect execution of said agreement.

Section 2. The City Administrator, or designee, on behalf of the City, is authorized to take the necessary steps to execute this Resolution.

Section 3. The whereas clauses are hereby specifically incorporated herein by reference.

Section 4. This Resolution shall take effect after passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____

Matt Russell, Mayor

Attest:

_____

Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

AMENDMENT 1
Phase 2 Contract Price Amendment
Wastewater Treatment Facility Blending Project

This Amendment is entered into this _____ day of _____, 2023 (the "Effective Date") between the City of Republic ("Owner") and Burns & McDonnell Engineering Co., Inc., a Missouri company ("Design-Builder"), and is governed by the terms and conditions of the Progressive Design-Build Agreement for Water and Wastewater Projects - Wastewater Treatment Facility Blending Project dated February 18, 2022 ("Agreement"), which is incorporated herein by reference. Owner and Design-Builder are referred to individually as a "Party" and collectively as the "Parties".

1. Phase 2 Services to be performed:
   1.1 The Phase 2 Services to be performed shall be as listed in Exhibit B –Scope of Services.

2. Phase 2 Contract Price:

   2.1 Owner shall pay Design-Builder in accordance with Article 6 of the General Conditions of Contract the sum of Fifteen Million Three Hundred Forty Two Thousand Eight Hundred Dollars ($15,342,800.00) for the Phase 2 services, subject to adjustments made in accordance with the Agreement and the General Conditions of Contract. This cost does not include Owner Allowances.

3. Phase 2 Contract Time:

   3.1 Substantial Completion of the entire Work shall be achieved no later than 510 calendar days after the Date of Commencement ("Scheduled Substantial Completion Date").
   3.2 The Phase 2 Contract Time and adjustments thereto shall be as governed by the Agreement and the General Conditions of Contract.

4. Other Changes:
   4.1 Replace the third paragraph of Exhibit B-Phase 1 Scope of Services with the following:

   The Phase 1 services will be prepared consistent with a targeted design Wastewater Treatment Plant blending capacity of 4 million gallons per day (MGD) nominal. It is assumed after completion of the separate WWTF Expansion project in addition to this Blending Project, the WWTF will have a nominal capacity of 5 MGD for average day conditions and targeted nominal capacity of 12 MGD for peak day conditions for a total targeted design nominal capacity of 16 MGD blending capacity for wet weather events.

4.2 MDNR requires certain provisions be added to the contract for the City to be eligible for ARPA funding. Add the following Sections at the end of Article 12 of the Progressive Design-Build Agreement.

12.3.19 Equal Employment Opportunity and Nondiscrimination in Employment: Pursuant to 41 CFR 60-4 and E.O. 11246, and as amendment, and consistent with all applicable federal, state, and municipal laws, Design-Builder will comply with Executive Order 11246 for bids, contracts, and subcontracts.

12.3.20 Contracting with Small and Minority Businesses, Women's Business Enterprises, and Labor Surplus Area Firms: Pursuant to 2 CFR 200.321; E.O. 11625 and 12138 and consistent with all applicable federal, state, and municipal laws, Design-Builder will take the following affirmative action steps in accordance with 2 CFR 200.321:

a. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
b. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
c. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
d. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
e. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce;

12.3.21 Contract Work Hours and Safety Standards Act: Pursuant to Section 40 U.S.C. 327–330 and consistent with all applicable federal, state, and municipal laws, Design-Builder will comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327–330) as supplemented by Department of Labor regulations (29 CFR part 5).

12.3.22 OSHA Training: Pursuant to Section 292.675, RSMo, and consistent with all applicable federal, state, and municipal laws, Design-Builder will provide a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for their on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Missouri Department of Labor and Industrial Relations which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty days of beginning work on such construction project.

12.3.23 Debarment and Suspension: Pursuant to Section 2 CFR 180; E.O. 12549 and consistent with all applicable federal, state, and municipal laws, Design-Builder will provide documentation necessary to confirm that the Design-Builder and subcontractors

are not excluded or disqualified from doing business with the federal government.

12.3.24 Small Business Act: Pursuant to P.L. 100-590, and consistent with all applicable federal, state, and municipal laws, Design-Builder will take the following affirmative action steps in accordance with Section 129 of Public Law 100-590, Small Business Administration Reauthorization and Amendment Act of 1988:

a. Placing Small Business in Rural Areas (SBRA) on solicitation lists;
b. Ensuring that SBRAs are solicited whenever they are potential sources;
c. Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation by SBRAs;
d. Establishing delivery schedules, where the requirements of work will permit which would encourage participation by SBRAs; and
e. Utilizing the services of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce, as appropriate.

12.3.25 Central Contractor Registration: Pursuant to P.L. 109-282, and consistent with all applicable federal, state, and municipal laws, Design-Builder and its Subcontractors will register in the System for Award Management (SAM).

12.3.26 Privity of Contract: The Missouri Department of Natural Resources, its divisions, nor its employees are or will be a party to the contract at any tier.

12.3.27 Protests: Neither the U.S. Department of Treasury nor the Missouri Department of Natural Resources will be involved in protest(s) and their resolution.

12.3.28 Domestic Products Procurement Law: Pursuant to 34.350 through 34.359 RSMo, and consistent with all applicable federal, state, and municipal laws, all manufactured goods or commodities used or supplied in the performance of any contract or subcontract awarded on this project shall be manufactured, assembled or produced in the United States, unless obtaining American-made products would increase the cost of the contract by more than ten percent (10%).

12.3.29 Anti-Lobbying Act: Pursuant to P.L. 101-121, and consistent with all applicable federal, state, and municipal laws, the Design-Builder and its Subcontractors will comply with the Anti-Lobbying Act, Section 319 of Public Law 101-121, and file an Anti-Lobbying Certification form, and the Disclosure of Lobbying Activities form, if required, to the next tier above.

12.3.30 False Claims Act: Pursuant to 31 USC 3729, and consistent with all applicable federal, state, and municipal laws, the Design-Builder will promptly refer to the State of Missouri or other appropriate Inspector General any credible evidence that a principal, employee, agent, contractor, sub-grantee, subcontractor or other person has submitted a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity or similar misconduct

involving federal funds.

12.3.31 Clean Air Act: Pursuant to 42 U.S.C. 7506(C), and consistent with all applicable federal, state, and municipal laws, the Design-Builder will comply with the Clean Air Act.

12.3.32 Clean Water Act: Pursuant to 33 U.S.C. 1368, and consistent with all applicable federal, state, and municipal laws, the Design-Builder will comply with the Clean Water Act.

12.3.33 Energy Efficiency Requirements: Pursuant to Energy Policy and Conservation Act (P.L.94-163, 89 Stat. 871), and consistent with all applicable federal, state, and municipal laws, the Design-Builder will comply with the mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

12.3.34 Recycled Materials: Pursuant with Section 6002 of the Resource Conservation and Recovery Act (RCRA)), and consistent with all applicable federal, state, and municipal laws, preference shall be given to the procurement of specific products containing recycled materials identified in guidelines developed by the USEPA.

12.3.35 Historical and Archaeological: Pursuant to P.L. 93-291, If during the course of construction evidence of deposits of historical or archaeological interest is found, the Design-Builder shall cease operations affecting the find and shall notify the Owner who shall notify the Missouri Department of Natural Resources and the Director, Division of State Parks, P.O. Box 176, Jefferson City, Missouri 65102-0176, Telephone (573) 751-2479. The Design-Builder shall halt any further disturbances of the deposits until notified by the Owner that they may proceed. The Owner will issue a notice to proceed only after the state official has surveyed the find and made a determination to the Missouri Department of Natural Resources and the Owner. Compensation to the Design-Builder, if any, for lost time or changes in construction to avoid the find, shall be considered a Differing Site Condition.

12.3.36 Prohibition on certain telecommunications and video surveillance services or equipment: Pursuant to 2 CFR 200.216, and consistent with all applicable federal, state, and municipal laws, Design-Builder will not procure or obtain, extend or renew a contract to procure or obtain, or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

12.3.37 Anti-Discrimination Against Israel Act: Pursuant to 34.600 RSMo, and consistent with all applicable federal, state, and municipal laws, Design-Builder certifies that it is not currently engaged in and shall not, for the duration of the contract, engage in a boycott of goods or services from the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel

5. The following Exhibits are incorporated herein by reference:
   - 5.1 Exhibit "A" – Not Used
   - 5.2 Exhibit "B" – Scope of Services
   - 5.3 Exhibit "C" – Assumptions, Clarifications & Exclusions
   - 5.4 Exhibit "D" – Not Used
   - 5.5 Exhibit "E" – Anticipated Lost Days to Inclement / Adverse Weather
   - 5.6 Exhibit "F" – Not Used
   - 5.7 Exhibit "G" – Allowances
   - 5.8 Exhibit "H" – Permit and Easement Matrix
   - 5.9 Exhibit "I" – Geotechnical Soils Report
   - 5.10 Exhibit "J" – Schedule
   - 5.11 Exhibit "K" – Pre-final Design Documents
   - 5.12 Exhibit "L" – ARPA Specification Inserts

IN WITNESS WHEREOF, the parties have executed this Amendment as of the date first above written.

OWNER:	**DESIGN-BUILDER:**
City of Republic *(Name of Owner)*	Burns & McDonnell Engineering Company, Inc. *(Name of Design-Builder)*
_____ *(Signature)*	_____ *(Signature)*
_____ *(Printed Name)*	_____ *(Printed Name)*
_____ *(Title)*	_____ *(Title)*
Date: _____	Date: _____

EXHIBIT B - SCOPE OF SERVICES

The parties agree that the Design-Builder's Scope of Services for Final Design and Construction Services includes and is limited to the following:

2.1 Project Management:

(1) Design-Builder will host monthly project update meetings and will provide meeting minutes with updated Action Item log.
(2) Design-Builder will host a weekly on-site construction coordination meeting with Owner to document work completed the past week, planned work for the next week and key interfaces between Design-Builder and Owner.
(3) Design-Builder will provide a monthly invoice that includes the following:
    (a) AIA Payment application with approved schedule of values and based on percent complete.

2.2 Engineering Services:

(1) Progress the design to Issued for Construction (IFC) and produce a deliverable for the Owner's review. The IFC drawings and specifications will include feedback from Owner's previous review of the Pre-Final documents.
(2) Complete 'Application for Construction Permit-Wastewater Treatment Facility (MO 780-1289). Submit one stamped hardcopy and stamped digital copy of plans and specifications and all change orders to MDNR for review and approval.
(3) Review and approve compliance submittals for equipment and materials to be incorporated into the Work. PDF versions of the final approved ("A" status) equipment submittals will be provided to Owner for Owner's information and records.
(4) Provide engineering submittal management associated with submittals throughout the construction period.
(5) Review third party test reports for equipment and materials to be incorporated into the project.
(6) Provide clarification and interpretation of the Issued for Construction design documents throughout the construction period. (Respond to Requests for Information [RFIs])
(7) Revise Issued for Construction design documents as needed to support major changes in scope during construction.
(8) Prepare a PDF set of Conformed As-Constructed design documents incorporating changes made to the Issued for Construction design documents during the construction process.
(9) Complete Arc Flash Hazard Study for new electrical gear and provide labels and documentation for proper PPE selection.

2.3 Procurement:

(1) Issuance and subsequent execution of supplier/vendor purchase orders.
(2) Receive, review, and process supplier/vendor payment applications, in accordance

with the terms of the purchase orders.

(3) Perform supplier/vendor purchase order administration including the review and processing of RFIs, potential change order requests, change orders, etc.
(4) Manage equipment and material deliveries as needed to facilitate the project schedule.
(5) Review equipment and materials delivered to the site for compliance with the IFC documents and approved submittals prior to being implemented to the Work.

2.4 Construction Services:

(1) Facilitate site preconstruction conference.
(2) Conduct weekly construction coordination meetings with subcontractors.
(3) Receive, review, and process subcontractor payment applications.
(4) Perform subcontract administration including the review and processing of RFIs, potential change order requests, change orders, etc.
(5) Manage Subcontractors to construct installation of the Work in accordance with the Contract Documents.
(6) Third party services, including surveying and materials testing.

2.5 Commissioning & Start-up:

(1) Design-Builder will lead all commissioning and start-up activities as required in the IFC documents in collaboration with the Owner, key equipment suppliers and subcontractors.
(2) Design-Builder will prepare an Operations and Maintenance (O&M) manual for the improvements.

EXHIBIT C – ASSUMPTIONS, CLARIFICATIONS & EXCLUSIONS

GENERAL / COMMERICAL

1. The Scope of Services, Contract Time and Contract Price are based on Exhibit K – Pre-Final Design Documents.
2. The Contract Price and Contract Times are based on the Contract being executed and Notice to Proceed issued on or before April 13, 2023.
3. The Contract Price and Contract Times are based on a standard 5-day week working 8 hours per day.
4. Taxes including sales, use, or special use on permanent equipment and materials is not included as a Tax Exemption Certificate has been provided by Owner to Design-Builder.
5. American Iron and Steel requirements are not included. The Missouri Domestic Products Law does apply and is presumed to apply only to final assembly in the United States, not sourced raw material. The Contract Price and Contract Times assume that a variance to this requirement will be granted for the following items: submersible pumps, various instruments, ductile pipe, ductile fittings, hardware, gaskets, megalugs, variable frequency drives, panelboards, transformers, and breakers. These items are either not readily available domestically or procuring them domestically would be cost and/or schedule prohibitive. If the items listed above are required to be procured domestically, it will be considered a change in the Work, and subject to adjustments to the Contract Price and Contract Times.
6. Labor rates for all craft labor are based upon Missouri Division of Labor Standards Wage and Hour Section, Annual Wage Order No. 29 for Greene County Missouri, dated March 10, 2022, Building Construction Rates, attached herein. Federal Davis-Bacon wage and fringe rates are not included.
7. COVID-19. The uncertainty and potential disruptions to the labor force and supply chain caused by the global outbreak and spread of COVID-19 (“coronavirus”) may have an impact on this Project, the exact cost and duration of which Design-Builder can neither predict nor control. Government orders and restrictions may also delay or prevent performance as anticipated. Design-Builder will be granted with a period of relief in performance and appropriate cost relief where circumstances arise that are beyond Design-Builder’s control, including COVID-19 related events. To the extent applicable, the doctrines of “commercial impracticability” or “frustration of purpose” under the Uniform Commercial Code may also excuse performance if delivery pursuant to our contract’s terms has been made “impracticable” by the occurrence of a contingency, the non-occurrence of which both parties assumed when the contract was made. At this time, it is impossible to foresee or to predict the full impact of COVID-19 around the world and, therefore, have not included price or schedule contingency specifically for COVID-19.
8. The Contract Times are based on current lead times provided by the equipment and material suppliers. If these lead times are impacted by supply chain issues, the Design-Builder may request an increase in the Contract Time and price.

9. Owner's contingency, Owner's allowances, or Owner's other costs are not included in the Contract Price.
10. Performance & Payment Bonds are included.
11. Builder's Risk Insurance is included.
12. Spare parts are not included, unless called out in the Exhibit K – Pre-Final Design Documents.
13. Excludes charges for consumption fees for providing utility services (water, sewer). All consumption fees to be paid directly by Owner.
14. Owner will provide all water for construction and testing to Design-Builder at no cost.
15. Local Building Permit fees have not been included as it was assumed these fees would be waived by the Owner.
16. General Conditions assume CIP 3, CIP 6 and CIP 7 Phase 2 amendments are approved and running concurrent with this project.
17. After bid solicitation was complete, MDNR provided target requirements for MBE/WBE participation. The contract price is based on the best/most responsible bidder and does not meet the specific participation goals.

SITE CONSTRUCTION AND ACCESS

1. Owner will provide adequate material staging, parking, and lay-down space for use during construction at the treatment plant site. Design-Builder has included cost for installing stone for the laydown area, as well as restoring the disturbed area at Project Completion.
2. We have assumed excess spoils may be hauled to the Owner's site adjacent to the existing WWTP.
3. All fill required for the project will be obtained from the project site.
4. It is assumed that Design-Builder will not encounter any existing Hazards including, but not limited to, lead, asbestos, or contaminated soils. Mitigation/abatement of all existing hazardous substances is not included.
5. Seeding of disturbed areas is included. Landscape plantings or sodding are not included.
6. It is assumed groundwater will not be encountered in any excavations. Design-Builder has included pumping for precipitation water.
7. No provisions for restoration due to flooding within the regulatory floodplain or floodway are included in the work. Any delays or site access limitations will be considered a force majeure event in accordance with the General Conditions.
8. Design-Builder has assumed that the existing North creek crossing on site is adequate to support plant operations and construction traffic while the new South crossing is constructed. The construction of a secondary temporary crossing is not included.
9. No provisions for improvements and/or restoration of any off-site streets, right-of-ways, alleyways, or any other roadway for plant access to facilitate construction traffic and deliveries are included.

DEMOLITION

1. It is assumed that all trees, fencing, etc. as indicated on the Drawings for removal by Owner will be removed prior to mobilization.

PROCESS MECHANICAL & EQUIPMENT

1. Based on review of the bids received for the process equipment, Owner and Design-Builder have mutually agreed to using the following equipment manufacturers:
    a. Filters – Aqua-Aerobics (JCI)
    b. Screening Equipment – Parkson (Haynes)
    c. Submersible Pumps – JCI Industries, LLC (Flygt)
    d. Chem Feed – Grundfos/Snyder/March (JCI)
    e. Slide Gates and Actuators –HydroGate/Rotork (Mid America Valve)
2. The pumps will be factory painted.
3. It is assumed that all existing gates, valves, pumps, etc. to remain are operational.
4. It is assumed that the Owner will drain and remove remaining debris from the Peak Flow Clarifier as necessary for the work to be completed. Design-Builder has only included the cleaning and preparation of surfaces as required by the coating manufacturers.
5. Any chemicals required for the filter, etc. following substantial completion are not included.
6. Effluent water quality is based on the filter performance only. No warranty or guarantee is included for effluent water quality downstream of the combined filter/primary treatment. No costs for compliance sampling, permit violation fees, damages, etc. are included.
7. Work at the peak wet weather clarifier incudes painting of the mechanism, catwalk/bridge, launder trough, and interior basin wall. No grouting, mechanical improvements, etc. are included.

ELECTRICAL, INSTRUMENTATION, & CONTROLS

1. Based on review of the bids received for the Instrumentation, Control Panel, and System Integration scope of work, Owner and Design Builder have mutually agreed to use R. E. Pedrotti Inc. for instrumentation, and system integration.
2. Excludes any new security devices or systems (cameras, card readers, etc.)
3. Bar screens will include a local screen only until the future MBR project when remote monitoring/control will be added.

COMMISSIONING & START-UP

1. Performance testing of the Cloth-Media Disc Filtration equipment will require operation during an acclimation period. This equipment is meant to be utilized during Wet Weather events. Since this performance test is weather dependent, completion of the performance test will not be a condition of Substantial Completion. Completion of the performance test will be a condition of Final Completion.
2. SCADA upgrades assume the existing plant AVEVA Wonderware HMI software is to be updated with new screens and that the existing licenses are properly sized. No new Wonderware software licenses or upgrades are included. Additionally, Design-Builder has assumed the existing AVEVA Wonderware Historian and Dream Reports software

licenses are adequately sized for updated reports. No new AVEVA Historian or Dream Report software licenses are included.

3. Design-Builder has assumed that the Owner will provide plant operations. Design-Builder will be responsible for the start-up and commissioning of all new processes, with the understanding that the Owner shall be responsible for operating the plant to facilitate these start-ups.
4. Hardware, software, and programming to mitigate issues with the existing network are not included.

EXHIBIT E – ANTICPATED LOST DAYS TO INCLEMENT / ADVERSE WEATHER

The chart below provides the days per month that the Design-Builder anticipates will be lost due to inclement / adverse weather. The days shown in this Exhibit B shall not accumulate month-to-month, but are to be used for determining only the anticipated adverse weather in a given month. Adverse Weather shall be as defined in Article 6 of the Agreement.

Anticipated Lost Days per Month	
Month	**Anticipated Lost Days**
January	2
February	2
March	1
April	2
May	3
June	3
July	2
August	2
September	2
October	2
November	1
December	1

EXHIBIT G – ALLOWANCES

The parties have agreed to establish the following Allowance Items and Allowance Values. Allowance items are elements of work that are identified to potentially occur, but it cannot be determined if they will occur or the magnitude of the occurrence, so they are not included in the Design-Builder's current Scope of Work. The Allowance Value is the value which the parties have agreed to establish for an Allowance Item in accordance with Article 7.7 of the Agreement.

If Allowances are utilized, the Design-Builder shall be compensated for its costs and the Design-Builder's markup. Design-Builder and Owner shall agree to the compensation method prior to work being performed. It is noted that use of an Allowance may also require a schedule adjustment in certain situations.

1. Fatty Clay and/or Other Unsuitable Subgrade Bearing Material - Over-Excavation and Replacement Fill, $50,000: This Allowance Item is established to fund the over-excavation and replacement of unsuitable fatty clays and/or other unsuitable existing bearing materials, with acceptable fill material at locations to include, but not limited to, new structure foundations, slabs, pads, paving, pipe trenches, ductbanks, etc. as recommended by the third-party testing services firm.

2. Rock Excavation and/or Karst encountered, $75,000: This Allowance Item is established to fund the excavation of rock and/or karst if encountered at excavations, including any over-excavation and material replacement associated with rock and/or karst. The geotechnical explorations did not indicate that rock and/or karst would be encountered at the planned design elevations, however there is the potential to encounter these items. If encountered, the third-party services testing firm will be engaged to provide recommendations on limits of excavation/removal and any replacement material required.

3. Precast Concrete Wall Sealer, $30,000: This Allowance Item is established to fund the sealing of the exterior of the vertical precast walls at the Filter and Disinfection Building. This item includes furnishing and applying the sealer per manufacturer recommendations, including all surface preparation.

4. Existing SCADA Upgrades, $50,000: This Allowance Item is established to fund work required to mitigate issues with the existing network and migrate the existing SCADA software to new hardware at the WWTP. Proposed solutions as coordinated with the City would mitigate existing network connectivity errors and modernize the existing system to support future expansion. Items contemplated to be included under this allowance include:
    a. Wall Mount Rack and 1200VA UPS.
    b. Remove existing network switch and install and configure new switch in the existing Admin Building Main PLC Panel.
    c. Install and configure updated Wonderware software on newly configured Server VM.
    d. Onsite implementation, integration, and testing of updated Wonderware software, including onsite training.
    e. Electrical installation to support modifications, including a dedicated 120V outlet

and a CAT 6 ethernet cable to the Wall Mount Rack.

The allowance budget does not include furnishing a new SCADA Server, a Stratix 5700 Ethernet Switch, or VM licenses.

5. Temporary Alum Feed at Peak Flow Clarifier for Filter Influent, $50,000: This Allowance item is established to fund furnishing and installing a temporary alum feed system at the Peak Flow Clarifier to improve the disc filter performance if needed. The MBR project will include a permanent alum feed, and the intent of this allowance item is to fund furnishing and installing a temporary system. System to include providing power to the system as needed, chemical feed pump, chemical tote, chemical supply, and interconnecting piping components.

6. Unforeseen Conditions, $25,000: This Allowance Item is established to fund differing site conditions that may be encountered through execution of the work. Examples of these items include, but are not limited to, the presence of unmarked utilities or existing utilities that were not previously identified in the Contract Documents, actual existing tie-in locations differ from what is shown on the Contract Documents, unforeseen underground obstructions that have not been previously identified, additional work at tie-in locations due to poor quality of existing piping, inoperable/malfunctioning existing valves, slide gates, etc.

7. Off-Site Plant Access Road Improvements/Repairs, $30,000: This Allowance Item is established to fund improvements and/or repairs to off-site plant access roads, from Hwy 174 North to the existing plant entrance gate, to facilitate construction traffic. Examples of improvements/repairs intended to be funded through this allowance include, but are not limited to, filling of potholes, widening turn-ins, filling ruts, etc. Design-Builder and Owner to establish an acceptable construction traffic routing plan to minimize impacts to existing roads.

EXHIBIT H – PERMIT & EASEMENT MATRIX

The project is anticipated to require the permits listed in Table 1 and the Easements listed in Table 2.

Table 1: Anticipated Permits Required

Anticipated Permit	Administering Agency	Assumed Agency Review Timeline	Party Responsible for Obtaining Permit
Nationwide Permit/State Water Quality Certification (Section 404/401 Permit – Wetlands Permit)	USACE/MDNR	60 days	BMcD
Floodplain Development Permit	Greene County	30-60 days	BMcD
NPDES General Stormwater Permit	MDNR	Permit issued after NOI is submitted electronically	BMcD (SWPPP has been drafted)

Table 2: Anticipated Easements Required

Parcel ID/Address	Approximate Size (SF)	Type	Party Responsible for Obtaining Easements

All work is within City of Republic owned property and no easements are required.

EXHIBIT I – GEOTECHNICAL SOILS REPORT

Geotechnical Engineering Report

Republic Wastewater Treatment Plant Improvements
Revision No. 1
Republic, Missouri
August 19, 2022
Terracon Project No. B5205029/B5215111

Prepared for:
Burns & McDonnell Engineering Co.
Kansas City, Missouri

Prepared by:
Terracon Consultants, Inc.
Springfield, Missouri

August 19, 2022

Burns & McDonnell Engineering Co.
9400 Ward Parkway
Kansas City, Missouri 64114

Attn: Ms. Allison White, P.E.
P: (314) 328 5431
E: alwhite@burnsmcd.com

Re: Geotechnical Engineering Report
Republic Wastewater Treatment Plant Improvements
Revision No. 1
408 N. West Ave. – Northwest of Wade Street Intersection
Republic, Missouri
Terracon Project No. B5205029/B5215111

Dear Ms. White:

We have completed a subsurface exploration and geotechnical engineering exploration for the referenced project. This study was performed in general accordance with Burns & McDonnell Engineering Co. (BMcD) Work Authorization TRCN366G, dated September 18, 2020 and Amendment to Work Authorization TRCN366G, dated January 21, 2021. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and floor slabs, and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

David A. Williams, P.E.
Project Engineer

Kole C. Berg, P.E.
Principal/Senior Consultant
Missouri: PE-2002016417

REPORT TOPICS

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

FIGURES

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

REPORT SUMMARY

A geotechnical exploration has been performed for the proposed Republic Wastewater Treatment Plant Improvements located at 408 N. West Ave. in Republic, Missouri. In 2020, twelve (12) borings, designated B-1 through B-8, B-2A, B-4A, B-5A, and B-7A, were performed to depths of approximately 25½ to 64½ feet below the existing ground surface. In 2022, twelve (12) borings, designated B-11 through B-22, were performed to depths of approximately 18½ to 50 feet below the existing ground surface. The following geotechnical considerations were identified:

- A previous geotechnical investigation (Geotechnical Engineering Report, Republic Wastewater Treatment Plant Improvements, dated December 18, 2020, Terracon Project No. B5205029) was performed near the additional planned improvements. Information from the previous geotechnical investigation has been incorporated into this Geotechnical Engineering Report.

- The subject site is located within karst prone bedrock material. During the 2020 field exploration of Boring B-5, a sudden loss of drilling fluid and limited drilling resistance were noted from depths of approximately 25 to 32 feet below the ground surface. These conditions are associated with the presence of voids and soft clay seams in the underlying limestone and are an indication of karst activity.

- Demolition of the existing buildings should include removal of all above-grade and below-grade elements including floor slabs, foundation walls, and footings. All existing utilities should also be properly abandoned and/or relocated. This should include removal of all poorly compacted trench backfill extending into the proposed building area. Excavations created by demolition and removal of existing features should be backfilled with engineered fill that is placed and compacted as recommended in this report.

- Existing undocumented fill was encountered to depths ranging from approximately 2 to 10 feet in Boring B-1, B-3 through B-7, B-4A, B-5A, B-11, B-16, B-20, and B-21. Foundations for the proposed building should not bear on or above the undocumented fill materials. Any existing fill should be removed and replaced (or improved) so foundations and floor slabs for the building bear on suitable native soils or on properly placed and compacted engineered fill extending to the suitable native soils.

- Provided the owner is willing to accept the risks associated with supporting pavements over the existing fill materials in exchange for reduced construction costs, portions of the existing fill could be left in place for support new pavements. At least 12 inches of new engineered fill should be placed directly below the pavements with this option.

- Soils with liquid limits over 45 percent were encountered in the soil exploration program and are prone to volume change with variations in moisture content. The fat clay (CH) soils encountered in the soil exploration program (both as undocumented fill materials and native soils) are high in plasticity and prone to volume change with variations in moisture content. For this reason, we recommend a 24-inch thick Low Volume Change (LVC) zone be maintained or constructed beneath grade-supported floor slabs.

- Some relatively high moisture content soils were encountered in the upper levels of some of the borings, and these soils may be exposed in excavations and cuts. These soils may become unstable when disturbed. During periods of dry weather, these soils may be stable upon initial exposure; however, these soils, if exposed, may become relatively soft and unstable under construction traffic. We recommend that the owner budget for the possibility that overexcavation and/or subgrade stabilization may be required and contractors be prepared to handle potentially unstable and/or soft conditions.

- Based on our borings and seismic refraction survey, the International Building Code (IBC) seismic site class for this site is C.

The professional opinions and recommendations presented in this report are based on evaluation of data developed by testing discrete samples obtained from widely-spaced borings. Site subsurface conditions have been inferred from available data, but actual subsurface conditions will only be revealed by excavation. So that variations in subsurface conditions which may affect the design can be addressed as they are encountered, we recommend that Terracon be retained to observe excavations and perform tests during the site preparation, earthwork and foundation construction phases of the project.

This executive summary should not be separated from or used apart from this report. This report presents fully developed recommendations and opinions based on our understanding of the project at the time the report was prepared. The report limitations are described in the **General Comments** section of this report.

Geotechnical Engineering Report

Republic Wastewater Treatment Plant Improvements
408 N. West Ave. – Northwest of Wade Street Intersection
Republic, Missouri

Terracon Project No. B5205029/B5215111

August 19, 2022

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Republic Wastewater Treatment Plant Improvements to be located at 408 N. West Ave. – Northwest of Wade Street Intersection in Republic, Missouri. In 2020, twelve (12) borings, designated B-1 through B-8, B-2A, B-4A, B-5A, and B-7A, were performed to depths of approximately 25½ to 64½ feet below the existing ground surface. In 2022, twelve (12) borings, designated B-11 through B-22, were performed to depths of approximately 18½ to 50 feet below the existing ground surface. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil (and rock) conditions
- Groundwater conditions
- Site preparation and earthwork
- Excavation considerations
- Dewatering considerations
- Demolition considerations
- Foundation design and construction
- Floor slab design and construction
- Seismic site class
- Lateral earth pressures
- Pavement design and construction

Maps showing the site and boring locations are shown in the **Site Location**, **Boring Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and/or as separate pages in the **Exploration Results** section.

The **General Comments** section provides an understanding of the report limitations.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 408 N. West Ave. – Northwest of Wade Street Intersection in Republic, Missouri. The approximate coordinates of the site are: Lat.: 37.1426° N Long.: 93.2659° W (See **Site Location**)
Existing Improvements	Existing wastewater treatment facility
Current Ground Cover	Bare ground, native grasses, and asphalt pavements (access roads)
Existing Topography	A site topographic plan was not provided. Current grades at the site are relatively flat with drainage to towards Dry Branch Creek near the middle of the site.

PROJECT DESCRIPTION

Our initial understanding of the project along with associated recommendations were provided in our previous geotechnical investigation (Geotechnical Engineering Report, Republic Wastewater Treatment Plant Improvements, dated December 18, 2020, Terracon Project No. B5205029) and was discussed in the current project planning stage. A period of collaboration has transpired since the previous geotechnical investigation was completed, and our final understanding of the project is as follows:

Item	Description
Project Description	Improvements to the existing Wastewater Treatment Facility
Grading/Slopes	Terracon assumes up to 25 feet of cut and 5 feet of fill may be required to develop final grades. Terracon understands final slope angles no steeper than 3H:1V (Horizontal:Vertical) are planned.
Below-Grade Areas	Some structures are anticipated to have walls extending 22 feet below grade.
Pavements	New pavements will be constructed. We assume both rigid (concrete) , flexible (asphalt) pavement, and gravel access road sections should be considered. Anticipated traffic information for the following categories (vehicles per day) should be provided by the client: ■ Autos/light trucks ■ Light delivery and trash collection vehicles ■ Tractor-trailer trucks The pavement design period is 20 years.

Proposed Structures	**Blending:** Transfer Pump Station Valve Vault – 20’ Square – Reinforced Mat Foundation Filter Splitter Structure – 17’x12’ – Reinforced Mat Foundation Filter Building – 70’x50’ – Wall Footing with Slab-on-Grade Disinfection Building – 70’x25’ – Reinforced Mat Foundation on Perimeter Grade Beam **Membrane Bioreactor (MBR):** Influent Pump Station Vault – 22’ Square – Reinforced Mat Foundation Grit Removal and Fine Screening Building – 70’x45’ – Reinforced Mat Foundation Chemical Feed Building – 50’x35’ – Reinforced Mat Foundation on Perimeter Grade Beam Process Splitter – 30’x12’ – Reinforced Mat Foundation Process Basins – 200’x160’ – Reinforced Mat Foundation MBR Basin – 80’x40’ – Reinforced Mat Foundation MBR Building – 80’x40’ – Reinforced Mat Foundation Digester 4 – 86’ diameter – Reinforced Mat Foundation Dewatering Building – 80’x40’ – Wall Footing with Slab-on-Grade Administration Building – 125’x65’ – Wall Footing with Slab-on-Grade Electrical Building – 75’x25’ – Wall Footing with Slab-on-Grade Miscellaneous Structure for Various Equipment – Reinforced Mat Foundation
Foundation and Slab Bearing Elevations	Transfer Pump Station – 1239 feet Influent Pump Station – 1232 feet Process Basins – 1262 feet MBR Basin – 1260 feet MBR Building – 1259 feet Digester 4 – 1248 feet Slab bearing elevations of remaining structures listed in Proposed Structures are planned to be within 1 to 2 feet of existing ground surface

Maximum Loads (Provided by B&M)	**Blending:** Transfer Pump Station – 2.5 ksf bearing Filter Splitter Structure – 2.0 ksf bearing Filter Building – 6.5 klf strip Disinfection Building – 4.0 klf strip **Membrane Bioreactor (MBR):** Influent Pump Station Vault – 3.0 ksf bearing Grit Removal and Fine Screening Building – 3.5 ksf bearing Chemical Feed Building – 2.5 klf strip Process Splitter – 1.5 ksf bearing Process Basins – 2.5 ksf bearing MBR Basin – 2.0 ksf bearing MBR Building – 3.0 ksf bearing Digester 4 – 2.0 ksf bearing Dewatering Building – 80'x40' – 6.0 klf strip Administration Building – 125'x65' – 4.0 klf strip Electrical Building – 75'x25' – 4.0 klf strip Miscellaneous Structure for Various Equipment – <1.0 ksf bearing

GEOLOGIC SETTING

The project site is located in the Springfield Plateau subsection of the Ozark Highlands Physiographic Province of Missouri. This province is characterized by gently rolling to nearly level upland areas dissected by stream and river valleys, underlain primarily by carbonate rocks (limestone and dolomite).

The project site is mapped as being underlain by the limestone and dolomite of the Osagean Series carbonate rocks, dated to the Early Mississippian Geologic Period. The Osagean series in southwestern Missouri consists of the Keokuk Limestone, Burlington Limestone, Elsey Formation, Reeds Spring Formation, and Pierson Limestone, and is up to 400 feet in thickness. Due to a lack of exposed bedrock at the surface of the site, the mapped geology cannot be verified.

The Osagean Series carbonate rocks are known to form a widespread karst terrain, a landform characterized by closed depressions, sinkholes, cave entrances, sinking streams, and a highly irregular "pinnacled" bedrock/soil interface. The karst landform is the consequence of the presence of soluble bedrock.

Specifically, the project site is mapped as being underlain by the Osagean Series, see **Geologic Map**.

REVIEW OF AVAILABLE RECORDS

The following records were reviewed:

- Google Earth, Historical Aerial Photographs;
- USGS Earth Explorer, Historical Aerial Photographs, https://earthexplorer.usgs.gov/;
- USGS Topoview, Historical Topographic Maps, https://ngmdb.usgs.gov/topoview/;
- Greene County, MO, GIS Data Viewer, https://greenecountymo.gov;
- City of Springfield, MO, GIS Data Viewer, https://www.springfieldmo.gov;
- Missouri State University, Digital Library, http://digitalcollections.missouristate.edu/;
- Missouri Department of Natural Resources, GeoStrat, http://dnr.no.gov/geostrat/;

Several karst features and potential karst features were identified during our document review and review of previous Terracon projects on adjacent properties. Based on our review of the above resources, a documented sinkhole is present in the southeastern portion of the property see **Geologic Map**.

Our review of records included reviewing aerial photographs from 1936, 1959, 1964, 1968, 1970, 1978, 1979, 1990, 1997, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2015, 2017, 2019, and 2020. Additionally, our records review included reviewing USGS 7.5-minute quadrangle historical topographic maps from 1936, 1960, 1968, 1971, 1976.

Historical aerial photographs and historical topographic maps dating as far back to 1936 indicate that the subject site remained undeveloped prior to 1959, when sewage disposal structures appear directly south of project site. Documentation indicates that the site was underwent changes where parts of the site was zoned as a land fill prior to 1968. Additions to the existing wastewater treatment plan can be seen through the years up until the 2003 aerial photograph, where no changes are observed through the latest aerial photograph reviewed by Terracon in 2022.

SITE RECONAISSANCE

On October 6, 2020, Joshua Elson, R.G., of Terracon visited the property to observe surface conditions for potential karst activity. At the time of the site visit, the ground surface was predominately maintained lawn around the existing wastewater treatment plant structures. No areas of subsidence or depressions were observed at the time of the site visit. Additionally, on June 21, 2022, Ripken Dodson, E.I., of Terracon visited the property to observe surface conditions for potential karst activity. At the time of the site visit, the ground surface in the area of the proposed treatment plant addition was bare, partially graded, exposed soil. No areas of subsidence or depressions were observed at the time of the visit.

GEOPHYSICAL RESULTS

Karst Conditions

The subject site is located within karst prone bedrock material. During the exploration of Boring B-5, a sudden loss of drilling fluid and limited drilling resistance were noted from depths of approximately 25 to 32 feet below the ground surface. These conditions are associated with the presence of voids and soft clay seams in the underlying limestone and are an indication of karst activity.

Karst development in this area occurs from the dissolution of the native limestone bedrock material. Over time, groundwater can transport the surrounding soil into bedrock voids causing visible surface features such as circular depressions or areas of drainage. However, some sinkholes may not be readily visible from the surface because they are plugged or capped with a thin layer of rock. Maintaining and managing adequate storm water drainage is important within karst prone areas, as described in the **Grading and Drainage** section. The image below, provided by MDNR, depicts the development of sinkholes over time.

Image courtesy of MDNR

Though no evidence of sinkholes was noted during the 2020 and 2022 site reconnaissance visits, the development of karst features on the site is a possibility over time. The current state of the practice in geotechnical engineering does not allow for the accurate prediction of when or where sinkholes or karst-related subsidence could occur. The owner is advised that construction on this

property or essentially any other site within this area, carries with it some risk that future sinkholes may develop.

MASW Interpretations

Terracon performed Multi-Channel Analysis of Surface Waves (MASW) seismic surveys was to identify potential kart-related features to direct the subsequent geotechnical exploration. The locations of our MASW survey lines are shown on the **Geophysical Site Plan**, and a description of the MASW method is provided in the **Exploration and Testing Procedures** section of this report.

The velocity at which the surface waves propagate is related to the shear modulus of the material through which it passes; therefore, allowing us to constrain the location(s) of potentially weak, soft, or saturated subsurface conditions consistent with the presence of karst-related features. The 2D images provided on the **MASW Profiles** present the shear wave velocity, respectively, as a function of distance in the horizontal direction and depth. It should be noted that the seismic velocity characteristics of soils and rocks can be similar; thus, the transition between material types may be gradual. The occurrence of the different soil types, and their consistencies and densities encountered in the borings are consistent with the range of shear wave values shown in the table below.

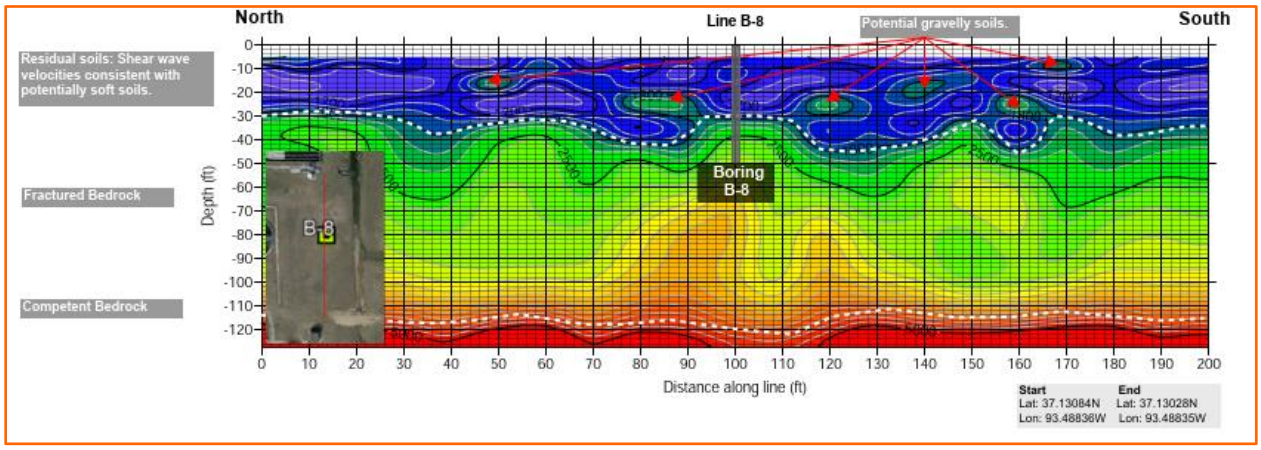
Site Class	Soil Profile	Shear Wave Velocity (ft/s)
A	Hard rock	$V_s > 5,000$
B	Medium hard rock	$3,000 < V_s \leq 5,000$
BC	Soft Rock	$2,100 < V_s \leq 3,000$
C	Very dense sand or hard clay	$1,450 < V_s \leq 2,100$
CD	Dense sand or very stiff clay	$1,000 < V_s \leq 1,450$
D	Medium dense sand or stiff clay	$700 < V_s \leq 1,000$
DE	Loose sand or medium stiff clay	$500 < V_s \leq 700$
E	Very loose sand or soft clay	$V_s \leq 500$

Based on the MASW shear wave data we identify three layers as a part of our subsurface profile:

- **Residual soils**: from the surface to depths of about 20 to 50 feet below site grade (bsg)
- **Fractured bedrock**: from about 30 to 100 feet bsg
- **Hard bedrock**: from about 80 to 100 feet bsg

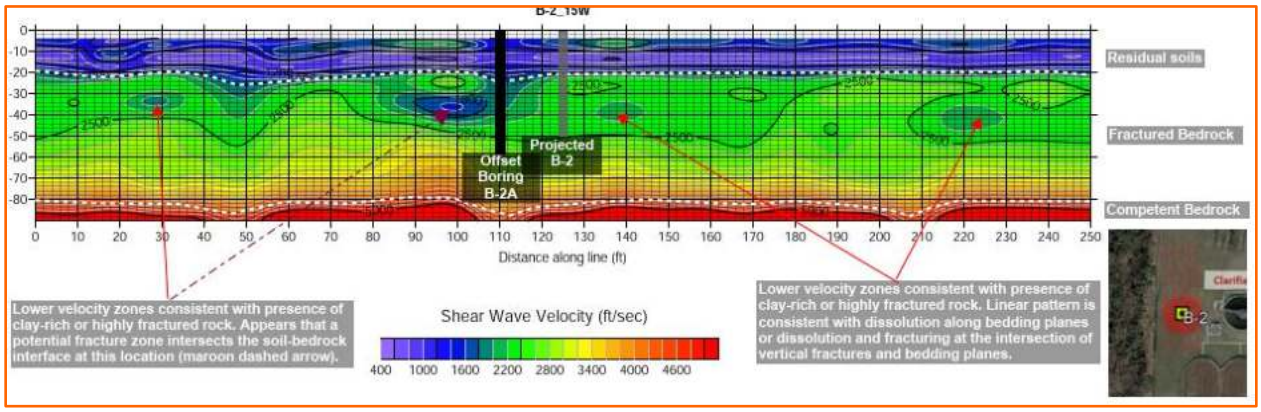
Shear wave velocities within the residual soils are characterized by shear wave velocities from less than 600 ft/s to about 1,200 ft/s consistent with the presence of soils characterized as soft to stiff. Areas of locally higher shear wave velocities relative to the surrounding materials were observed and are consistent with the presence of harder materials within the residual soil layer.

Thus, we anticipate that excavations within the residual soil layer may encounter cobbles and boulders (e.g., Line B-8 in figure below).



MASW Profile at Boring B-8 – areas with shear wave velocities greater than surrounding soils in the residual soil layer are consistent with the presence of high gravel content soils, cobbles or boulders.

Local low velocity zones (LVZs) are observed at a depth of about 40 to 50 feet within the highly to moderately weathered bedrock unit. The shear wave velocities and distribution of the LVZs are consistent with the presence of highly fractured bedrock potentially at locations where subvertical fractures intersect a weathered bedding plane. Some of these LVZs appear to extend up to the residual soil-fractured bedrock interface. It is possible that these fracture zones serve as fluid conduits and have higher clay contents than the surrounding rock mass, which would contribute to the observed lower velocities. It is important to note that the velocities of the LVZs vary from about 1,200 to 2,200 ft/s consistent with the presence of materials characterized as “very dense soil and soft rock”; therefore, our initial interpretation of the LVZs did not characterize these locations as voids. Four (4) additional borings were advanced at locations were LVZ anomalies were observed (e.g., offset Boring B-2A shown in the figure below). Our observations from these borings are consistent with our interpretation of the MASW data.



MASW Profile at Boring B-2 15W – an additional boring was offset approximately 15 feet south of boring B-2 to explore one of the LVZs located at a depth of about 30 to 40 feet and extending up to the residual soil-fractured bedrock interface.

The results of the geophysical and subsequent geotechnical exploration are consistent with some karst-related features such as variable bedrock surface topography and highly weathered fractures and bedding planes. The results are not consistent with the presence of voids, caves, etc. at locations of the proposed structures; however, construction on this property or other sites within this area, carries with it some risk that future sinkholes may develop.

A description of the subsurface materials, their occurrence across the site, and how their impact of constructability and design are presented in the following sections.

GEOTECHNICAL CHARACTERIZATION

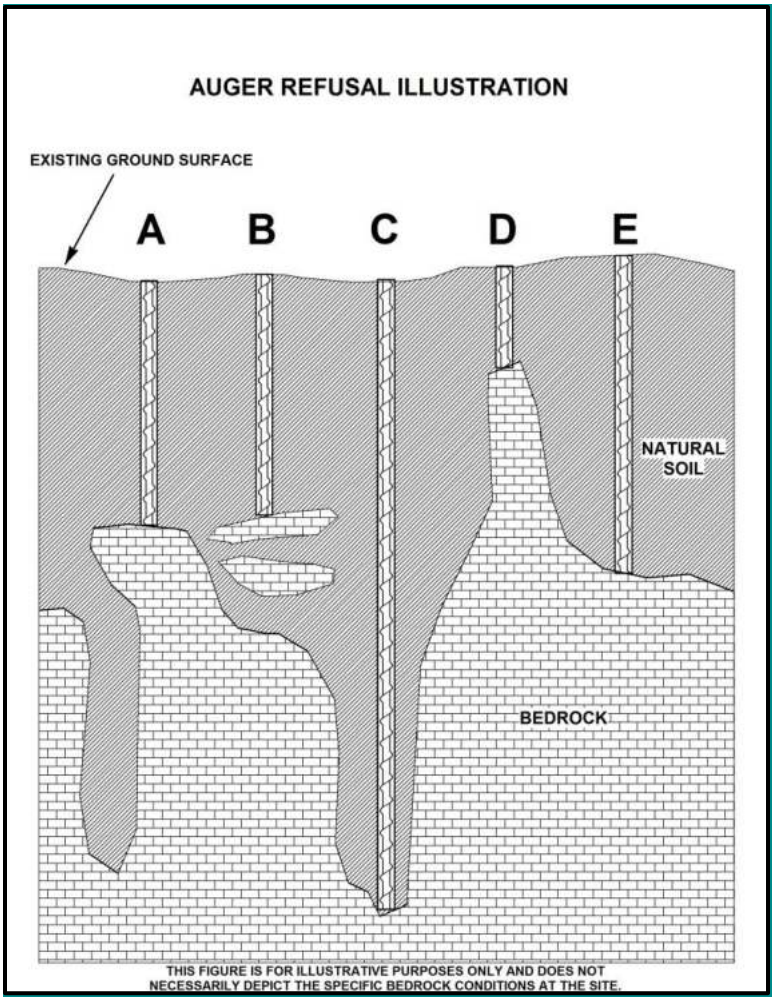
We have developed a general characterization of the subsurface conditions based upon the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical evaluation. Conditions encountered at each boring location are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Surficial Materials**	Topsoil and exposed fill materials or residual soils
2	**Fill**	Lean to fat clay (CL or CH) with varying amounts of gravel and sand or clayey gravel with varying amounts of clay and sand
3	**Residual Soils**	Lean to fat clay (CL or CH) with varying amounts of gravel and sand or gravelly soils with varying amounts of clay and sand
4	**Limestone**	Highly to slightly weathered

Auger refusal is defined as the depth below the ground surface at which a boring can no longer be advanced with the soil drilling technique being used. Auger refusal is subjective and is based upon the type of drilling equipment used, the types of augers used, and the effort exerted by the driller. Auger refusal can occur on the upper surface of discontinuous bedrock (A), slabs of unweathered rock suspended in the residual soil matrix or "floaters" (B), in widened joints that may extend well below the surrounding bedrock surface (C), on rock "pinnacles" (D) rising above

the surrounding bedrock surface, or on the upper surface of continuous bedrock (E). These possible auger refusal conditions are illustrated in the figure below. Linear interpolation of apparent bedrock elevations based upon the boring data is often used but can misrepresent actual rock removal quantities where anomalies exist, such as pinnacled rock, where rock could be shallower than that encountered in the borings. Additional borings, auger probes, test pits, or geophysical testing could be performed to obtain more specific bedrock information.



Groundwater Conditions

The boreholes were observed while drilling and after completion for the presence and level of groundwater. In addition, delayed water levels were also obtained in some borings. The water levels observed in the boreholes are shown on the boring logs in **Exploration Results**, and are summarized below.

Boring Number	Approximate Depth to Groundwater while Drilling (feet) [1]	Approximate Depth to Groundwater after 24 hours (feet) [1]
B-2	16	12
B-8	22½	19
B-2A	14	19
B-4A	Not Encountered	21
B-7A	35	Not Encountered
B-11	35	Not Observed
B-12	22	Not Observed
B-14	20½	Not Observed
B-15	19½	Not Observed
B-17	16½	Not Observed
B-18	23	Not Observed
B-19	20	Not Observed
B-20	18½	Not Observed
B-22	23	Not Observed

1. Below ground surface

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be different than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

General

We recommend that the exposed subgrade be thoroughly evaluated after stripping of any topsoil and at the base of all cut areas, and prior to the start of any fill operations. We recommend that the Geotechnical Engineer be retained to evaluate the bearing material for the foundations and subgrade soils. Subsurface conditions, as identified by the field and laboratory testing programs, have been reviewed and evaluated with respect to the proposed project plans known to us at this time.

Anticipated Foundations

Due to the variable depth to bedrock across the site and the variance in the anticipated bearing elevation of each structure, we recommend that each structure be evaluated individually to

determine the most appropriate foundation system. Based on the anticipated bearing elevations, the anticipated maximum loads and the data that we have gathered in our exploration, we have provided a summary of the anticipated foundation system for each structure in the following table.

Planned Structure	Anticipated Maximum Load	Preliminary Bearing Elevation (feet)	Recommended Foundation Type	Recommended Bearing Material
Blending:				
Transfer Pump Station	2.5 ksf	1239	Mat Foundation and/or Drilled Shafts	Residual Clay or Competent Limestone at about elevation 1208½
Filter Splitter Structure	2.0 ksf	At Grade	Mat Foundation	Residual Clay and/or Engineered Fill
Filter Building	6.5 klf	At Grade	Strip Footings	Residual Clay and/or Engineered Fill
Disinfection Building	4.0 klf	At Grade	Strip Footings	Residual Clay and/or Engineered Fill
Membrane Bioreactor (MBR):				
Influent Pump Station Vault	3.0 ksf	1232	Mat Foundation	Residual Clay and/or Engineered Fill
Grit Removal and Fine Screening Building	3.5 ksf	At Grade	Mat Foundation bearing on ground improvement or Drilled Shafts	Competent Limestone at about elevation 1248
Chemical Feed Building	2.5 klf	At Grade	Mat Foundation on Grade Beam	Residual Clay and/or Engineered Fill
Process Splitter	1.5 ksf	At Grade	Mat Foundation	Residual Clay and/or Engineered Fill
Process Basins	2.5 ksf	1262	Mat Foundation	Residual Clay and/or Engineered Fill
MBR Basin	2.0 ksf	1260	Mat Foundation	Residual Clay and/or Engineered Fill
MBR Building	3.0 ksf	1259	Mat Foundation	Residual Clay and/or Engineered Fill
Digester 4	2.0 ksf	1253	Drilled Shafts	Competent Limestone at about elevation 1235
Dewatering Building	6.0 klf	At Grade	Strip Footings	Residual Clay and/or Engineered Fill
Administration Building	4.0 klf	At Grade	Strip Footings	Residual Clay and/or Engineered Fill
Electrical Building	4.0 klf	At Grade	Strip Footings	Residual Clay and/or Engineered Fill

Planned Structure	Anticipated Maximum Load	Preliminary Bearing Elevation (feet)	Recommended Foundation Type	Recommended Bearing Material
Miscellaneous Structure for Various Equipment	<1.0 ksf	At Grade	Strip Footings	Residual Clay and/or Engineered Fill

During the exploration of Boring B-5, a sudden loss of drilling fluid and limited drilling resistance were noted at a depth of approximately 25 to 32 feet below the ground surface. These conditions are associated with the presence of voids and soft clay seams in the underlying limestone. The extent and nature of the void cannot be determined without further investigation. With the presence of this void, Terracon recommends the mat foundation of Digester 4 be supported on drilled shaft foundations that bear beyond this depth into the competent limestone below the void and clay seam.

Demolition

Demolition of the existing structures should include removal of all above-grade and below-grade elements including floor slabs, foundation walls, and footings. Attention should be given to removing all loose or poorly compacted existing fill materials that are often located adjacent to existing and former foundation walls. All existing utilities should also be properly abandoned and/or relocated. This should include removal of all poorly compacted trench backfill extending into the proposed structure areas. In addition, care should be taken by contractors to protect all existing improvements to remain, such as pavements and utilities. Excavations created by demolition and removal of existing features should be backfilled with engineered fill that is placed and compacted as recommended in this report.

Existing Undocumented Fill

Existing undocumented fill was encountered to depths ranging from approximately 2 to 10 feet in Boring B-1, B-3 through B-7, B-4A, B-5A, B-11, B-16, B-20, and B-21. The fill could extend deeper in areas not explored. Existing undocumented fill should be observed, tested, and approved by Terracon. If indications of fill are found during the excavations, then the material should be treated as fill and the recommendations noted below should be considered. While the N-values obtained in the undocumented fill materials were generally equal to or higher than the existing native soils, no documentation or records regarding the placement of this fill were provided for our review. If records of the fill placement are available, Terracon should be provided with these documents to better assess the suitability of the existing fill.

Due to the clayey gravels at the subject site, differentiating between native materials and man placed fill in soil boring samples is difficult and, in many cases, impractical without documentation. The designation of possible fill has been given to materials that are suspected of being fill but no

definite indications of fill were noted in the sampling process. These materials should be carefully observed and inspected during excavations for indications of fill by a representative of Terracon. If indications of fill are found during the excavations, then the material should be treated as fill and the recommendations noted below should be considered.

Existing undocumented fill may contain soft or loose soil or other unsuitable materials; these conditions may not be disclosed by the widely-spaced, relatively small-diameter borings. If these conditions are present and are not discovered and addressed during construction, then larger than normal settlement resulting in cracking, differential movement, or other damage could occur in foundations, floor slabs, pavements, and utility lines supported on or above the existing fill. Typically, larger than normal settlement of floor slabs results in reflective cracking of overlying rigid floor coverings (if any), unlevel floors, and “bumps” at locations of differential movement.

Foundations and floor slabs for the new structures should not bear on or above the existing undocumented fill materials. The existing fill should be removed and replaced so that the foundations and floor slabs for the new structures bear on suitable native soils or on properly placed and compacted engineered fill extending to suitable native soils. If the fill is completely removed and replaced, it should be removed within the proposed structure footprint and extend at least 5 feet outside the building perimeter.

Provided the owner is willing to accept the risks associated with supporting pavements over the existing fill materials in exchange for reduced construction costs, portions of the existing fill could be left in place. To reduce the risk of adverse performance from higher settlement and to provide more consistent support for pavements, some portion of the existing fill should be removed and the exposed existing fill materials should be observed and tested during construction. Where unsuitable conditions are observed, the materials should be improved by scarification and recompaction or be removed and replaced with engineered fill. At least 12 inches of new engineered fill should be placed directly below the pavement sections with this option. However, even with the recommended subgrade preparation and construction testing, there is a risk to the owner that unsuitable material within or buried by the fill will not be discovered. If the owner is not willing to accept the risks of supporting pavements over existing fill materials, the existing fill should be completely removed and replaced.

Portions of the existing fill may be suitable for removal and reuse as an engineered fill material. If this material is used as an engineered fill material, it should be first evaluated by the materials testing firm to determine if it meets the requirements listed in **Material Requirements**. If the material will be used as fill it should be placed as described in **Compaction Requirements**.

Swell Potential

High plastic clays with liquid limits over 45 were noted in the Atterberg limits tests performed on selected samples. These materials are prone to volume change with seasonal fluctuations in moisture, which may lead to excessive shrinking and swelling of floor slabs and lightly-loaded structures. We recommend a low volume change (LVC) zone be constructed beneath the at-grade floor slab. Using an LVC zone as recommended in this report may not eliminate all future subgrade volume change and resultant floor slab movements. However, the procedures outlined herein should help to reduce the potential for subgrade volume change. Existing soils can be left in place and compacted if they are tested during construction and meet LVC material requirements. Details regarding this LVC zone are provided in the **Floor Slab** section.

This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and cracking in the structure could occur. The severity of cracking and other (cosmetic) damage such as uneven floor slabs will likely increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and distress may not be feasible, but it may be possible to further reduce the risk of movement if more extensive measures are used during construction. We would be pleased to discuss other construction alternatives with you upon request.

Dewatering

Groundwater was encountered within the anticipated excavation depths at the site. The contractor should be prepared to dewater excavations for foundations and utilities that extend below the groundwater table, especially utility crossings within Dry Branch Creek. If seepage is encountered in excavations during construction, the contractor is responsible for designing, implementing, and maintaining appropriate dewatering methods to control seepage and facilitate construction. In our experience, dewatering of excavations in clay soils can typically be accomplished using sump pits and pumps. However, if seepage occurs within gravel layers or karst features are encountered excavations, a more extensive dewatering system may be required.

Soft Subgrade Potential

The subgrade soils may become unstable when disturbed. During periods of dry weather, these soils may be stable upon initial exposure, however, these soils could become relatively soft and unstable under construction traffic. Further, depending upon site conditions during construction, overexcavation or stabilization of the subgrade and/or base of overexcavations may be needed to achieve a suitable working surface. Accordingly, we recommend that the owner budget for the possibility that overexcavation and/or subgrade stabilization may be required, and contractors should be prepared to handle potentially unstable and/or soft conditions.

EARTHWORK

Earthwork is anticipated to include clearing and grubbing, excavations, and fill placement.

Site Preparation

Prior to placing fill, existing vegetation and root mat should be removed. Complete stripping of the topsoil should be performed in the proposed building and parking/driveway areas.

The subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded, tandem-axle dump truck. The proofrolling should be observed by the Geotechnical Engineer. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or modified by following the recommendations in the **Subgrade Stabilization** section. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted.

Subgrade Stabilization

Methods of subgrade improvement, as described below, could include scarification, moisture conditioning, and recompaction, and removal of unstable materials and replacement with granular fill (with or without geosynthetics). The appropriate method of improvement, if required, would be dependent on factors such as schedule, weather, the size of the area to be stabilized, and the nature of the instability. More detailed recommendations can be provided during construction as the need for subgrade stabilization occurs. Performing site grading operations during warm seasons and dry periods would help to reduce the amount of subgrade stabilization required.

If the exposed subgrade is unstable during proofrolling operations, it could be stabilized using one of the methods outlined below.

- **Scarification and Compaction** – It may be feasible to scarify, dry, and compact the exposed soils. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Stable subgrades likely would not be achievable if the thickness of the unstable soil is greater than about 1 foot, if the unstable soil is at or near groundwater levels, or if construction is performed during a period of wet or cool weather when drying is difficult.

- **Crushed Stone** – The use of crushed stone or gravel, such as MoDOT Type 5 or an approved alternate gradation of crushed limestone aggregate., is the most common procedure to improve subgrade stability. Typical undercut depths would be expected to range from about 6 to 30 inches below finished subgrade elevation with this procedure. The use of high modulus geogrid, equivalent to TENSAR BX-1100, could also be considered after underground work such as utility construction is completed. Prior to placing the geotextile or geogrid, we

recommend that all below-grade construction, such as utility line installation, be completed to avoid damaging the geosynthetic. Equipment should not be operated above the geosynthetic until one full lift of crushed stone fill is placed above it. The maximum particle size of granular material placed over the geotextile or geogrid should meet the manufacturer's specifications, and generally should not exceed 1½ inches.

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Fill Material Types

Materials used for fill should meet the following material property requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
Low Volume Change (LVC) material	GM [2] or CL (LL<45 and PI<23)	All locations and elevations, except where free-draining material is required
On-site soils	CH or CL (native clay soils and existing fill soils; LL>45 and PI>23)	Pavement areas and at depths greater than 24 inches below building finished grade. Existing undocumented fill should be observed, tested and approved by Terracon. Organics, rock/rubble fragments larger than 3 inches, debris, or other unsuitable materials should be removed prior to re-use of the existing undocumented fill in engineered fill sections.
Well-Graded Granular	GW [3]	Where free-draining material is required

1. Engineered fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.
2. MoDOT Type 5 or an approved alternate gradation of crushed limestone aggregate
3. Granular materials with less than 5 percent fines (material passing the #200 sieve), such as ASTM C33 Size No. 57 aggregate or similar from Section 1009 from MoDOT Standard Specifications.

Low volume change (LVC) material placed below the building floor slabs can consist of well-graded crushed stone aggregate (e.g., MoDOT Type 5). Lean clay soils with a liquid limit less than 45 and plasticity index less than 23 could also be used as LVC material, but these soils would be susceptible to softening and disturbance if they become wetted by surface water and precipitation. Soils that meet the LVC criteria were encountered in the borings, but were not encountered in an easily identifiable, discrete layer. Therefore, the use of imported LVC materials should be expected. If a granular leveling course (such as crushed stone aggregate) is used immediately below the floor slabs, this material can be considered part of the LVC zone.

Fill Compaction Requirements

Fill should meet the following compaction requirements.

Item	Description
Fill Lift Thickness[1]	9 inches in loose thickness when large, self-propelled compaction equipment is used 4 inches when small, hand-guided equipment (plate or "jumping jack" compactor) is used
Compaction Requirements[2]	At least 95 percent of the material's maximum standard Proctor dry density[3]
Water Content Range	Low plasticity cohesive: -2 percent to +2 percent of optimum[3] High plasticity cohesive: 0 to +4 percent of optimum[3] Granular: Workable moisture levels[4]

1. Reduced lift thicknesses of 4 to 6 inches are recommended in confined areas (e.g., utility trenches, foundation excavations, and foundation backfill) and when hand-operated compaction equipment is used.
2. We recommend that engineered fill be tested for moisture content and compaction during placement. If the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved. As stated within ASTM D 698, this procedure is intended for soils with 30 percent or less material larger than ¾ inch. Accordingly, we recommend full time proofroll observation be performed instead of moisture density testing for materials containing more than 30 percent aggregate retained on the ¾-inch sieve.
3. As determined by the standard Proctor test (ASTM D 698)
4. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proofrolled.

Utility Trench and Duct Bank Backfill

All trench excavations and excavations for concrete duct banks should be made with sufficient working space to permit construction including backfill placement and compaction. If utility trenches and duct banks are backfilled with relatively clean granular material, they should be capped with at least 18 inches of clay fill to reduce the infiltration and conveyance of surface water through the trench backfill.

Utility trenches are common sources of water infiltration and migration. All utility trenches that penetrate beneath structures should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the structure. We recommend constructing an effective "trench plug" that extends at least 5 feet out from the face of the structure exterior. The plug material should consist of clay compacted as recommended in **Earthwork**. The clay fill should be placed to completely surround the utility line and be compacted in accordance with

recommendations in this report. Alternatively, flowable fill could be used to construct the trench plug.

Grading and Drainage

During construction, grades should be developed to direct surface water flow away from or around the site. Exposed subgrades should be sloped to provide positive drainage so that saturation of subgrades is avoided. Surface water should not be permitted to accumulate on the site. Final surrounding grades should promote rapid surface drainage away from the structures. Accumulation of water adjacent to the structure could contribute to significant moisture increases in the subgrade soils and subsequent softening/settlement or expansion/heave.

After construction of the structures and pavements have been completed, we recommend verifying final grades to document that effective drainage has been achieved. Grades around the structures should also be periodically inspected and adjusted as necessary, as part of the structure's maintenance program.

Earthwork and Excavation Considerations

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proofrolling, placement and compaction of controlled compacted fills, backfilling of excavations into completed subgrades, and just prior to construction of foundations, slabs, and pavements.

Care should be taken to avoid disturbance of prepared subgrades. Unstable subgrade conditions can develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. If unstable subgrade conditions develop, stabilization measures will need to be employed. Construction traffic over the completed subgrade should be avoided to the extent practical. If the subgrade becomes frozen, desiccated, saturated, or disturbed, the affected materials should be removed or these materials should be scarified, moisture conditioned, and compacted prior to slab construction.

The OSHA Occupational Safety and Health Standards-Excavations classify soils into three basic types (Type A, B, or C). Depending upon the soil type, OSHA requirements for excavation slopes range from ¾ H to 1V (horizontal to vertical) for Type A soils, 1H to 1V for Type B soils, and 1½H to 1V for Type C soils. OSHA allows up to vertical excavations in stable rock masses. OSHA dictates that any excavation extending to a depth of more than 20 feet shall be designed by a registered professional engineer. Based upon the subsurface conditions encountered at the boring locations, the overlying soils classify as Type C soil according to OSHA regulations. OSHA recommends a maximum slope inclination of 1½ horizontal to 1 vertical for excavation in these soils. In addition, whenever a lower strength material underlies a higher strength material, the lower strength material must be utilized for trench design.

In lieu of trench slopes as defined by OSHA, trench shoring or a shield (trench boxes) may be utilized to reduce overall excavation widths. The contractor or the specialty subcontractor should be responsible for the design of the temporary shoring. These designs should be performed in accordance with applicable regulatory requirements.

Care should be taken during excavation to protect the structural integrity of any existing structures, pavements, or adjacent underground utilities that are to remain in-place. The settlement tolerances of adjacent structures or improvements should be considered when determining the excavation methods. Depending upon factors such as the depth of excavation, the location of the existing improvements, groundwater and soils conditions, temporary sheeting, shoring, and underpinning may be required. Particular caution should be exercised if excavations are performed near existing utility lines. Existing backfill for utility lines is often poorly compacted and the limits of the old excavation form a ready failure surface. The OSHA trench safety guidelines for adequate side slopes based on soil types may not apply in these situations. Existing underground utilities should be shored and braced as required to maintain their integrity and appropriately designed trench boxes or sheeting and bracing should be used to provide for worker safety.

All vehicles, equipment and soil piles should be kept a sufficient lateral distance from the crest of the trench slope to maintain safe working conditions. Vehicles, equipment and soil piles located adjacent to trenches could significantly influence the stability of the slopes as outlined by the OSHA regulations. A more detailed stability analysis would be required for these conditions. Additionally, vibrations from heavy traffic, or similar sources can influence slope stability. The exposed slope faces should be protected from the elements. Surface water should be diverted away from all excavations. The length of open trench should be held to a minimum. Trench excavation, pipe laying, and backfilling should be completed as quickly as possible to minimize the amount of time that excavations are left open.

Construction Observation and Testing

The earthwork efforts should be observed and tested by a representative of the Geotechnical Engineer. Observation and testing should include documentation of removal of vegetation and topsoil, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unacceptable conditions are encountered, the Geotechnical Engineer should be contacted to recommend mitigation options.

SHALLOW FOUNDATIONS

The following section provides design parameters for shallow spread footing foundations and reinforced concrete mat foundations.

Spread Footing Foundation Design Parameters

The following design parameters are applicable for design of shallow strip footing foundations for the proposed Filter, Disinfection, Electrical, Dewatering and Administration Buildings, and other ancillary structures for various equipment planned.

Description	Value
Maximum net allowable bearing pressure [1,2,3]	**Bearing on residual clay and/or engineered fill** 2,000 psf
Minimum embedment below finished grade for frost protection [4]	30 inches
Minimum footing widths	Isolated footings: 30 inches Continuous footings: 16 inches
Estimated total settlement [5]	1 inch or less
Estimated differential settlement [5]	1/2 to 2/3 of the total settlement over a horizontal distance of 50 feet

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. This pressure assumes that any soft soils or other unsuitable materials, including existing undocumented fill, if encountered, will be undercut and replaced with engineered fill.
2. The allowable bearing pressure can be increased by 1/3 for transient loading conditions.
3. A factor of safety of 3 has been applied to this value.
4. This embedment depth is recommended for footings beneath unheated areas to provide frost protection and to reduce the effects of seasonal moisture variations in the foundation bearing soils.
5. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of engineered fill below the footings, and the quality of the earthwork operations and footing construction.

Mat Foundation Design Parameters

Based on the conditions encountered at the borings, we understand the foundations for Filter Splitter Structure, Influent and Transfer Pump Station, Chemical Feed Building, Process Splitter and Basins, and MBR Building and Basins will be supported on mat foundations. The mat foundations at these locations can bear on medium stiff to stiff residual clay or engineered fill at the planned depth.

Description	Value
Maximum net allowable bearing pressure [1,2,3]	2,000 psf
Modulus of subgrade reaction (for design of mat foundations) [4]	100 pounds per square inch per inch of deflection (psi/in or pci)
Estimated total settlement [5]	¾ inch within 3 months after full load is applied

Description	Value
Estimated differential settlement [5]	½ inch over a horizontal distance of 10 feet

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation.
2. The allowable bearing pressure can be increased by 1/3 for transient loading conditions.
3. A factor of safety of 3 has been applied to these values.
4. The recommended modulus value is based on a 12-inch square plate. The modulus value used in design should be adjusted based on the actual size of the floor slab according to the Naval Facilities Engineering Design Manual 7.2, Page 7.2-155, Table 4 equation: $K_b = K_v \left(\frac{b+1}{2b}\right)^2$ where K_v is the modulus value based on a 12-inch square plate, b is the width of the slab and K_b is the design modulus value.
5. The foundation settlement will depend upon the variations within the structural loading conditions, the quality of the lean concrete placed, and foundation construction.

Foundations that will be subjected to lateral loads should be embedded sufficiently to resist these loads. Horizontal loads acting on foundations cast directly against undisturbed soils or backfilled with engineered fill may be resisted by a combination of passive pressure on the sides of the footing and sliding friction at the base of the foundation. An ultimate coefficient of sliding friction of 0.3 may be assigned to the base of the foundations bearing on residual clay or engineered fill. Passive resistance may be calculated using an equivalent fluid unit weight of 290 pounds per cubic foot (pcf) for cohesive backfill and 360 pcf for granular backfill. Appropriate safety factors should be applied to the ultimate friction and equivalent fluid unit weight values provided.

Ground Improvement Utilizing Aggregate Piers/Stone Columns

The Grit Removal and Fine Screen Building may be supported on a mat foundation designed to the above recommendations if underlying soil modifications utilizing rammed/vibratory aggregate piers/columns are utilized to support the anticipated loads at this site. The use of this type of soil modification can also increase the allowable bearing capacity of the existing soil. The ground improvement system can often be designed for a specified bearing capacity. Maximum obtainable bearing capacities are site-specific and may vary between 3,000 psf to 8,000 psf.

There are two main systems of this type of soil modification, one using a ramming action to compact the soil and one utilizing a vibrating system. These systems typically consist of 18- to 30-inch diameter drilled holes that are filled in lifts of well-graded aggregate that is densified by either ramming or vibration to form very stiff, high-density aggregate piers/columns. The compacted aggregate piers/columns produce high lateral stresses within the surrounding soil matrix, thereby stiffening the reinforced composite soil/aggregate mass. This results in significant strengthening and stiffening of the foundation bearing layer to support footings within the required settlement tolerances.

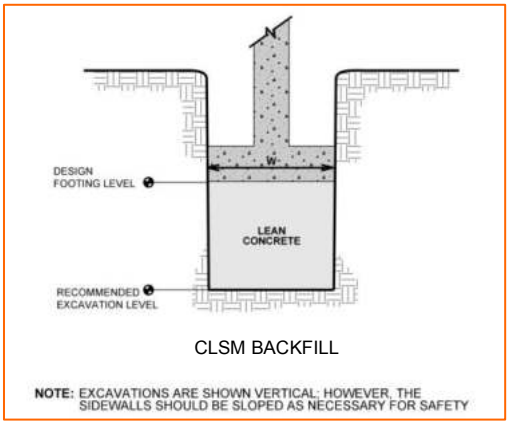
Aggregate pier foundation elements are a design-build system that are designed and installed by a specialty foundation contractor. Therefore, the subsurface exploration information contained in this report should be provided to the foundation contractors for detailed analysis and design and

cost information. The foundation contractor selected for doing the installation should be contact prior to the start of excavations, as these elements are often installed from the existing ground surface. The client should be prepared with a desired targeted bearing capacity to discuss with the foundation contractor. The allowable net bearing capacity following installation of aggregate piers will be provided by the designer.

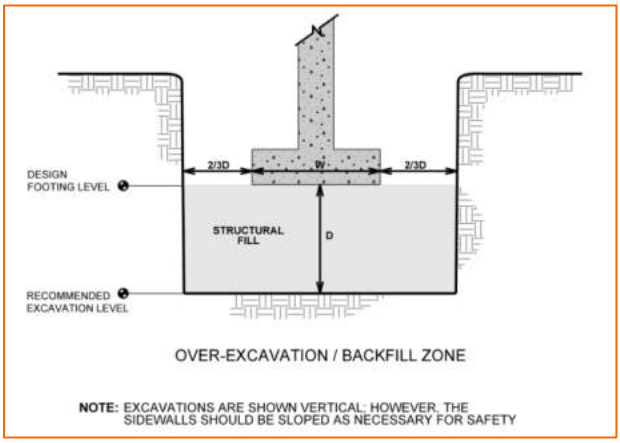
Shallow Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be observed and tested by a representative Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed. Placement of a lean concrete or controlled low-strength material (CLSM) mud mat over the bearing soils should be considered if the excavations must remain open for an extended period of time.

If unsuitable bearing soils are encountered at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. This is illustrated on the sketch below.



Over-excavation for structural fill placement below spread footing foundations should be conducted as shown below. The over-excavation should be backfilled up to the footing base elevation with suitable fill materials, as recommended in the **Earthwork** section.



DEEP FOUNDATIONS

Subsurface voids, and soft, compressible clay seams were encountered in the vicinity of the proposed Transfer Pump Station and Digester 4. Drilled shaft foundations bearing below these voids and clay seams can be considered to support these structures. Additionally, if a mat foundation underlain by ground improvement of the proposed Grit Removal and Fine Screen Building is not a suitable option, drilled shafts bearing within competent limestone can be considered.

Drilled Shaft Foundation Design Parameters

Based on the conditions encountered at our boring locations, drilled shaft foundations at the proposed Transfer Pump Station, Digester 4, Grit Removal and Fine Screen Building should bear within competent limestone. Competent limestone was encountered at the approximate elevations shown in the following table.

Structure	Approximate Elevation of Competent Limestone (feet) [1,2]	Allowable End Bearing Pressure (Limestone), (ksf) [3]	Allowable Skin Friction Uplift (Limestone) (ksf) [3, 4]
Transfer Pump Station	1208½	60	8
Digester 4	1235	60	8
Grit Removal and Fine Screen Building	1248	60	8

1. The structural engineer should refer to the appended boring logs and exploration plan to evaluate the drilled shaft capacities based on the structural loading, shaft diameter, and embedment depth. The contract documents should include provisions to adjust the drilled shaft bearing elevations based on the rock conditions encountered and Terracon's field observations during construction, rather than setting a strict tip elevation for each shaft.
2. Drilled shafts should extend a minimum of 6 inches into competent limestone.

3. A factor of safety of 2 has been applied to these values.
4. Skin friction should be ignored in the overburden soils.

Drilled shafts for this project should have a minimum diameter of 3 feet. Provided the drilled shafts are designed and constructed in accordance with recommendations presented in this report, we estimate total settlement of the drilled shafts would be ¼ inch or less. Differential settlement between adjacent columns would be less than half the total settlement. These settlement estimates do not include elastic compression of the drilled shaft under axial loading. Settlement estimates for drilled shafts are dependent on the shaft diameter, and these settlement estimates are valid for shaft diameters ranging from 3 to 5 feet. Terracon should be notified if larger-diameter shafts are planned.

Drilled Shaft Foundation Construction Considerations

The base of all drilled shaft excavations should be free of water and loose material prior to placement of concrete. Core samples of the bedrock were obtained in B-4 and B-4A at the Transfer Pump Station and B-5 and B-5A at Digester 4, and these boreholes extended about 10 feet into the bedrock. We recommend foundation inspection holes be performed at each drilled shaft location. Each inspection hole should extend to a depth of 10 feet or twice the diameter of the rock socket below the bottom of the shaft, whichever is greater, to evaluate the bearing material below the shaft and integrity of the rock socket.

Drilled shaft excavations should be observed by a Terracon representative to evaluate that suitable bearing materials have been reached and that the excavations have been cleaned sufficiently prior to placement of concrete. If the shaft bottom cannot be visually inspected and probed/sounded from ground surface, other methods (such as a downhole camera) could be used to inspect the shaft bottom.

Conventional excavating and drilling equipment should be able to penetrate the soil. Coring may be required to advance the shaft excavations through weathered limestone and 6 inches into competent limestone.

While removing the casing from a shaft excavation during concrete placement, the concrete inside the casing should be maintained at a sufficient level to prevent intrusion of overburden materials into the excavation and resist any earth pressures outside the casing during the entire casing removal procedure. We recommend the concrete mixture for drilled shafts be designed to have a slump in the range of 5 to 7 inches to facilitate casing removal and reduce the possibility of concrete arching.

SEISMIC CONSIDERATIONS

Terracon conducted a seismic refraction survey for the purpose of providing information relative to the Seismic Site Class per International Building Code (IBC) 2018 using the average shear-wave velocity in the top 100 feet of the subsurface profile.

A seismic refraction system consisting of one SeismicSource DAQLink III seismographs and 24 geophones was utilized to derive subsurface seismic velocity information. Linear arrays of 24 geophones were placed as indicated on the figure below and the following type of seismic data was recorded:

- *Refraction microtremors* produced by ambient seismic noise are recorded. The data was then processed using a wavefield-transformation data-processing technique and an interactive Rayleigh-wave dispersion-modeling tool. The refraction microtremor exploits aspects of spectral analysis of surface waves (SASW) and multi-channel analysis of surface waves (MASW) to derive a shear wave (s-wave) profile and an average shear-wave velocity along the array for a corresponding depth.

The IBC requires structural design to be in accordance with the appropriate site class definition for soil profile type. Based upon the Site Class Definitions in ASCE 7-22, Chapter 20, Table 20.2-1, and the **average shear wave velocity of 2,300 ft/s** derived from our seismic survey data, as indicated in the **Shear-Wave Velocity** appendix, Terracon recommends a Class BC seismic site classification for design.

The average shear-wave velocity analysis and recommendations presented in this report are based upon the data obtained from the seismic refraction system performed at the indicated location and on the indicated date. This analysis does not reflect variations that may occur across the site, or variations that may occur throughout the year, such as groundwater fluctuations. The refraction microtremor method is an approximate method, and one of many methods that can be used to determine shear-wave velocities.

Description	Value
2018 International Building Code Site Class (IBC) [1]	BC
Site Latitude	37.1305° N
Site Longitude	93.4884° W
Risk Category	III
S_{DS} Spectral Acceleration for a Short Period [2]	0.18 g
S_{D1} Spectral Acceleration for a 1-Second Period [2]	0.085 g
F_a Site Coefficient – Table 1613.3.3(1)	1.3
F_v Site Coefficient – Table 1613.3.3(2)	1.5

1. Seismic site classification in general accordance with *ASCE 7-22, Minimum Design Loads for Buildings and Other Structures*.
2. These values were obtained using online seismic design maps and tools provided by the USGS (http://earthquake.usgs.gov/hazards/designmaps/).

FLOOR SLABS

Grade-supported floor slabs should be supported on a minimum of 24 inches of low volume change (LVC) material. LVC fill should be placed and compacted as recommended in section **Earthwork**.

Concrete Slab-on-Grade

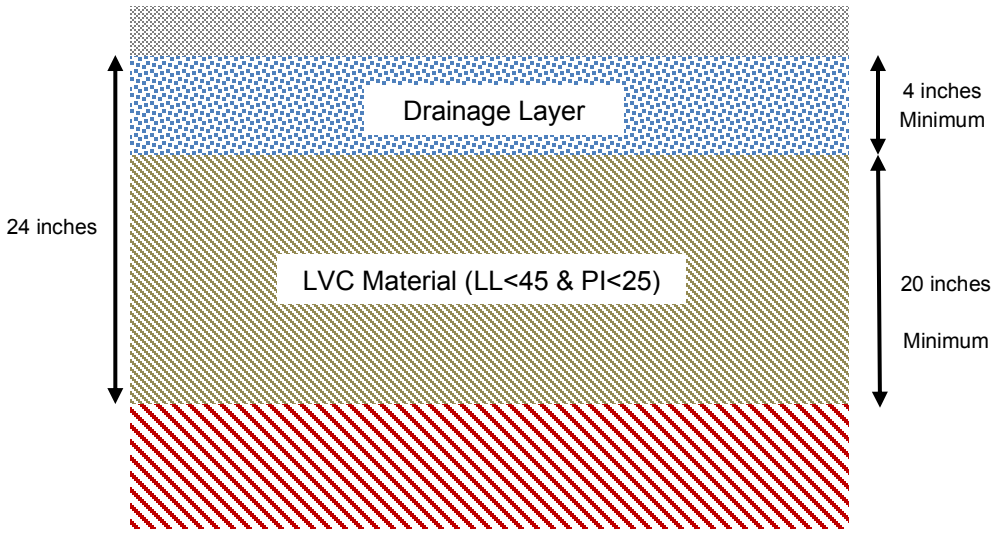


Image not to scale

Floor Slab Design Parameters

Item	Description
Floor slab support [1, 2]	A minimum 24-inch thick low volume change (LVC) material
Modulus of subgrade reaction	100 pounds per square inch per inch (psi/in) for point loading conditions
Granular course beneath slab [3, 4, 5]	Minimum 4 inches
Capillary break layer thickness [4, 5]	Minimum 4 inches

1. The recommended modulus value is based on a 12-inch square plate. The modulus value used in design should be adjusted based on the actual size of the floor slab according to the Naval Facilities Engineering Design Manual 7.2, Page 7.2-155, Table 4 equation: $K_b = K_v \left(\frac{b+1}{2b}\right)^2$ where K_v is the modulus value based on a 12-inch square plate, b is the width of the slab and K_b is the design modulus value.
2. Well graded crushed stone (e.g., MoDOT Type 5 aggregate) or open-graded crushed stone (e.g., ASTM C33, Size No. 57 aggregate) can be used as the leveling course.
3. These granular materials may be considered part of the LVC zone.

Joints should be constructed in slabs at regular intervals as recommended by the American Concrete Institute (ACI) to help control the location of cracks. Joints or any cracks in the slab that develop should be sealed with a waterproof, non-extruding compressible compound.

Typically, some increase in the slab subgrade moisture content will occur because of gradual accumulation of capillary moisture, which would otherwise evaporate if the slab had not been constructed. The use of a vapor retarder should be considered beneath concrete slabs-on-grade that will be covered with moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Floor Slab Construction Considerations

If LVC materials consist of clay, the subgrade should be maintained in a relatively moist condition until the slab is constructed. If the subgrade becomes desiccated prior to construction of the slab, the affected material should be removed or the materials should be scarified, moistened, and compacted. Upon completion of grading operations in the construction area, care should be taken to maintain the recommended subgrade moisture content and density prior to construction of the slab. A 4-inch thick CLSM mud-mat could be utilized to protect the subgrade during construction.

On most project sites, the site grading is generally accomplished early in the construction phase. However, as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall etc. As a result, the slab subgrade soils may not be suitable for placement of the granular course and/or concrete at the time of building construction, and corrective action may be required.

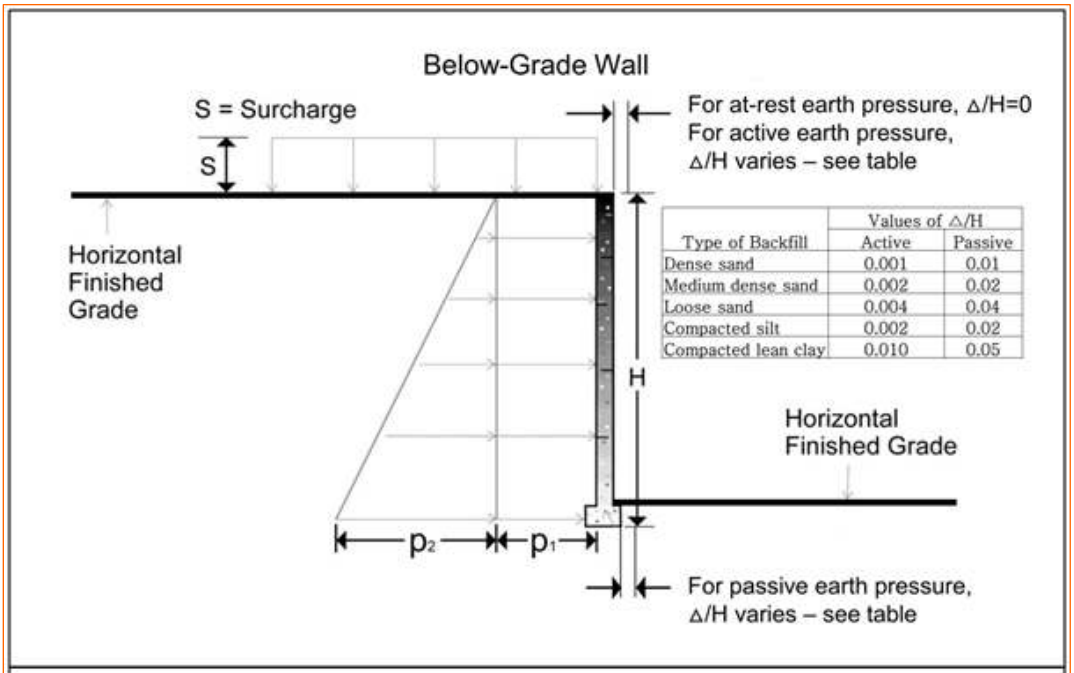
Terracon should evaluate the condition of the slab subgrades immediately prior to placement of the granular leveling course and construction of the slabs. Particular attention should be paid to areas containing backfilled trenches and high traffic areas that were previously disturbed during construction. Where unsuitable conditions are located within the slab subgrade soils, the subgrade should be improved by removing and replacing the affected material with properly compacted fill.

LATERAL EARTH PRESSURES

Lateral Earth Pressure Design Parameters

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions

are shown in the diagram below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement and is commonly used for walls that are restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



Type of Backfill	Values of Δ/H Active	Passive
Dense sand	0.001	0.01
Medium dense sand	0.002	0.02
Loose sand	0.004	0.04
Compacted silt	0.002	0.02
Compacted lean clay	0.010	0.05

Table from Movements Required to Reach Active or Passive Earth Pressure Conditions (Clough and Duncan, 1991)

Lateral Earth Pressure Design Parameters				
Earth Pressure Condition [1]	**Coefficient for Backfill Type** [2]	**Surcharge Pressure** [3, 4, 5] **p_1 (psf)**	**Effective Fluid Pressures (psf)** [2, 4, 5]	
			Drained [6]	**Undrained** [6]
Active (Ka)	Granular - 0.31 Fine Grained - 0.41	(0.31)S (0.41)S	(40)H (50)H	(80)H (85)H
At-Rest (Ko)	Granular - 0.47 Fine Grained - 0.58	0.47)S (0.58)S	(55)H (70)H	(90)H (95)H
Passive (Kp)	Granular - 3.25 Fine Grained - 2.46	--- ---	(390)H (295)H	(250)H (205)H

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, compacted to at least 95% of the ASTM D 698 maximum dry density, rendering a maximum unit weight of 120 pcf
3. Uniform surcharge, where S is surcharge pressure
4. Loading from heavy compaction equipment is not included.

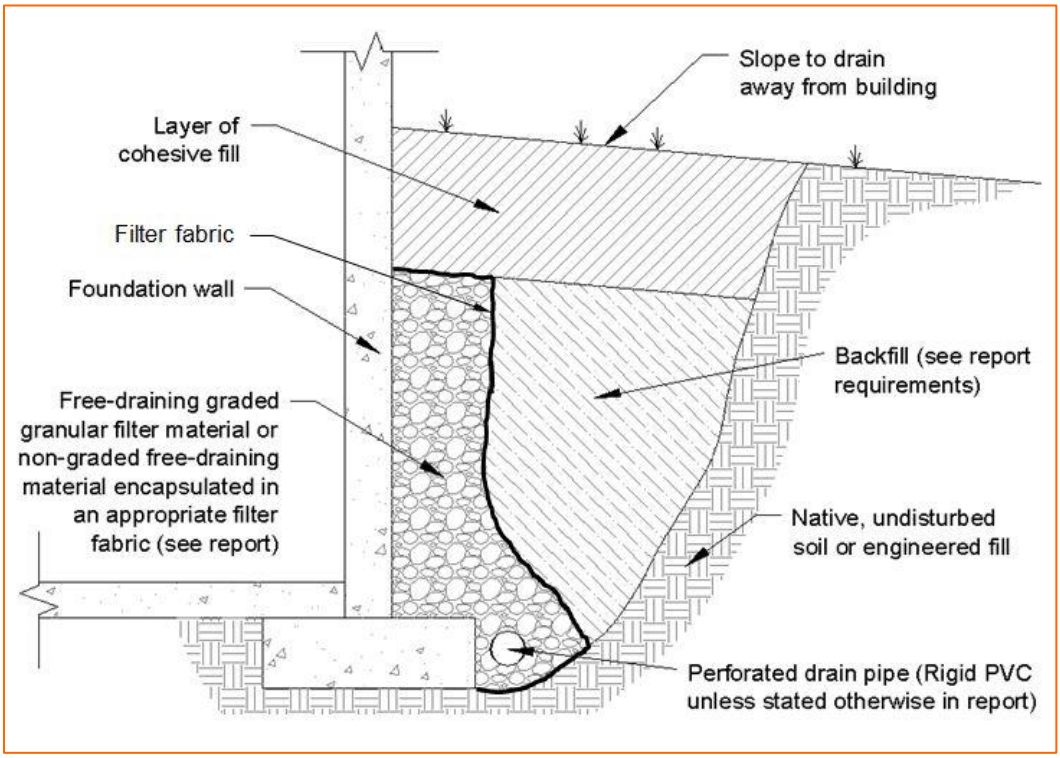
Lateral Earth Pressure Design Parameters				
Earth Pressure Condition [1]	Coefficient for Backfill Type [2]	Surcharge Pressure [3, 4, 5] p_1 (psf)	Effective Fluid Pressures (psf) [2, 4, 5]	
			Drained [6]	Undrained [6]

5. No safety factor is included in these values.
6. To achieve "Drained" conditions, follow guidelines in **Subsurface Drainage for Below-Grade Walls** below. "Undrained" conditions are recommended when drainage behind walls is not incorporated into the design.

Backfill placed against structures should consist of granular soils or low plasticity cohesive soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 degrees from vertical for the active and at-rest cases and 60 degrees from the vertical for the passive case.

Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a prefabricated drainage structure may be used. A prefabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion, and is fastened to the wall prior to placing backfill.

PAVEMENTS

Pavement subgrades are expected to consist of on-site native clay soils. The pavement subgrades should be proofrolled as recommended in **Earthwork**. If soft or otherwise unsuitable areas are observed, additional over-excavation and replacement will be needed.

Grading and paving are commonly performed by separate contractors and there is often a time lapse between the end of grading operations and the commencement of paving. Subgrades prepared early in the construction process may become disturbed by construction traffic. Non-uniform subgrades often result in poor pavement performance and local failures relatively soon after pavements are constructed. Depending on the paving equipment used by the contractor, measures may be required to improve subgrade strength to greater depths for support of heavily loaded concrete/asphalt trucks.

We recommend the moisture content and density of the subgrade be evaluated and the pavement subgrades be proofrolled (using a loaded tandem-axle dump truck with a minimum gross weight of 20 tons or similarly loaded rubber-tire equipment) within two days prior to commencement of

actual paving operations. Areas not in compliance with the required ranges of moisture or density should be scarified, moisture conditioned, and compacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills. The subgrade should be in its finished form at the time of the final review.

Opinions of Minimum Pavement Thickness

Pavement thickness depends upon many factors including but not limited to:

- applied wheel/axle loads and number of repetitions
- subgrade and pavement material characteristics
- climate conditions
- site and pavement drainage

Specific information regarding anticipated vehicle types, axle loads, and traffic volumes was not provided at the time of this report. The "Light Duty" pavement section considers 4-tire, 2-axle personal vehicle traffic (cars, vans, pickups and SUVs) only. The "Medium Duty" pavement section considers personal vehicle traffic along with a maximum of ten trucks per week, consisting of panel delivery trucks, trash collection trucks, or legally loaded semi-tractor trailers (53-foot trailers). Our recommendations for asphaltic cement concrete (ACC) pavement and Portland cement concrete (PCC) pavement sections are outlined in the following table.

Pavement Type	Light Duty	Medium Duty
Gravel Access Roads	8 inches aggregate (MoDOT Type 5 or similar)	12 inches aggregate (MoDOT Type 5 or similar)
ACC	2 inches ACC surface 4 inches ACC base 6 inches aggregate base (MoDOT Type 5 or similar)	2 inches ACC surface 6 inches ACC base 6 inches aggregate base (MoDOT Type 5 or similar)
PCC	5 inches PCC 4 inches open graded rock (ASTM C33 Size No. 57 aggregate or similar from Section 1009 from MoDOT Standard Specifications)	7 inches PCC 4 inches open graded rock (ASTM C33 Size No. 57 aggregate or similar from Section 1009 from MoDOT Standard Specifications)

PCC pavements will perform better than ACC in areas where short radii turning and braking are expected (i.e., entrance/exit aprons) due to better resistance to rutting and shoving. In addition, PCC pavement will perform better in areas subject to heavy static loads (i.e., dumpster pads).

Construction traffic on the pavements was not considered in developing our opinions of minimum pavement thickness. If the pavements will be subject to construction equipment/vehicles, the pavement sections should be revised to consider the additional loading.

Pavements and subgrades will be subject to freeze-thaw cycles and seasonal fluctuations in moisture content. Pavement thickness design methods are intended to provide adequate thickness of structural materials over a particular subgrade such that wheel loads are reduced to a level that the subgrade can support. The subgrade support parameters for pavement thickness design do not account for shrink/swell movements of a subgrade constructed of expansive clay soils. Therefore, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell related movement of the subgrade.

The pavement sections provided above consider that the subgrade soils will not experience significant increases in moisture content. Paved areas should be sloped to provide rapid drainage of surface water and to drain water away from the pavement edges. Pavements should be designed so water does not accumulate on or adjacent to the pavement, since this could saturate and soften the subgrade soils and subsequently accelerate pavement deterioration.

Periodic maintenance of the pavements will be required. Cracks should be sealed, and areas exhibiting distress should be repaired promptly to help prevent further deterioration. Even with periodic maintenance, some movement and related cracking may still occur and repairs may be required.

CORROSIVITY

The table below lists the results of laboratory soluble sulfate, sulfides, soluble chloride, Red-Ox, total salts, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary

Boring	Sample Depth (feet)	Soil Description	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)	Sulfides (mg/kg)	Red-Ox (mV)	Total Salts (mg/kg)	Electrical Resistivity (Ω-cm)	pH
B-2A	6 to 8	Lean Clay (CL)	20	35	ND [1]	+693	101	6,499	6.69
B-4A	13 to 15	Lean Clay (CL)	86	45	ND [1]	+690	493	3,395	7.09
B-11	0 to 5	Lean Clay (CL)	103	<17	0.099	Not Tested	163	1,432	6.82

Corrosivity Test Results Summary									
Boring	**Sample Depth (feet)**	**Soil Description**	**Soluble Sulfate (mg/kg)**	**Soluble Chloride (mg/kg)**	**Sulfides (mg/kg)**	**Red-Ox (mV)**	**Total Salts (mg/kg)**	**Electrical Resistivity (Ω-cm)**	**pH**
B-14	5 to 10	Fat Clay (CH)	22	25	0.083	Not Tested	55	2,470	6.21

1. ND = Not Detected

The 10-point system evaluation of corrosive potential for ductile iron pipe is used to determine the corrosivity of the soil samples and is included in **Figures**. The evaluation procedure is based on five tests on a sample of soil. Each test result is assigned a point value according to its contributions to corrosivity. The points for all five areas are totaled and if the sum is 10 or more, the soil is considered corrosive to ductile iron pipe, in which case corrosion protective measures will be required. Based on the sum of averaged points for all five areas, the soils tested do not exceed the 10-point system, so the site soils would not be considered corrosive environment to buried ductile iron pipe.

In our experience, alkali-silica reactivity (ASR) in concrete aggregates is uncommon in Southwest Missouri; however, it is a possibility that ASR could occur in concrete in the project area under the certain circumstances. We recommend the contractor and concrete supplier consider the potential impacts of ASR in the concrete mix design.

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 19.3.1.1 of ACI 318 and indicate that ASTM Type I/II portland cement should be suitable for concrete on and below grade for the length of the project. Concrete should be designed in accordance with the provisions of ACI 318. For specific recommendations regarding soil corrosivity, we recommend a corrosion specialist be consulted.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations may occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Support of floor slabs and pavements over existing fill is discussed in this report. However, even with the recommended construction testing, there is a risk that unsuitable materials within or buried by the fill will not be discovered. This risk cannot be eliminated without removing the fill, but it can be reduced by thorough exploration and testing.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

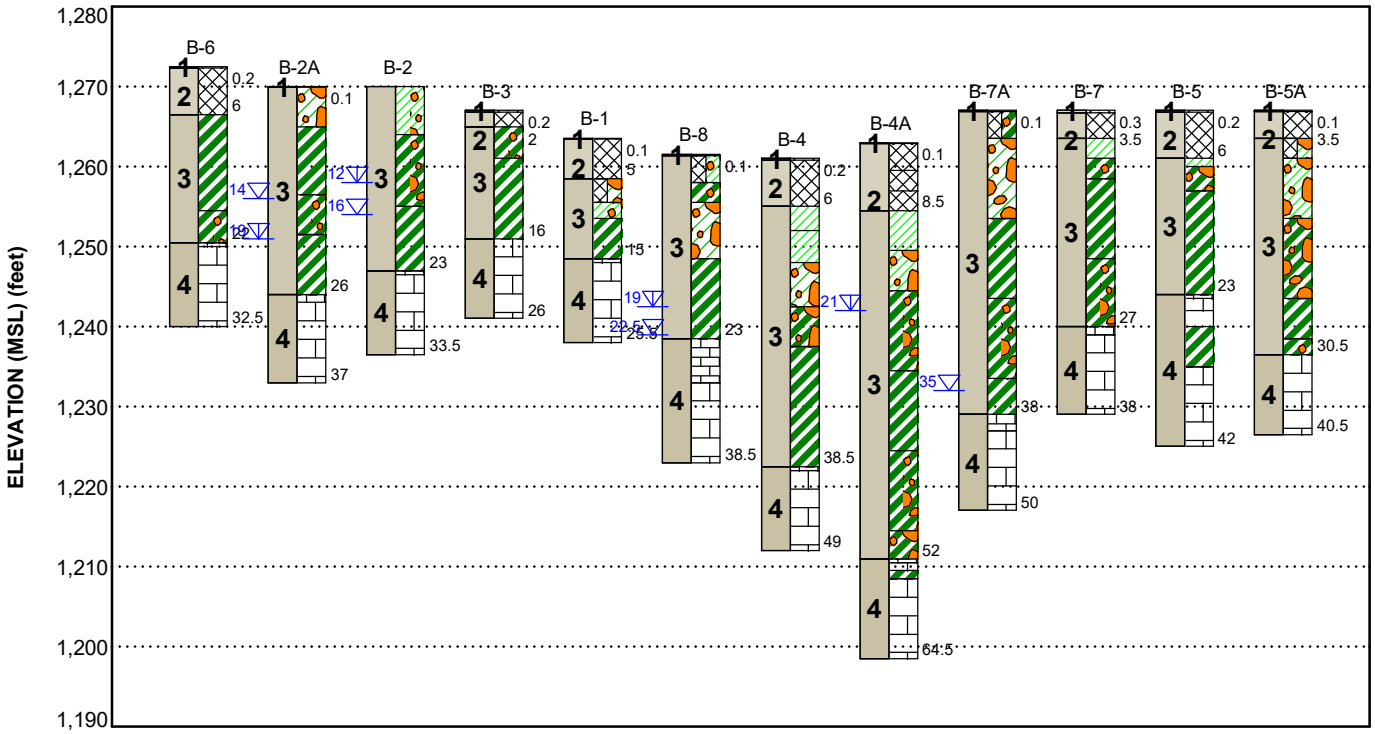
Site characteristics as provided are for design purposes and not to estimate excavation costs. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation costs. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, cost estimating, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL

Republic WWTP ■ Republic, Missouri
Terracon Project No. B5205029



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Surficial Materials**	Topsoil and exposed fill materials or residual soils
2	**Fill**	Lean to fat clay (CL or CH) with varying amounts of gravel and sand or clayey gravel with varying amounts of clay and sand
3	**Residual Soils**	Lean to fat clay (CL or CH) with varying amounts of gravel and sand or gravelly soils with varying amounts of clay and sand
4	**Limestone**	Highly to slightly weathered

LEGEND

- Topsoil
- Fill
- Clayey Gravel
- Lean Clay with Gravel
- Fat Clay
- Highly Weathered Limestone
- Limestone
- Fat Clay with Gravel
- Lean Clay
- Gravelly Fat Clay
- Gravelly Lean Clay

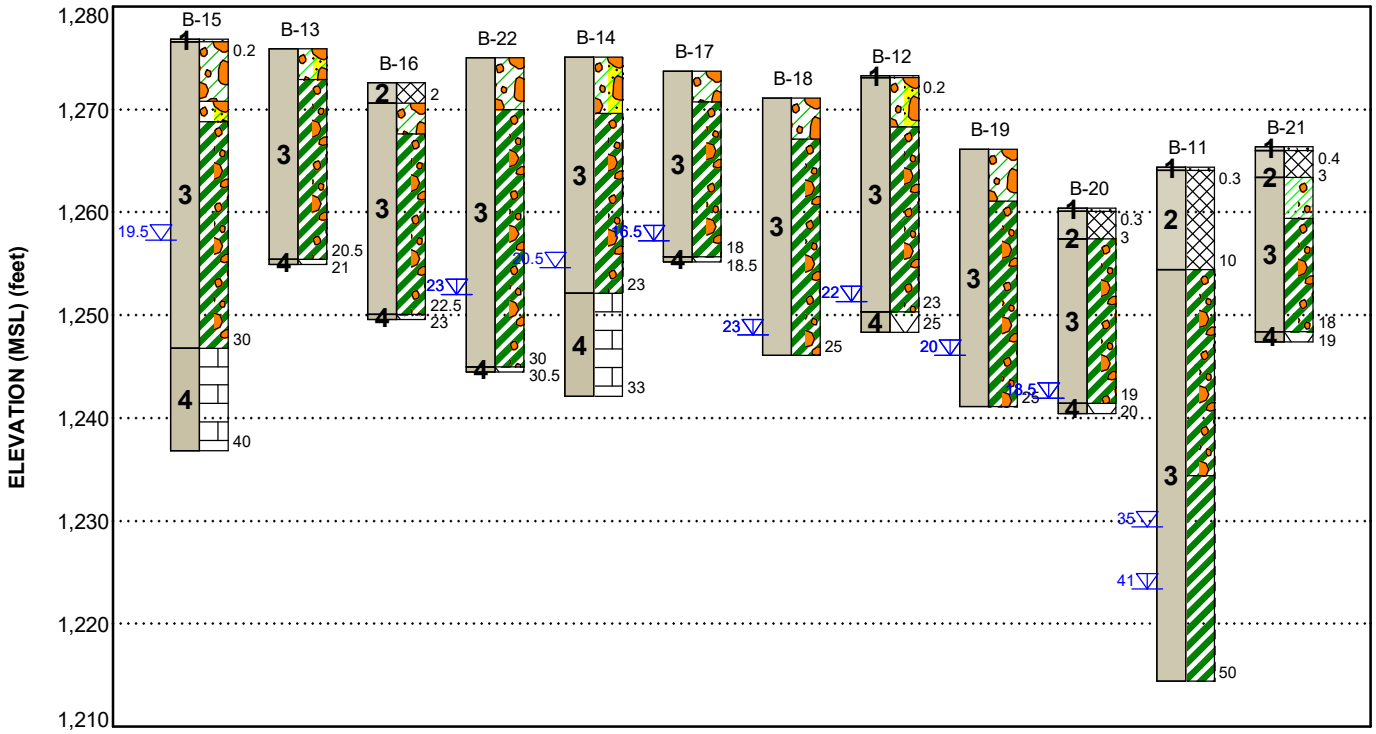
▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL

Republic, MO WWTP Expansion - Additional Borings ■ Republic, MO
Terracon Project No. B5215111



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Surficial Materials**	Topsoil and exposed fill materials or residual soils
2	**Fill**	Lean to fat clay (CL or CH) with varying amounts of gravel and sand or clayey gravel with varying amounts of clay and sand
3	**Residual Soils**	Lean to fat clay (CL or CH) with varying amounts of gravel and sand or gravelly soils with varying amounts of clay and sand
4	**Limestone**	Highly to slightly weathered

LEGEND

- Topsoil
- Fill
- Fat Clay with Gravel
- Fat Clay
- Clayey Gravel with Sand
- Weathered Rock
- Limestone
- Clayey Gravel
- Poorly-graded Gravel with Clay and Sand
- Lean Clay with Gravel

▽ First Water Observation
▽ Second Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

SOIL TEST EVALUATION

Ductile Iron Pipe Research Association (DIPRA)

	Range	Points
Resistivity (ohm/cm) (Based on single probe at pipe depth or water saturated Miller soil box)	< 1500 ≥1500-1800 >1800-2100 >2100-2500 >2500-3000 > 3000	10 8 5 2 1 0
pH	0.0-2.0 2.0-4.0 4.0-6.5 6.5-8.5 > 8.5	5 3 0 0* 3
Redox	> 100 mV 50-100 mV 0-50 mV Negative mV	0 3.5 4 5
Sulfides	Positive Trace Negative	3.5 2 0
Moisture	Poor drainage, continuously wet Fair drainage, generally moist Good drainage, generally dry	2 1 0

* If sulfides are present and low or negative redox results are obtained, 3 points shall be given to this range.

Interpretation

Corrosive conditions to ductile iron pipe if ten (10) points or more.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Geophysical Field Exploration

Terracon performed Multi-Channel Analysis of Surface Waves (MASW) seismic surveys at the locations shown on the **Geophysical Site Plan**. A Geometrics Geode seismograph and a land-streamer consisting of a linear array of twenty-four, 4.5Hz geophones was used to collect multi-channel analysis of surface waves (MASW) data to measure the shear wave velocity of the subsurface materials.

MASW was performed by collecting surface waves created by a seismic source consisting of a Propelled Energy Generator (PEG) equipped with an 80lb weight dropped and accelerated from a height of about 17 inches onto a steel impact plate. The data was processed using dispersion analysis software that extracts the fundamental-mode dispersion curves. Using a roll-along setup and subsets of geophones, many 1D profiles are created along an array and then combined to yield a 2D profile. These 2D profiles were examined for locations indicating abrupt changes in shear wave velocities, which may indicate subsurface voids, sinkholes, or abrupt material changes.

Geotechnical Field Exploration

Number of Borings [1]	Boring Depth (feet) [2, 3]	Planned Location
B-1	25½	Near electrical building, bower pad (formerly planned Anoxic basin)
B-2 and B-2A	33½ and 37	Generator building (formerly planned Clarifier 4)
B-3	25	Disinfection building (formerly planned Chemical feed building)
B-4 and B-4A	49.2 and 64.3	Transfer pump station
B-5 and B-5A	42 and 40½	Digester 4
B-6	32.3	Generaly location (formerly planned Aeration basin)
B-7 and B-7A	38 and 50	General location (formerly planned Admin/dewatering building)
B-8	38.5	General location
B-11	50	Influent pump station
B-12	25	Grit removal and fine screen building

Number of Borings [1]	Boring Depth (feet) [2, 3]	Planned Location
B-13	21	Process splitter
B-14	33½	Process basin
B-15	40	Process basin
B-16	23	Membrane bioreactor building and tank
B-17	18½	Chemical feed building
B-18	25	Electrical building
B-19	25	Administration building
B-20	20	Filter building and filter splitter structure
B-21	19	Dewatering building
B-22	30½	Process basin

1. Boring designation B-9 and B-10 were not utilized as part of the 2020 and 2022 geotechincal field exploration
2. Below ground surface
3. Borings B-13, B-16, B-17, B-20 encountered auger refusal on a possible cobble, boulder, or bedrock prior to their planned termination depth. All other borings extended to their planned depths.

Boring Layout and Elevations: The boring layout was performed by Terracon. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±20 feet). Approximate elevations for the 2020 borings were obtained by surveyor's level and rod and are rounded to the nearest ½-foot. Elevations for the 2020 borings are referenced to a temporary benchmark indicated on the **Boring Location and Exploration Plan**. Surface elevations for the 2022 borings were surveyed by Allgeier, Martin and Associates, Inc.

Subsurface Exploration Procedures: The borings were advanced with ATV-mounted rotary drill rigs using continuous flight, solid-stem augers. Samples were obtained from the borings as noted in **Exploration Results**. The thin-walled tube sampling was performed with a thin-walled, seamless steel tube with a sharp cutting edge that was pushed hydraulically into the soil to obtain a relatively undisturbed sample. The split-barrel sampling procedure was performed using a standard 2-inch outer diameter, split-barrel sampling spoon that was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The automatic hammer used in our 2020 and 2022 field explorations had hammer efficiencies of 92.5 and 82%, respectively. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration was recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at their respective test depths. Water levels were observed and recorded during drilling and sampling and after 24 hours when practical. For safety purposes, all borings were backfilled with bentonite chips and grout after their completion.

Auger refusal materials were explored with rock coring procedures at select location. An NQ2 rock core barrel was utilized to perform the rock cores at all borings except Boring B-13, B-16, B-17, and B-20. Water was used as a drilling fluid for cooling the rock bit and the spent water was discharged on site. Due to the use of water for rock coring, groundwater observations may have been affected and may not accurately portray the actual groundwater elevation at these locations.

The sampling depths, penetration distances, and other sampling information were recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

Classification of the soil samples was performed in general accordance with the Unified Soil Classification System (USCS) based on the material's texture and plasticity. The project engineer reviewed the field data and assigned laboratory tests to better understand the engineering properties of the various soil and rock strata.

- Water (Moisture) Content of Soil and Rock by Mass
- Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- Particle-Size Analysis of Soils
- Dry Unit Weight of Soils
- Unconfined Compressive Strength of Cohesive Soil
- Unconfined Compressive Strength of Rock
- Chemical Analysis: pH, Sulfates, Sulfide, Chloride, Electrical Resistivity, Total Salts, Redox Potential

Boring log rock classification was determined using the Description of Rock Properties and locally accepted practices for engineering purposes. Petrographic analysis may reveal other rock types. Rock core samples typically provide an improved specimen for this classification.

SITE LOCATION AND EXPLORATION PLANS

Contents:

BORING LOCATION PLAN

Republic Wastewater Treatment Plant Improvements ■ Republic, Missouri
August 19, 2022 ■ Terracon Project No. B5205029/B5215111

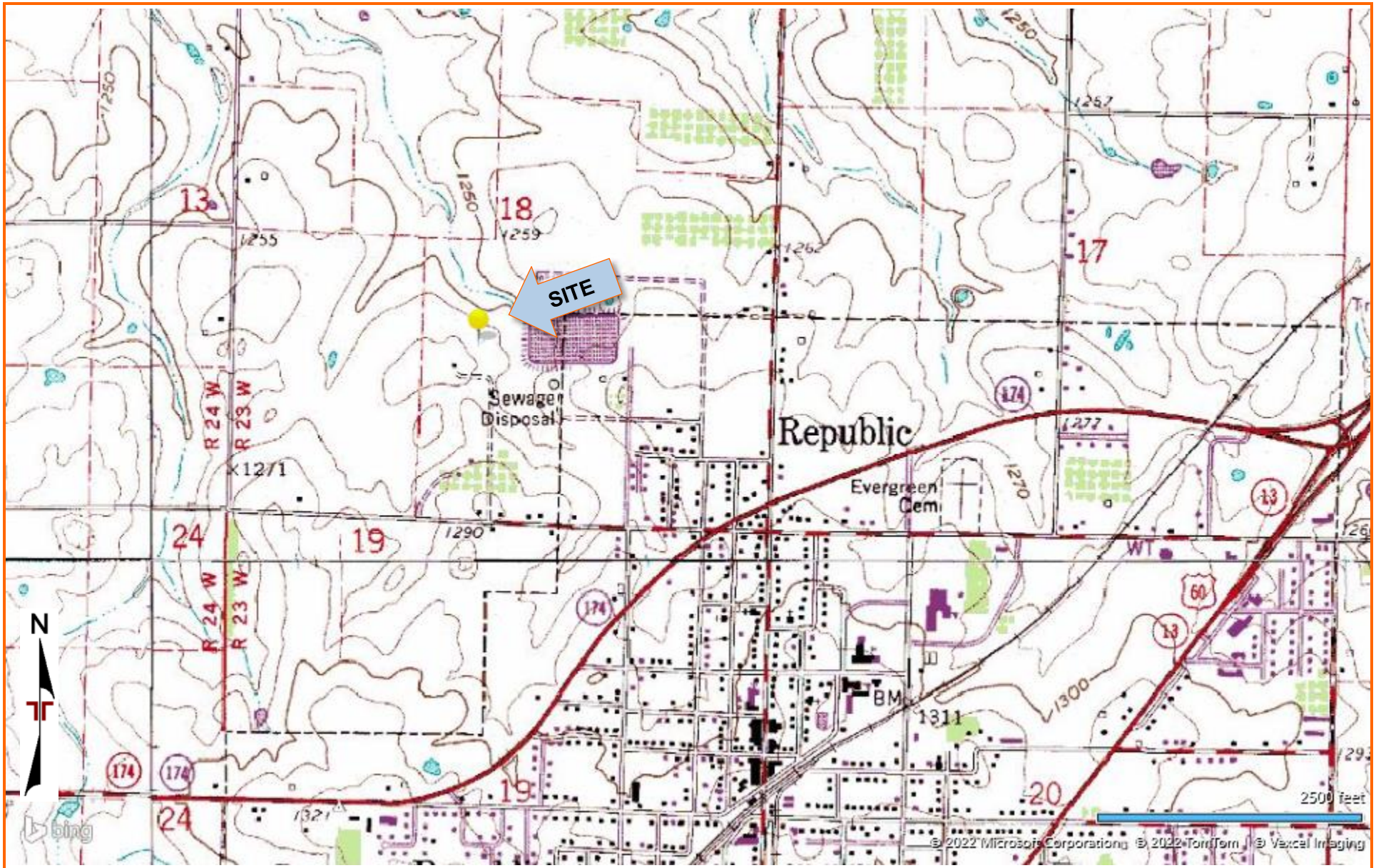


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

GEOPHYSICAL SITE PLAN

Republic Wastewater Treatment Plant Improvements ■ Republic, Missouri
August 19, 2022 ■ Terracon Project No. B5205029/B5215111

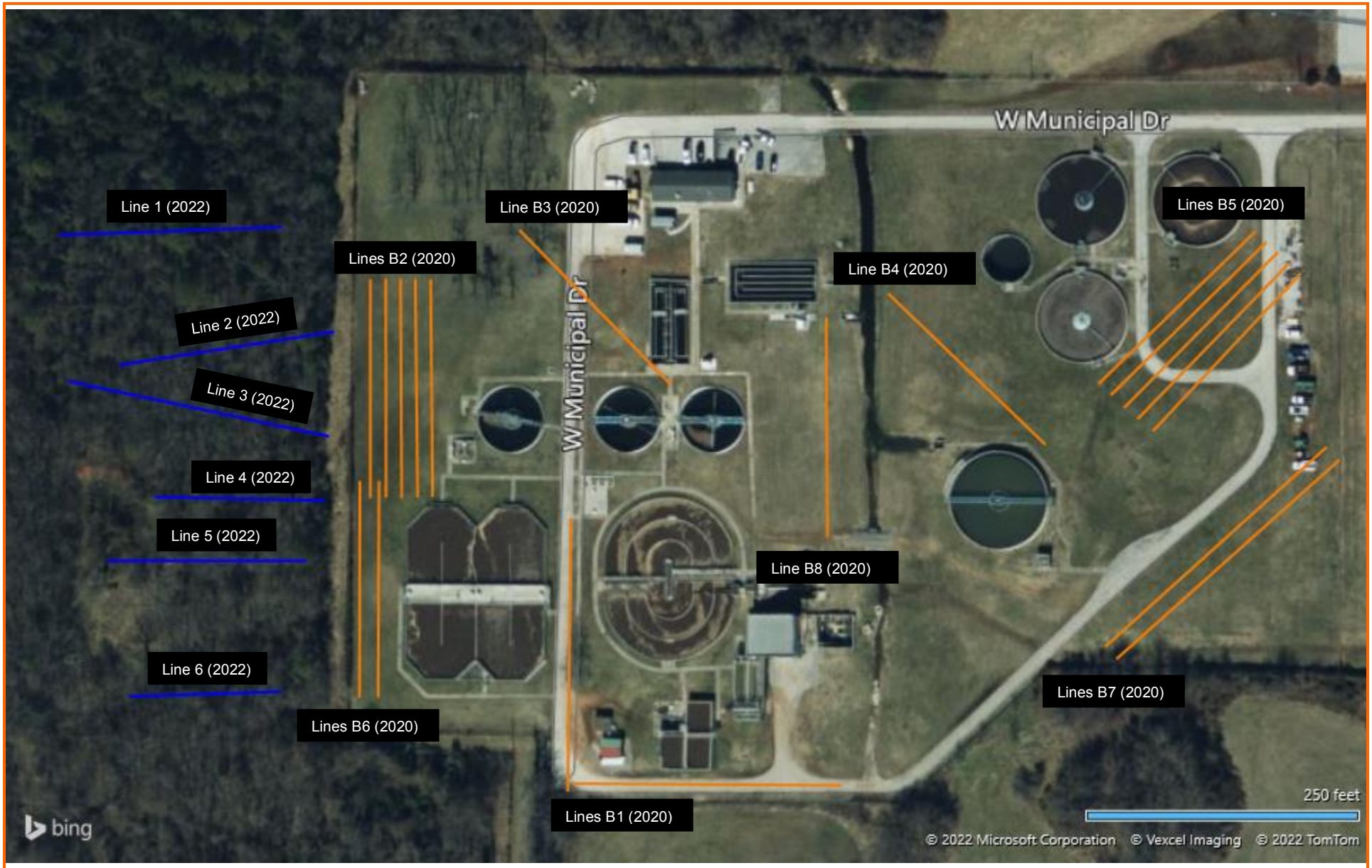


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

BORING LOCATION PLAN

Republic Wastewater Treatment Plant Improvements ■ Republic, Missouri
August 19, 2022 ■ Terracon Project No. B5205029/B5215111

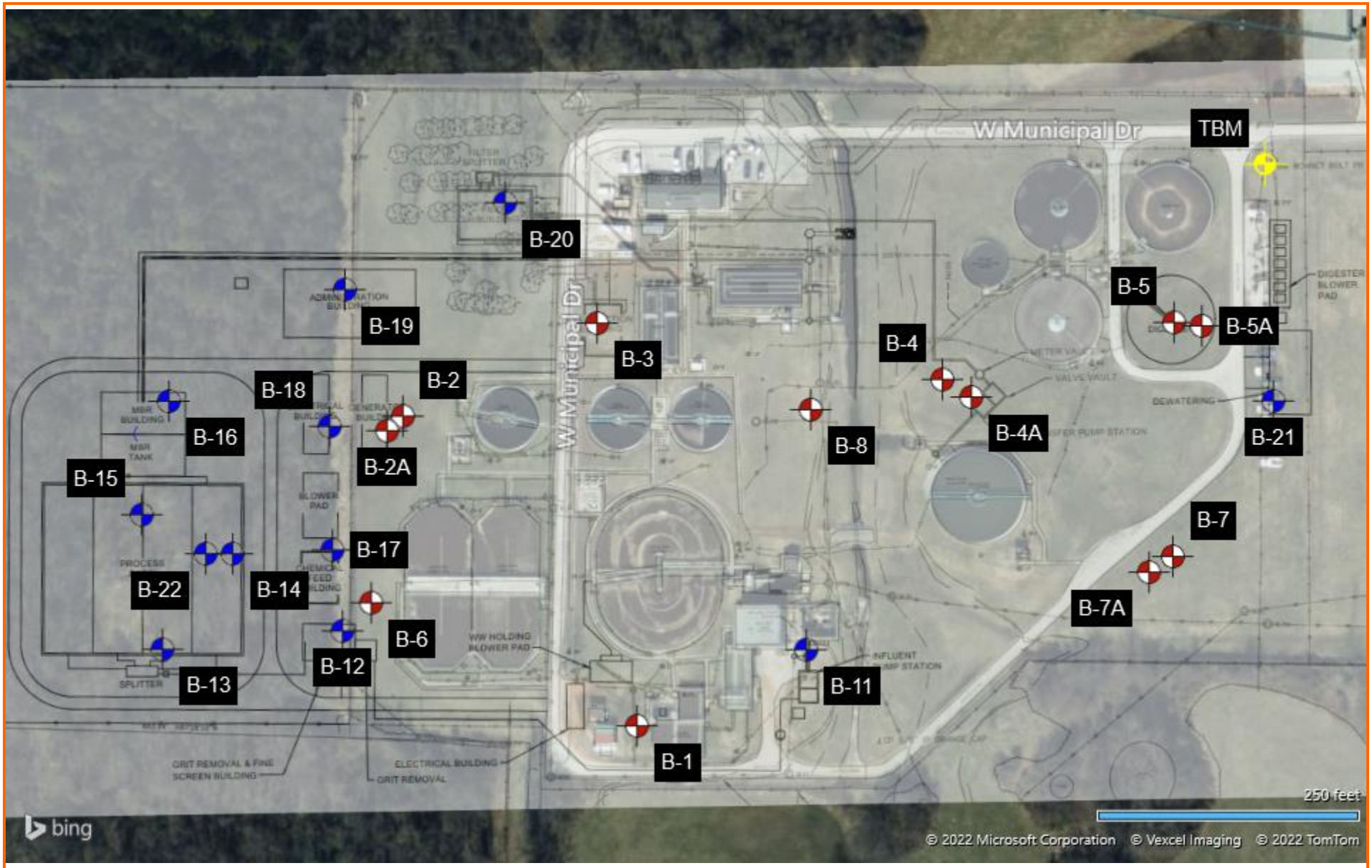


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

GEOLOGIC MAP

Republic Wastewater Treatment Plant Improvements ■ Republic, Missouri
August 19, 2022 ■ Terracon Project No. B5205029/B5215111

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

GEOLOGIC MAP

Republic Wastewater Treatment Plant Improvements ■ Republic, Missouri
August 19, 2022 ■ Terracon Project No. B5205029/B5215111

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

BORING LOG NO. B-1

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1297° Longitude: -93.4889°

Approximate Surface Elev.: 1263.5 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DESCRIPTION
1		0.1	1263.4+/-	**TOPSOIL**
2		5.0	1258.5+/-	**FILL - LEAN CLAY WITH SAND (CL)**, trace gravel, red and brown
		8.0	1255.5+/-	**CLAYEY GRAVEL (GC)**, red, (Possible Fill)
3		10.0	1253.5+/-	**LEAN CLAY WITH GRAVEL (CL)**, stiff
		15.0	1248.5+/-	**FAT CLAY (CH)**, trace gravel, red, stiff
4		15.5	1248+/-	**HIGHLY WEATHERED LIMESTONE**, gray
		25.5	1238+/-	**LIMESTONE**, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock
				Boring Terminated at 25.5 Feet

DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
			8	5-5-3 N=8			1.5 (HP)		20.3			
			3	5-5-4 N=9			1.25 (HP)		16.8			
5			1	2-5-2 N=7			1.0 (HP)		31.9			
			6	4-5-8 N=13			0.5 (HP)		16.7		33-20-13	
10			4				0.5 (HP)		57.3			
15			2	50/2"					9.8			
					100	100						7,160
20					100	100						9,700
25					100	100						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-22-2020 | Boring Completed: 10-22-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-2

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1305° Longitude: -93.4897°

Approximate Surface Elev.: 1270 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
3		0				4	50			1.75 (HP)		10.8			
						8	5-8-12 N=20			3.0 (HP)		24.8			
		5				12	8-6-5 N=11			3.0 (HP)		37.1		75-41-34	
		10		▽		6	6-14-11 N=25			0.75 (HP)		34.3			
						24				0.75 (HP)	840	54.7	40		
		15		▽											
						18	6-3-2 N=5			0.75 (HP)		45.5			
		20													
4						0	50/0"	100	100						7,940
		25						100	93						
		30						100	88						7,080

LEAN CLAY WITH GRAVEL (CL), with sand, red and brown, very stiff to hard

6.0 1264+/-

FAT CLAY WITH GRAVEL (CH), red, stiff to very stiff

15.0 1255+/-

FAT CLAY (CH), trace gravel, red, medium stiff

23.0 1247+/-

23.5 1246.5+/-

HIGHLY WEATHERED LIMESTONE, gray

LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock

33.5 1236.5+/-

Boring Terminated at 33.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *After 24 hours*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-23-2020 Boring Completed: 10-23-2020

Drill Rig: CME 750X Driller: DH

Project No.: B5205029

BORING LOG NO. B-3

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1308° Longitude: -93.4891°

Approximate Surface Elev.: 1267 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.2	1266.8+/-													
2		2.0	1265+/-				10	9-13-12 N=25			4.5 (HP)		31.2			
							6	19-18-8 N=26			2.5 (HP)		15.9			
				5			8	9-19-13 N=32			2.25 (HP)		35.0			
3							4				2.0 (HP)		41.3			
				10												
							16	3-5-9 N=14			0.75 (HP)		57.9			
		16.0	1251+/-	15												
4									100	96						9,460
				20					100	97						5,570
		26.0	1241+/-	25					100	100						

LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock

TOPSOIL

FILL - CLAYEY GRAVEL (GC), red

FAT CLAY WITH GRAVEL (CH), dark brown, hard

FAT CLAY (CH), trace gravel and sand, red, stiff

Boring Terminated at 26 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-28-2020 | Boring Completed: 10-28-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-4

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan
Latitude: 37.1306° Longitude: -93.4879°
Approximate Surface Elev.: 1261 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.2	1260.8+/-													
			TOPSOIL													
2			**FILL - CLAYEY GRAVEL (GC)**, red				5	10-12-12 N=24			4.0 (HP)		15.2			
							4	10-13-20 N=33			4.75 (HP)		14.4			
		6.0	1255+/-	5			13	4-3-4 N=7			1.25 (HP)		22.9			
			LEAN CLAY (CL), trace gravel, dark brown, hard													
		9.0	1252+/-				14	4-6-7 N=13			3.0 (HP)		21.0		41-21-20	
			LEAN CLAY (CL), trace gravel, brownish red, stiff	10												
		13.0	1248+/-													
			CLAYEY GRAVEL (GC), red, medium dense				6	10-13-15 N=28			2.0 (HP)		20.0			
		18.5	1242.5+/-	15												
			GRAVELLY FAT CLAY (CH), red				8	19-18-12 N=30			N/A		22.1			
3		23.5	1237.5+/-	20												
			FAT CLAY (CH), trace gravel, red				18	0-1-2 N=3			1.0 (HP)		57.6			
							18	3-2-7 N=9			0.25 (HP)		71.1			
				25			18	4-3-5 N=8			N/A		41.3			
				30			18	0-2-3 N=5			N/A		69.9			
		38.5	1222.5+/-	35												
		39.0	1222+/-				0	50/0"	100	88	N/A					
4			**HIGHLY WEATHERED LIMESTONE**, gray	40												
			LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock						100	92						5,860
				45												
									100	95						7,130
		49.0	1212+/-													
			Boring Terminated at 49 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-21-2020 | Boring Completed: 10-21-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-5

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan
Latitude: 37.1308° Longitude: -93.4872°
Approximate Surface Elev.: 1267 (Ft.) +/-

MODEL LAYER	DEPTH	ELEVATION (Ft.)	DESCRIPTION	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1	0.2	1266.8+/-	**TOPSOIL**											
2			**FILL - FAT CLAY WITH GRAVEL (CH)**, red		6	8-12-6 N=18			3.0 (HP)		25.2			
					5	7-6-5 N=11			4.5 (HP)		21.9			
	6.0	1261+/-												
	7.0	1260+/-	**LEAN CLAY (CL)**, trace gravel, brown, stiff		9	6-12-12 N=24			2.0 (HP)		15.3		33-15-18	
	10.0	1257+/-	**GRAVELLY FAT CLAY (CH)**, red, very stiff		6	10-12-7 N=19			2.0 (HP)		25.8			
3			**FAT CLAY (CH)**, trace gravel, red, stiff		20					360	54.3	41		
					8	10-6-3 N=9			1.25 (HP)		30.7			
	23.0	1244+/-												
4	23.5	1243.5+/-	**HIGHLY WEATHERED LIMESTONE**, gray		0	50/0"	100	44	N/A					
	25.0	1242+/-	**LIMESTONE**, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock				0	0						
	27.0	1240+/-	**VOID**											
	32.0	1235+/-	**CLAY SEAM**				65	53						7,300
			LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock				100	92						8,380
	42.0	1225+/-					100	100						
			Boring Terminated at 42 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-20-2020 | Boring Completed: 10-20-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-6

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1300° Longitude: -93.4898°

Approximate Surface Elev.: 1272.5 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.2	1272.3+/-													
2			**TOPSOIL**													
			FILL - FAT CLAY WITH GRAVEL (CH), red			X	8	11-17-5 N=22			4.5 (HP)		15.8			
						X	10	8-13-16 N=29			4.5 (HP)		22.3			
		6.0	1266.5+/-	5		X	18	4-4-5 N=9			2.5 (HP)		45.2			
3			**FAT CLAY (CH)**, trace gravel, red, stiff			X	18	5-5-6 N=11			3.25 (HP)		51.0			
				10												
							20					760	41.6	52		
				15												
		18.0	1254.5+/-													
			FAT CLAY WITH GRAVEL (CH), red, stiff			X	14	4-4-5 N=9			1.0 (HP)		38.4			
		22.0	1250.5+/-	20												
		22.5	1250+/-													
4			**HIGHLY WEATHERED LIMESTONE**, gray						100	100						
			LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock	25					100	100						7,640
				30					100	74						8,380
		32.5	1240+/-													
			Boring Terminated at 32.5 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-23-2020 | Boring Completed: 10-23-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-7

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan
Latitude: 37.1302° Longitude: -93.4872°
Approximate Surface Elev.: 1267 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.3	1266.7+/-													
2			**TOPSOIL**													
		3.5	**FILL - FAT CLAY WITH GRAVEL (CH)**, red 1263.5+/-				8	6-4-10 N=14			4.5 (HP)		17.5		45-22-23	
		6.0	**LEAN CLAY (CL)**, trace gravel, brown, very stiff 1261+/-	5			7	4-10-8 N=18			2.0 (HP)		20.6			
		8.5	**FAT CLAY WITH GRAVEL (CH)**, red, hard 1258.5+/-				11	9-6-24 N=30			2.25 (HP)		23.5			
3			**FAT CLAY (CH)**, trace gravel, red, stiff	10			16	5-5-5 N=10			2.25 (HP)		47.4		97-44-53	
				15			15	3-5-9 N=14			2.0 (HP)		46.8			
		18.5	1248.5+/-													
			FAT CLAY WITH GRAVEL (CH), red, medium stiff to stiff	20			9	5-4-5 N=9			2.75 (HP)		46.7			
				25			8	3-3-4 N=7			0.5 (HP)		21.9			
		27.0	1240+/-													
4		28.0	1239+/- **HIGHLY WEATHERED LIMESTONE**, gray	30					100	80						10,120
			LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock	35					100	95						
		38.0	1229+/-						100	100						8,020
			Boring Terminated at 38 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-19-2020 | Boring Completed: 10-20-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-8

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1305° Longitude: -93.4884°

Approximate Surface Elev.: 1261.5 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.1	1261.4+/-													
		TOPSOIL														
		LEAN CLAY WITH GRAVEL (CL), brown, stiff, (Possible Fill)					0	12-16-19 N=35			1.0 (HP)		26.9			
		3.5	1258+/-													
		FAT CLAY WITH GRAVEL (CH), red, very stiff to hard					6	4-6-12 N=18			4.0 (HP)		20.8			
		6.0	1255.5+/-	5												
		CLAYEY GRAVEL (GC), red, medium dense to dense					8	22-32-10 N=42			12.25 (HP)		20.5			
							2	9-10-7 N=17			1.25 (HP)		24.2			
3				10												
		13.0	1248.5+/-													
		FAT CLAY (CH), trace gravel, red, medium stiff to stiff					20				N/A	1920	46.2	44		
				15												
					▽											
				20			12	2-3-4 N=7			1.0 (HP)		47.4			
		23.0	1238.5+/-		▽											
		HIGHLY WEATHERED LIMESTONE, gray, with occasional clay seams					10	2-20-9 N=29			N/A		47.8			
		28.5	1233+/-	25												
4		**LIMESTONE**, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock					0	50/0"	100	95	N/A					8,130
				30												
									100	97						8,280
		38.5	1223+/-	35												
		Boring Terminated at 38.5 Feet														

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *After 24 hours*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-21-2020 | Boring Completed: 10-22-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-2A

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1305° Longitude: -93.4897°

Approximate Surface Elev.: 1270 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.1	1269.9+/-	**TOPSOIL**													
				CLAYEY GRAVEL (GC), brown, very stiff to hard				8	23-19-12 N=31			3.0 (HP)		16.6			
		5.0	1265+/-					4	13-9-16 N=25			N/A		18.4			
				FAT CLAY (CH), trace gravel, red, stiff	5			16				N/A	1560	48.6	44		
								18	5-4-5 N=9			3.25 (HP)		36.9			
3		13.5	1256.5+/-		10												
				FAT CLAY WITH GRAVEL (CH), red, very stiff				14	13-16-9 N=25			1.75 (HP)		34.3			
		18.5	1251.5+/-		15												
				FAT CLAY (CH), trace gravel, red, soft				10	0-0-1 N=1			N/A		70.1		89-37-52	
					20												
								10				N/A	120	79.3	29		
		26.0	1244+/-		25												
4		27.0	1243+/-	**HIGHLY WEATHERED LIMESTONE**, gray, with occasional clay seams						100	83						8,750
				LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock	30					100	100						
					35												
		37.0	1233+/-							100	96						7,320
				Boring Terminated at 37 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

After 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-30-2020 | Boring Completed: 10-30-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-4A

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1306° Longitude: -93.4878°

Approximate Surface Elev.: 1263 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.1	1262.9+/-													
			TOPSOIL													
			FILL - FAT CLAY WITH GRAVEL (CH), red and brown				6	4-4-4 N=8			1.0 (HP)		22.2			
		3.5	1259.5+/-													
			FILL - FAT CLAY WITH GRAVEL (CH), red				6	5-10-11 N=21			1.75 (HP)		18.2			
		6.0	1257+/-	5												
2			**FILL - GRAVELLY FAT CLAY (CH)**, red				6	8-6-3 N=9			N/A		20.0			
		8.5	1254.5+/-													
			LEAN CLAY (CL), trace gravel, dark brown, medium stiff	10			10	4-4-4 N=8			1.5 (HP)		21.9		39-20-19	
		13.5	1249.5+/-													
			GRAVELLY LEAN CLAY (CL), brown, medium stiff	15			20				N/A	1900	24.3	64		
		18.5	1244.5+/-													
			FAT CLAY WITH GRAVEL (CH), red, medium stiff	20	▽		18	2-3-3 N=6			0.75 (HP)		22.4			
				25			18	3-3-2 N=5			1.0 (HP)		28.2		48-21-27	
		28.5	1234.5+/-													
3			**FAT CLAY (CH)**, trace gravel, red brown, stiff to very stiff	30			12	3-6-7 N=13			1.25 (HP)		25.5			
			Red below 33.5 feet	35			13	13-14-9 N=23			0.5 (HP)		24.7			
		38.5	1224.5+/-													
			FAT CLAY WITH GRAVEL (CH), red, stiff	40			10	7-7-7 N=14			1.0 (HP)		24.4			
				45			11	5-6-6 N=12			2.5 (HP)		27.2			
		48.5	1214.5+/-													
			GRAVELLY FAT CLAY (CH), red, stiff	50			10	11-7-7 N=14			N/A		33.7			
		52.0	1211+/-													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not obserseved while drilling

▽ *After 24 hours*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-30-2020 | Boring Completed: 10-30-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-4A

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1306° Longitude: -93.4878°

Approximate Surface Elev.: 1263 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
4		52.5	1210.5+/-													
		53.5	1209.5+/-													
		54.5	1208.5+/-						79	31						
				55												
									100	63						11,170
				60												
									100	100						6,900
		64.5	1198.5+/-													

HIGHLY WEATHERED LIMESTONE, gray, -with occasional clay seams

LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock

CLAY SEAM

LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock

Boring Terminated at 64.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

After 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 10-30-2020 | Boring Completed: 10-30-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-5A

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1308° Longitude: -93.4871°

Approximate Surface Elev.: 1267 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.1	1266.9+/-													
2			**TOPSOIL**													
			FILL - FAT CLAY WITH GRAVEL (CL), brown			X	6	12-7-4 N=11					26.7			
		3.5	1263.5+/-													
			GRAVELLY LEAN CLAY (CL), brown, stiff to very stiff, (Possible Fill)			X	10	6-11-10 N=21					20.8			
		6.0	1261+/-	5												
			GRAVELLY LEAN CLAY (CL), red and brown, stiff to very stiff			X	12	10-7-6 N=13					16.8			
						X	15	9-14-13 N=27					25.4		45-19-26	
				10												
		13.5	1253.5+/-													
3			**GRAVELLY FAT CLAY (CH)**, red, medium stiff to stiff			■	18					390	60.2	43		
				15												
						X	8	5-3-5 N=8					32.9			
				20												
		23.5	1243.5+/-													
			FAT CLAY (CH), trace gravel, red			X	18	0-1-1 N=2					73.8			
				25												
		28.5	1238.5+/-													
			FAT CLAY WITH GRAVEL (CH), red, soft to medium stiff			X	10	18-5-3 N=8					73.3			
		30.5	1236.5+/-	30												
4			**LIMESTONE**, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock			■			100	97						8,330
				35												
						■			100	97						6,500
		40.5	1226.5+/-	40												
			Boring Terminated at 40.5 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

Not oberseved while drilling

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 11-02-2020 | Boring Completed: 11-02-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-7A

PROJECT: Republic WWTP

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

LOCATION See Exploration Plan

Latitude: 37.1301° Longitude: -93.4872°

Approximate Surface Elev.: 1267 (Ft.) +/-

MODEL LAYER	DEPTH	ELEVATION (Ft.)	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (In.)	FIELD TEST RESULTS	REC%	RQD%	LABORATORY HP (psf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1	0.1	1266.9+/-	**TOPSOIL**													
	3.5	1263.5+/-	**FAT CLAY WITH GRAVEL (CH)**, red, medium stiff, (Possible Fill)				8	3-4-3 N=7					33.2			
			CLAYEY GRAVEL (GC), red, very stiff to hard	5			0	8-14-9 N=23								
							10	14-19-13 N=32					19.5			
				10			10	22-19-16 N=35					17.8			
	13.5	1253.5+/-														
3			**FAT CLAY (CH)**, trace gravel, red, medium stiff to very stiff	15			14	3-3-3 N=6					53.9			
				20			12	2-10-11 N=21					48.5			
	23.5	1243.5+/-														
			FAT CLAY WITH GRAVEL (CH), red, very stiff	25			10	8-9-7 N=16					37.1			
				30			13	8-11-9 N=20					58.3			
	33.5	1233.5+/-														
			FAT CLAY (CH), trace gravel, red, soft	35	▽		18	6-2-2 N=4					41.4			
	38.0	1229+/-														
4	40.0	1227+/-	**HIGHLY WEATHERED LIMESTONE**, gray, -with occasional clay seams	40			6	28-50/1"					47.3			
			LIMESTONE, gray, coarse-grained, sound, thick bedding, slightly weathered, strong rock	45					100	84						6,920
									100	75						3,390
	50.0	1217+/-		50					100	100						
			Boring Terminated at 50 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers to refsual followed with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite grout upon completion

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were measured in the field using an engineer's level and grade rod.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

Not observed after 24 hours

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 11-02-2020 | Boring Completed: 11-02-2020

Drill Rig: CME 750X | Driller: DH

Project No.: B5205029

BORING LOG NO. B-11

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1299° Longitude: -93.4884°

Approximate Surface Elev.: 1264.4 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.3	1264.1+/-											
			TOPSOIL											
			FILL - GRAVELLY LEAN CLAY (CL), brown				8	5-5-4 N=9			1.5 (HP)	15.5		
2				5			4	2-3-4 N=7			0.5 (HP)	23.0		
							10	4-8-7 N=15			1.5 (HP)	35.2		
		10.0	1254.4+/-	10			8	16-10-6 N=16			3.0 (HP)	20.1		
			FAT CLAY WITH GRAVEL (CH), red, medium stiff to very stiff											
				15			18	1-3-5 N=8			2.0 (HP)	25.4	52-16-36	
				20			14	13-16-11 N=27			1.0 (HP)	23.4		
				25			13	7-15-12 N=27			2.5 (HP)	30.4		
3		30.0	1234.4+/-	30			18	8-4-7 N=11			1.0 (HP)	50.6		
			FAT CLAY (CH), red and tan, very soft to stiff											
				35	▽		15	7-11-5 N=16			0.5 (HP)	66.8		
				40	▽		9	7-5-6 N=11			N/A	111.2		
				45			8	1-0-0 N=0			0.5 (HP)	48.1		
		50.0	1214.4+/-	50			2	0-1-2 N=3			3.5 (HP)	22.4		
			Boring Terminated at 50 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *At completion of drilling*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-24-2022 | Boring Completed: 06-24-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-12

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1300° Longitude: -93.4899°

Approximate Surface Elev.: 1273.3 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.2	1273.1+/-											
			TOPSOIL											
			CLAYEY GRAVEL WITH SAND (GC), brown, medium dense				9	4-6-6 N=12			N/A	16.0		
		5.0	1268.3+/-	5			10	6-16-6 N=22			3.5 (HP)	24.1		
3			**FAT CLAY WITH GRAVEL (CH)**, red, medium stiff to very stiff				18	4-5-5 N=10			2.5 (HP)	49.1		
				10			14	7-8-8 N=16			2.5 (HP)	49.7		
				15			8	2-3-4 N=7			0.5 (HP)	47.0		
				20	▽		18	3-5-2 N=7			0.5 (HP)	67.8		
		23.0	1250.3+/-											
4			**WEATHERED LIMESTONE**											
		25.0	1248.3+/-	25			18	3-22-24 N=46			N/A	25.1		
			Boring Terminated at 25 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While sampling*

▽ *At completion of drilling*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-21-2022 | Boring Completed: 06-21-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-13

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1299° Longitude: -93.4905°

Approximate Surface Elev.: 1275.9 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
3		0.0	1275.9+/-											
			CLAYEY GRAVEL WITH SAND (GC), brown, medium dense				3	5-12-12 N=24			N/A	9.2		
		3.0	1272.9+/-											
			FAT CLAY WITH GRAVEL (CH), red, stiff to very stiff	5			8	6-20-9 N=29			2.0 (HP)	30.2		
							6	9-14-7 N=21			2.5 (HP)	38.7		
				10			10	7-7-7 N=14			3.5 (HP)	36.6		
				15			13	2-20-9 N=29			2.5 (HP)	49.6		
		20.5	1255.4+/-											
4		21.0	1254.9+/-	20			9	3-5-10 N=15			2.0 (HP)	54.5		
			WEATHERED LIMESTONE											
			Auger Refusal at 21 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Auger refusal on possible cobbles, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-22-2022 | Boring Completed: 06-22-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-14

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1302° Longitude: -93.4902°

Approximate Surface Elev.: 1275.1 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
3		0.0	1275.1+/-											
			CLAYEY GRAVEL WITH SAND (GC), brown, medium dense				10	6-8-11 N=19			1.0 (HP)	20.1		
		5.5	1269.6+/-	5			7	22-16-5 N=21			0.5 (HP)	18.1		
			FAT CLAY WITH GRAVEL (CH), red, stiff to hard				12	20-21-14 N=35			3.5 (HP)	49.2		
				10			18	8-7-9 N=16			1.5 (HP)	57.7		
				15			8	3-5-5 N=10			1.0 (HP)	48.3		
				20	▽		12	5-7-7 N=14			1.5 (HP)	52.3		
4		23.0	1252.1+/-											
			LIMESTONE, fine to medium-grained, slightly fractured, slightly weathered	25			60		100	95				3710
				30			57		95	78				12510
		33.0	1242.1+/-											
			Boring Terminated at 33 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-22-2022 | Boring Completed: 06-22-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-15

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1303° Longitude: -93.4905°

Approximate Surface Elev.: 1276.8 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.2	1276.6+/-											
			TOPSOIL											
			CLAYEY GRAVEL (GC), brown, medium dense to dense				10	6-6-6 N=12			2.5 (HP)	19.0		
				5			9	32-19-12 N=31			2.0 (HP)	22.3		
		6.0	1270.8+/-											
		8.0	1268.8+/-				11	12-10-8 N=18			1.0 (HP)	16.2	36-15-21	
			POORLY GRADED GRAVEL WITH CLAY AND SAND (GP-GC), brown, medium dense											
			FAT CLAY WITH GRAVEL (CH), red, very soft to stiff	10			12	10-6-6 N=12			2.5 (HP)	43.2		
3														
				15			12	3-2-3 N=5			1.0 (HP)	35.8		
					▽		10	2-2-3 N=5			0.5 (HP)	58.7		
				20										
							18	2-1-1 N=2			0.5 (HP)	63.2		
				25										
		30.0	1246.8+/-											
4			**LIMESTONE**, grey, slightly fractured, slightly weathered	30			60		100	87				11280
				35			60		100	92				9730
		40.0	1236.8+/-	40										
			Boring Terminated at 40 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers with NQ2 core barrel

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While sampling*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-22-2022 | Boring Completed: 06-22-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-16

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1306° Longitude: -93.4905°

Approximate Surface Elev.: 1272.6 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
2		0.0												
		FILL - GRAVELLY LEAN CLAY (CL)												
		2.0	1270.6+/-											
		CLAYEY GRAVEL (GC), brown, medium dense												
		5.0	1267.6+/-											
3		**FAT CLAY WITH GRAVEL (CH)**, red, stiff to hard		5			7	4-7-11 N=18			1.0 (HP)	20.5		
							10	18-18-8 N=26			3.0 (HP)	35.3		
							10	7-6-7 N=13			2.5 (HP)	38.2	77-27-50	
				10			17	8-9-33 N=42			2.5 (HP)	50.1		
				15			18	7-11-7 N=18			2.5 (HP)	52.0		
				20			18	10-6-8 N=14			2.0 (HP)	53.0		
		22.5	1250.1+/-											
4		23.0	1249.6+/-											
		WEATHERED LIMESTONE												
		Auger Refusal at 23 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Auger refusal on possible cobbles, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-22-2022 | Boring Completed: 06-22-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-17

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1302° Longitude: -93.4899°

Approximate Surface Elev.: 1273.7 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
3		0.0	1273.7+/-											
			CLAYEY GRAVEL (GC), brown, medium dense				12	7-13-7 N=20			1.0 (HP)	19.3		
		3.0	1270.7+/-											
			FAT CLAY WITH GRAVEL (CH), red, medium stiff to hard	5			13	5-5-6 N=11			2.5 (HP)	41.6		
							18	4-6-6 N=12			2.0 (HP)	48.0		
				10			18	6-16-15 N=31			3.5 (HP)	47.4		
				15	▽		7	4-3-5 N=8			1.0 (HP)	69.1		
		18.0	1255.7+/-											
4		18.5	1255.2+/-											
			WEATHERED LIMESTONE											
			Auger Refusal at 18.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Auger refusal on possible cobbles, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *At completion of drilling*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-21-2022 | Boring Completed: 06-21-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-18

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1305° Longitude: -93.4899°

Approximate Surface Elev.: 1271.1 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
3														
			CLAYEY GRAVEL (GC), brown, dense											
		4.0	1267.1+/-											
			FAT CLAY WITH GRAVEL (CH), red, medium stiff to very stiff	5			12	8-14-20 N=34			2.5 (HP)	18.3	29-19-10	
							16	6-6-11 N=17			2.5 (HP)	36.3		
							5	9-16-8 N=24			3.0 (HP)	19.1		
				10			12	5-10-7 N=17			2.5 (HP)	46.8		
				15			14	7-8-5 N=13			4.0 (HP)	49.8		
				20			9	3-2-3 N=5			1.5 (HP)	58.0		
		25.0	1246.1+/-											
			Boring Terminated at 25 Feet	25			18	3-3-3 N=6			0.5 (HP)	57.5		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

While sampling

At completion of drilling

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-21-2022 | Boring Completed: 06-21-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-19

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1309° Longitude: -93.4899°

Approximate Surface Elev.: 1266.1 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
3		0.0	1266.1+/-											
		CLAYEY GRAVEL (GC), brown, medium dense to dense					12	20-28-22 N=50			N/A	19.6		
		5.0	1261.1+/-	5			16	7-11-9 N=20			2.5 (HP)	37.2		
		FAT CLAY WITH GRAVEL (CH), red, medium stiff to very stiff					9	12-6-9 N=15			2.5 (HP)	41.7		
				10			10	6-12-9 N=21			3.0 (HP)	47.5		
				15			5	3-4-5 N=9			1.0 (HP)	45.8		
				20	▽		7	4-5-3 N=8			N/A			
		25.0	1241.1+/-	25			16	1-0-8 N=8			1.0 (HP)	88.1		
		Boring Terminated at 25 Feet												

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *At completion of drilling*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-21-2022 | Boring Completed: 06-21-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-20

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1311° Longitude: -93.4894°

Approximate Surface Elev.: 1260.4 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.3	1260.1+/-											
2			**TOPSOIL**											
			FILL - GRAVELLY LEAN CLAY (CL)				6	9-12-10 N=22			N/A	18.8		
		3.0	1257.4+/-											
			FAT CLAY WITH GRAVEL (CH), red, very soft to very stiff	5			8	9-15-13 N=28			3.5 (HP)	26.2		
							8	8-10-10 N=20			1.5 (HP)	28.2		
3				10			4	6-6-5 N=11			1.5 (HP)	27.7		
				15			9	2-1-0 N=1			N/A	71.3		
		19.0	1241.4+/-		▽									
4		20.0	**WEATHERED LIMESTONE**	20			15	5-5-50/4"			N/A	55.3		
			1240.4+/-											
			Auger Refusal at 20 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Auger refusal on possible cobbles, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *At completion of drilling*

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-24-2022 | Boring Completed: 06-24-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-21

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1306° Longitude: -93.4868°

Approximate Surface Elev.: 1266.4 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
1		0.4	1266+/-											
			TOPSOIL											
2		3.0	1263.4+/-				10	4-4-2 N=6			1.5 (HP)	26.5		
			FILL - GRAVELLY LEAN CLAY (CL)											
			LEAN CLAY WITH GRAVEL (CL)				15	9-14-5 N=19			1.5 (HP)	20.9	41-18-23	
		7.0	1259.4+/-	5										
			FAT CLAY WITH GRAVEL (CH), red, stiff to very stiff				10	4-5-5 N=10			3.5 (HP)	48.6		
3							8	7-7-8 N=15			2.0 (HP)	50.4		
				10										
							18	3-4-9 N=13			1.5 (HP)	52.7		
				15										
		18.0	1248.4+/-											
4		19.0	1247.4+/-				3	50/4"			N/A	16.3		
			WEATHERED LIMESTONE											
			Boring Terminated at 19 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Auger refusal on possible cobbles, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 06-24-2022 | Boring Completed: 06-24-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

BORING LOG NO. B-22

PROJECT: Republic, MO WWTP Expansion - Additional Borings

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Near 408 N. West Ave. Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1302° Longitude: -93.4903°

Approximate Surface Elev.: 1275.0 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY ()	FIELD TEST RESULTS	REC (%)	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	Strength (psi)
3			**CLAYEY GRAVEL (GC)**, brown, dense											
		5.0	1270+/-	5			9	6-18-18 N=36			2.0 (HP)	29.3		
			FAT CLAY WITH GRAVEL (CH), red, very soft to hard				7	15-19-20 N=39			N/A	18.0		
							12	21-29-9 N=38			2.5 (HP)	35.6		
				10			18	5-8-7 N=15			3.0 (HP)	47.1		
				15			15	2-3-4 N=7			1.5 (HP)	53.7		
				20			18	4-3-3 N=6			1.5 (HP)	64.7		
					▽									
				25			18	0-0-0 N=0			N/A	92.8		
		30.0	1245+/-											
4		30.5	**WEATHERED LIMESTONE** 1244.5+/-	30			18	0-0-50 N=50			N/A	88.3		
			Boring Terminated at 30.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4.25" center flight augers

Abandonment Method:
Boring backfilled with bentonite chips/grout upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Auger refusal on possible cobbles, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *At completion of drilling*

Terracon
4765 W Junction St
Springfield, MO

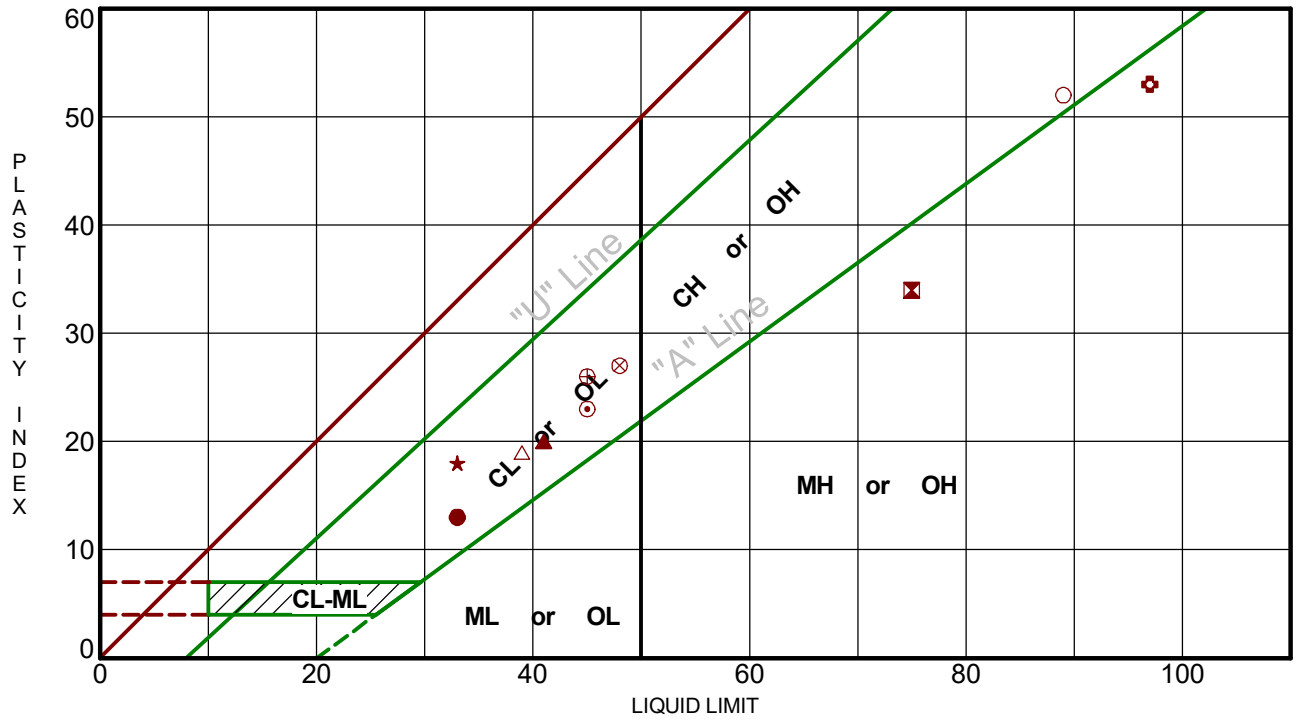
Boring Started: 06-24-2022 | Boring Completed: 06-24-2022

Drill Rig: CME 750X | Driller: DH

Project No.: B5215111

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-1	8.5 - 10	33	20	13			
⊠	B-2	6 - 7.5	75	41	34			
▲	B-4	8.5 - 10	41	21	20			
★	B-5	6 - 7.5	33	15	18			
⊙	B-7	1 - 2.5	45	22	23			
✿	B-7	8.5 - 10	97	44	53			
○	B-2A	18.5 - 20	89	37	52			
△	B-4A	8.5 - 10	39	20	19			
⊗	B-4A	23.5 - 25	48	21	27			
⊕	B-5A	8.5 - 10	45	19	26			

PROJECT: Republic WWTP

PROJECT NUMBER: B5205029

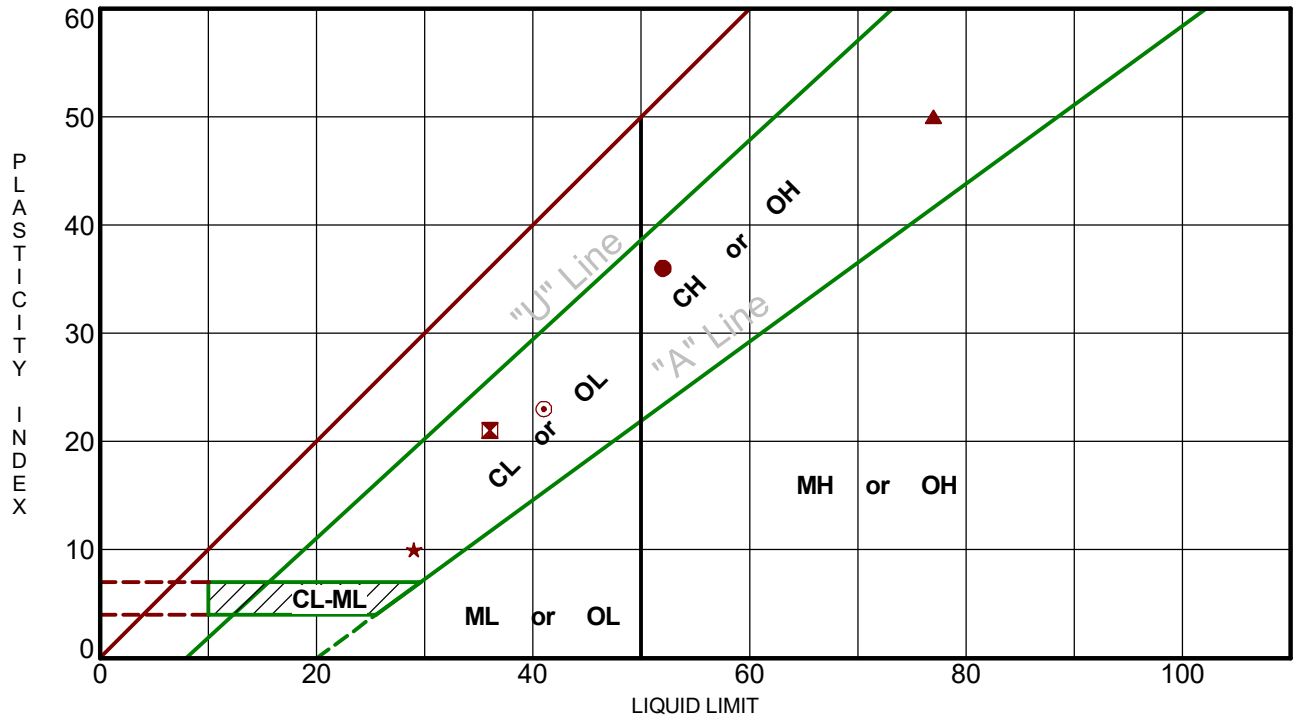
SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

Terracon
4765 W Junction St
Springfield, MO

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-11	13.5 - 15	52	16	36			
⊠	B-15	6 - 7.5	36	15	21	6.1	GP-GC	POORLY GRADED GRAVEL with CLAY and SAND
▲	B-16	6 - 7.5	77	27	50			
★	B-18	1 - 2.5	29	19	10			
⊙	B-21	3.5 - 5	41	18	23			

PROJECT: Republic, MO WWTP Expansion - Additional Borings

PROJECT NUMBER: B5215111

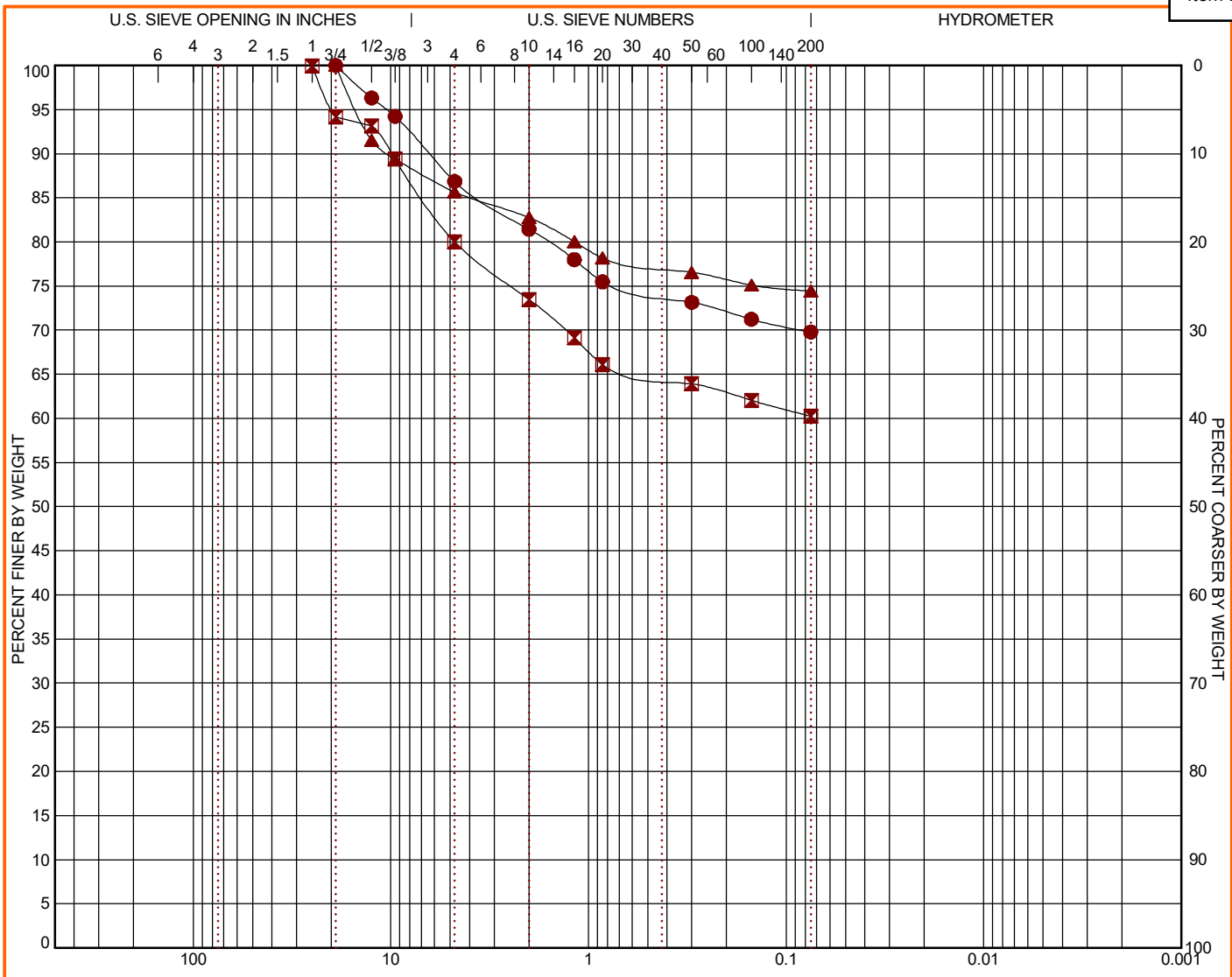
SITE: Near 408 N. West Ave. Republic, MO

Terracon
4765 W Junction St
Springfield, MO

CLIENT: Burns & McDonnell Engineering Company Inc
Kansas City, MO

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-1	1 - 2.5	0.0	13.1	17.1		69.8		
⊠	B-2	3.5 - 5		19.9	19.8		60.3		
▲	B-3	8 - 9	0.0	14.4	11.2		74.4		

GRAIN SIZE	●	⊠	▲
D_{60}			
D_{30}			
D_{10}			

COEFFICIENTS	●	⊠	▲
C_C			
C_U			

●		⊠		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
3/4"	100.0	1"	99.94	3/4"	100.0
1/2"	96.32	3/4"	94.13	1/2"	91.51
3/8"	94.22	1/2"	93.17	3/8"	89.37
#4	86.85	3/8"	89.4	#4	85.65
#8	81.44	#4	80.02	#8	82.76
#16	77.99	#8	73.48	#16	80.03
#30	75.48	#16	69.12	#30	78.17
#100	73.14	#30	66.11	#100	76.56
#200	71.23	#100	63.9	#200	75.11
	69.79	#200	62.06		74.43
			60.26		

SOIL DESCRIPTION	
●	
⊠	
▲	

REMARKS	
●	
⊠	
▲	

PROJECT: Republic WWTP

PROJECT NUMBER: B5205029

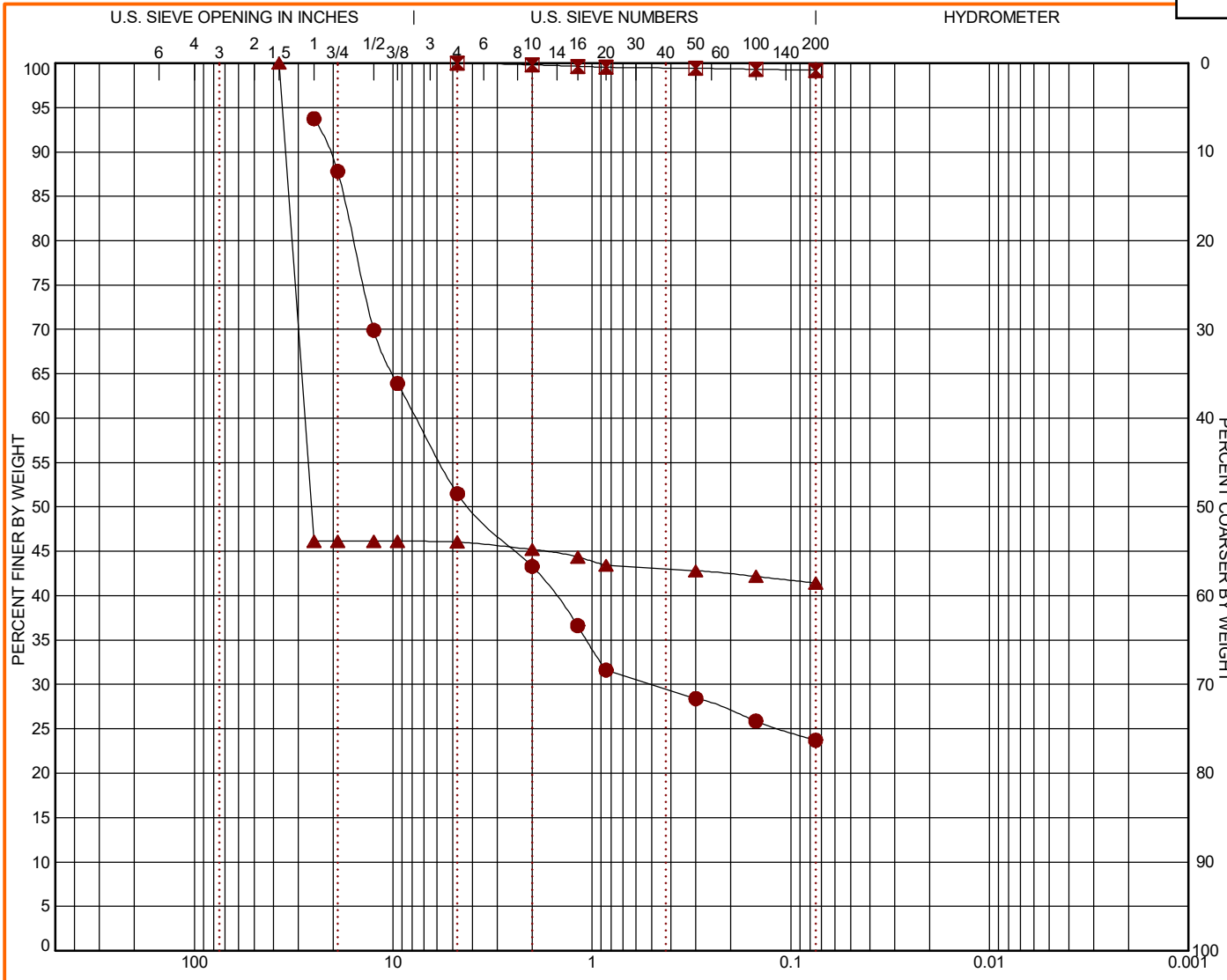
SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

Terracon
4765 W Junction St
Springfield, MO

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-4	18.5 - 20		42.2	27.8		23.7		
⊠	B-6	8.5 - 10	0.0	0.0	0.8		99.2		
▲	B-8	8.5 - 10	0.0	54.0	4.6		41.4		

GRAIN SIZE	●	⊠	▲
D_{60}	7.636		27.748
D_{30}	0.504		
D_{10}			

COEFFICIENTS	●	⊠	▲
C_C			
C_U			

● Sieve	● % Finer	⊠ Sieve	⊠ % Finer	▲ Sieve	▲ % Finer
1"	93.74	#4	100.0	1"	46.15
3/4"	87.81	#8	99.81	3/4"	46.15
1/2"	69.9	#16	99.64	1/2"	46.15
3/8"	63.91	#30	99.55	3/8"	46.15
#4	51.5	#100	99.42	#4	46.05
#8	43.3	#200	99.31	#8	45.21
#16	36.63		99.2	#16	44.37
#30	31.62			#30	43.43
#100	28.4			#100	42.8
#200	25.88			#200	42.17
	23.72				41.44
					100.0

SOIL DESCRIPTION	
●	
⊠	
▲	

REMARKS	
●	
⊠	
▲	

PROJECT: Republic WWTP

PROJECT NUMBER: B5205029

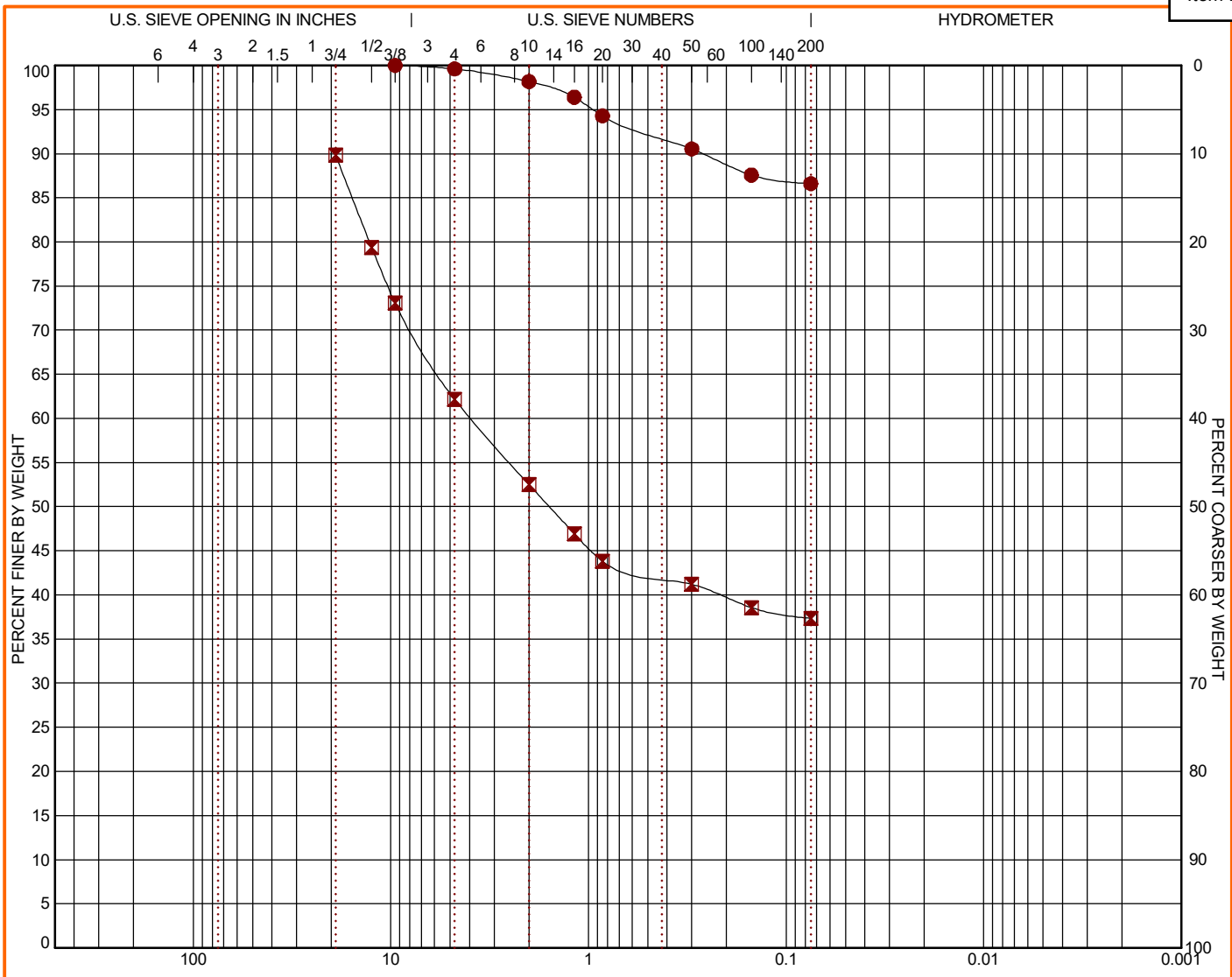
SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

Terracon
4765 W Junction St
Springfield, MO

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-4A	13 - 15	0.0	0.4	13.0		86.6		
⊠	B-5A	6 - 7.5		27.6	24.8		37.3		

GRAIN SIZE	●	⊠	
D_{60}		3.91	
D_{30}			
D_{10}			

COEFFICIENTS	●	⊠	
C_C			
C_U			

●		⊠			
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#4	99.61	3/4"	89.81		
#8	98.17	1/2"	79.39		
#16	96.4	3/8"	73.07		
#30	94.28	#4	62.18		
#100	90.54	#8	52.49		
#200	87.57	#16	46.93		
	86.61	#30	43.81		
	100.0	#100	41.2		
		#200	38.56		
			37.33		

SOIL DESCRIPTION	
●	
⊠	

REMARKS	
●	
⊠	

PROJECT: Republic WWTP

PROJECT NUMBER: B5205029

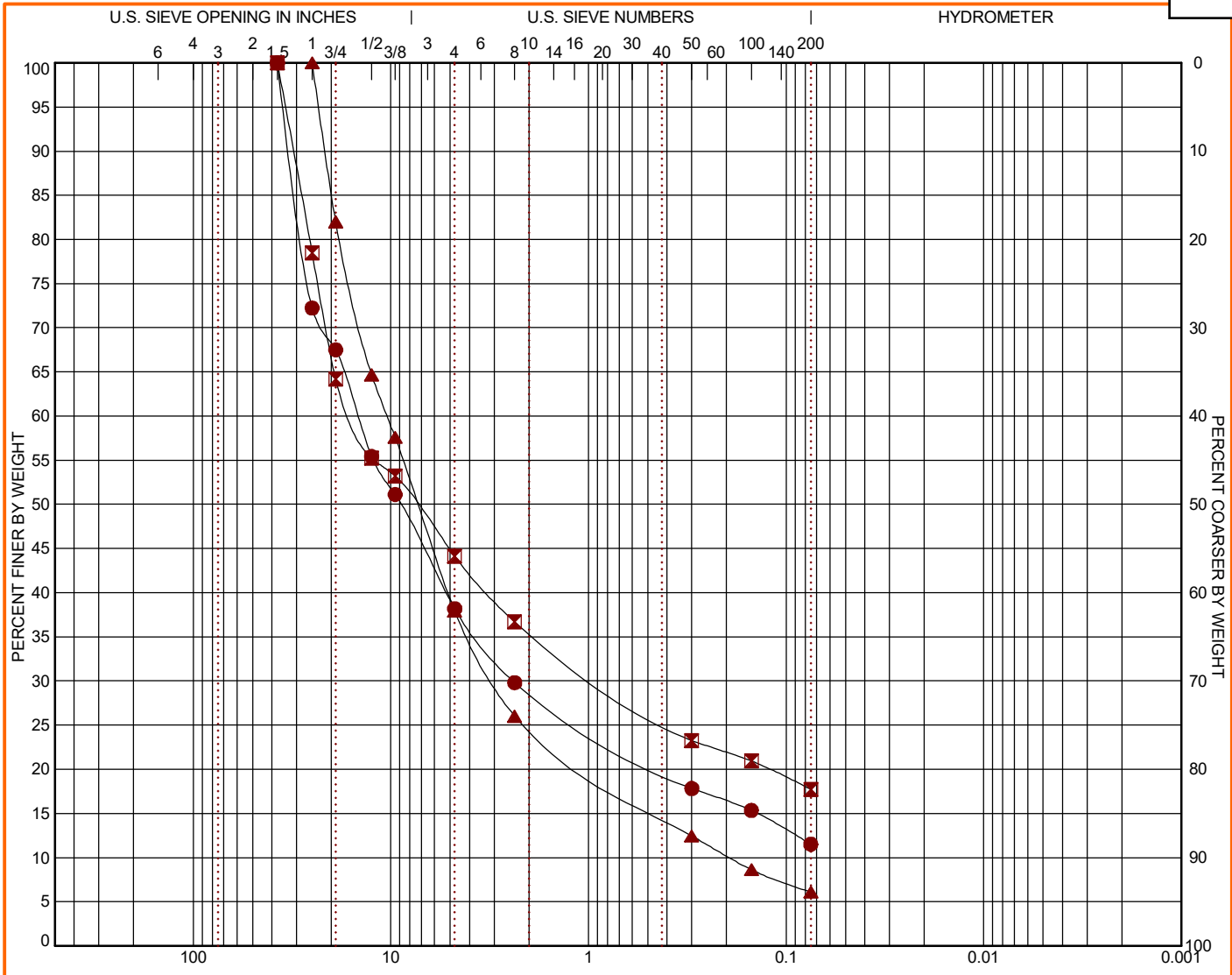
SITE: N. West Ave. NW of Wade St. Intersection
Republic, Missouri

Terracon
4765 W Junction St
Springfield, MO

CLIENT: Burns & McDonnell Engineering Co.
Kansas City, Missouri

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-12	1 - 2.5	0.0	61.8	26.7		11.5		
⊠	B-14	3.5 - 5	0.0	55.8	26.4		17.7		
▲	B-15	6 - 7.5	0.0	62.1	31.8		6.1		GP-GC

GRAIN SIZE	●	⊠	▲
D_{60}	14.651	15.605	10.43
D_{30}	2.398	0.844	2.982
D_{10}			0.192

COEFFICIENTS	●	⊠	▲
C_C	6.88		4.43
C_U	256.63		54.21

●		⊠		▲	
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
1 1/2"	100.0	1 1/2"	100.0	1"	100.0
1"	72.23	1"	78.45	3/4"	82.02
3/4"	67.5	3/4"	64.22	1/2"	64.67
1/2"	55.42	1/2"	55.25	3/8"	57.59
3/8"	51.12	3/8"	53.21	#4	37.91
#4	38.19	#4	44.15	#8	26.02
#8	29.81	#8	36.69	#100	12.44
#100	17.82	#100	23.27	#200	8.63
#200	15.34	#200	20.94		6.1
	11.51		17.72		

SOIL DESCRIPTION	
●	
⊠	
▲	POORLY GRADED GRAVEL with CLAY and SAND (GP-GC)

REMARKS	
●	
⊠	
▲	

PROJECT: Republic, MO WWTP Expansion - Additional Borings

SITE: Near 408 N. West Ave. Republic, MO

Terracon
4765 W Junction St
Springfield, MO

PROJECT NUMBER: B5215111

CLIENT: Burns & McDonnell Engineering Company Inc
Kansas City, MO

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: B5205029.0001
Service Date: 10/26/20
Report Date: 10/28/20

Terracon
4765 W Junction St
Springfield, MO 65802-1013
417-864-5100

Client

Burns & McDonnell CAS LLC
Attn: Jeff Barnard
9400 Ward Parkway
Kansas City, MO 64114

Project

Republic Wastewater Treatment Plant Additions
N. West Ave. NW of Wade St. Intersection
Republic, MO

Project Number: B5205029

Material Information

Source of Material: Bulk Sample B-1
Proposed Use:

Sample Information

Sample Date: 10/28/20
Sampled By:
Sample Location: B-1 1 to 5 Feet

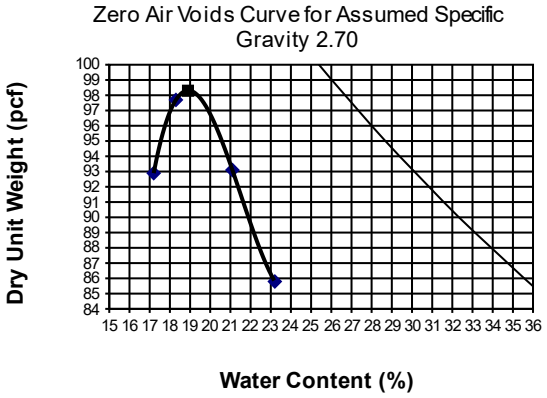
Sample Description: Brown Gravelly Clay

Laboratory Test Data

Test Procedure: ASTM D698
Test Method: Method C
Sample Preparation: Wet
Rammer Type: Manual
Maximum Dry Unit Weight (pcf): 98.3
Optimum Water Content (%): 18.9

	Result	Specifications
Liquid Limit:	46	
Plastic Limit:	21	
Plasticity Index:	25	
In-Place Moisture (%):		
Passing 3/4" (%):	8.7	

USCS: CL



Comments:

Services: Proctor values

Terracon Rep.: Austin Payne
Reported To:
Contractor:
Report Distribution:

(1) Burns & McDonnell CAS LLC, Jeff Barnard

Reviewed By: _____

Joshua Elson
Senior Staff Geologist

Test Methods: ASTM D698

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: B5205029.0002
Service Date: 10/26/20
Report Date: 10/28/20

Terracon
4765 W Junction St
Springfield, MO 65802-1013
417-864-5100

Client

Burns & McDonnell CAS LLC
Attn: Jeff Barnard
9400 Ward Parkway
Kansas City, MO 64114

Project

Republic Wastewater Treatment Plant Additions
N. West Ave. NW of Wade St. Intersection
Republic, MO

Project Number: B5205029

Material Information

Source of Material: Bulk Sample B-2
Proposed Use:

Sample Information

Sample Date: 10/23/20 **Sample Time:** 800
Sampled By: Joshua Elson
Sample Location: Boring B-2 - 1 to 5 Feet

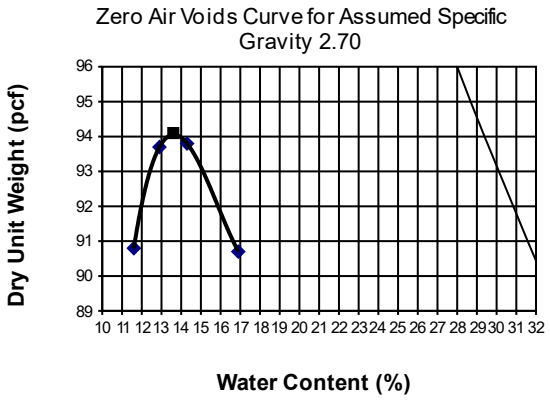
Sample Description: Brown Gravelly Clay

Laboratory Test Data

Test Procedure: ASTM D698
Test Method: Method C
Sample Preparation: Wet
Rammer Type: Manual
Maximum Dry Unit Weight (pcf): **94.1**
Optimum Water Content (%): **13.6**

	Result	Specifications
Liquid Limit:	36	
Plastic Limit:	23	
Plasticity Index:	13	
In-Place Moisture (%):		
Passing 3/4" (%):	10.7	

USCS: CL



Comments:

Services: Proctor values

Terracon Rep.: Austin Payne
Reported To:
Contractor:
Report Distribution:

(1) Burns & McDonnell CAS LLC, Jeff Barnard

Reviewed By: _____

Joshua Elson
Senior Staff Geologist

Test Methods: ASTM D698

LABORATORY COMPACTION CHARACTERISTICS OF SOIL REPORT

Report Number: B5205029.0003
Service Date: 10/26/20
Report Date: 10/28/20

Terracon
4765 W Junction St
Springfield, MO 65802-1013
417-864-5100

Client

Burns & McDonnell CAS LLC
Attn: Jeff Barnard
9400 Ward Parkway
Kansas City, MO 64114

Project

Republic Wastewater Treatment Plant Additions
N. West Ave. NW of Wade St. Intersection
Republic, MO

Project Number: B5205029

Material Information

Source of Material: Bulk Sample B-5
Proposed Use:

Sample Information

Sample Date: 10/23/20 **Sample Time:** 800
Sampled By: Joshua Elson
Sample Location: Boring B-5 - 3 to 5 Feet

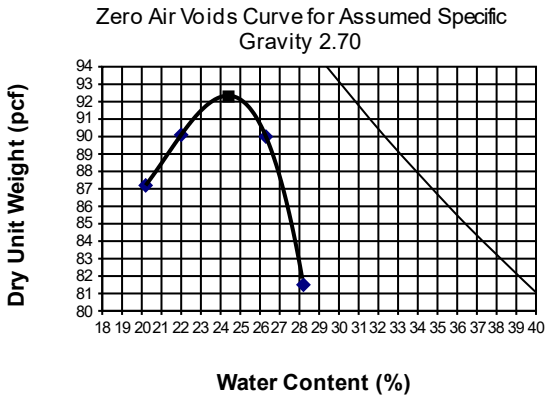
Sample Description: Brown Gravelly Clay

Laboratory Test Data

Test Procedure: ASTM D698
Test Method: Method C
Sample Preparation: Wet
Rammer Type: Manual
Maximum Dry Unit Weight (pcf): 92.3
Optimum Water Content (%): 24.4

	Result	Specifications
Liquid Limit:	52	
Plastic Limit:	25	
Plasticity Index:	27	
In-Place Moisture (%):		
Passing 3/4" (%):	13.9	

USCS: CH



Comments:

Services: Proctor values

Terracon Rep.: Austin Payne
Reported To:
Contractor:
Report Distribution:

(1) Burns & McDonnell CAS LLC, Jeff Barnard

Reviewed By: _____

Joshua Elson
Senior Staff Geologist

Test Methods: ASTM D698

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Terracon GeoReport

Client
Burns & McDonnell CAS LLC

Project
Republic Wastewater Treatment Plant Additions

Sample Submitted By: Terracon (B5) **Date Received:** 12/2/2020 **Lab No.: 20-1250**

Results of Corrosion Analysis

Sample Number	--	--
Sample Location	B-2A	B-4A
Sample Depth (ft.)	6.0-8.0	13.0-15.0
pH Analysis, ASTM G 51	6.69	7.09
Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)	20	86
Sulfides, AWWA 4500-S D, (mg/kg)	Nil	Nil
Chlorides, ASTM D 512, (mg/kg)	35	45
Red-Ox, ASTM G 200, (mV)	+693	+690
Total Salts, AWWA 2540, (mg/kg)	101	493
Resistivity (Saturated), ASTM G 57, (ohm-cm)	6499	3395

Analyzed By: Trisha Campo
Chemist

MMET LABORATORY

MMET, Inc • 316 N Airport Rd • Strafford, MO 65757
tel: 417-736-6016 • fax: 417-736-6018 • toll: 877-581-MMET
Email mmet@mmetinc.com Est. 1997

LABORATORY REPORT

Report Number: M261105
Lab Number: 221506
Report Date: 7/20/2022

Customer: Terracon
4765 W. Junction Street
Springfield, MO 65802
Phone 417-864-5100
Fax 417-864-0871
Cell 417-773-2500 Ripken.Dodson@terracon.com
Email Joshua.Elson@terracon.com Nic.Arens@terracon.com
Purchase Order No. David.Williams@terracon.com

Project Manager: David A. Williams, PE Project Eng.
Project Name: Republic WWTP
Project Location: B5215111
Sample Matrix: Soil
Sampled By: Drill Crew
Sample ID: B-11 (Cumulative)
Date Sampled:
Date Received 6/29/2022

Paramter	Method	Results	Units	Date of Analysis	Analyst
Sulfate	AASHTO T290-91	103	mg/Kg	7/20/2022	WAM
Sulfide	SM 4500-S D	0.099	mg/Kg	7/20/2022	WAM
Chloride	AASHTO T291	< 17	mg/Kg	7/20/2022	WAM
pH 1:2	EPA 9045C / AASHTO T289-91	6.82	SU	7/20/2022	WAM
Electrical Conductivity 1:2	SM 2510	327	µS	7/20/2022	WAM
TDS		163	ppm	7/20/2022	WAM
Salt		0.17	ppt	7/20/2022	WAM
Minimum Lab Soil Resistivity	AASHTO T288-91	1,432	Ω cm	7/20/2022	WAM

Report Approved by:

Wayne A. Middleton, Pres., Lab Dir.

MMET LABORATORY

MMET, Inc • 316 N Airport Rd • Strafford, MO 65757
tel: 417-736-6016 • fax: 417-736-6018 • toll: 877-581-MMET
Email mmet@mmetinc.com Est. 1997

LABORATORY REPORT

Report Number:	**M261105**		**Report Date:**	7/20/2022
Lab Number:	**221507**			
Customer:	Terracon		**Project Manager:**	David A. Williams, PE Project Eng.
	4765 W. Junction Street		**Project Name:**	Republic WWTP
	Springfield, MO 65802		**Project Location:**	B5215111
Phone	417-864-5100		**Sample Matrix:**	Soil
Fax	417-864-0871		**Sampled By:**	Drill Crew
Cell	417-773-2500	Ripken.Dodson@terracon.com	**Sample ID:**	B-14 (5-10')
Email	Joshua.Elson@terracon.com	Nic.Arens@terracon.com	**Date Sampled:**	
Purchase Order No.		David.Williams@terracon.com	**Date Received**	6/29/2022

Paramter	Method	Results	Units	Date of Analysis	Analyst
Sulfate	AASHTO T290-91	22	mg/Kg	7/20/2022	WAM
Sulfide	SM 4500-S D	0.083	mg/Kg	7/20/2022	WAM
Chloride	AASHTO T291	25	mg/Kg	7/20/2022	WAM
pH 1:2	EPA 9045C / AASHTO T289-91	6.21	SU	7/20/2022	WAM
Electrical Conductivity 1:2	SM 2510	111	µS	7/20/2022	WAM
TDS		55	ppm	7/20/2022	WAM
Salt		0.06	ppt	7/20/2022	WAM
Minimum Lab Soil Resistivity	AASHTO T288-91	2,470	Ω cm	7/20/2022	WAM

Report Approved by:

Wayne A. Middleton, Pres., Lab Dir.

Unconfined Compressive Strength of Intact Rock Core Specimens

Project Name: Republic WWTP

Project No.: B5205029/B5215111

Client: Burns & McDonnell Engineering Co.

Date: 7/25/2022

Tested By: KSH

Reviewed By: JDE

Boring	Depth (feet)	Recovery (%)	RQD (%)	Strength (psi)	Type of Rock
B-1	16.5	100	100	**7,160**	Limestone
B-1	23.0	100	100	**9,700**	Limestone
B-2	24.0	100	100	**7,940**	Limestone
B-2	30.5	100	88	**7,080**	Limestone
B-3	17.0	100	96	**9,460**	Limestone
B-3	23.0	100	97	**5,570**	Limestone
B-4	41.5	100	92	**5,860**	Limestone
B-4	47.6	100	95	**7,130**	Limestone
B-5	32.0	65	53	**7,300**	Limestone
B-5	36.0	100	92	**8,390**	Limestone
B-6	25.5	100	100	**7,640**	Limestone
B-6	31.8	100	74	**8,380**	Limestone
B-7	29.0	100	80	**10,120**	Limestone
B-7	35.2	100	100	**8,020**	Limestone

Unconfined Compressive Strength of Intact Rock Core Specimens

Project Name: Republic WWTP
Project No.: B5205029/B5215111
Client: Burns & McDonnell Engineering Co.
Test Date: 7/25/2022
Tested by: KSH Reviewed By: JDE

Terracon

Laboratory Data Sheet

Boring	Depth (feet)	Recovery (%)	RQD (%)	Strength (psi)	Type of Rock
B-8	29.0	100	95	**8,130**	Limestone
B-8	37.0	100	97	**8,280**	Limestone
B-2A	28.5	100	83	**8,750**	Limestone
B-2A	33.5	100	96	**7,320**	Limestone
B-4A	57.0	100	63	**11,170**	Limestone
B-4A	63.2	100	100	**6,900**	Limestone
B-5A	33.0	100	97	**8,330**	Limestone
B-5A	40.5	100	97	**6,500**	Limestone
B-7A	41.3	100	84	**6,920**	Limestone
B-7A	46.5	100	75	**3,390**	Limestone

Unconfined Compressive Strength of Intact Rock Core Specimens

Project Name: Republic WWTP

Project No.: B5205029/B5215111

Client: Burns & McDonnell Engineering Co.

Test Date: 7/25/2022

Tested by: AAP Reviewed By: DAW

Laboratory Data Sheet

Boring	Depth (feet)	Recovery (%)	RQD (%)	Strength (psi)	Type of Rock
B-14	24.5	100	95	**3,710**	Limestone
B-14	29.5	95	78	**12,510**	Limestone
B-15	31.5	100	87	**11,280**	Limestone
B-15	36.5	100	92	**9,730**	Limestone

Boring B-1
Depth: 15.5’ to 25.5’

0 0.5 1.0 1.5 2.0
Scale In Feet

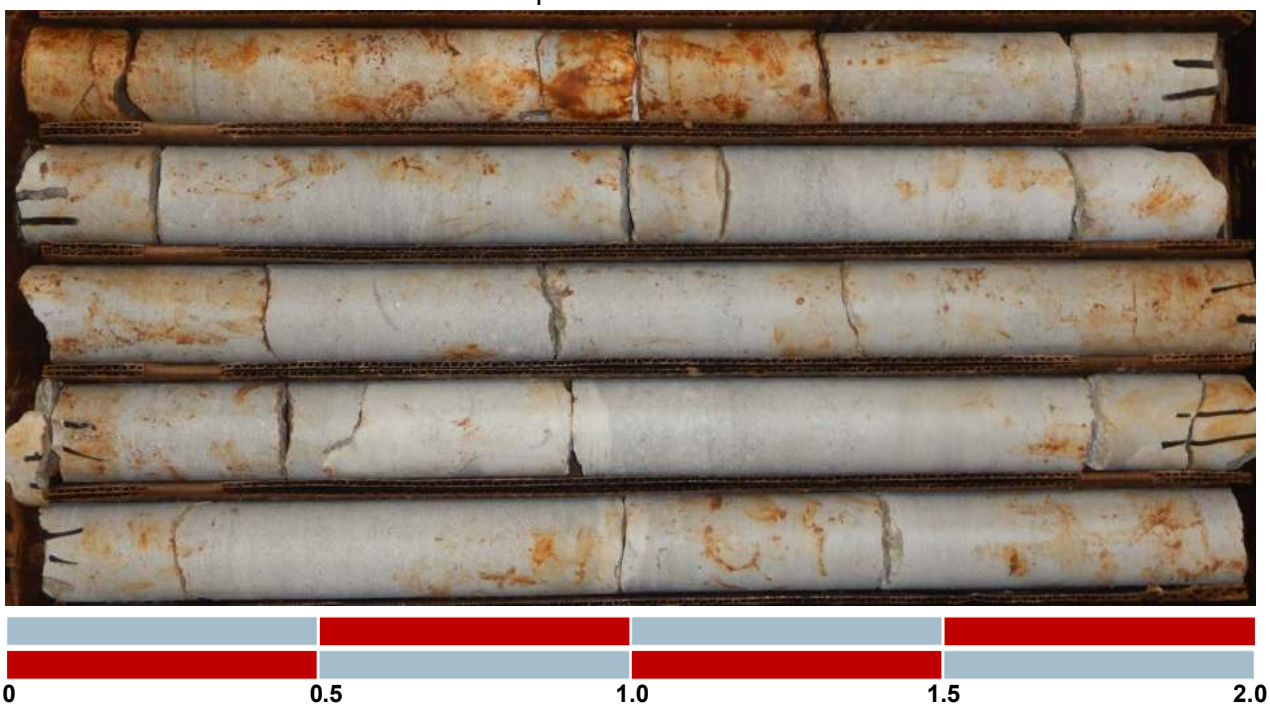
Boring B-2
Depth: 23.5’ to 33.5’

0 0.5 1.0 1.5 2.0
Scale In Feet

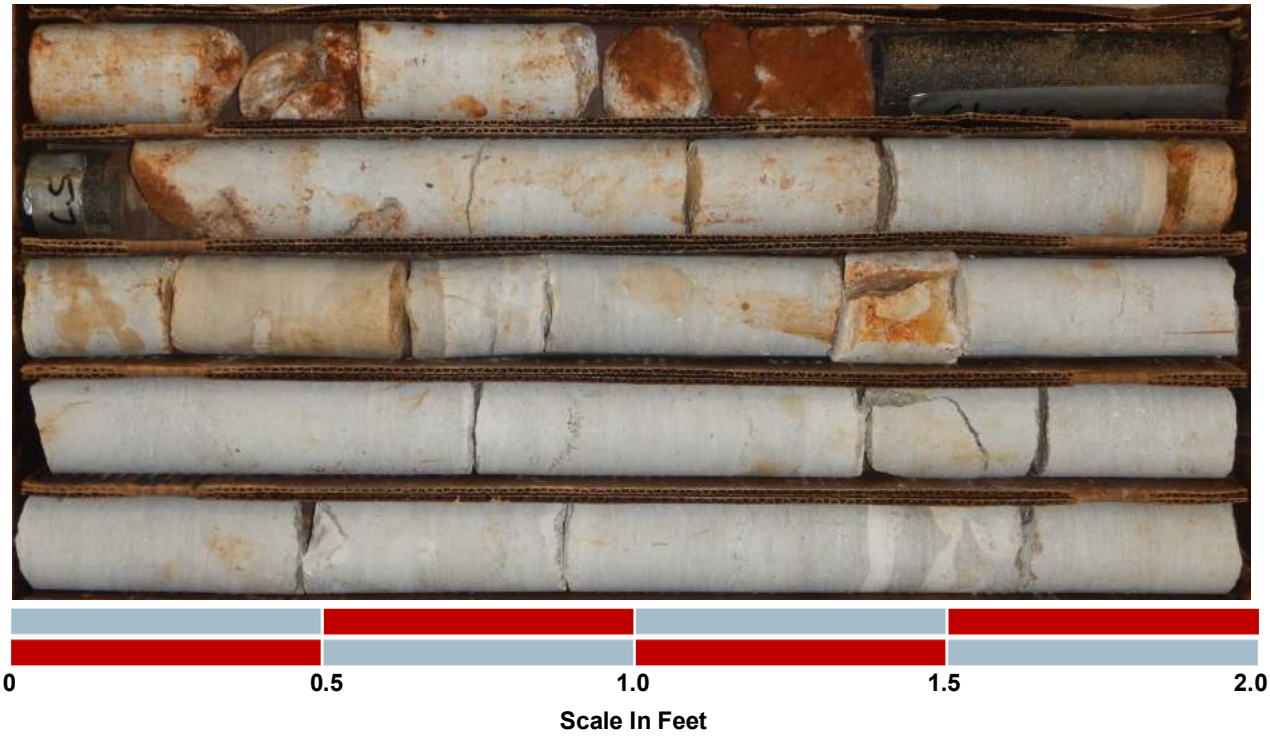
Boring B-2A
Depth: 27.0’ to 37.0’

Boring B-3
Depth: 15.8’ to 25.8’

Boring B-4
Depth: 39.2’ to 49.2’



Boring B-4A
Depth: 52.0’ to 62.0’



Boring B-4A
Depth: 62.0’ to 64.3

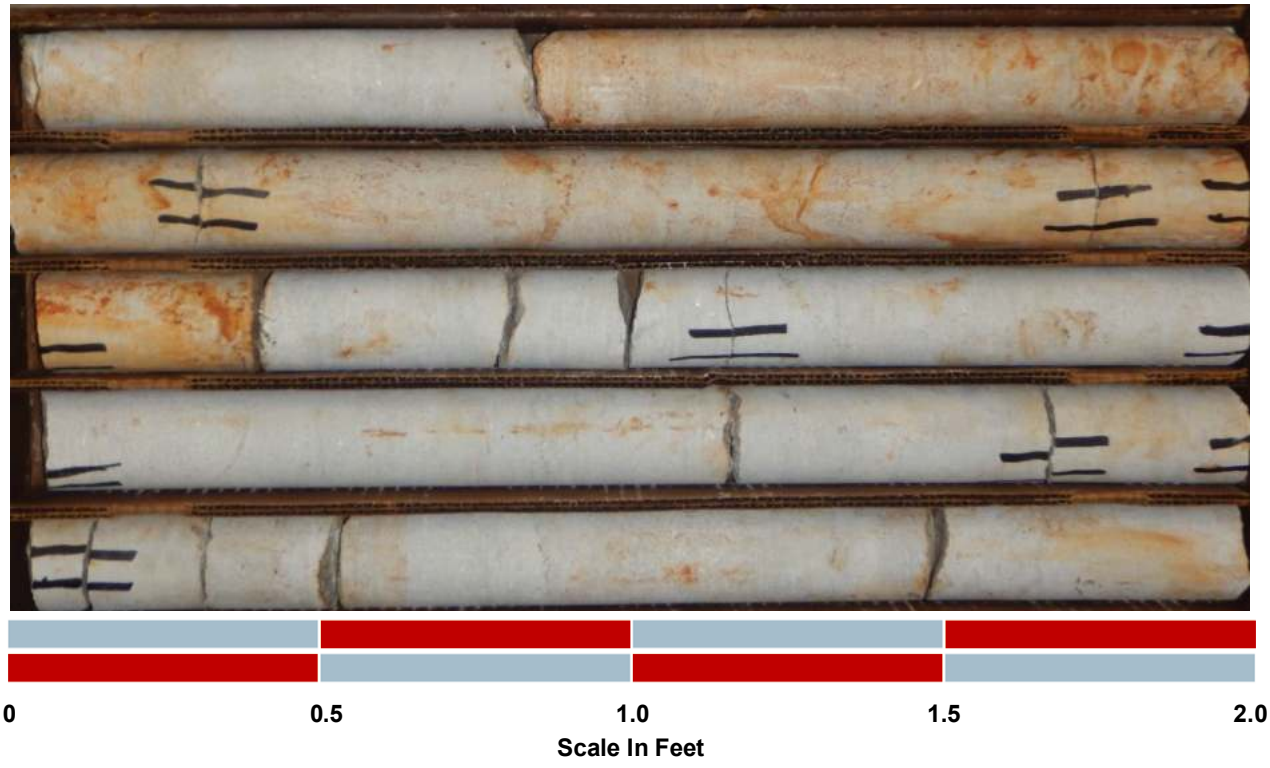
0 0.5 1.0 1.5 2.0
Scale In Feet

Boring B-5
Depth: 23.5’ to 33.5’

0 0.5 1.0 1.5 2.0
Scale In Feet

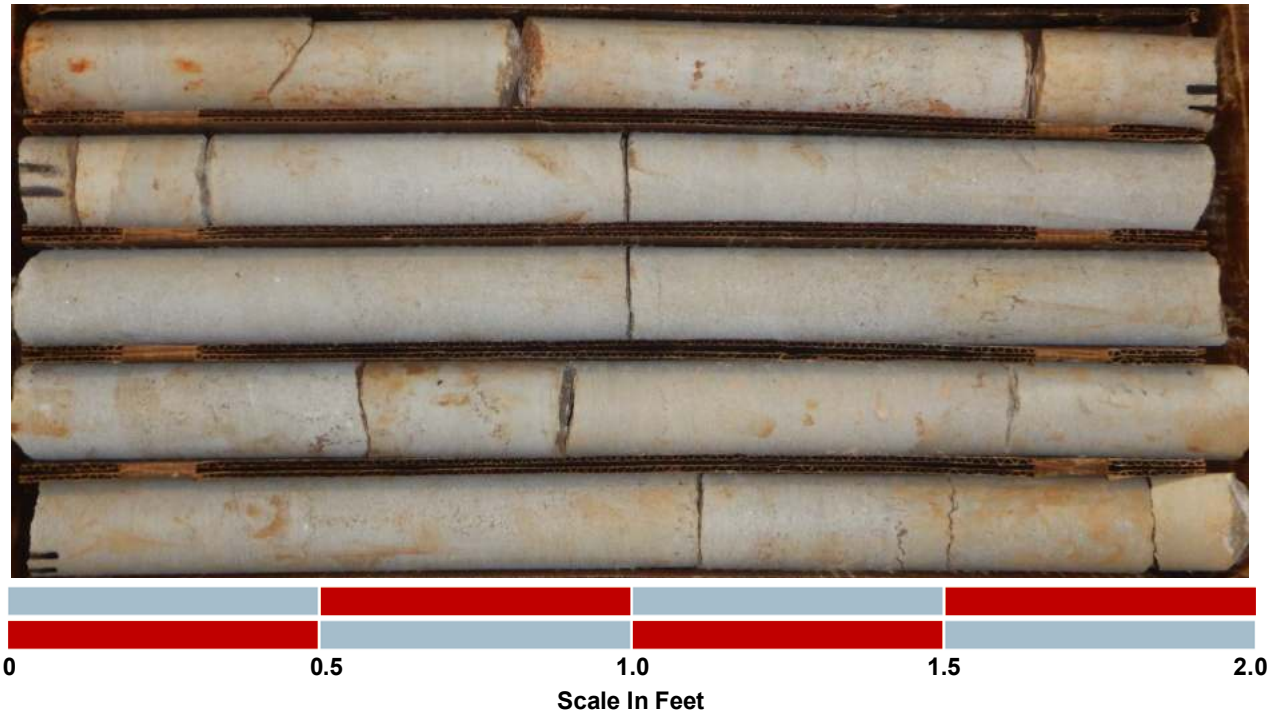
Boring B-5
Depth: 33.5’ to 42.0’

Boring B-5A
Depth: 30.5’ to 40.5’



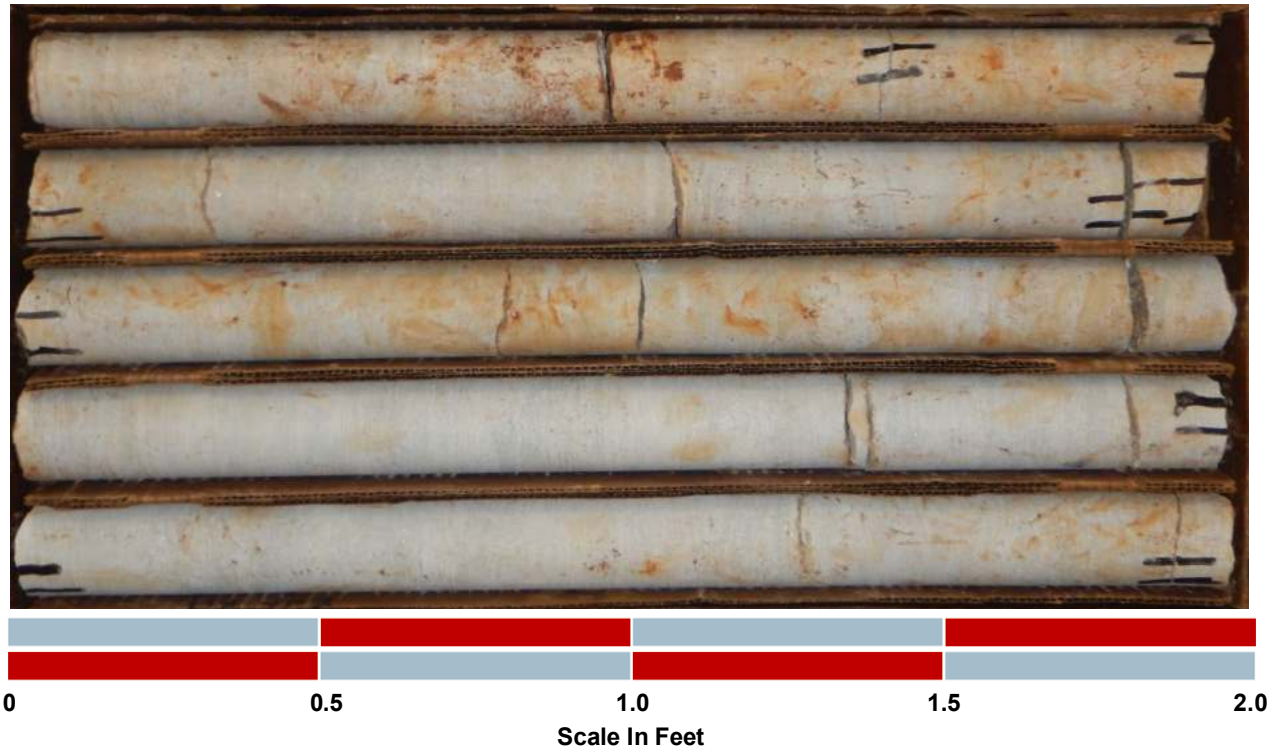
Boring B-6
Depth: 22.3’ to 32.3’

Boring B-7
Depth: 28.0’ to 38.0’

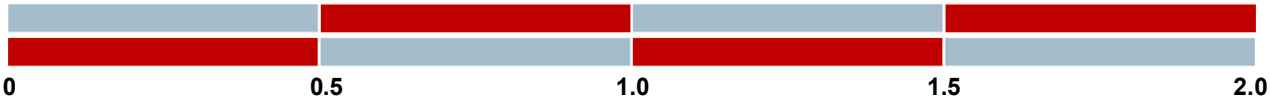


Boring B-7A
Depth: 40.0’ to 50.0’

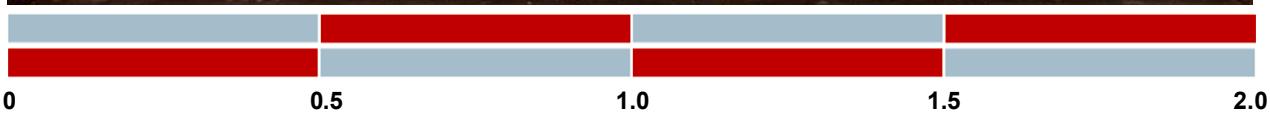
Boring B-8
Depth: 28.5’ to 38.5’



Boring B-14
Depth: 23.0’ to 33.0’



Boring B-15
Depth: 30.0’ to 40.0’

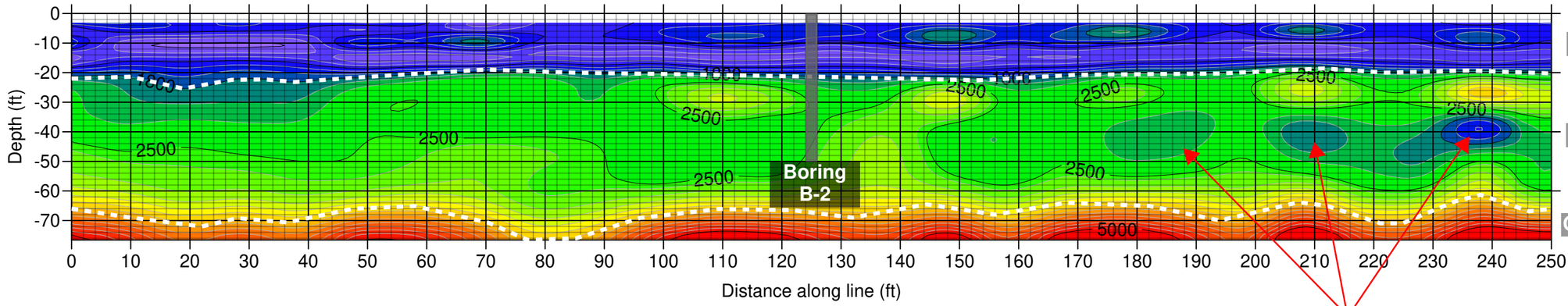


South **North**

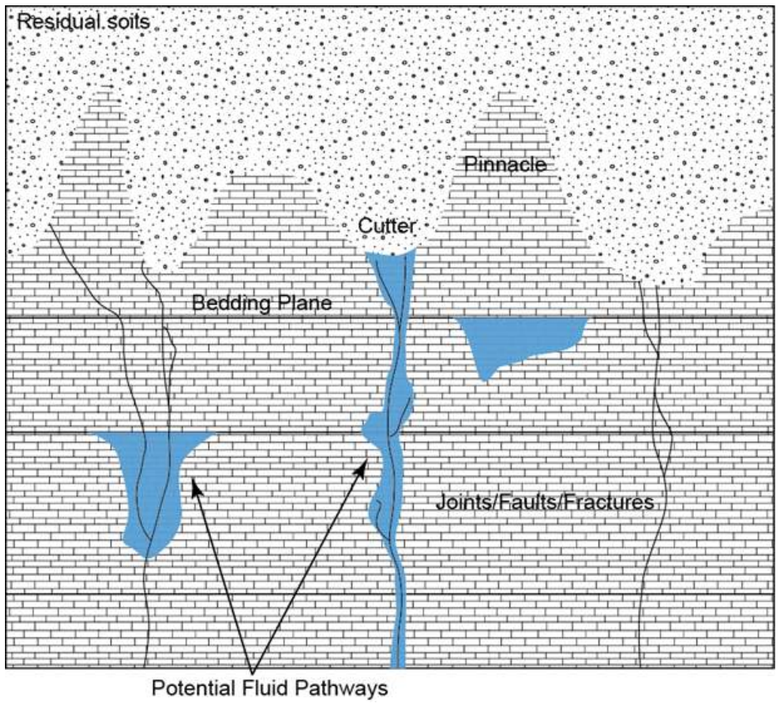
Start
Lat: 37.13022 N
Lon: 93.78971 W

End
Lat: 37.13087 N
Lon: 93.48954 W

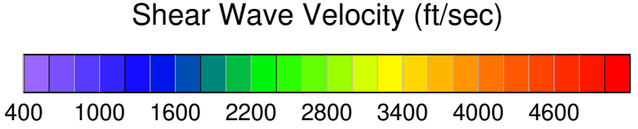
Line B-2_C

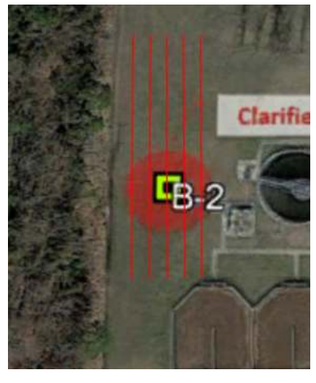


Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Linear pattern is consistent with dissolution along bedding planes or dissolution and fracturing at the intersection of vertical fractures and bedding planes.



Shear Wave Velocity (ft/sec)





Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profile - Line B-2_C
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 8, 2020

Terracon

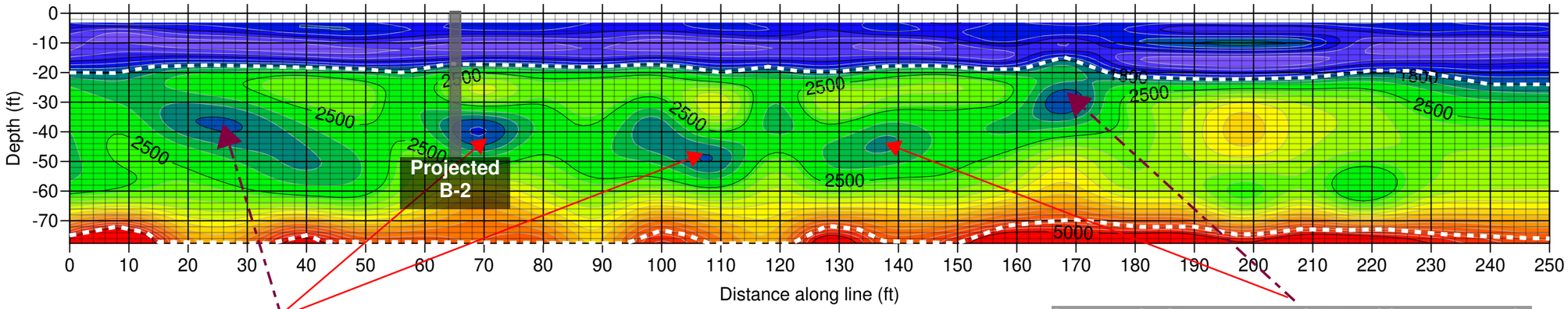
South

North

B-2_15E

Start
Lat: 37.13048 N
Lon: 93.48958 W

End
Lat: 37.13118 N
Lon: 93.48953W



Residual soils

Fractured Bedrock

Competent Bedrock

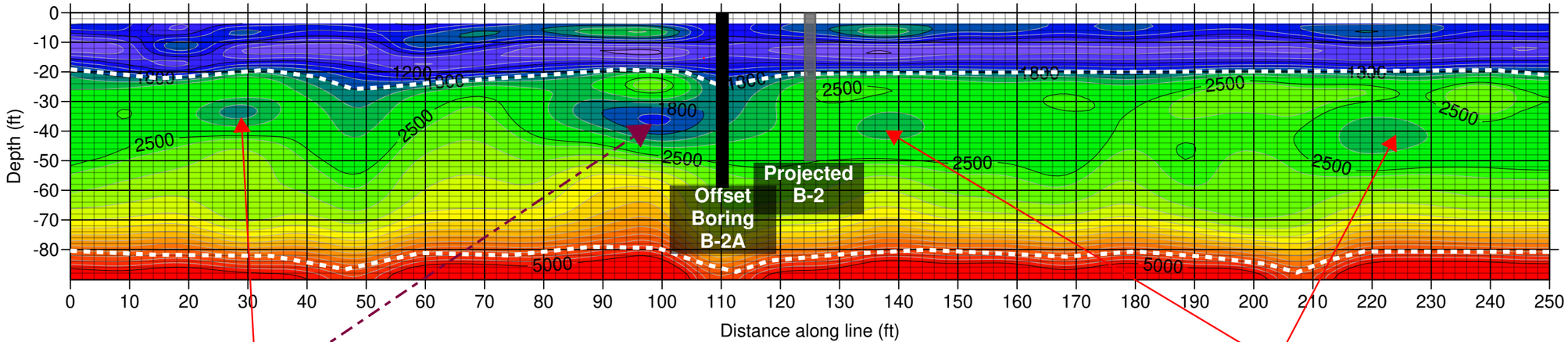
Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Appears that a potential fracture zone intersects the soil-bedrock interface at this location (maroon dashed arrow).

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Appears that a potential fracture zone intersects the soil-bedrock interface at this location (maroon dashed arrow).

B-2_15W

Start
Lat: 37.13024 N
Lon: 93.48969 W

End
Lat: 37.13090 N
Lon: 93.48963 W



Residual soils

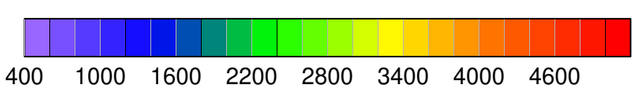
Fractured Bedrock

Competent Bedrock

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Appears that a potential fracture zone intersects the soil-bedrock interface at this location (maroon dashed arrow).

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Linear pattern is consistent with dissolution along bedding planes or dissolution and fracturing at the intersection of vertical fractures and bedding planes.

Shear Wave Velocity (ft/sec)



Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profiles - B-2_15E & B-2_15W
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 8, 2020

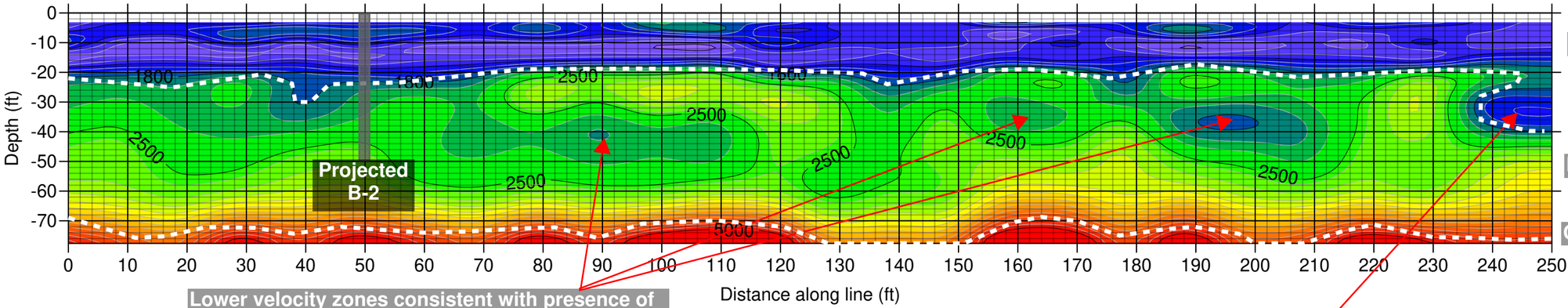
Terracon

South **North**

Line B-2_30E

Start
Lat: 37.13050 N
Lon: 93.48954 W

End
Lat: 37.13118 N
Lon: 93.48947W



Residual soils

Fractured Bedrock

Competent Bedrock

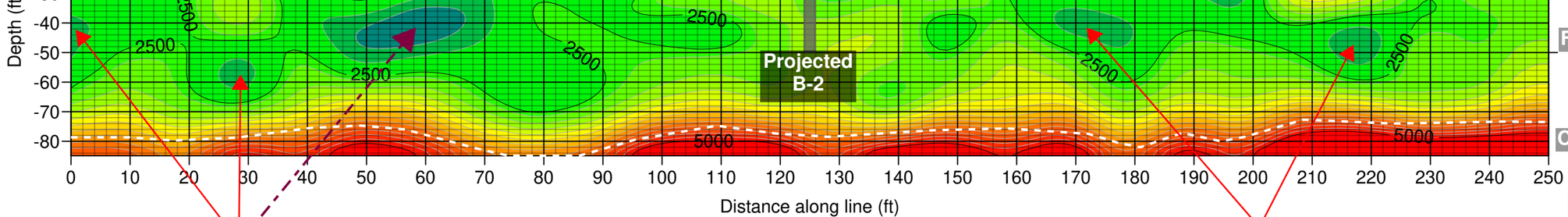
Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Linear pattern is consistent with dissolution along bedding planes or dissolution and fracturing at the intersection of vertical fractures and bedding planes.

Apparent change in relief of about 10 feet for the soil-bedrock interface at the north end of the line.

Line B-2_30W

Start
Lat: 37.13020 N
Lon: 93.48975 W

End
Lat: 37.13090 N
Lon: 93.48975 W



Residual soils

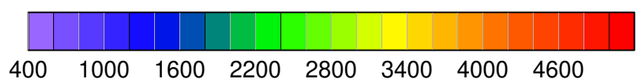
Fractured Bedrock

Competent Bedrock

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Appears that a potential fracture zone intersects the soil-bedrock interface at this location (maroon dashed arrow).

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Linear pattern is consistent with dissolution along bedding planes or dissolution and fracturing at the intersection of vertical fractures and bedding planes.

Shear Wave Velocity (ft/sec)

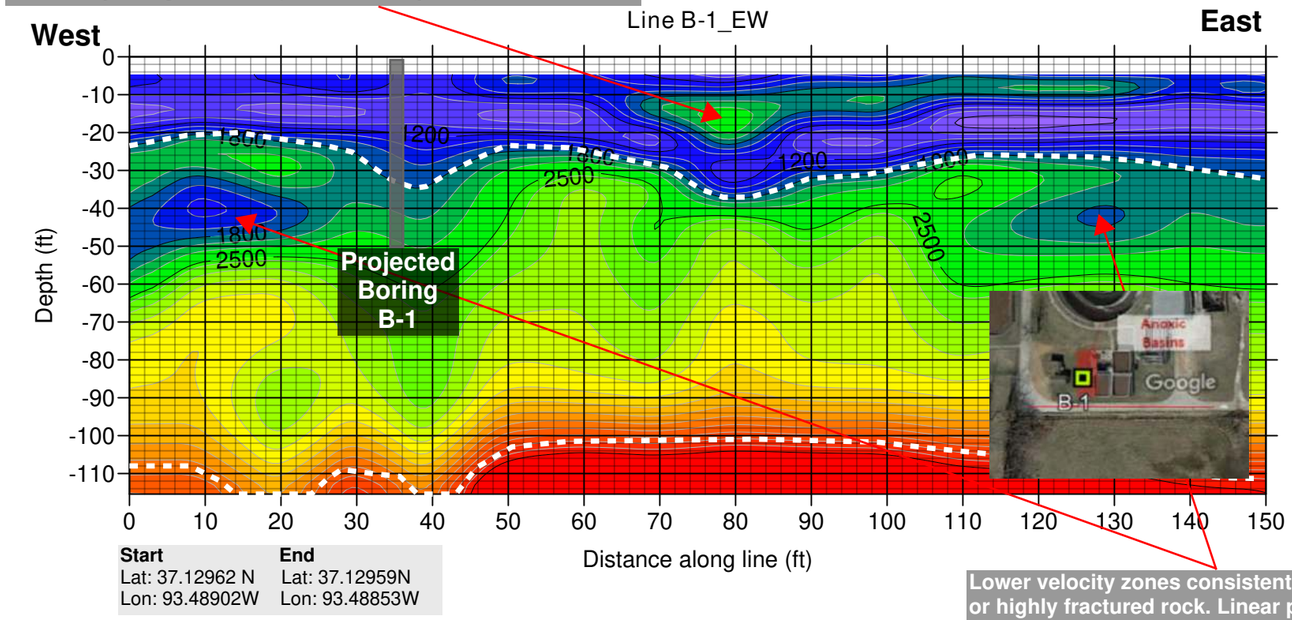


Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profile - Line B-2_30E & B-2_30W
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 8, 2020

Terracon

Potentially a large boulder (weathered caprock) over stiff soil.



Start Lat: 37.12962 N Lon: 93.48902W

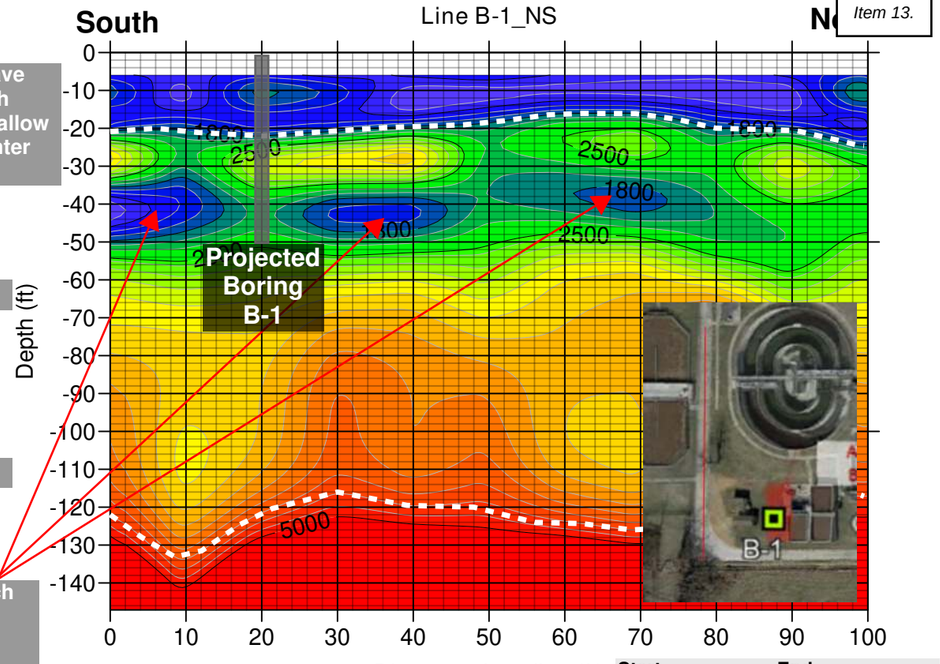
End Lat: 37.12959N Lon: 93.48853W

Residual soils: Shear wave velocities consistent with potentially soft soils. Shallow excavations may encounter cobbles and boulders.

Fractured Bedrock

Competent Bedrock

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Linear pattern is consistent with dissolution along bedding planes or dissolution and fracturing at the intersection of vertical fractures and bedding planes.

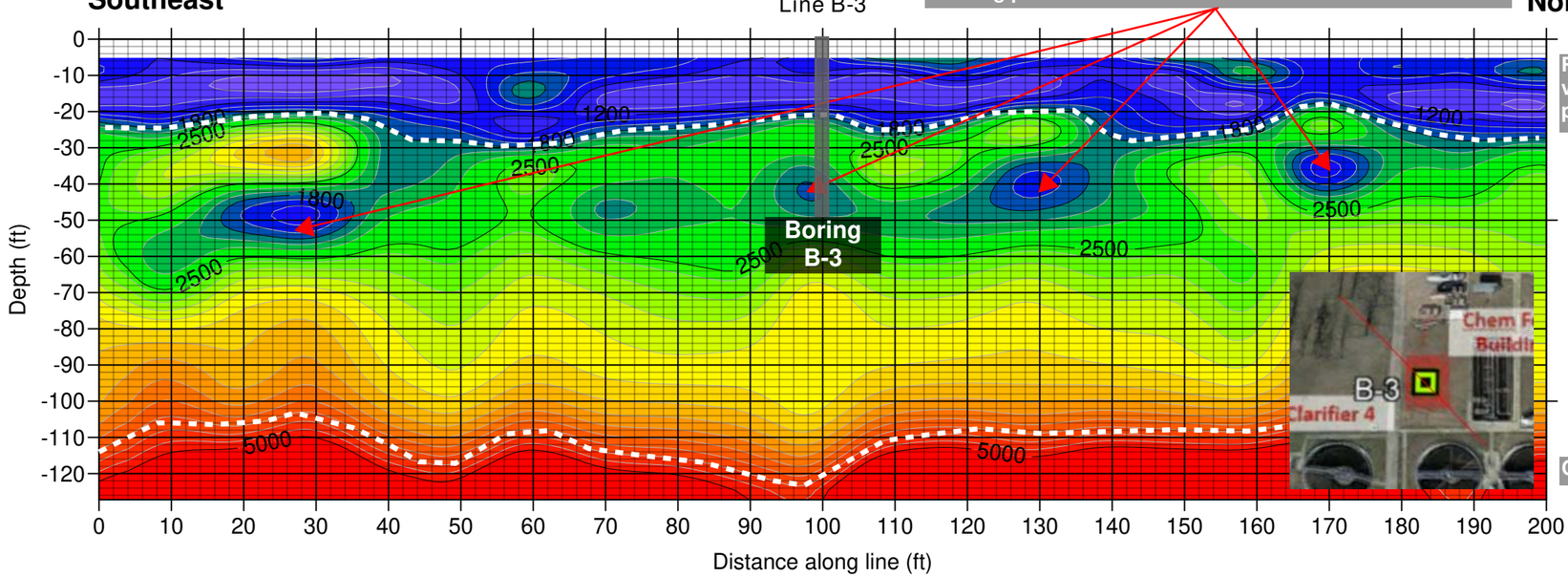


Start Lat: 37.12980 N Lon: 93.48916W

End Lat: 37.13004N Lon: 93.48923W

Northwest

Southeast



Residual soils: Shear wave velocities consistent with potentially soft soils.

Shear Wave Velocity (ft/sec)

400 1000 1600 2200 2800 3400 4000 4600

Fractured Bedrock

Competent Bedrock

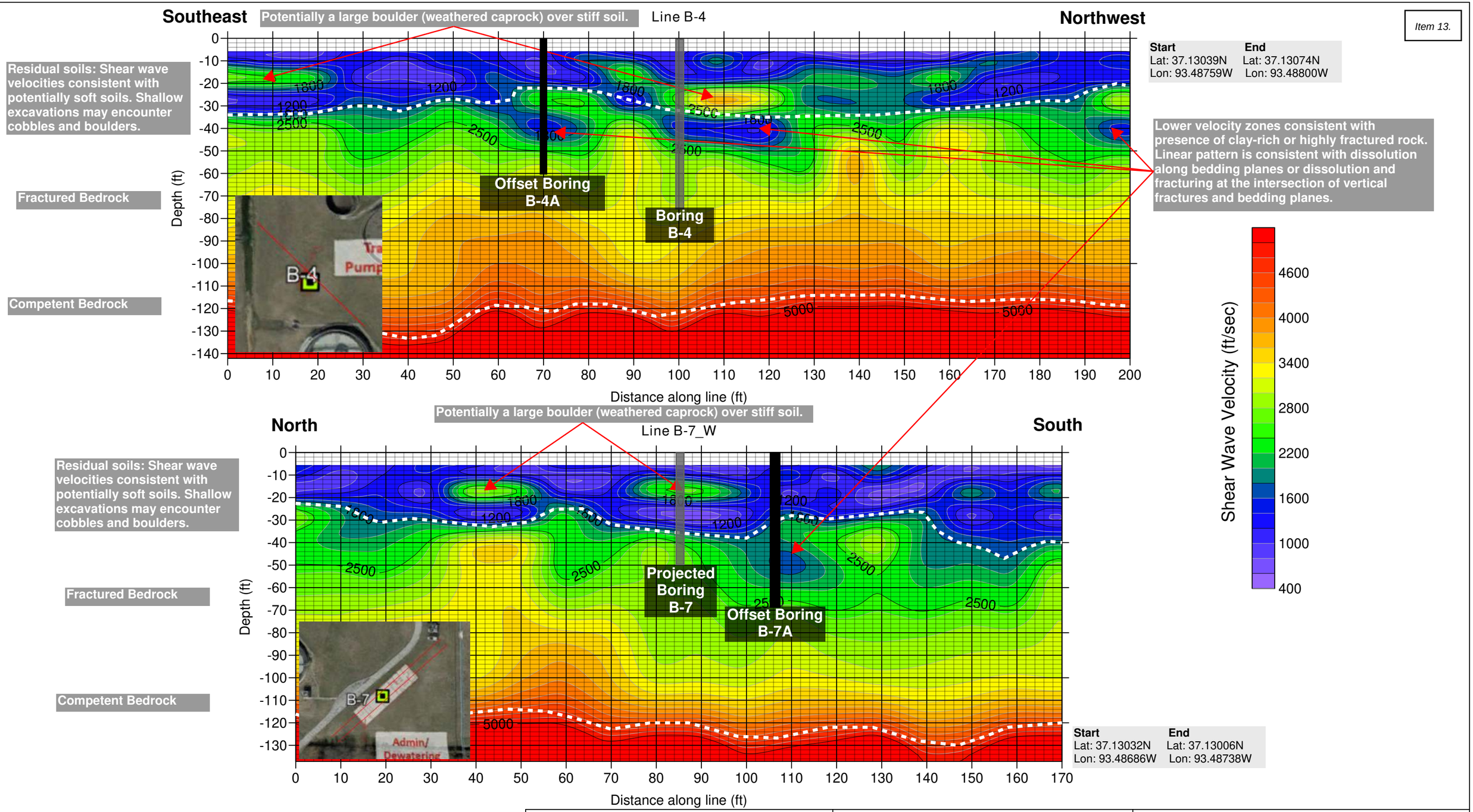
Start Lat: 37.13065 N Lon: 93.48893W

End Lat: 37.13099 N Lon: 93.48946W

Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profiles - B-1_EW, NS & B-3
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 9, 2020

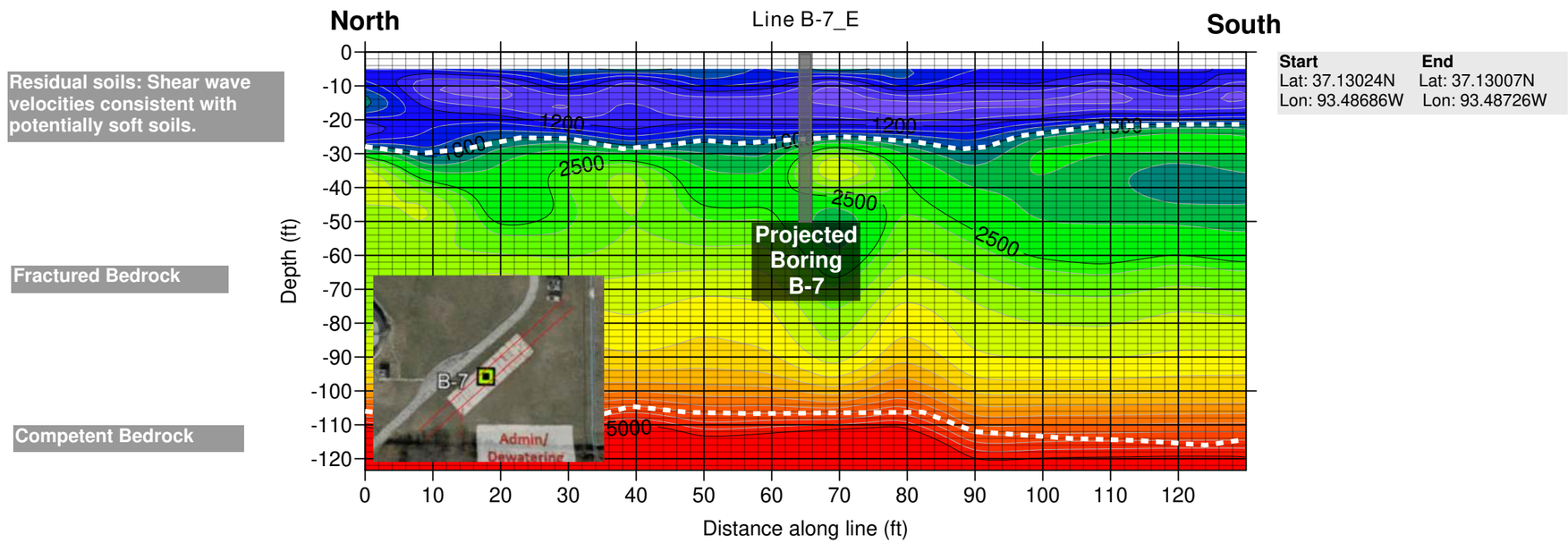
Terracon

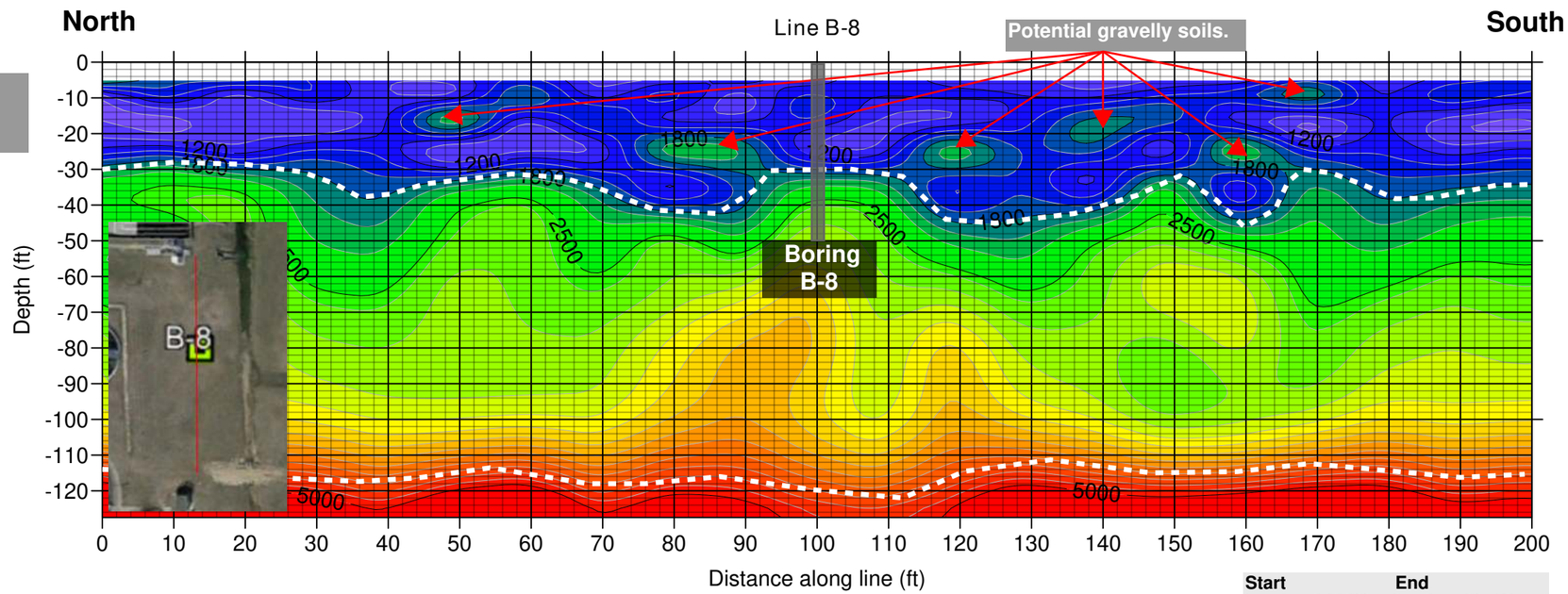


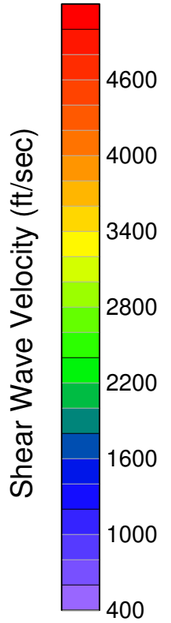
Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profiles - B-4 & B-7_W
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 9, 2020

Terracon







Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profiles - B-7_E & B-8
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 9, 2020

Terracon

Northeast

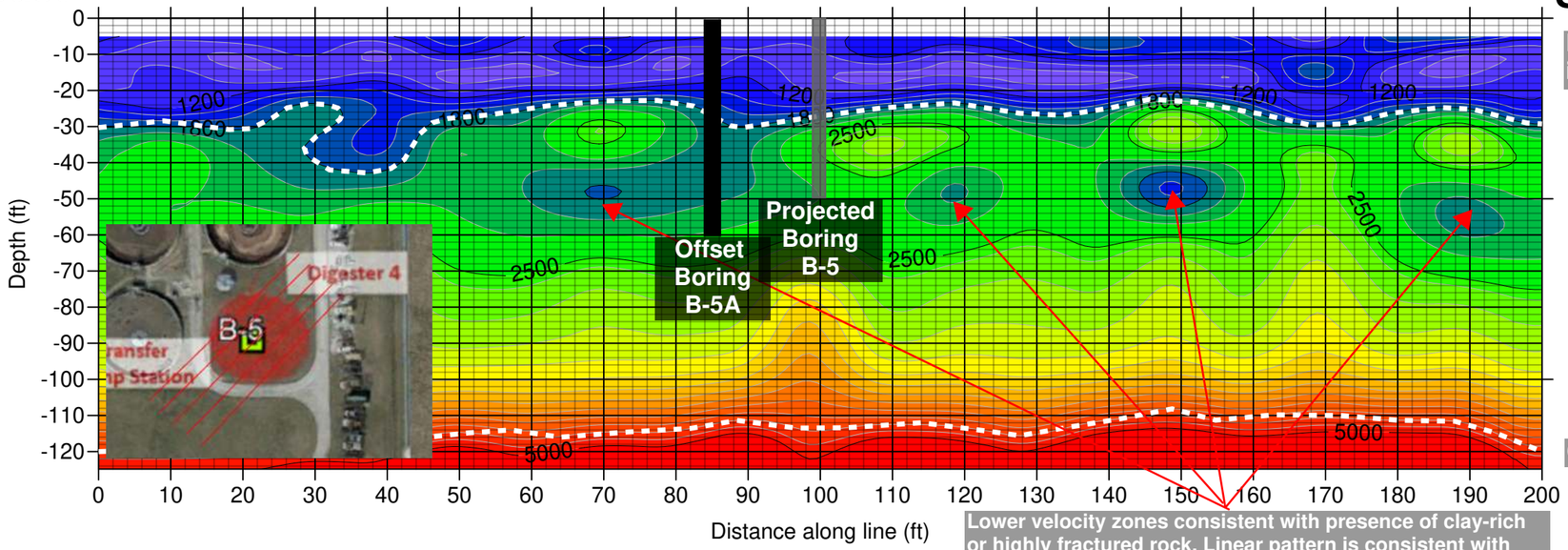
Lilne B-5_15E

Southwest

Residual soils: Shear wave velocities indicate potentially soft soils.

Start
Lat: 37.13100 N
Lon: 93.48699 W

End
Lat: 37.13049 N
Lon: 93.48730W



Fractured Bedrock

Competent Bedrock

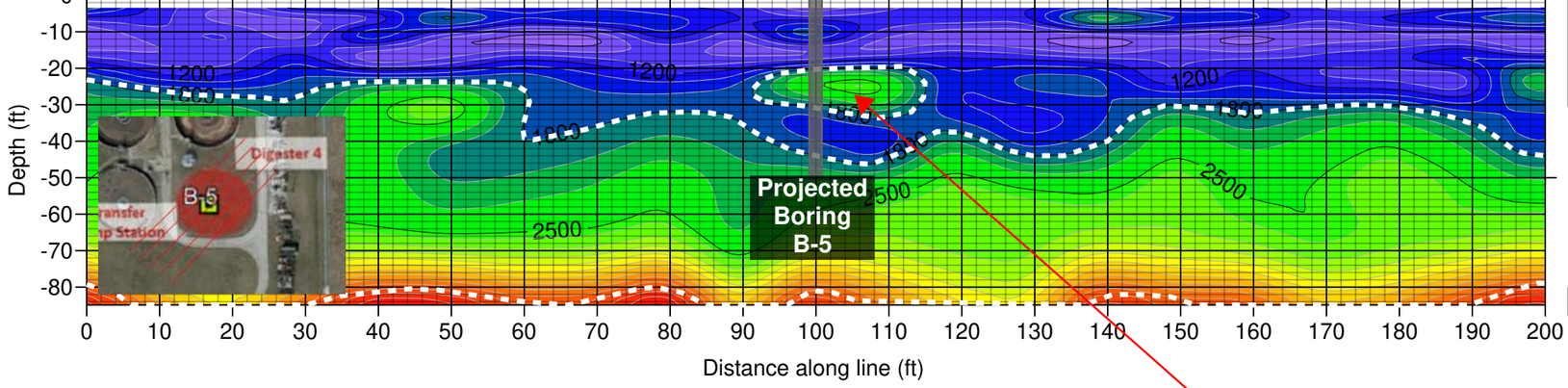
Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Linear pattern is consistent with dissolution along bedding planes or dissolution and fracturing at the intersection of vertical fractures and bedding planes.

Line B-5_15W

Residual soils: Shear wave velocities consistent with potentially soft soils. Shallow excavations may encounter cobbles and boulders.

Start
Lat: 37.13087 N
Lon: 93.48714 W

End
Lat: 37.13041 N
Lon: 93.48746W



Fractured Bedrock

Competent Bedrock

Potentially a large boulder (weathered caprock) over stiff soil.

Shear Wave Velocity (ft/sec)

400 1000 1600 2200 2800 3400 4000 4600

Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5,000$
Rock	$2,500 < V_s \leq 5,000$
Very dense soil and soft rock	$1,200 < V_s \leq 2,500$
Stiff soil	$600 < V_s \leq 1,200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profiles - B-5_15E & B-5_15W
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 8, 2020

Terracon

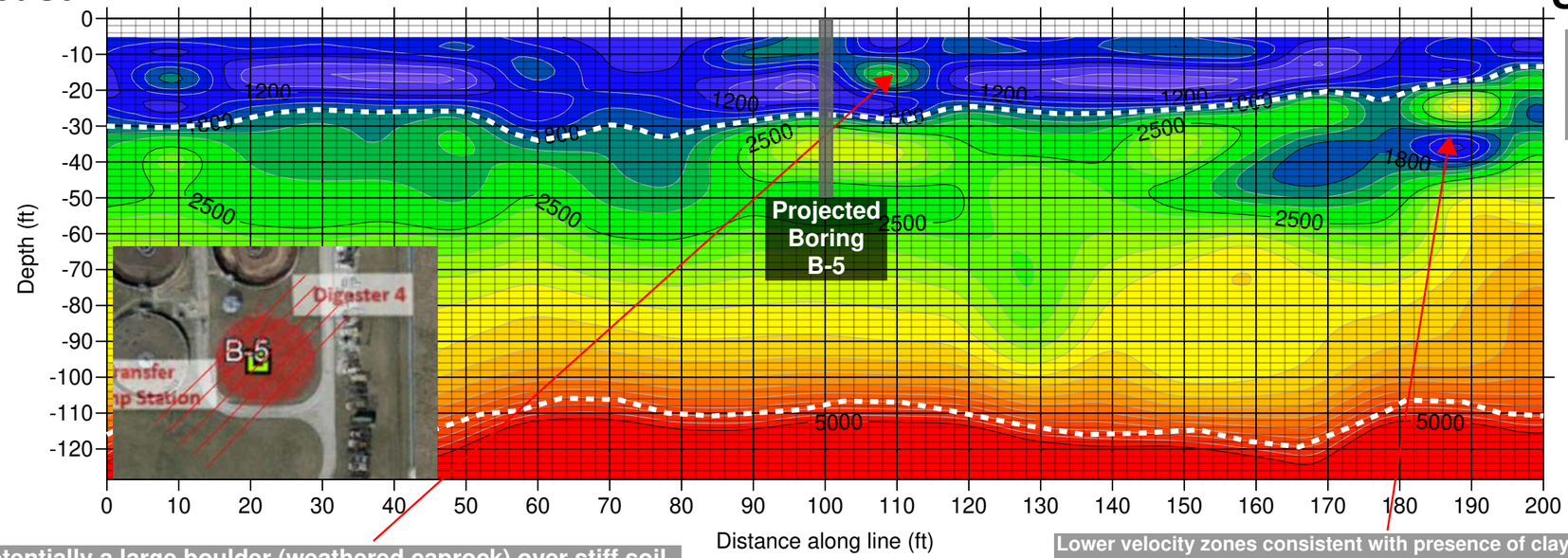
Northeast

Southwest

Line B-5_30E

Start
Lat: 37.13100 N
Lon: 93.48699 W

End
Lat: 37.13049 N
Lon: 93.48730W



Residual soils: Shear wave velocities consistent with potentially soft soils. Shallow excavations may encounter cobbles and boulders.

Fractured Bedrock

Competent Bedrock

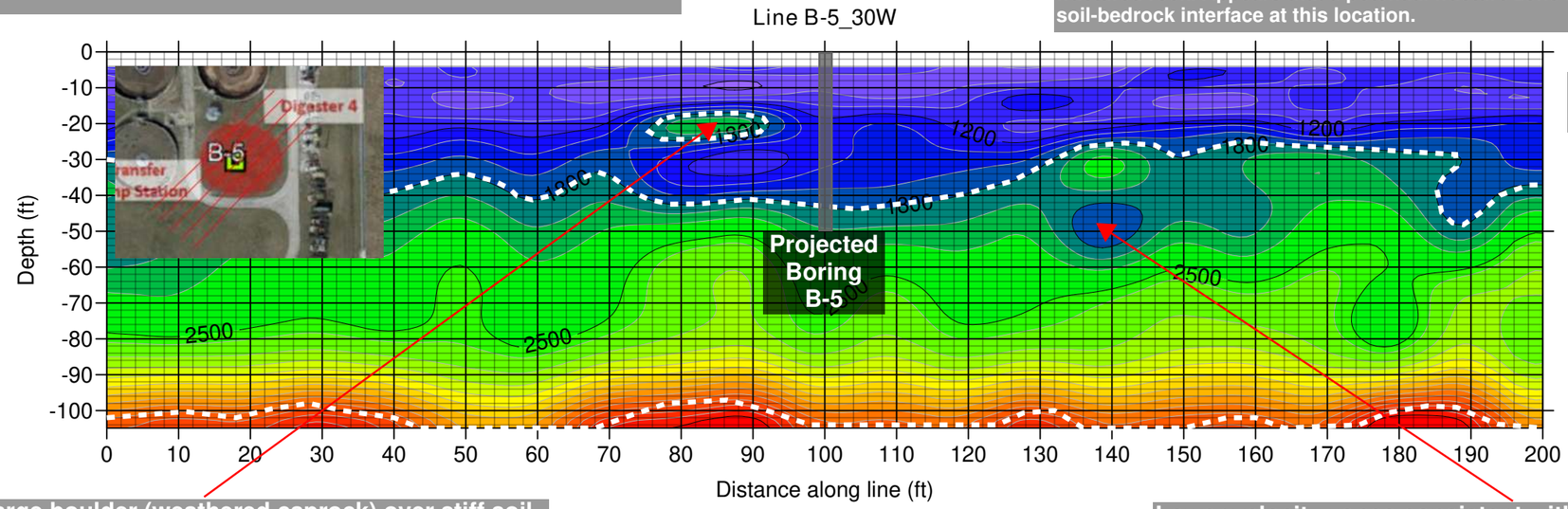
Potentially a large boulder (weathered caprock) over stiff soil.

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Appears that a potential fracture zone intersects the soil-bedrock interface at this location.

Line B-5_30W

Start
Lat: 37.13085 N
Lon: 93.48724 W

End
Lat: 37.13035N
Lon: 93.48762W



Residual soils: Shear wave velocities consistent with potentially soft soils.

Fractured Bedrock

Competent Bedrock

Potentially a large boulder (weathered caprock) over stiff soil.

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Appears that a potential fracture zone intersects the soil-bedrock interface at this location.

Shear Wave Velocity (ft/sec)

400 1000 1600 2200 2800 3400 4000 4600

Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

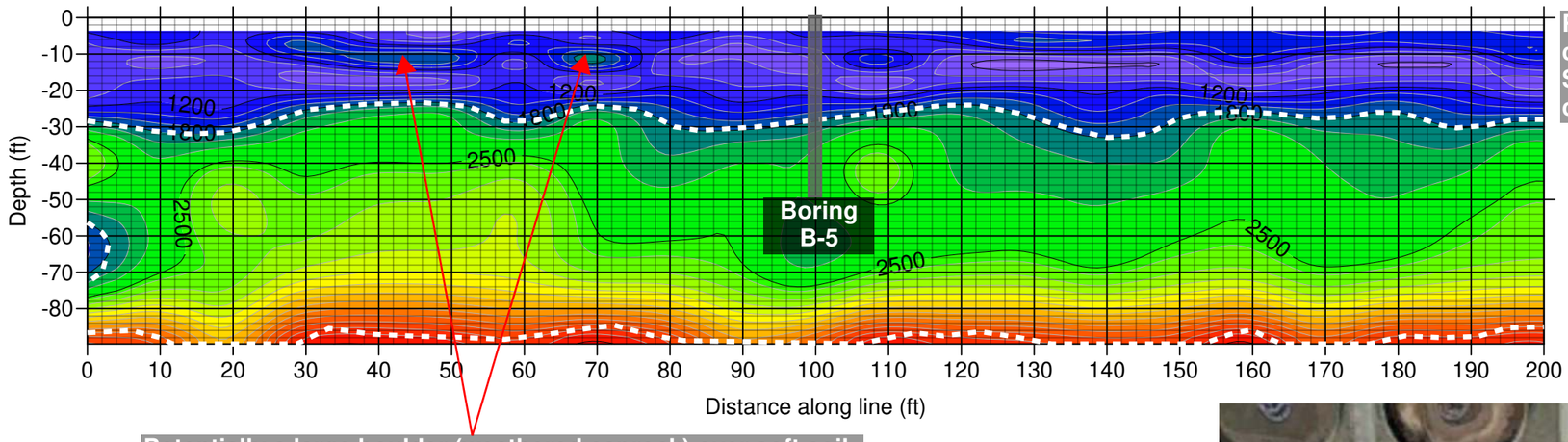
Legend	Notes	MASW Profiles - B-5_30E & B-5_30W
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 8, 2020

Terracon

Northeast

Southwest

Line B-5_C



Start
Lat: 37.13101N
Lon: 93.48701W

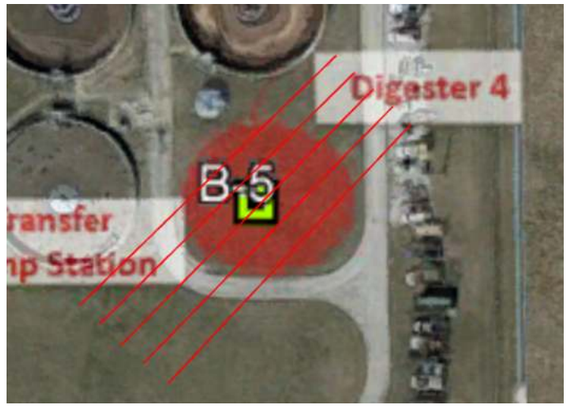
End
Lat: 37.13054N
Lon: 93.48734W

Residual soils: Shear wave velocities consistent with potentially soft soils. Shallow excavations may encounter cobbles and boulders.

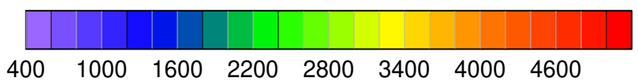
Fractured Bedrock

Competent Bedrock

Potentially a large boulder (weathered caprock) over soft soil.



Shear Wave Velocity (ft/sec)



Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5,000$
Rock	$2,500 < V_s \leq 5,000$
Very dense soil and soft rock	$1,200 < V_s \leq 2,500$
Stiff soil	$600 < V_s \leq 1,200$
Soft soil	$V_s < 600$

Legend	Notes	MASW Profile - B-5_C
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 8, 2020

Terracon

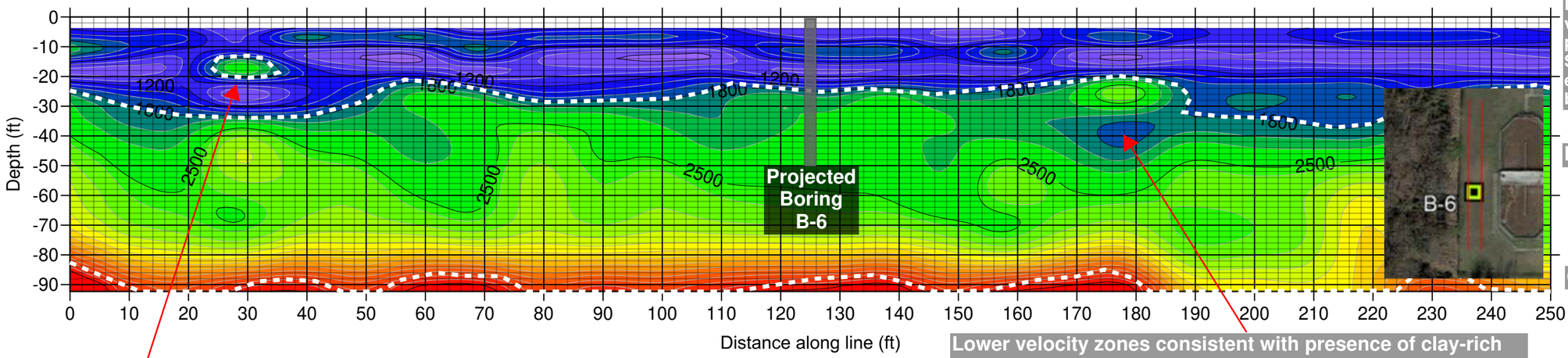
South

North

Line B-6_E

Start
Lat: 37.12994N
Lon: 93.48970W

End
Lat: 37.13061N
Lon: 93.48966W



Residual soils: Shear wave velocities consistent with potentially soft soils. Shallow excavations may encounter cobbles and boulders.

Fractured Bedrock

Competent Bedrock

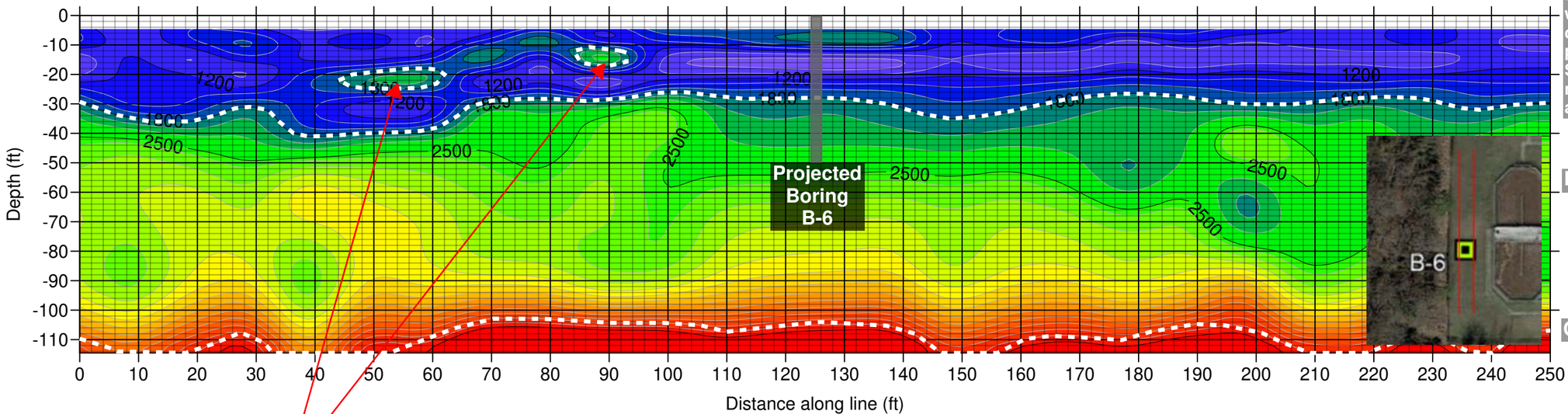
Potentially a large boulder (weathered caprock) over soft soil.

Lower velocity zones consistent with presence of clay-rich or highly fractured rock. Appears that a potential fracture zone intersects the soil-bedrock interface at this location.

Line B-6_W

Start
Lat: 37.12988N
Lon: 93.48985W

End
Lat: 37.13056N
Lon: 93.48973W



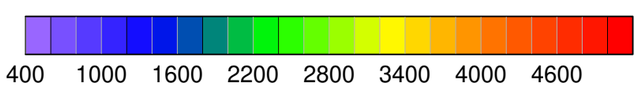
Residual soils: Shear wave velocities consistent with potentially soft soils. Shallow excavations may encounter cobbles and boulders.

Fractured Bedrock

Competent Bedrock

Potentially a large boulder (weathered caprock) over soft soil.

Shear Wave Velocity (ft/sec)



Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

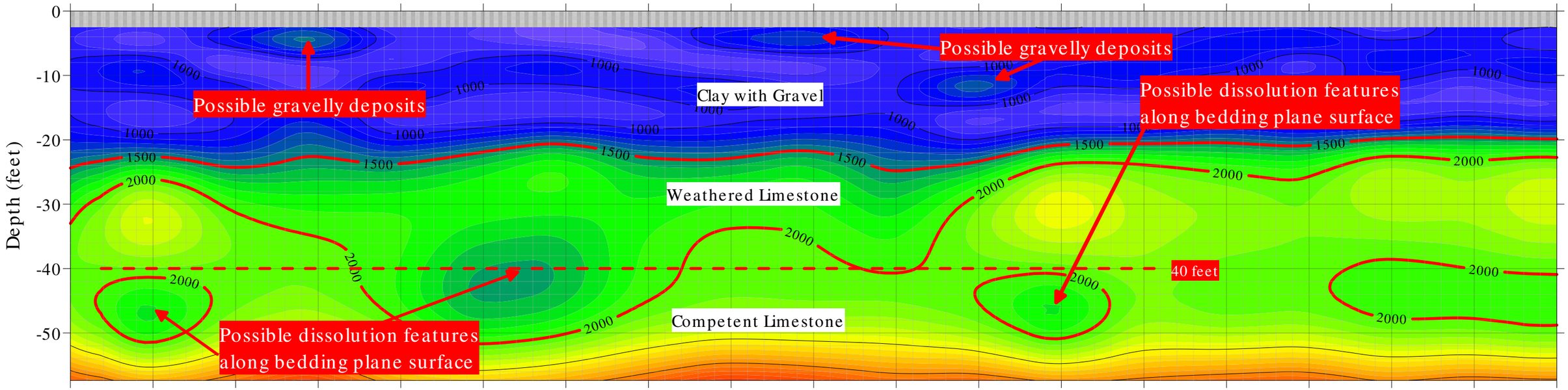
Legend	Notes	MASW Profiles - B-6_E & B-6_W
	1. Profile Scales: Horizontal 1" = 20' Vertical 1" = 40'	Project: City of Republic WWTF Client: Burns & McDonald Location: Republic, MO Project No.: B5205029 Date: October 8, 2020

Terracon

West

Line 1

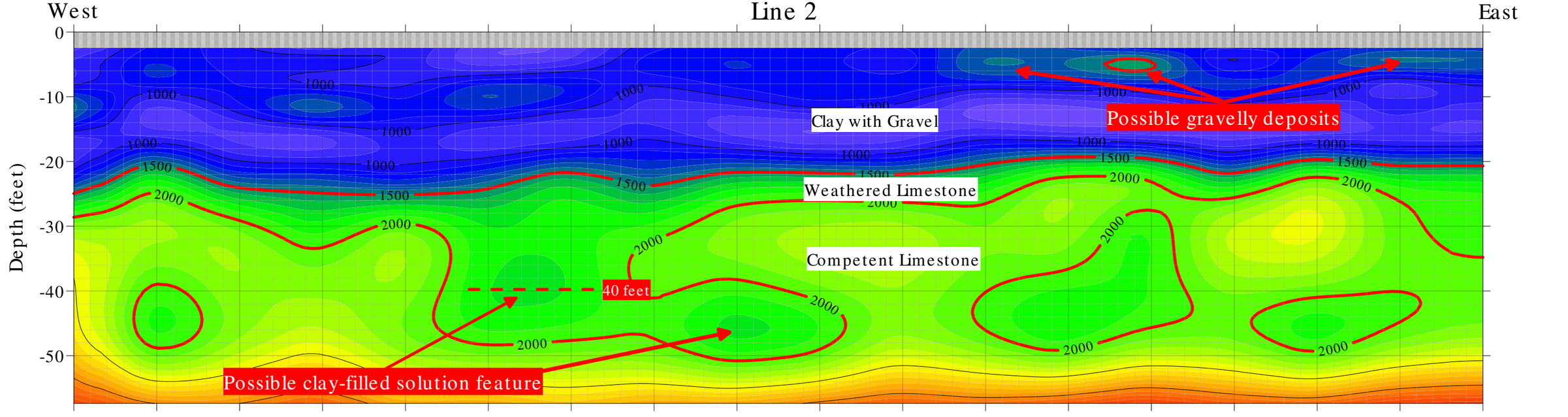
Eas



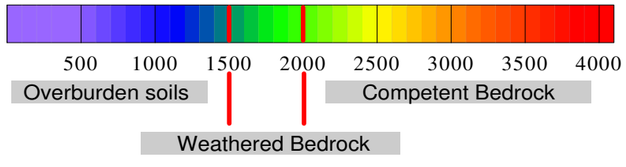
West

Line 2

East



Surface Wave Velocity (feet/second)



Soil Properties Table

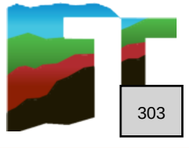
Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5,000$
Rock	$2,500 < V_s \leq 5,000$
Very dense soil and soft rock	$1,200 < V_s \leq 2,500$
Stiff soil	$600 < V_s \leq 1,200$
Soft soil	$V_s < 600$

Notes

1. Red countours indicate approximate locations of material type changes.
2. Red dashed line represents possible dissolution features along a bedding plane at about 40 feet bsg.
3. Major gridlines on 10-foot intervals

MASW Cross Sections

Project: Republic WWTF
Client: Burns & McDonnell
Location: Republic, Missouri
Terracon Project No.: B5215111
Date: July 26, 2022



Line 3

West — East

Depth (feet)

Fill
Clayey Gravel
Clay with Gravel
Limestone
Projected Boring B-16
Highly fractured rock
Clay with Gravel
Possible dissolution features along bedding plane surface
Highly fractured rock
Weathered Limestone
40 feet
Possible dissolution features along bedding plane surface
Competent Limestone

Line 4

West — East

Depth (feet)

Clay with Gravel
Highly fractured rock
Possible clay-filled solution feature
Weathered Limestone
40 feet
Competent Limestone

Surface Wave Velocity (feet/second)

500 1000 1500 2000 2500 3000 3500 4000

Overburden soils | Weathered Bedrock | Competent Bedrock

Soil Properties Table

Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_S > 5{,}000$
Rock	$2{,}500 < V_S \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_S \leq 2{,}500$
Stiff soil	$600 < V_S \leq 1{,}200$
Soft soil	$V_S < 600$

Notes

1. Red countours indicate approximate locations of material type changes.
2. Red dashed line represents possible dissolution features along a bedding plane at about 40 feet bsg.
3. Major gridlines on 10-foot intervals

MASW Cross Sections

Project: Republic WWTF
Client: Burns & McDonnell
Location: Republic, Missouri
Terracon Project No.: B5215111
Date: July 26, 2022

Line 5

West

Eas

Depth (feet)

0
-10
-20
-30
-40
-50

1012 1013 1014 1015 1016 1017 1018 1019 1020 1021

Clay with Gravel
Clay with Gravel
Clay with Gravel
Possible gravelly deposits
Limestone
Weathered Limestone
Projected Boring B-22
Limestone
Projected Boring B-14
40 feet
Possible dissolution features along bedding plane surface
Competent Limestone

1000 1500 2000

Line 6

West

East

Depth (feet)

0
-10
-20
-30
-40
-50

Clay with Gravel
Possible gravelly deposits
Weathered Limestone
40 feet
Possible clay-filled solution feature
Competent Limestone

1000 1500 2000

Surface Wave Velocity (feet/second)

500 1000 1500 2000 2500 3000 3500 4000

Overburden soils | Competent Bedrock

Weathered Bedrock

Soil Properties Table

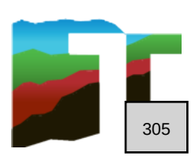
Soil Profile	Shear Wave Velocity (ft/s)
Hard rock	$V_s > 5{,}000$
Rock	$2{,}500 < V_s \leq 5{,}000$
Very dense soil and soft rock	$1{,}200 < V_s \leq 2{,}500$
Stiff soil	$600 < V_s \leq 1{,}200$
Soft soil	$V_s < 600$

Notes

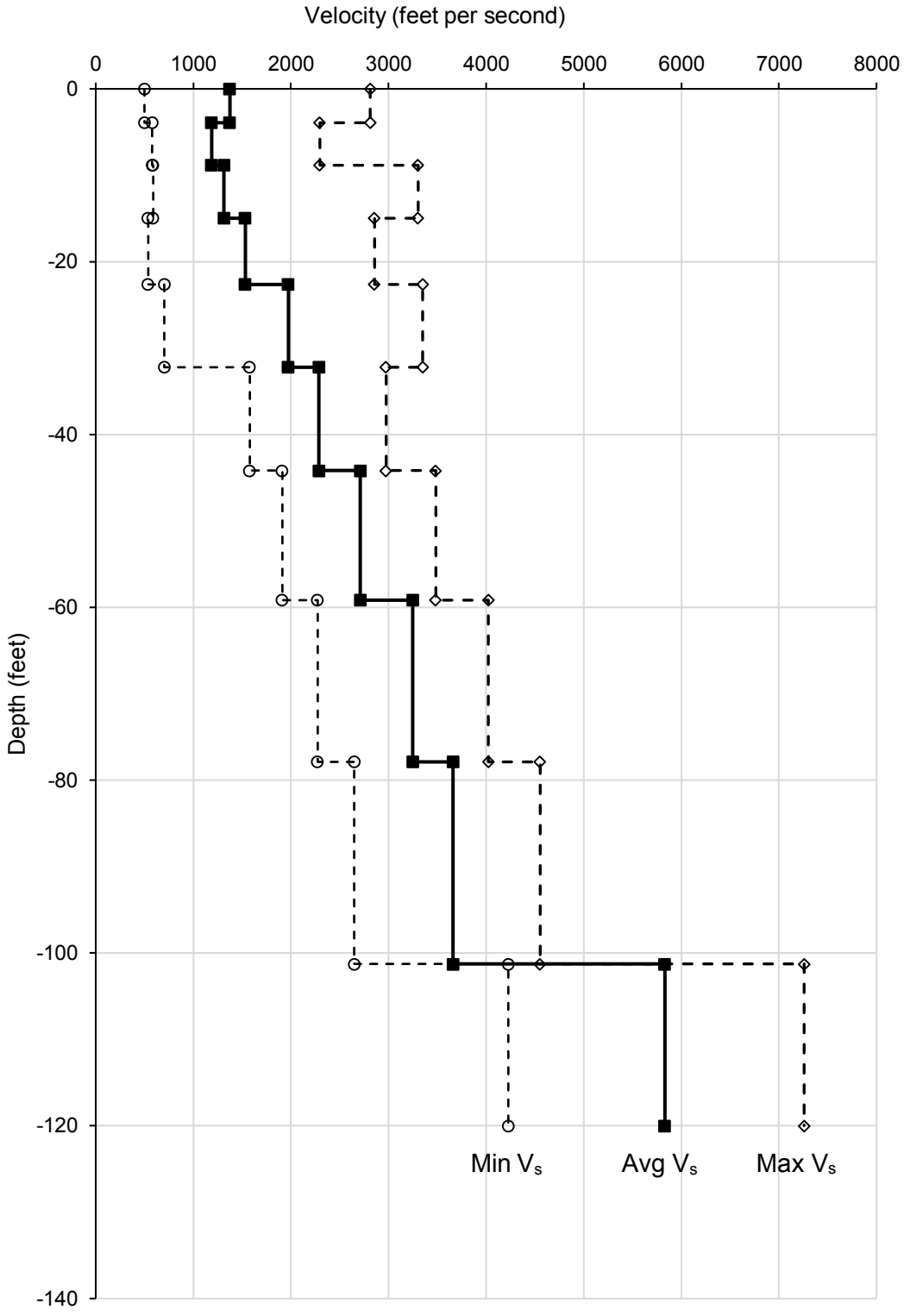
1. Red countours indicate approximate locations of material type changes.
2. Red dashed line represents possible dissolution features along a bedding plane at about 40 feet bsg.
3. Major grid lines on 10-foot intervals

MASW Cross Sections

Project: Republic WWTF
Client: Burns & McDonnell
Location: Republic, Missouri
Terracon Project No.: B5215111
Date: July 26, 2022



Shear Wave Velocity Profile



Average Shear Wave Velocity (rounded) = 2,300 ft/s

Site Class BC

Project Manager: KDF	Project No. B52050290
Drawn by: PBL	Scale: NA
Checked by: KCB	File Name: Vs Profile
Approved by: KDF	Date: 11/18/2020

Terracon GeoReport
11600 Lilburn Park Rd
Saint Louis, MO 63146-3535

SHEAR WAVE VELOCITY PROFILE

REPUBLIC WASTEWATER TREATMENT PLANT IMPROVEMENTS
N. West Ave.
Republic, Missouri

SUPPORTING INFORMATION

Contents:

GENERAL NOTES

SAMPLING	WATER LEVEL	FIELD TESTS
Rock Core Split Spoon	Water Initially Encountered Water Level After a Specified Period of Time Water Level After a Specified Period of Time Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (psf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 500	0 - 1
Loose	4 - 9	Soft	500 to 1,000	2 - 4
Medium Dense	10 - 29	Medium Stiff	1,000 to 2,000	4 - 8
Dense	30 - 50	Stiff	2,000 to 4,000	8 - 15
Very Dense	> 50	Very Stiff	4,000 to 8,000	15 - 30
		Hard	> 8,000	> 30

RELATIVE PROPORTIONS OF SAND AND GRAVEL		RELATIVE PROPORTIONS OF FINES	
Descriptive Term(s) of other constituents	Percent of Dry Weight	**Descriptive Term(s) of other constituents**	**Percent of Dry Weight**
Trace	<15	Trace	<5
With	15-29	With	5-12
Modifier	>30	Modifier	>12

GRAIN SIZE TERMINOLOGY		PLASTICITY DESCRIPTION	
Major Component of Sample	**Particle Size**	**Term**	**Plasticity Index**
Boulders	Over 12 in. (300 mm)	Non-plastic	0
Cobbles	12 in. to 3 in. (300mm to 75mm)	Low	1 - 10
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)	Medium	11 - 30
Sand	#4 to #200 sieve (4.75mm to 0.075mm	High	> 30
Silt or Clay	Passing #200 sieve (0.075mm)		

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [$Cc<1$ or $Cc>3.0$] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [$Cc<1$ or $Cc>3.0$] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

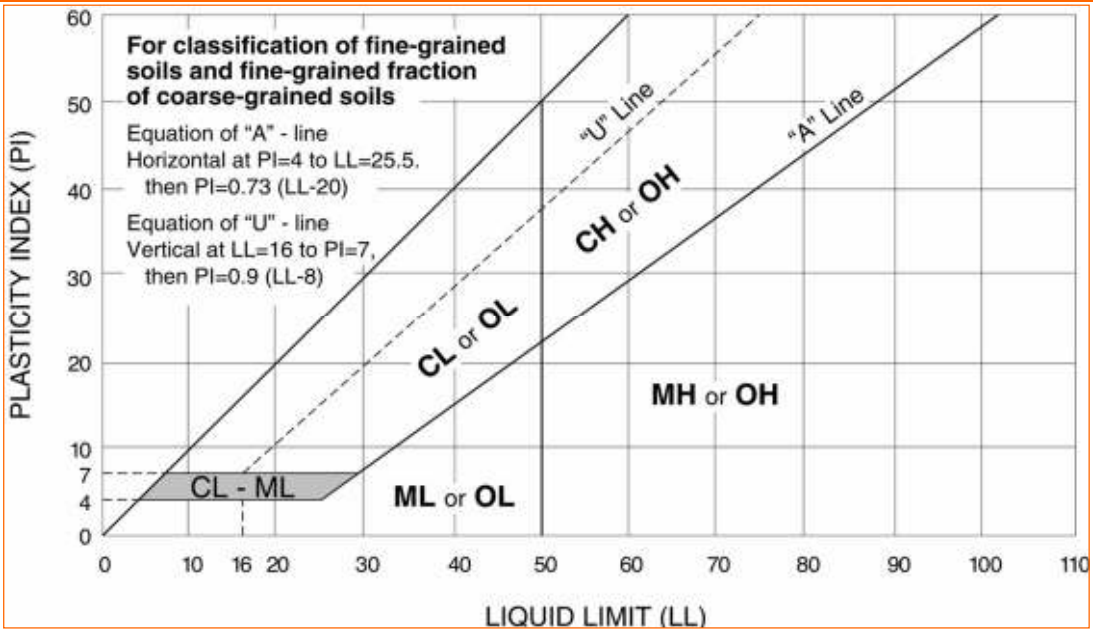
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Term	**Description**
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Slightly weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Moderately weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Extremely close	< ¾ in (<19 mm)	**Laminated**	< ½ in (<12 mm)
Very close	¾ in – 2-1/2 in (19 - 60 mm)	**Very thin**	½ in – 2 in (12 – 50 mm)
Close	2-1/2 in – 8 in (60 – 200 mm)	**Thin**	2 in – 1 ft. (50 – 300 mm)
Moderate	8 in – 2 ft. (200 – 600 mm)	**Medium**	1 ft. – 3 ft. (300 – 900 mm)
Wide	2 ft. – 6 ft. (600 mm – 2.0 m)	**Thick**	3 ft. – 10 ft. (900 mm – 3 m)
Very Wide	6 ft. – 20 ft. (2.0 – 6 m)	**Massive**	> 10 ft. (3 m)

Discontinuity Orientation (Angle): Measure the angle of discontinuity relative to a plane perpendicular to the longitudinal axis of the core. (For most cases, the core axis is vertical; therefore, the plane perpendicular to the core axis is horizontal.) For example, a horizontal bedding plane would have a 0-degree angle.

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009 Technical Manual for Design and Construction of Road Tunnels – Civil Elements

DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Very slight	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints stained, and discoloration extends into rock up to 1 in. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately severe	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil". Rock "fabric" no discernible or discernible only in small, scattered locations. Quartz may be present as dikes or stringers.

HARDNESS (for engineering description of rock – not to be confused with Moh's scale for minerals)	
Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to ¼ in. deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-in. maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

Joint, Bedding, and Foliation Spacing in Rock [1]

Spacing	Joints	Bedding/Foliation
Less than 2 in.	Very close	Very thin
2 in. – 1 ft.	Close	Thin
1 ft. – 3 ft.	Moderately close	Medium
3 ft. – 10 ft.	Wide	Thick
More than 10 ft.	Very wide	Very thick

1. Spacing refers to the distance normal to the planes, of the described feature, which are parallel to each other or nearly so.

Rock Quality Designator (RQD) [1]

RQD, as a percentage	Diagnostic description
Exceeding 90	Excellent
90 – 75	Good
75 – 50	Fair
50 – 25	Poor
Less than 25	Very poor

1. RQD (given as a percentage) = length of core in pieces 4 inches and longer / length of run

Joint Openness Descriptors

Openness	Descriptor
No Visible Separation	Tight
Less than 1/32 in.	Slightly Open
1/32 to 1/8 in.	Moderately Open
1/8 to 3/8 in.	Open
3/8 in. to 0.1 ft.	Moderately Wide
Greater than 0.1 ft.	Wide

References: American Society of Civil Engineers. Manuals and Reports on Engineering Practice - No. 56. Subsurface Investigation for Design and Construction of Foundations of Buildings. New York: American Society of Civil Engineers, 1976. U.S. Department of the Interior, Bureau of Reclamation, Engineering Geology Field Manual.

EXHIBIT J – PROJECT SCHEDULE

BURNS McDONNELL

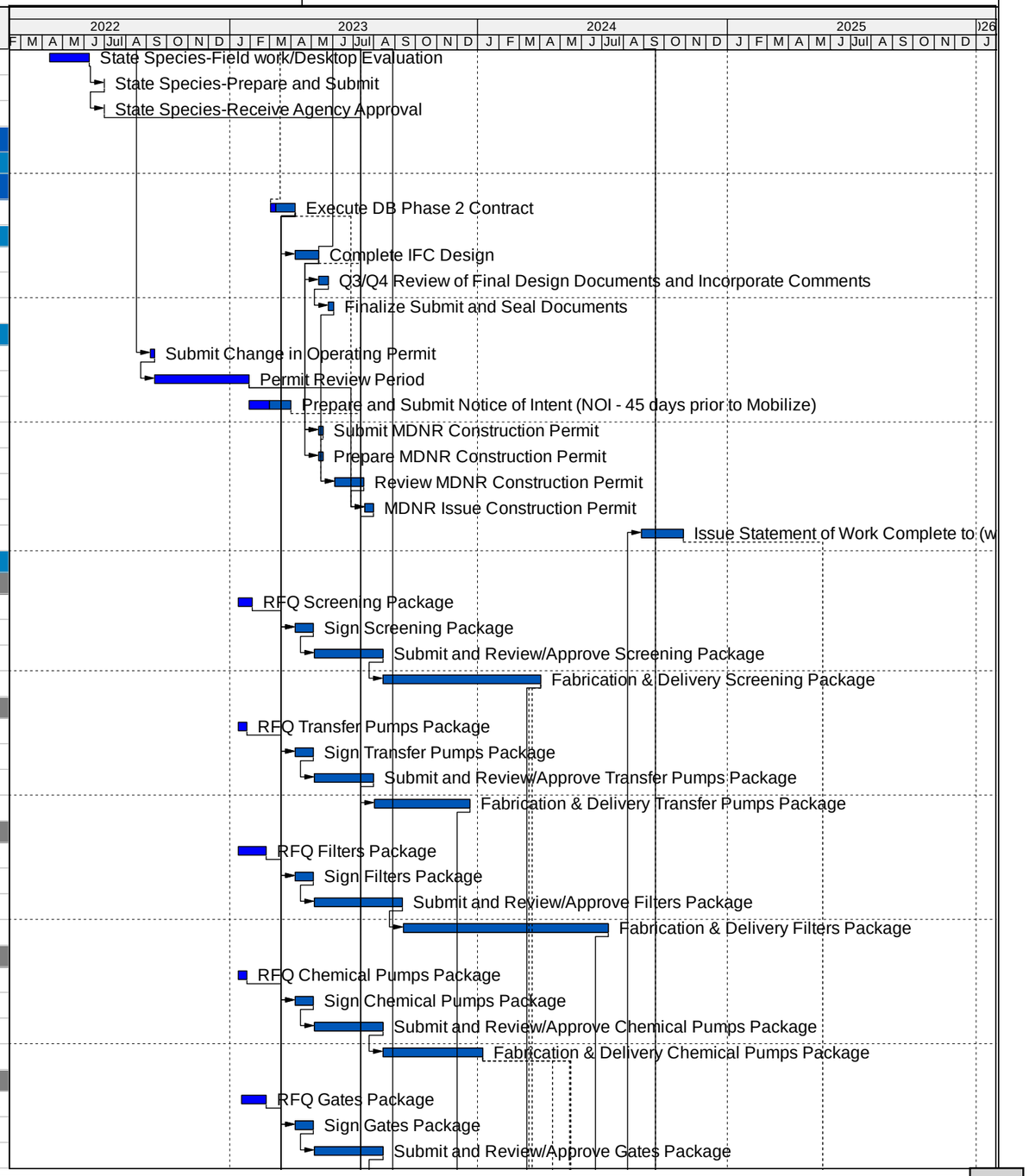
Republic, MO WWTP - Blending

Activity ID	Activity Name	Remaining Duration	Start	Finish
Republic, MO WWTP - Blending		552	16-Feb-22 A	30-Apr-25
Major Milestones		355	18-Feb-22 A	28-Aug-24
Engineering		26	18-Feb-22 A	11-May-23
Blending-MS-60-12	Phase 1 NTP	0	18-Feb-22 A	
Blending-MS-30-1	Conceptual Design Ready for Q3/4 Review	0		13-May-22 A
Blending-MS-30-2	Conceptual Design Ready for Submittal to Owner	0		03-Jun-22 A
Blending-MS-60-1	Preliminary Design Ready for Q3/4 Review	0		02-Aug-22 A
Blending-MS-30-3	BODR Approved by Owner and MDNR	0		11-Aug-22 A
Blending-MS-60-3	Preliminary Design Ready for Submittal to Owner	0		23-Aug-22 A
Blending-MS-90-1	Pre-Final Design Ready for Q3/4 Review	0		19-Dec-22 A
Blending-MS-90-2	Pre-Final Design Ready for Submittal to Owner	0		30-Jan-23 A
Blending-MS-90-3	Pre-Final Estimate and At-Risk Proposal Submitted	0	01-Mar-23 A	
Blending-MS-100-1	Phase 2 NTP	0	06-Apr-23*	
Blending-MS-100-2	Final Design Complete	0		11-May-23
Estimating		0	28-Jun-22 A	28-Feb-23 A
Blending-MS-30-EST	Conceptual Design Estimate Completed	0		28-Jun-22 A
Blending-MS-90-EST	Pre-Final Design Estimate Completed	0		28-Feb-23 A
Construction		269	07-Aug-23	28-Aug-24
Blending-MS-Const-1	Mobilize to Site	0		07-Aug-23
Blending-MS-Const-2	Substantial Completion	0		28-Aug-24
Blending-MS-Const-3	AOC Deadline (4/30/2025)	0		28-Aug-24
BODR & Conceptual Design - Phase 1		0	16-Feb-22 A	11-Aug-22 A
Preliminary Design - Phase 1		0	06-Jun-22 A	14-Nov-22 A
Pre-Final Design - Phase 1		0	24-Aug-22 A	01-Mar-23 A
Environmental Permitting - Phase 1		86	16-Feb-22 A	28-Jun-23
Clean Water Act Section 401 & 404		86	16-Feb-22 A	28-Jun-23
EPMT-PH1-1790	Section 404 - Field Work/Desktop Evaluation	0	16-Feb-22 A	15-Apr-22 A
EPMT-PH1-1800	Section 404 - Prepare and Submit	21	18-Apr-22 A	28-Mar-23
EPMT-PH1-1810	Section 404 - Receive Agency Approval	65	29-Mar-23	28-Jun-23
Greene County, MO Floodplain Development		86	16-Feb-22 A	28-Jun-23
EPMT-PH1-1850	Floodplain - Field Work/Desktop Evaluation	0	16-Feb-22 A	15-Apr-22 A
EPMT-PH1-1860	Floodplain - Prepare and Submit	21	28-Feb-23	28-Mar-23
EPMT-PH1-1870	Floodplain - Receive Agency Approval	65	29-Mar-23	28-Jun-23
NPDES Stormwater Permit		41	28-Feb-23	25-Apr-23
EPMT-PH1-1880	NPDES - Prepare and Submit	23	28-Feb-23	30-Mar-23
EPMT-PH1-1890	NPDES - Receive Agency Approval (SWPPP)	18	31-Mar-23	25-Apr-23
National Historic Preservation Act Section 106		0	11-Apr-22 A	01-Jul-22 A
EPMT-PH1-1900	Cultural - Field Work/Desktop Evaluation	0	11-Apr-22 A	09-Jun-22 A
EPMT-PH1-1910	Cultural - Prepare and Submit	0	01-Jul-22 A	01-Jul-22 A
EPMT-PH1-1920	Cultural - Receive Agency Approval	0	01-Jul-22 A	01-Jul-22 A
Endangered Species Act		0	11-Apr-22 A	01-Jul-22 A
EPMT-PH1-1930	Endangered Species - Field Work/Desktop Evaluation	0	11-Apr-22 A	09-Jun-22 A
EPMT-PH1-1940	Endangered Species - Prepare and Submit	0	01-Jul-22 A	01-Jul-22 A
EPMT-PH1-1950	Endangered Species - Receive Agency Approval	0	01-Jul-22 A	01-Jul-22 A
State Protected Species		0	11-Apr-22 A	01-Jul-22 A

BURNS McDONNELL

Republic, MO WWTP - Blending

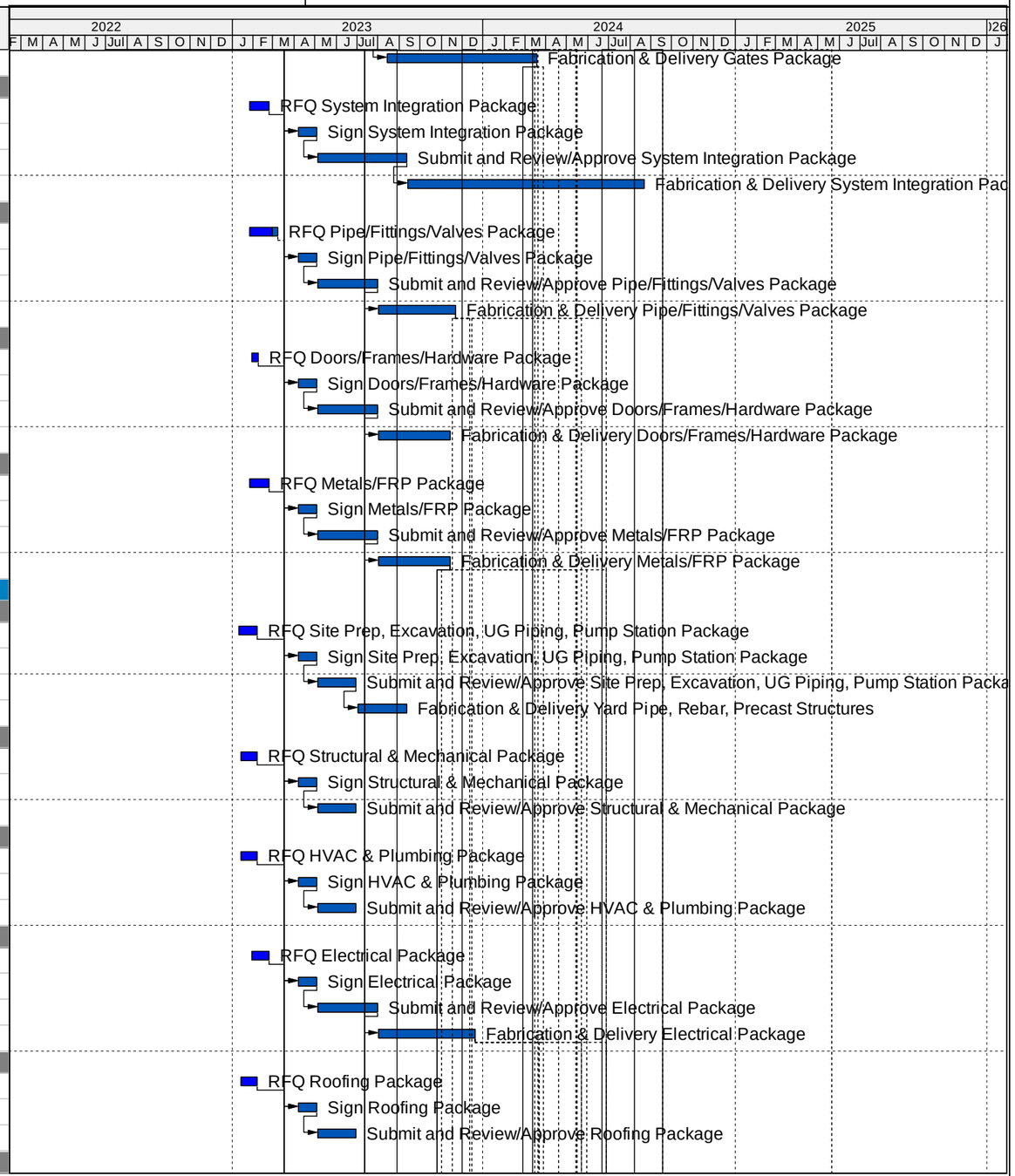
Activity ID	Activity Name	Remaining Duration	Start	Finish
EPMT-PH1-2000	State Species-Field work/Desktop Evaluation	0	11-Apr-22 A	09-Jun-22 A
EPMT-PH1-2010	State Species-Prepare and Submit	0	01-Jul-22 A	01-Jul-22 A
EPMT-PH1-2020	State Species-Receive Agency Approval	0	01-Jul-22 A	01-Jul-22 A
Procurement & Subcontracting - Phase 1		0		
Plan		0		
Phase 2		552	07-Sep-22 A	30-Apr-25
Blending-PH2-2070	Execute DB Phase 2 Contract	21	02-Mar-23 A	06-Apr-23
IFC Design		40	07-Apr-23	02-Jun-23
Blending-IFC-2080	Complete IFC Design	25	07-Apr-23	11-May-23
Blending-IFC-2090	Q3/Q4 Review of Final Design Documents and Incorporate Comments	10	12-May-23	25-May-23
Blending-IFC-2100	Finalize Submit and Seal Documents	5	26-May-23	02-Jun-23
Permitting		425	07-Sep-22 A	28-Oct-24
Blending-PMT-2090	Submit Change in Operating Permit	0	07-Sep-22 A	13-Sep-22 A
Blending-PMT-3000	Permit Review Period	0	13-Sep-22 A	30-Jan-23 A
Blending-PMT-3035	Prepare and Submit Notice of Intent (NOI - 45 days prior to Mobilize)	24	30-Jan-23 A	31-Mar-23
Blending-PMT-3010	Submit MDNR Construction Permit	5	12-May-23	18-May-23
Blending-PMT-3005	Prepare MDNR Construction Permit	5	12-May-23	18-May-23
Blending-PMT-3020	Review MDNR Construction Permit	30	05-Jun-23	17-Jul-23
Blending-PMT-3030	MDNR Issue Construction Permit	10	18-Jul-23	31-Jul-23
Blending-PMT-3040	Issue Statement of Work Complete to (within 60 days of SC)	43	28-Aug-24	28-Oct-24
Procurement		378	13-Jan-23 A	21-Aug-24
Screening / Washer Compactor Package		250	13-Jan-23 A	01-Apr-24
Blending-PC-3050	RFQ Screening Package	0	13-Jan-23 A	02-Feb-23 A
Blending-PC-3060	Sign Screening Package	20	07-Apr-23	04-May-23
Blending-PC-3070	Submit and Review/Approve Screening Package	70	05-May-23	14-Aug-23
Blending-PC-3080	Fabrication & Delivery Screening Package	160	15-Aug-23	01-Apr-24
Transfer Pumps Package		180	13-Jan-23 A	20-Dec-23
Blending-PC-3090	RFQ Transfer Pumps Package	0	13-Jan-23 A	27-Jan-23 A
Blending-PC-3100	Sign Transfer Pumps Package	20	07-Apr-23	04-May-23
Blending-PC-3110	Submit and Review/Approve Transfer Pumps Package	60	05-May-23	31-Jul-23
Blending-PC-3120	Fabrication & Delivery Transfer Pumps Package	100	01-Aug-23	20-Dec-23
Filters Package		320	13-Jan-23 A	10-Jul-24
Blending-PC-3130	RFQ Filters Package	0	13-Jan-23 A	24-Feb-23 A
Blending-PC-3140	Sign Filters Package	20	07-Apr-23	04-May-23
Blending-PC-3150	Submit and Review/Approve Filters Package	90	05-May-23	12-Sep-23
Blending-PC-3160	Fabrication & Delivery Filters Package	210	13-Sep-23	10-Jul-24
Chemical Feed System Package		190	13-Jan-23 A	08-Jan-24
Blending-PC-3170	RFQ Chemical Pumps Package	0	13-Jan-23 A	27-Jan-23 A
Blending-PC-3180	Sign Chemical Pumps Package	20	07-Apr-23	04-May-23
Blending-PC-3190	Submit and Review/Approve Chemical Pumps Package	70	05-May-23	14-Aug-23
Blending-PC-3200	Fabrication & Delivery Chemical Pumps Package	100	15-Aug-23	08-Jan-24
Gates Package		240	18-Jan-23 A	18-Mar-24
Blending-PC-3370	RFQ Gates Package	0	18-Jan-23 A	24-Feb-23 A
Blending-PC-3380	Sign Gates Package	20	07-Apr-23	04-May-23
Blending-PC-3390	Submit and Review/Approve Gates Package	70	05-May-23	14-Aug-23



BURNS McDONNELL

Republic, MO WWTP - Blending

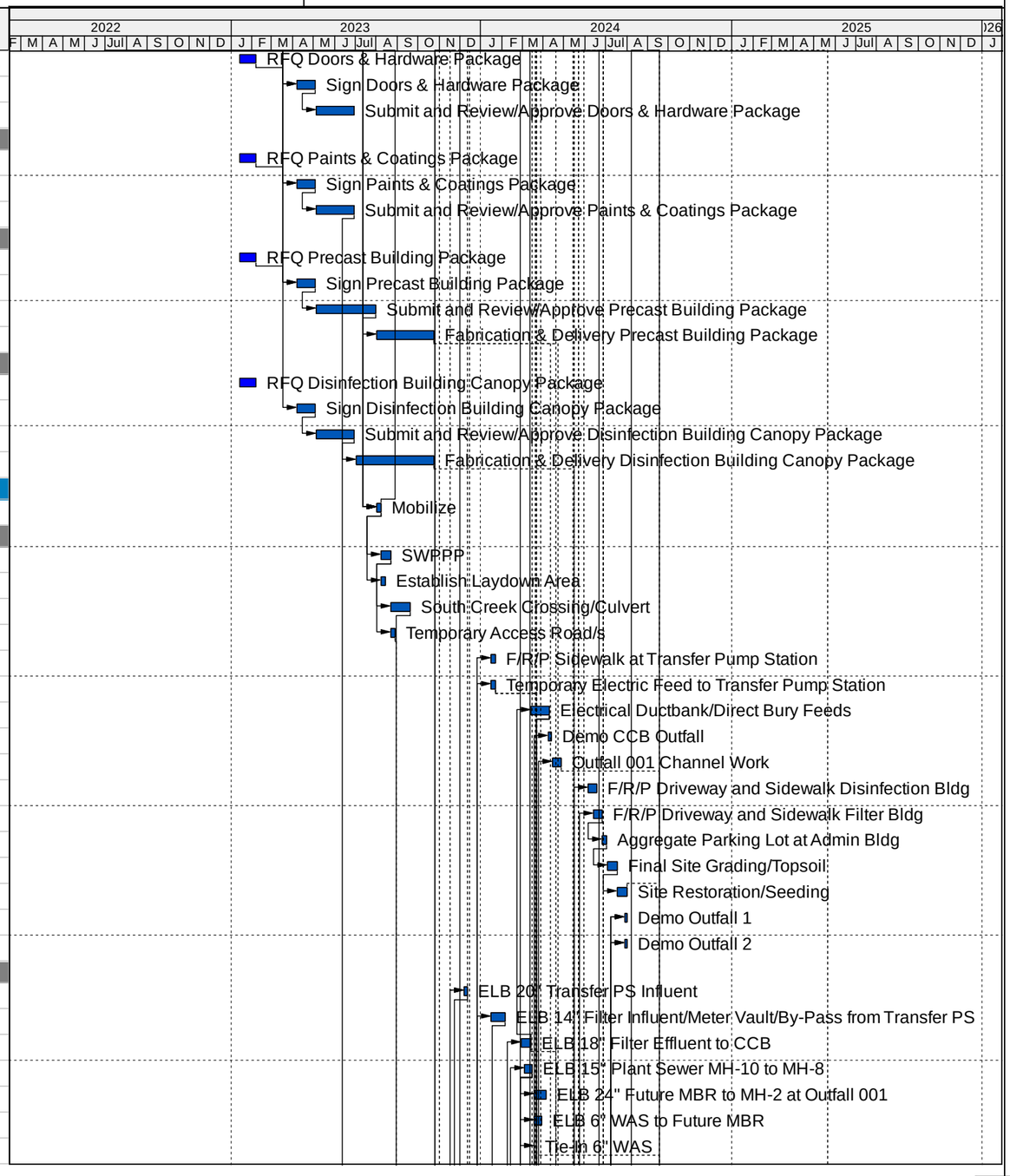
Activity ID	Activity Name	Remaining Duration	Start	Finish
Blending-PC-3400	Fabrication & Delivery Gates Package	150	15-Aug-23	18-Mar-24
System Integration Package		350	26-Jan-23 A	21-Aug-24
Blending-PC-3450	RFQ System Integration Package	0	26-Jan-23 A	24-Feb-23 A
Blending-PC-3460	Sign System Integration Package	20	07-Apr-23	04-May-23
Blending-PC-3470	Submit and Review/Approve System Integration Package	90	05-May-23	12-Sep-23
Blending-PC-3480	Fabrication & Delivery System Integration Package	240	13-Sep-23	21-Aug-24
Pipe/Fittings/Valves Package		188	27-Jan-23 A	21-Nov-23
Blending-PC-3490	RFQ Pipe/Fittings/Valves Package	7	27-Jan-23 A	08-Mar-23
Blending-PC-3500	Sign Pipe/Fittings/Valves Package	20	07-Apr-23	04-May-23
Blending-PC-3510	Submit and Review/Approve Pipe/Fittings/Valves Package	60	05-May-23	31-Jul-23
Blending-PC-3520	Fabrication & Delivery Pipe/Fittings/Valves Package	80	01-Aug-23	21-Nov-23
Doors/Frames/Hardware Package		155	30-Jan-23 A	14-Nov-23
Blending-PC-3410	RFQ Doors/Frames/Hardware Package	0	30-Jan-23 A	07-Feb-23 A
Blending-PC-3420	Sign Doors/Frames/Hardware Package	20	07-Apr-23	04-May-23
Blending-PC-3430	Submit and Review/Approve Doors/Frames/Hardware Package	60	05-May-23	31-Jul-23
Blending-PC-3440	Fabrication & Delivery Doors/Frames/Hardware Package	75	01-Aug-23	14-Nov-23
Metals/FRP Package		155	27-Jan-23 A	14-Nov-23
Blending-PC-3345	RFQ Metals/FRP Package	0	27-Jan-23 A	24-Feb-23 A
Blending-PC-3350	Sign Metals/FRP Package	20	07-Apr-23	04-May-23
Blending-PC-3355	Submit and Review/Approve Metals/FRP Package	60	05-May-23	31-Jul-23
Blending-PC-3365	Fabrication & Delivery Metals/FRP Package	75	01-Aug-23	14-Nov-23
Subcontracts		180	11-Jan-23 A	20-Dec-23
Site Prep, Excavation, UG Piping, Pump Station Package		110	11-Jan-23 A	12-Sep-23
Blending-SUB-3610	RFQ Site Prep, Excavation, UG Piping, Pump Station Package	0	11-Jan-23 A	06-Feb-23 A
Blending-SUB-3620	Sign Site Prep, Excavation, UG Piping, Pump Station Package	20	07-Apr-23	04-May-23
Blending-SUB-3630	Submit and Review/Approve Site Prep, Excavation, UG Piping, Pump St	40	05-May-23	30-Jun-23
Blending-SUB-3640	Fabrication & Delivery Yard Pipe, Rebar, Precast Structures	50	03-Jul-23	12-Sep-23
Structural & Mechanical Package		60	13-Jan-23 A	30-Jun-23
Blending-SUB-3690	RFQ Structural & Mechanical Package	0	13-Jan-23 A	06-Feb-23 A
Blending-SUB-3700	Sign Structural & Mechanical Package	20	07-Apr-23	04-May-23
Blending-SUB-3710	Submit and Review/Approve Structural & Mechanical Package	40	05-May-23	30-Jun-23
HVAC & Plumbing Package		60	13-Jan-23 A	30-Jun-23
Blending-SUB-3770	RFQ HVAC & Plumbing Package	0	13-Jan-23 A	06-Feb-23 A
Blending-SUB-3780	Sign HVAC & Plumbing Package	20	07-Apr-23	04-May-23
Blending-SUB-3790	Submit and Review/Approve HVAC & Plumbing Package	40	05-May-23	30-Jun-23
Electrical Package		180	30-Jan-23 A	20-Dec-23
Blending-SUB-3810	RFQ Electrical Package	0	30-Jan-23 A	24-Feb-23 A
Blending-SUB-3820	Sign Electrical Package	20	07-Apr-23	04-May-23
Blending-SUB-3830	Submit and Review/Approve Electrical Package	60	05-May-23	31-Jul-23
Blending-SUB-3840	Fabrication & Delivery Electrical Package	100	01-Aug-23	20-Dec-23
Roofing Package		60	13-Jan-23 A	30-Jun-23
Blending-SUB-3890	RFQ Roofing Package	0	13-Jan-23 A	06-Feb-23 A
Blending-SUB-3900	Sign Roofing Package	20	07-Apr-23	04-May-23
Blending-SUB-3910	Submit and Review/Approve Roofing Package	40	05-May-23	30-Jun-23
Doors & Hardware Package		60	13-Jan-23 A	30-Jun-23



BURNS McDONNELL

Republic, MO WWTP - Blending

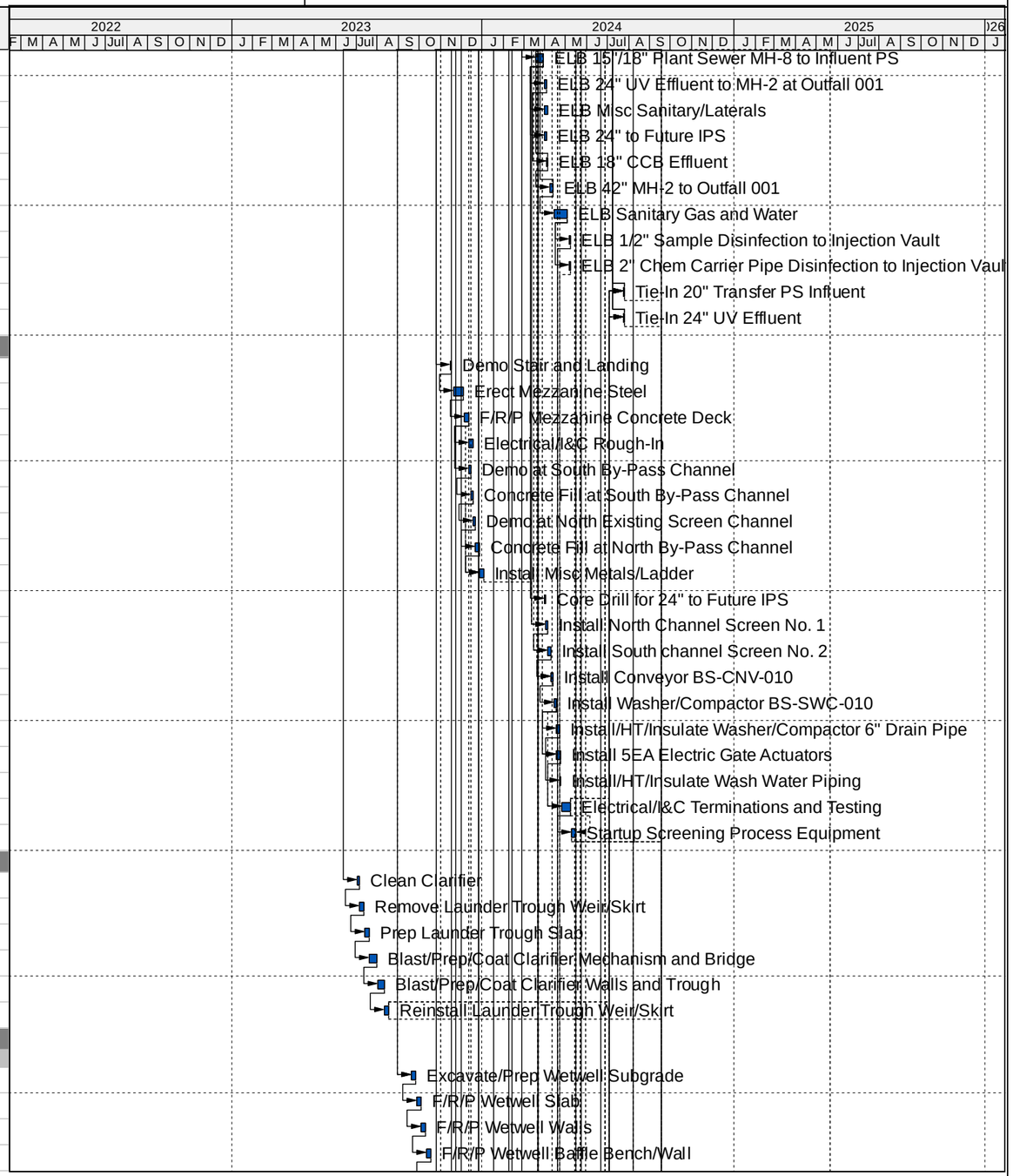
Activity ID	Activity Name	Remaining Duration	Start	Finish
Blending-SUB-3930	RFQ Doors & Hardware Package	0	13-Jan-23 A	06-Feb-23 A
Blending-SUB-3940	Sign Doors & Hardware Package	20	07-Apr-23	04-May-23
Blending-SUB-3950	Submit and Review/Approve Doors & Hardware Package	40	05-May-23	30-Jun-23
Paints & Coatings Package		60	13-Jan-23 A	30-Jun-23
Blending-SUB-3970	RFQ Paints & Coatings Package	0	13-Jan-23 A	06-Feb-23 A
Blending-SUB-3980	Sign Paints & Coatings Package	20	07-Apr-23	04-May-23
Blending-SUB-3990	Submit and Review/Approve Paints & Coatings Package	40	05-May-23	30-Jun-23
Precast Building Package		140	13-Jan-23 A	24-Oct-23
Blending-PC-3570	RFQ Precast Building Package	0	13-Jan-23 A	06-Feb-23 A
Blending-PC-3580	Sign Precast Building Package	20	07-Apr-23	04-May-23
Blending-PC-3590	Submit and Review/Approve Precast Building Package	60	05-May-23	31-Jul-23
Blending-PC-3600	Fabrication & Delivery Precast Building Package	60	01-Aug-23	24-Oct-23
Disinfection Building Canopy Package		140	13-Jan-23 A	24-Oct-23
Blending-PC-3610	RFQ Disinfection Building Canopy Package	0	13-Jan-23 A	06-Feb-23 A
Blending-PC-3620	Sign Disinfection Building Canopy Package	20	07-Apr-23	04-May-23
Blending-PC-3630	Submit and Review/Approve Disinfection Building Canopy Package	40	05-May-23	30-Jun-23
Blending-PC-3640	Fabrication & Delivery Disinfection Building Canopy Package	80	03-Jul-23	24-Oct-23
Construction		294	03-Jul-23	27-Aug-24
Blending-CN-4070	Mobilize	5	01-Aug-23	07-Aug-23
Site Work		250	08-Aug-23	31-Jul-24
Blending-CN-4180	SWPPP	10	08-Aug-23	21-Aug-23
Blending-CN-4185	Establish Laydown Area	5	08-Aug-23	14-Aug-23
Blending-CN-4190	South Creek Crossing/Culvert	20	22-Aug-23	19-Sep-23
Blending-CN-4195	Temporary Access Road/s	5	22-Aug-23	28-Aug-23
Blending-CN-4230	F/R/P Sidewalk at Transfer Pump Station	5	16-Jan-24	22-Jan-24
Blending-CN-4245	Temporary Electric Feed to Transfer Pump Station	5	16-Jan-24	22-Jan-24
Blending-CN-4240	Electrical Ductbank/Direct Bury Feeds	20	14-Mar-24	10-Apr-24
Blending-CN-4200	Demo CCB Outfall	5	08-Apr-24	12-Apr-24
Blending-CN-4198	Outfall 001 Channel Work	10	15-Apr-24	26-Apr-24
Blending-CN-4220	F/R/P Driveway and Sidewalk Disinfection Bldg	8	06-Jun-24	17-Jun-24
Blending-CN-4215	F/R/P Driveway and Sidewalk Filter Bldg	8	14-Jun-24	25-Jun-24
Blending-CN-4225	Aggregate Parking Lot at Admin Bldg	5	26-Jun-24	02-Jul-24
Blending-CN-4235	Final Site Grading/Topsoil	10	03-Jul-24	17-Jul-24
Blending-CN-4250	Site Restoration/Seeding	10	18-Jul-24	31-Jul-24
Blending-CN-4205	Demo Outfall 1	3	29-Jul-24	31-Jul-24
Blending-CN-4210	Demo Outfall 2	3	29-Jul-24	31-Jul-24
Yard Pipe		161	08-Dec-23	26-Jul-24
Blending-CN-4285	ELB 20" Transfer PS Influent	3	08-Dec-23	12-Dec-23
Blending-CN-4295	ELB 14" Filter Influent/Meter Vault/By-Pass from Transfer PS	15	16-Jan-24	05-Feb-24
Blending-CN-4300	ELB 18" Filter Effluent to CCB	10	29-Feb-24	13-Mar-24
Blending-CN-4305	ELB 15" Plant Sewer MH-10 to MH-8	10	04-Mar-24	15-Mar-24
Blending-CN-4310	ELB 24" Future MBR to MH-2 at Outfall 001	15	18-Mar-24	05-Apr-24
Blending-CN-4345	ELB 6" WAS to Future MBR	10	18-Mar-24	29-Mar-24
Blending-CN-4350	Tie-In 6" WAS	2	18-Mar-24	19-Mar-24



BURNS McDONNELL

Republic, MO WWTP - Blending

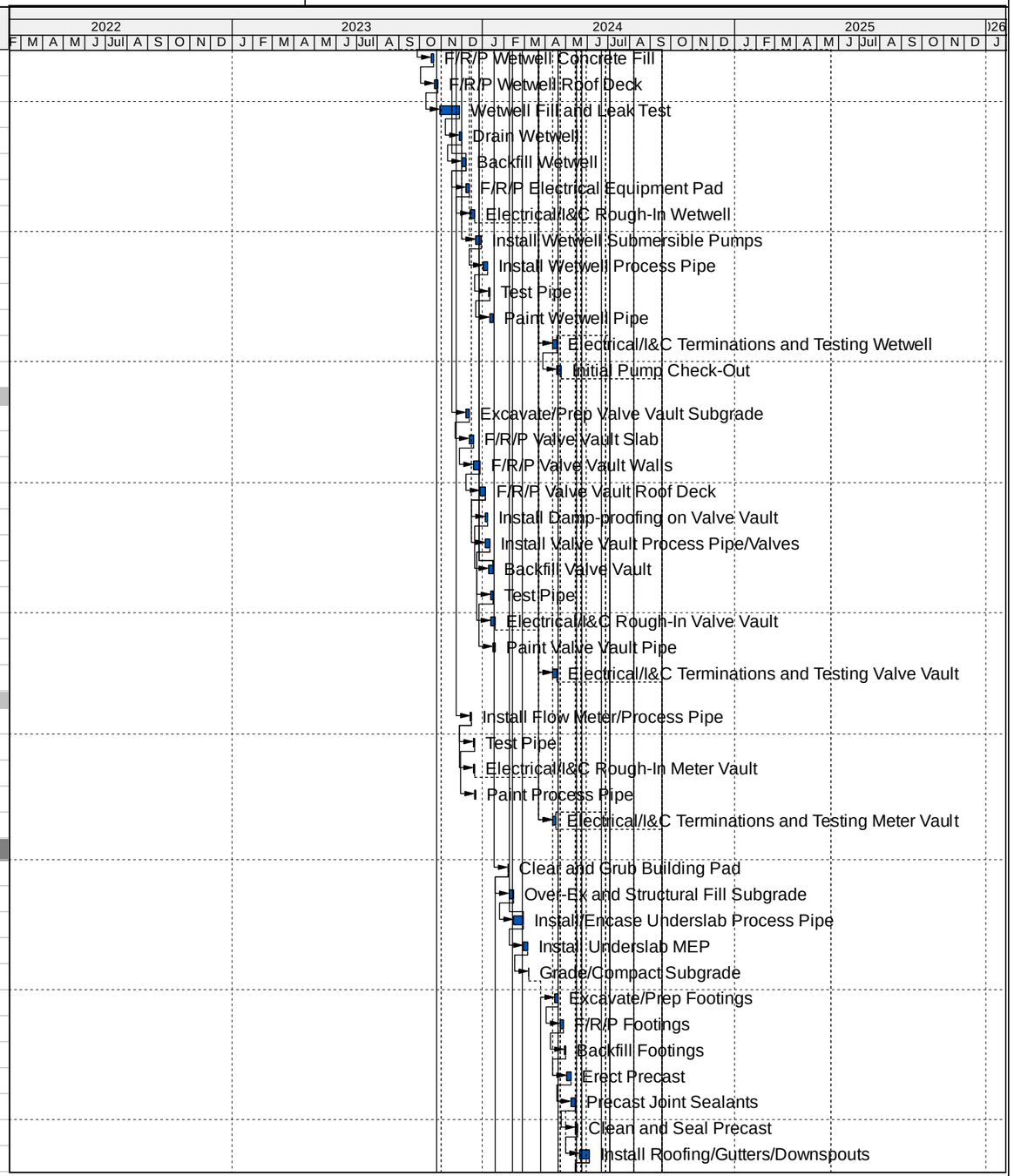
Activity ID	Activity Name	Remaining Duration	Start	Finish
Blending-CN-4308	ELB 15"/18" Plant Sewer MH-8 to Influent PS	10	18-Mar-24	29-Mar-24
Blending-CN-4320	ELB 24" UV Effluent to MH-2 at Outfall 001	3	01-Apr-24	03-Apr-24
Blending-CN-4355	ELB Misc Sanitary/Laterals	5	01-Apr-24	05-Apr-24
Blending-CN-4365	ELB 24" to Future IPS	3	01-Apr-24	03-Apr-24
Blending-CN-4315	ELB 18" CCB Effluent	2	04-Apr-24	05-Apr-24
Blending-CN-4330	ELB 42" MH-2 to Outfall 001	5	08-Apr-24	12-Apr-24
Blending-CN-4280	ELB Sanitary Gas and Water	15	15-Apr-24	03-May-24
Blending-CN-4335	ELB 1/2" Sample Disinfection to Injection Vault	3	06-May-24	08-May-24
Blending-CN-4340	ELB 2" Chem Carrier Pipe Disinfection to Injection Vault	3	06-May-24	08-May-24
Blending-CN-4290	Tie-In 20" Transfer PS Influent	2	25-Jul-24	26-Jul-24
Blending-CN-4325	Tie-In 24" UV Effluent	2	25-Jul-24	26-Jul-24
Screening Facility		127	15-Nov-23	15-May-24
Blending-CN-4380	Demo Stair and Landing	3	15-Nov-23	17-Nov-23
Blending-CN-4385	Erect Mezzanine Steel	10	20-Nov-23	04-Dec-23
Blending-CN-4390	F/R/P Mezzanine Concrete Deck	5	05-Dec-23	11-Dec-23
Blending-CN-4395	Electrical/I&C Rough-In	5	12-Dec-23	18-Dec-23
Blending-CN-4400	Demo at South By-Pass Channel	3	12-Dec-23	14-Dec-23
Blending-CN-4405	Concrete Fill at South By-Pass Channel	2	15-Dec-23	18-Dec-23
Blending-CN-4415	Demo at North Existing Screen Channel	3	19-Dec-23	21-Dec-23
Blending-CN-4420	Concrete Fill at North By-Pass Channel	2	22-Dec-23	27-Dec-23
Blending-CN-4425	Install Misc Metals/Ladder	3	28-Dec-23	02-Jan-24
Blending-CN-4410	Core Drill for 24" to Future IPS	2	01-Apr-24	02-Apr-24
Blending-CN-4430	Install North Channel Screen No. 1	3	02-Apr-24	04-Apr-24
Blending-CN-4435	Install South channel Screen No. 2	3	05-Apr-24	09-Apr-24
Blending-CN-4440	Install Conveyor BS-CNV-010	3	10-Apr-24	12-Apr-24
Blending-CN-4445	Install Washer/Compactor BS-SWC-010	3	15-Apr-24	17-Apr-24
Blending-CN-4450	Install/HT/Insulate Washer/Compactor 6" Drain Pipe	3	18-Apr-24	22-Apr-24
Blending-CN-4455	Install 5EA Electric Gate Actuators	5	18-Apr-24	24-Apr-24
Blending-CN-4460	Install/HT/Insulate Wash Water Piping	2	23-Apr-24	24-Apr-24
Blending-CN-4465	Electrical/I&C Terminations and Testing	10	25-Apr-24	08-May-24
Blending-CN-4470	Startup Screening Process Equipment	5	09-May-24	15-May-24
Clarifier		33	03-Jul-23	17-Aug-23
Blending-CN-4475	Clean Clarifier	2	03-Jul-23	05-Jul-23
Blending-CN-4480	Remove Launder Trough Weir/Skirt	5	06-Jul-23	12-Jul-23
Blending-CN-4485	Prep Launder Trough Slab	5	13-Jul-23	19-Jul-23
Blending-CN-4495	Blast/Prep/Coat Clarifier Mechanism and Bridge	8	20-Jul-23	31-Jul-23
Blending-CN-4505	Blast/Prep/Coat Clarifier Walls and Trough	8	01-Aug-23	10-Aug-23
Blending-CN-4515	Reinstall Launder Trough Weir/Skirt	5	11-Aug-23	17-Aug-23
Transfer Pump Station		152	20-Sep-23	24-Apr-24
Wetwell		152	20-Sep-23	24-Apr-24
Blending-CN-4490	Excavate/Prep Wetwell Subgrade	5	20-Sep-23	26-Sep-23
Blending-CN-4500	F/R/P Wetwell Slab	5	27-Sep-23	03-Oct-23
Blending-CN-4520	F/R/P Wetwell Walls	5	04-Oct-23	10-Oct-23
Blending-CN-4530	F/R/P Wetwell Baffle Bench/Wall	5	11-Oct-23	17-Oct-23



BURNS McDONNELL

Republic, MO WWTP - Blending

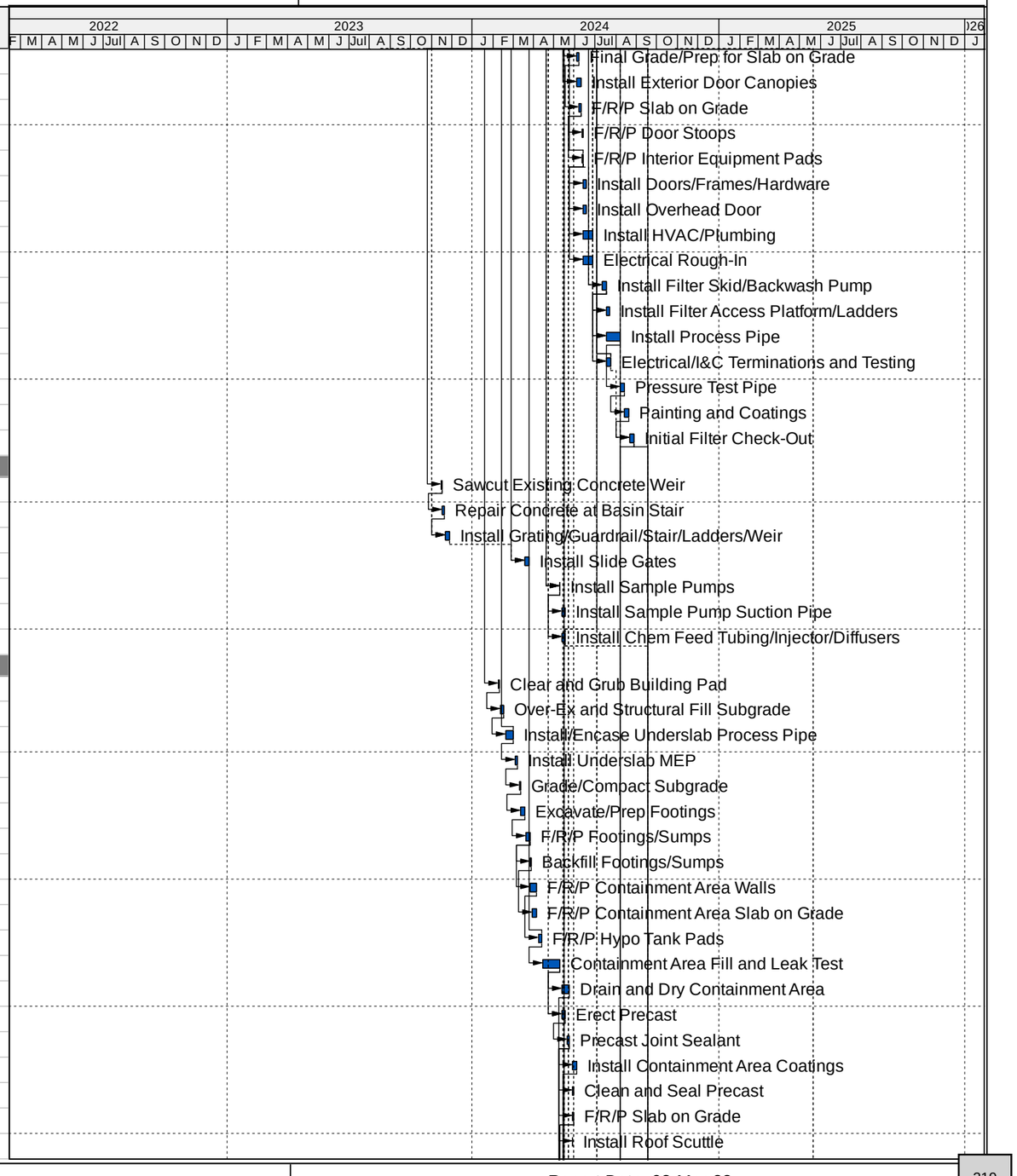
Activity ID	Activity Name	Remaining Duration	Start	Finish
Blending-CN-4540	F/R/P Wetwell Concrete Fill	3	18-Oct-23	20-Oct-23
Blending-CN-4545	F/R/P Wetwell Roof Deck	5	23-Oct-23	27-Oct-23
Blending-CN-4550	Wetwell Fill and Leak Test	20	30-Oct-23	27-Nov-23
Blending-CN-4560	Drain Wetwell	3	28-Nov-23	30-Nov-23
Blending-CN-4570	Backfill Wetwell	5	01-Dec-23	07-Dec-23
Blending-CN-4580	F/R/P Electrical Equipment Pad	3	08-Dec-23	12-Dec-23
Blending-CN-4630	Electrical/I&C Rough-In Wetwell	5	13-Dec-23	19-Dec-23
Blending-CN-4585	Install Wetwell Submersible Pumps	5	21-Dec-23	29-Dec-23
Blending-CN-4590	Install Wetwell Process Pipe	5	02-Jan-24	08-Jan-24
Blending-CN-4610	Test Pipe	2	09-Jan-24	10-Jan-24
Blending-CN-4620	Paint Wetwell Pipe	3	11-Jan-24	15-Jan-24
Blending-CN-4635	Electrical/I&C Terminations and Testing Wetwell	5	11-Apr-24	17-Apr-24
Blending-CN-4645	Initial Pump Check-Out	5	18-Apr-24	24-Apr-24
Valve Vault		91	08-Dec-23	17-Apr-24
Blending-CN-5400	Excavate/Prep Valve Vault Subgrade	2	08-Dec-23	11-Dec-23
Blending-CN-5405	F/R/P Valve Vault Slab	5	12-Dec-23	18-Dec-23
Blending-CN-5410	F/R/P Valve Vault Walls	5	19-Dec-23	27-Dec-23
Blending-CN-5415	F/R/P Valve Vault Roof Deck	5	28-Dec-23	04-Jan-24
Blending-CN-5420	Install Damp-proofing on Valve Vault	2	05-Jan-24	08-Jan-24
Blending-CN-5425	Install Valve Vault Process Pipe/Valves	5	05-Jan-24	11-Jan-24
Blending-CN-5422	Backfill Valve Vault	5	09-Jan-24	15-Jan-24
Blending-CN-5430	Test Pipe	2	12-Jan-24	15-Jan-24
Blending-CN-5440	Electrical/I&C Rough-In Valve Vault	5	12-Jan-24	18-Jan-24
Blending-CN-5435	Paint Valve Vault Pipe	3	16-Jan-24	18-Jan-24
Blending-CN-5445	Electrical/I&C Terminations and Testing Valve Vault	5	11-Apr-24	17-Apr-24
Meter Vault		86	13-Dec-23	15-Apr-24
Blending-CN-5450	Install Flow Meter/Process Pipe	3	13-Dec-23	15-Dec-23
Blending-CN-5455	Test Pipe	2	18-Dec-23	19-Dec-23
Blending-CN-5465	Electrical/I&C Rough-In Meter Vault	3	18-Dec-23	20-Dec-23
Blending-CN-5460	Paint Process Pipe	2	20-Dec-23	21-Dec-23
Blending-CN-5470	Electrical/I&C Terminations and Testing Meter Vault	3	11-Apr-24	15-Apr-24
Filter Building		144	06-Feb-24	27-Aug-24
Blending-CN-4640	Clear and Grub Building Pad	2	06-Feb-24	07-Feb-24
Blending-CN-4650	Over-Ex and Structural Fill Subgrade	5	08-Feb-24	14-Feb-24
Blending-CN-4660	Install/Encase Underslab Process Pipe	10	15-Feb-24	28-Feb-24
Blending-CN-4670	Install Underslab MEP	5	29-Feb-24	06-Mar-24
Blending-CN-4680	Grade/Compact Subgrade	2	07-Mar-24	08-Mar-24
Blending-CN-4690	Excavate/Prep Footings	5	15-Apr-24	19-Apr-24
Blending-CN-4740	F/R/P Footings	5	22-Apr-24	26-Apr-24
Blending-CN-4760	Backfill Footings	2	29-Apr-24	30-Apr-24
Blending-CN-4770	Erect Precast	5	01-May-24	07-May-24
Blending-CN-4775	Precast Joint Sealants	5	08-May-24	14-May-24
Blending-CN-4780	Clean and Seal Precast	3	15-May-24	17-May-24
Blending-CN-4790	Install Roofing/Gutters/Downspouts	10	20-May-24	03-Jun-24



BURNS McDONNELL

Republic, MO WWTP - Blending

Activity ID	Activity Name	Remaining Duration	Start	Finish
Blending-CN-4800	Final Grade/Prep for Slab on Grade	3	04-Jun-24	06-Jun-24
Blending-CN-4870	Install Exterior Door Canopies	5	04-Jun-24	10-Jun-24
Blending-CN-4810	F/R/P Slab on Grade	2	07-Jun-24	10-Jun-24
Blending-CN-4820	F/R/P Door Stoops	3	11-Jun-24	13-Jun-24
Blending-CN-4840	F/R/P Interior Equipment Pads	3	11-Jun-24	13-Jun-24
Blending-CN-4850	Install Doors/Frames/Hardware	3	14-Jun-24	18-Jun-24
Blending-CN-4860	Install Overhead Door	3	14-Jun-24	18-Jun-24
Blending-CN-4880	Install HVAC/Plumbing	10	14-Jun-24	27-Jun-24
Blending-CN-5320	Electrical Rough-In	10	14-Jun-24	27-Jun-24
Blending-CN-5330	Install Filter Skid/Backwash Pump	5	11-Jul-24	17-Jul-24
Blending-CN-5335	Install Filter Access Platform/Ladders	3	18-Jul-24	22-Jul-24
Blending-CN-5340	Install Process Pipe	15	18-Jul-24	07-Aug-24
Blending-CN-5365	Electrical/I&C Terminations and Testing	5	18-Jul-24	24-Jul-24
Blending-CN-5345	Pressure Test Pipe	4	08-Aug-24	13-Aug-24
Blending-CN-5355	Painting and Coatings	5	14-Aug-24	20-Aug-24
Blending-CN-5390	Initial Filter Check-Out	5	21-Aug-24	27-Aug-24
Chlorine Basin and Injection Vault		129	15-Nov-23	17-May-24
Blending-CN-5005	Sawcut Existing Concrete Weir	2	15-Nov-23	16-Nov-23
Blending-CN-5010	Repair Concrete at Basin Stair	2	17-Nov-23	20-Nov-23
Blending-CN-5015	Install Grating/Guardrail/Stair/Ladders/Weir	5	21-Nov-23	28-Nov-23
Blending-CN-5020	Install Slide Gates	5	19-Mar-24	25-Mar-24
Blending-CN-5025	Install Sample Pumps	2	09-May-24	10-May-24
Blending-CN-5030	Install Sample Pump Suction Pipe	5	13-May-24	17-May-24
Blending-CN-5035	Install Chem Feed Tubing/Injector/Diffusers	5	13-May-24	17-May-24
Chemical Disinfection		105	08-Feb-24	05-Jul-24
Blending-CN-5050	Clear and Grub Building Pad	2	08-Feb-24	09-Feb-24
Blending-CN-5060	Over-Ex and Structural Fill Subgrade	5	12-Feb-24	16-Feb-24
Blending-CN-5070	Install/Encase Underslab Process Pipe	10	19-Feb-24	01-Mar-24
Blending-CN-5080	Install Underslab MEP	5	04-Mar-24	08-Mar-24
Blending-CN-5110	Grade/Compact Subgrade	2	11-Mar-24	12-Mar-24
Blending-CN-5150	Excavate/Prep Footings	5	13-Mar-24	19-Mar-24
Blending-CN-5160	F/R/P Footings/Sumps	5	20-Mar-24	26-Mar-24
Blending-CN-5170	Backfill Footings/Sumps	2	27-Mar-24	28-Mar-24
Blending-CN-5190	F/R/P Containment Area Walls	8	27-Mar-24	05-Apr-24
Blending-CN-5180	F/R/P Containment Area Slab on Grade	5	29-Mar-24	04-Apr-24
Blending-CN-5200	F/R/P Hypo Tank Pads	5	08-Apr-24	12-Apr-24
Blending-CN-5220	Containment Area Fill and Leak Test	20	15-Apr-24	10-May-24
Blending-CN-5230	Drain and Dry Containment Area	10	13-May-24	24-May-24
Blending-CN-5260	Erect Precast	5	13-May-24	17-May-24
Blending-CN-5265	Precast Joint Sealant	5	20-May-24	24-May-24
Blending-CN-5240	Install Containment Area Coatings	5	28-May-24	03-Jun-24
Blending-CN-5270	Clean and Seal Precast	3	28-May-24	30-May-24
Blending-CN-5350	F/R/P Slab on Grade	2	28-May-24	29-May-24
Blending-CN-5480	Install Roof Scuttle	1	28-May-24	28-May-24



BURNS McDONNELL

Republic, MO WWTP - Blending

Activity ID	Activity Name	Remaining Duration	Start	Finish
Blending-CN-5490	Install Roofing/Gutters/Downspouts	10	28-May-24	10-Jun-24
Blending-CN-5380	F/R/P Interior Tank/Equipment Pads	5	30-May-24	05-Jun-24
Blending-CN-5370	F/R/P Door Stoops	3	30-May-24	03-Jun-24
Blending-CN-5500	Install Hypo Bulk Tanks	2	04-Jun-24	05-Jun-24
Blending-CN-5510	Erect PEMB Canopy	10	06-Jun-24	19-Jun-24
Blending-CN-5530	Install Doors/Frames/Hardware	5	06-Jun-24	12-Jun-24
Blending-CN-5540	Install Overhead Door	3	06-Jun-24	10-Jun-24
Blending-CN-5550	Install HVAC/Plumbing	10	06-Jun-24	19-Jun-24
Blending-CN-5560	Electrical Rough-In	10	06-Jun-24	19-Jun-24
Blending-CN-5570	Install Bisulfite Tank	0	06-Jun-24	06-Jun-24
Blending-CN-5580	Install Chemical Feed Pump Skids	3	06-Jun-24	10-Jun-24
Blending-CN-5590	Install Process Piping	10	11-Jun-24	24-Jun-24
Blending-CN-5610	Electrical/I&C Terminations and Testing	5	11-Jun-24	17-Jun-24
Blending-CN-5520	Install FRP Ladders and Grating	3	20-Jun-24	24-Jun-24
Blending-CN-5600	Painting and Coatings	3	25-Jun-24	27-Jun-24
Blending-CN-5620	Initial Chem Feed Check-Out	5	28-Jun-24	05-Jul-24
Startup & Completion		170	28-Aug-24	30-Apr-25
Blending-CN-4170	Substantial Completion	0		28-Aug-24
Blending-CN-4160	Startup - Blending	40	28-Aug-24	23-Oct-24
Blending-CN-5360	AOC Blending Project - Contractual EPA Date	0		30-Apr-25*

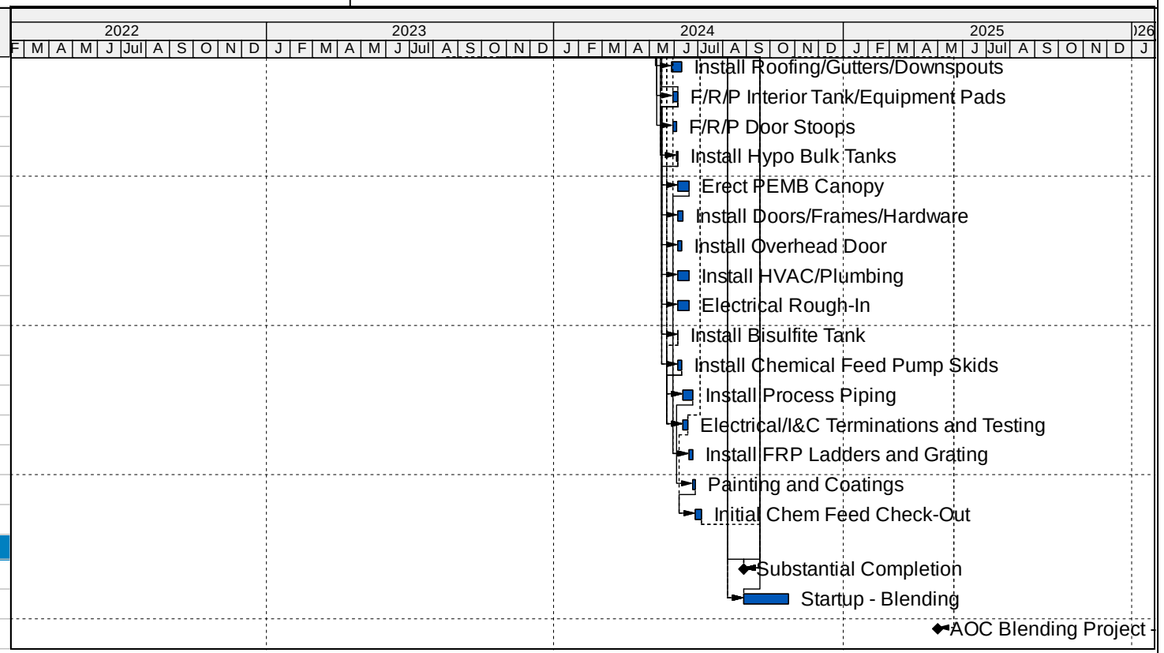


EXHIBIT K – PRELIMINARY DESIGN DOCUMENTS

The Preliminary Design Documents consist of the Work Description and Concept Design Drawings.

Work Description

This Work Description identifies major definable components of the Project as they can be defined at the time that the Agreement was prepared. In addition to the major components called out herein, the Work Description outlines the general requirements for each design element. The intent of this document is to establish the scope and criteria of products, materials, and equipment to be furnished and installed under the Agreement. The Design-Builder will develop the final design documents and construct the Work in accordance with the criteria identified herein.

01 00 00 GENERAL CONDITIONS

1. All supervision, administrative costs, and temporary facilities necessary to construct the work.
2. No sales tax included. Owner to provide exemption certificate for the project.
3. Temporary Power will be provided by the Design Builder.
4. Does not include cost for water consumption for testing of structures or facilities.
5. Does not include cost of chemicals for startup, testing or operation of the facility.
6. Includes cost of obtaining, installing, and maintaining the SWPPP.
7. Builders risk insurance will be provided by Design Builder.
8. Design and construction administration are included for the duration of the schedule.
9. Design will be completed following the 2018 IBC except where noted.
10. Special Inspections will be performed by a 3rd party and paid for by the Design Builder.
11. Civil testing lab services will be performed by a 3rd party and paid for by the Design-Builder, including civil testing for soil and concrete.
12. Performance and Payment bonds are included for the entire contract amount Surety companies executing BONDS will appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in Missouri."
13. All O&M manuals will be provided in paper (1 set) and electronic PDF form.
14. In the event that there are discrepancies between the Preliminary Engineering Report and this document, this document shall govern.
15. This project is under current prevailing wages as of the date of the contract execution.
16. The Design-Builder agrees to take steps to ensure that disadvantaged business enterprises (DBEs) are utilized when possible as sources of supplies, equipment, construction, and services as required by 2 CFR 200.321.

01 01 00 SPECIAL SITE CONDITIONS

1. No hazardous or special waste are known of at this time or anticipated to be encountered in the course of this project.
2. Groundwater is expected to be consistent with the conditions documented as part of the geotechnical investigation.
3. On site soils are expected to be consistent with those documented as part of the geotechnical investigation.

01 01 50 OWNER FURNISHED ITEMS

1. Operation and maintenance of existing facilities during construction and through project start-up.
2. Access to project sites as needed to perform work.
3. Land acquisition, easements or right-of-way as may be required.
4. Cost of offsite power, gas, telecom, ISP upgrades if required.
5. Chemicals as required for startup and testing, including initial fill of new chemical systems.

01 50 00 CONSTRUCTION EQUIPMENT

1. All construction equipment necessary to complete the work is included.

02 41 19 DEMOLITION – GENERAL

1. Includes fees for disposal for any excess material.
2. Demolition of existing site improvements, such as asphalt paving, concrete sidewalks, light poles, etc. to limits required for installation of new construction.
3. Demolition of existing influent screen, and concrete/cutting and coring to facilitate new screen installation.
4. Demolition of existing chlorine contact basin influent stop gates and 1” chlorine line.
5. Demolition of Outfall 001 structure, Outfall 002 structure and outfall protection, and Chlorine Contact Basin outfall.

03 10 00 FORMWORK

1. Exterior Forms
    a. Fill any repairable honeycomb; patch all tie holes.
    b. No architectural or rubbed finish; no grout finish.
    c. Joints to be noticeable, but not protruding.
    d. Chamfer tops on all exposed edges.

03 15 50 VAPOR RETARDER

1. ASTM E1745, Class A or B, min thickness of 10 mil.
2. Applied below all concrete slabs to receive concrete coatings or other floor

coverings.

03 20 00 REINFORCING

1. Deformed bars: ASTM A615, Grade 60 – No epoxy
2. Mechanical splices used where indicated.
3. Rebar quantities based upon 200 lbs per cubic yard of concrete.
4. Drill and epoxy dowels at interface of new concrete construction to existing structures.

03 30 00 CONCRETE

1. ASTM C150 Type I/II or ASTM C595 Type IL (MS) with Type F fly ash.
   a. Fly ash shall be omitted if Type F is not available.
   b. If ASTM C595 Portland Lime Cement (PLC) is used, Type IL (HS) is also acceptable.
   c. Silica fume may be substituted up to 10% replacement of Portland Cement (PC) or Portland Lime Cement (PLC)
2. 1" nominal maximum aggregate
3. Fill and encasement – 3,000 psi
4. Site pavements, curbs, gutters, and sidewalks – 4,000 psi
5. Structural concrete – 4,500 psi
6. Pre-cast concrete – As determined by precast manufacturer design.
7. All concrete supplied for the project will meet the latest applicable code.
8. Foundations
   a. All foundations to extend below frost line.
   b. No deep foundation elements required based on the geotechnical report.
   c. Reference Div 31 for subgrade requirements.
9. PVC waterstop at all construction joints in wastewater containing structures.
10. The transfer pump station wet well will be leak tested in accordance with ACI 350.1

03 41 00 PRECAST ARCHITECTURAL CONCRETE

1. Exterior and interior insulated wall panels, including reveals, and light and medium sandblast textures.
2. Solid prestressed roof plank panels at the filter building and disinfection building, supported by precast wall haunches.
3. Stainless steel embedded plates and connection hardware:
   a. Stainless steel where exposed or crosses a panel joint.
   b. Uncoated steel at all other locations.

03 35 00 CONCRETE FINISHING

1. Steel trowel all floor finish in buildings.
2. Float finish for all below grade surfaces.
3. Broomed finish at stair landing pads and concrete walking surfaces.
4. No concrete coatings to be applied except at the exterior chemical storage area at

the disinfection building.

05 05 19 CONCRETE ANCHORS

1. Wet or submerged service: AISI Type 304 or 316 adhesive anchors where indicated.
2. Non-submerged anchors in moderate to severe corrosion potential: AISI Type 304 or 316 adhesive anchors or wedge anchors where indicated.
3. Low corrosion potential: galvanized wedge or adhesive anchors
4. Adhesive epoxy:
    a. Hilti Hit-HY 200 for dry installations.
    b. Hilti Hit HY-500 for wet installations.
    c. Hilti Hit HY-270 for masonry.
    d. Approved equal.

05 12 00 STEEL

1. Shapes: Wide flange, ASTM A992. Channels, angles, and plates, ASTM A36.
2. Hot-dipped galvanized steel and hardware unless indicated otherwise.
3. Stainless steel:
    a. AISI Type 304 or 316 where indicated.
4. Anchor bolts:
    a. Cast-in-place: Galvanized or stainless steel ASTM F1554 Grade 36 anchor bolts
    b. Post-installed anchors:
        - See Section **05 05 19**

05 31 00 STEEL DECKING

1. 1 ½” depth, ASTM A653, Grade 50.
2. Zinc-coated G90 finish.
3. Welded or screw fasteners at supports and side laps.

05 45 00 ALUMINUM

1. Aluminum association structural shapes, 6061-T6 with 304 stainless steel bolts.
2. Guardrail: 1.9” OD aluminum two rail system with kickplate unless indicated to match existing four rail system.
3. Handrail: 1.5” OD aluminum.
4. Ladders to be of aluminum construction unless noted otherwise.
5. Grating to be swage locked striated I-bar grating with banded openings.
6. Stair treads to be serrated swage locked bar grating.
7. See Section 08 34 83 for Floor Access Doors.

05 50 00 MISCELLANEOUS METALS

1. Bollards – 6-inch diameter Schedule 40 Steel, painted safety yellow, with rust-inhibitive paint.

06 10 00 ROUGH CARPENTRY

1. Treated wood blocking at roof and roof parapet.

06 70 00 FIBERGLASS REINFORCED PRODUCTS (FRP)

1. FRP ladders and grating to be supplied at the chemical storage area and at other areas indicated.
2. Resin system: premium grade vinyl ester.

07 16 00 DAMPPROOFING

1. Apply to exterior of concrete walls at the following locations:
    a. Transfer Pump Station Valve Vault
    b. Transfer Pump Station Meter Vault
    c. Chemical Injection Vault
2. Product: Coal Tar-Epoxy Damproofing:
    a. Tnemec Tneme-Tar Hi Build Series 46H-413; 16-20 mils DFT.
        i. Or Engineer Approved Equal
3. Bituminous Dampproofing:
    a. General: Provide products recommended by manufacturer for designated application and suitable for service intended.
    b. Cold-Applied, Coal Tar-Epoxy Dampproofing: Roll or spray applied heavy-duty water-resistant epoxy coating made with pitch for protection of concrete from severe chemical fumes and corrosive vapors. Coating shall be suitable for buried or immersion conditions.

07 50 00 MEMBRANE ROOFING / FLASHING / SHEET METAL

1. Buildings to have minimum 80 mil PVC Membrane Roofing System to meet regional hail requirements.
2. Vapor barrier and tapered insulation on roof deck.
3. Perimeter of building to have prefinished metal coping on top of parapet wall.
4. Conductor heads and downspouts to be provided at each scupper.
5. Overflow scuppers trimmed with prefinished sheet metal.
6. Canopy roof with galvalume standing seam roofing, gutter, and downspout.
7. 3’-0”x3’-0” roof scuttle with ladder, safety post and guardrail with gate for fall protection.
8. Sunshade/canopies at 2ea single passage doors at the filter building, and 1ea at the filter building exterior mounted electrical equipment/control panel.

07 90 00 JOINT SEALANTS

1. Doors/windows/louvers and construction joints in concrete.
2. Interior and exterior vertical precast wall joints and interior horizontal precast roof plank joints.
3. Interior joints at top of walls.
4. Fire rated mineral wool and sealant where required.

08 16 10 FRP DOORS / ALUMINUM FRAMES

1. All single passage doors; 3’-0”x7’-2” 1-3/4 thick with 2” frame.
2. All double passage doors: 6’-4”x7’-2” 1-3/4” thick with 2” frame, Disinfection Electrical Room to have removable mullion and transom and chemical area to have transom mounted louver.
3. All doors to have glazing except exterior doors into electrical rooms.

08 34 83 FLOOR ACCESS DOORS

1. Aluminum construction with Type 316 stainless steel hardware.
2. Load rating:
    a. Pedestrian traffic: 300 psf
    b. Vehicular traffic: AASHTO HS-20
3. Provide protective grating where indicated.

08 70 00 DOOR HARDWARE

1. Standard door hardware; includes lever handle, weather stripping, drip cap, threshold, sweep, hinges, closers, locksets, astragals, panic devices as required by code for egress.
2. Finishes to be suitable for their environment.

08 80 00 GLAZING

1. Exterior: Insulated glazing unit (IGU) low-E coating, tinted, tempered.

08 90 00 OVERHEAD DOORS

1. Manual powder coated steel or anodized aluminum.

09 90 00 COATINGS

1. Color coded painting of exposed-to-view piping if not stainless steel or PVC.
2. All exposed process piping to have color coded labels or stencils with directional arrows.
3. 2 coat epoxy/polyurethane system for all bollards and non-stainless steel or HDG pipe/supports exposed to UV.

4. 2 coat epoxy coating system for interior/submerged non-stainless steel or HDG pipe/supports not exposed to UV.
5. Hot-dip galvanized steel will not be coated.
6. Chemical containment to have 3 coat chemical resistant containment coating.
7. Touch-up paint as required for non-stainless-steel equipment.
8. Peak Flow Clarifier mechanism, launder trough, and interior basin wall, including all prep and wash down as required.

10 00 00 SPECIALTIES

1. 6" deep prefinished aluminum louvers with insect screen.
2. Signage: Chemical warning signs
3. Signage: Aluminum Building Identification letters
4. Fire extinguishers: Approved fire extinguishers with wall brackets – 10 lb. ABC units for all buildings as required.
5. Fire extinguishers: Clean agent units for Electrical rooms

22 00 00 PLUMBING

1. Materials:
   (a) Natural Gas Piping:
      a. Below Grade: Polyethylene
      b. Above Grade: Black Steel (threaded)
   (b) Drainage and Vent Piping: Sch. 40 PVC
   (c) Potable/Non-Potable Water:
      a. Below Grade NPS 3 and smaller: Copper
      b. Above Grade NPS 2 and smaller: Copper
   (d) Pipe Insulation:
      a. Type: Flexible Elastomeric
      b. Thickness: 1" to 1.5"
      c. R-Value: R-4 per inch
   (e) Hangers/Supports and Hardware:
      a. Disinfection Building: Stainless Steel
      b. Filter Building: Stainless Steel
2. Disinfection Building Fixtures:
   (a) Reduced pressure backflow preventor
   (b) Two Combination Emergency Shower/Eyewash
   (c) Two Through-wall Emergency Shower
   (d) Two Through-wall Emergency Eyewash
   (e) Three Tepid water mixing valves for emergency shower/eyewash equipment
   (f) Tank-style, 119 gal. electric water heater w/6 kW heating element
   (g) Recirculation pump for hot water line
   (h) Floor drains
3. Filter Building Fixtures:
   (a) Hose bibb
   (b) Floor drains

23 00 00 HVAC

1. Materials:
   (a) Ductwork:
      a. Disinfection Building: Aluminum
      b. Filter Building: Aluminum
   (b) Hangers/Supports and Hardware:
      a. Disinfection Building: Stainless Steel
      b. Filter Building: Stainless Steel
2. Disinfection Building Equipment:
   (a) Gas-Fired Makeup Air Unit (DFM-MAU-001)
      a. Electrical (V/Ph/Hz): 480/3/60
      b. Natural Gas input: 150 MBH
      c. Accessories:
         1. Unit-mounted NEMA 3R disconnect switch
         2. Roof curb
         3. Filters
         4. Gas pressure regulator
         5. Sail switch
   (b) Aluminum Upblast Exhaust Fans (DFB-EF-001 and DFB-EF-003)
      a. Electrical (V/Ph/Hz): 120/1/60
      b. Accessories:
         1. Unit-mounted NEMA 4X disconnect switch
         2. Roof curb
         3. Sail switch
   (c) Aluminum Upblast Exhaust Fan (DFB-EF-002)
      a. Electrical (V/Ph/Hz): 120/1/60
      b. Accessories:
         1. Unit-mounted NEMA 4X disconnect switch
         2. Roof curb
         3. Motorized control damper
   (d) Thermostat with automatic changeover capability (DFB-T-001)
   (e) Go/No-Go lights inside and outside every entrance to both rooms at Disinfection Building (Four total)
3. Filter Building Equipment:
   (a) Explosion-Proof Aluminum Upblast Exhaust Fan (FLT-EF-001)
      a. Electrical (V/Ph/Hz): 120/1/60
      b. Accessories:
         1. Unit-mounted NEMA 4X disconnect switch
         2. Wall-mounting bracket kit
         3. Motorized control damper
         4. Explosion-proof motor rated for C1D1 environment, with aluminum rub ring
   (b) Explosion-Proof Electric Unit Heaters (FLT-EUH-001 and 002)
      a. Electrical (V/Ph/Hz): 480/3/60

b. Electric Heating Element: 5 kW
c. Accessories:
    1. Unit-mounted, explosion-proof disconnect switch
    2. Unit mounted, explosion-proof thermostat
    3. Wall-mounting bracket kit

(c) Explosion-proof thermostat with automatic changeover capability rated for Class 1, Division 1 environment (FLT-T-001)

26 05 11 ELECTRICAL CONDUCTORS AND CABLES

1. Cable:
    a. LV Power: 600V, XHHW-2 insulation, PVC jacket.
        i. Exception: MC style armored flexible cable may be used in Administration Building for lighting and small power.
    b. LV VFD Motor Feeder: 1000/2000V rated VFD power cable. XHHW-2 with 100% copper tape shield, three-phase conductors w/ three symmetrical grounds, and overall PVC jacket.
    c. LV Control: 600V, #14AWG multiconductor, XHHW-2 insulation, overall PVC jacket.
    a. Instrument: 600V, #18 AWG, twisted pair/triad with PVC insulation and PVC jacket. Individual shielding.
    b. Category 6: Unshielded, bonded pairs, #23 AWG solid conductors, polyolefin insulation, PVC jacket. Belden 7940A or equal.
    c. Fiber: Stranding as indicated, loose-tube, PVC jacket, water-blocked.
    d. In-Plant: OS2 single mode
2. Cable Terminations:
    a. Motors: 1-hole compression lugs with motor splice kit (3M 5300-series or equal) except 2-hole compression lugs for #4/0 AWG and larger.
    b. Controls: Pre-insulated ferrules or ring lugs as required by device.
    c. Instruments: Pre-insulated ferrules or locking fork lugs to match device.
    d. Single-mode Fiber: Field-installed duplex LC connectors.
    e. Cable Splices: No splicing except for low voltage lighting and receptacle circuits.

26 05 26 GROUNDING AND BONDING

1. Bare copper, tinned, #3/0 AWG min. for counterpoise and risers.
2. Below-grade Connections: Welded (CAD Weld).
3. Above-Grade Connections: Bolted/mechanical. Silicon-bronze hardware.
4. Ground Rods: 3/4”x10’, copper-clad steel, pointed or segmented-type.
5. Test Wells: HDPE or polymer concrete handholes.
6. Equipment to be grounded:
    a. Steel-reinforced concrete foundations, #3/0 AWG.
    b. Building/Structural Steel, #3/0 AWG.
    c. Controls (PLC) Cabinets/Panels, #2 AWG.
    d. Cable Tray, #3/0 AWG.

e. Motors 50 HP and larger, #3/0 AWG.
f. Motors less than 50 HP, #2 AWG.
g. Electrical Distribution Equipment 400 Amp or greater, #3/0 AWG.
h. Electrical Distribution Equipment less than 400 Amp, #2 AWG.
i. Platforms and Handrails, #2 AWG.

26 05 33 RACEWAY, BOXES, SEALS, AND FITTINGS

Refer to the Space Materials Matrix for conduit types, support materials, and enclosure ratings/materials to be used in each location.

26 05 36 CABLE TRAY

1. Aluminum, Ladder-type with 9" rung and 6" rail. Install per NEMA VE-2.

26 05 43 UNDERGROUND DUCT BANK, RACEWAY AND MANHOLES

1. Duct Banks:
    a. Reinforcement:
        i. Steel reinforcement and structural concrete required within 5-feet of foundations, manholes, passing under roadways and other driving surfaces.
        ii. Yard duct banks will be installed with a flowable utility fill, no reinforcement required.
    b. Direct-Bury: Banks of direct-bury conduit (not passing under driving surfaces) will be installed with a flowable utility fill.
    c. Concrete and Utility Fill: Red-dyed flowable fill except min. 2500-psi concrete for steel-reinforced duct bank.
    d. Minimum Coverage: 30-inches.
2. Raceway:
    a. Duct Bank: Reference Materials Matrix
    b. Direct-Buried:
        i. Reference materials matrix.
    c. Risers: PVC-coated RGS or Rigid Fiberglass (RTRC) elbows. Risers to be PVC-coated RGS except where permitted otherwise by Engineer.
3. Handholes:
    a. Precast concrete manholes for duct banks.
    b. Small yard handholes for additional pulling (e.g. yard lighting) may be polymer concrete (e.g. Quazite boxes).
    c. Install traceable caution tape to mark all underground electrical.

26 05 53 IDENTIFICATION

1. Provide instruments with wired SS tags.
2. Label individual conductors for control and instrument cables (heat shrink-type labels).
3. Label cables at each termination point, box entry, and splice (wrap around-type

labels).
4. Equipment Nameplates:
    a. White with black lettering, 4”x2”.
5. Required for each device/equipment with a cable.

26 05 73 OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY

1. By Design Builder.

26 22 13 LOW VOLTAGE DISTRIBUTION TRANSFORMERS

1. Dry-type, ventilated with 115℃ rise.

26 24 16 PANELBOARDS

1. Copper or aluminum bus, main breaker, fully-rated.
2. Surge Protection Device (with Surge Counter) required for all panelboards. (Assume 80kA rating as minimum)
3. Panels shall be provided with spare breakers to fill panel space. Spare breakers shall be 20A, 3-P for 480-Vac and 1-P for 120-Vac.

26 29 13 ENCLOSED CONTROLLERS

1. Safety Switches:
    a. Heavy-duty type, make-before break.
    b. Enclosure: Refer to Space Material Matrix.
    c. Provide auxiliary SPDT contact option for VFD safety switches.
2. Pilot Devices:
    a. Heavy duty, 30mm, NEMA 4X.
    b. Lights to be push-to-test LED.
    c. Green devices for “OFF”, red devices for “ON”, amber devices for “FAULT”.
3. Motor Starters:
    a. Provide with adjustable magnetic-only motor circuit protector (MCP). MCP to be provided with external, lockable handle that indicates “ON”, “OFF”, and “TRIP”.
    b. Provide with 120-Vac CPT and controls as indicated.
    c. Starters for process equipment to be provided with Ethernet-capable solid-state overload relay.
4. Contactors: Magnetically held, 30A, minimum 6-pole with Hand-Off-Auto control and indicating lights.Refer to specifications

26 29 23 VARIABLE FREQUENCY DRIVES

1. Provide voltage, horsepower, input/output filters, and low harmonic drive architecture as indicated (Active-front end, 18-pulse, or Matrix topologies). Total

3 VFD for transfer pumping.
2. Provide with input circuit breaker.
3. Provide with 120-Vac CPT, controls, and pilot devices (As per 26 29 13) as indicated.
4. Provide with minimum of six (6) digital inputs, relay outputs for "Run Status" and "Drive Fault", 4-20mA analog input, and Ethernet/IP capability.

26 50 00 LIGHTING

1. As required in the lighting schedule and plans.

31 20 50 SITE EXCAVATION / BACKFILL

1. All compactions shall be per Standard Proctor (ASTM D698) using sheepsfoot roller or self-propelled compactor.
2. Excavation shall be as necessary to construct structures in accordance with the drawings.
3. Fill to be acquired onsite to extents possible and offsite as necessary for all backfill of new structures.
4. Finish grading of site and access roads.
5. Compact to 95% of the material's standard Proctor dry density for backfill.
6. Riprapping of New Outfall 001.
7. Riprapping of South creek crossing
8. Dewatering creek crossing and other excavations.

31 20 50 STRUCTURAL EXCAVATION

1. All compactions shall be per Standard Proctor (ASTM D698) using sheepsfoot roller or self-propelled compactor.
2. Backfilling of Structures to 95% for general soil and structural fill.
3. Pavement and floor slabs subgrade to 95%.
4. Overexcavation of high plasticity soil to a minimum of 2' below foundations and floor slabs backfilled with Low Volume Change (LVC) structural fill.
5. Backfill around structure walls will include a 1'-6" wide column of granular material around the walls with the remainder of backfill completed with on-site soils.

31 20 50 TRENCH EXCAVATION/BACKFILL

1. 4" aggregate bedding below pipe and 12" aggregate bedding above pipe– 1 ½" crushed granular materials.
2. Backfill around pipe. Above pipe – 24" to 95% per Standard Proctor (ASTM D 698)
3. 12" clear concrete unreinforced encasement – all process piping below structures and basins.

32 11 23 CRUSHED AGGREGATE BASE COURSE

1. 4” MODOT Grade 4 below concrete driveway and as shown on plans.
2. 8” MODOT Type 5 Aggregate replacing all existing asphalt drive removal and as shown on plans.
3. 4-foot wide, 4” thick MODOT Grade 4 between sidewalks and buildings.

32 16 00 CURBS, GUTTERS, STAIRS, SIDEWALKS AND DRIVEWAYS

1. All curb shall be 6-inches tall unless specified otherwise on the drawings.
2. All sidewalks shall slope away from the building at a minimum of 0.50% and a max of 2.0% to ensure drainage and ADA compliance.
3. Grade, Form, Pour, Finish, and Strip Sidewalks
4. Sidewalks to be 5-foot wide minimum, 4-inches thick.
5. All sidewalks shall have a minimum 2% cross-slope.
6. Grade, Form, Pour, Finish, and Strip curb and gutter.
7. Control joints shall be spaced every 5-feet (max) in sidewalks and every 10-feet in curb and gutter.
8. No caulking of control joints.
9. Concrete shall be 4000psi.

32 92 00 SEEDING

1. Design/Builder to return topsoil and fine grade site and seed any disturbed areas.
2. Seed mix will be suitable for continued Owner maintenance.
3. Seeding areas to be clear of vegetation, rock, and other materials which would interfere with grading and tillage operations.
4. Topsoil will be stockpiled at beginning of the project and re-spread or removed off site at the end.
5. No topsoil import is included in the project.

33 11 00 PIPING

1. Buried Yard Piping:
   (a) Ductile Iron Pipe: AWWA C115, C150, and C151.
      a. All pipe and fittings shall be cement-mortar lined per AWWA C104 except the following will be Protecto 401 ceramic epoxy lined if ductile iron pipe is used:
         1. Peak flow clarifier to transfer pump station.
         2. Transfer pump station to filter building.
         3. WAS piping from decant equalization basin to future MBR connection.
      b. Minimum 350 psi for 4-inch through 12-inch diameter pipes.
      c. Minimum 250 psi for 14-inch through 20-inch diameter pipes.
      d. Minimum 200 psi for 24-inch diameter pipes.
   (b) PVC: AWWA C900
      a. Minimum 150 psi for 4- through 12-inch diameter sewer pipes.

b. Minimum 100 psi for 14- through 20-inch diameter sewer pipes.
c. Minimum 200 psi for 4- through 6-inch diameter water main pipes.

(c) Restrained mechanical or restrained push-on-type joints for pipe and fittings.
(d) Ductile iron piping to include exterior bituminous coating for pipe and fittings.
(e) Ductile iron piping to include polyethylene encasement (minimum 8 mils) for pipe and fittings.

2. Water Service Piping:
   (a) For pipes less than or equal to 3-inches in diameter.
   (b) Polyethylene plastic tubing: ASTM D2737 SDR 9 200 psi
   (c) PVC: ASTM D1785 Schedule 80 PVC
3. Interior Process Piping
   (a) Ductile Iron Pipe, Flanged Pipe & Fittings
   (b) Primed and painted.
4. Exposed Exterior Process Piping
   (a) Ductile Iron Pipe, Flanged Pipe & Fittings
   (b) Primed and painted.
   (c) Heat traced (for freeze protection), insulated, and jacketed.
5. Misc PVC Pipe
   (a) Sch 80, Glue Fittings
   (b) All solvents must be compatible with chemicals being used.
6. Chemical Feed Piping
   (c) Chemical feed piping to be flexible PE tubing in PVC carrier pipe or rigid PVC piping

33 31 13 GRAVITY PIPE

1. Buried Yard Piping: Ductile Iron ASTM A746
2. Buried Yard Piping: PVC
   a. ASTM F891 for cleanouts and laterals only.
   b. ASTM D3034 SDR 35 (for depths of cover less than or equal to 10-feet).
   c. ASTM D3034 SDR 26 (for depths of cover greater than 10-feet).
   d. ASTM F679 minimum 46 psi pipe stiffness (for depths of cover less than or equal to 10-feet).
   e. ASTM F679 minimum 115 psi pipe stiffness (for depths of greater than 10-feet).
3. RCP
   a. ASTM C76 for flared end section only.
4. ASTM F891 PVC cleanouts and Cast-Iron cleanouts.
5. Manholes
   (a) Standard Precast Concrete Manholes, minimum 48-inch diameter, minimum wall thickness equal to 1/12 of inside diameter (in inches) plus one inch, minimum 6-inch base section.
   (b) Special shallow, Precast Concrete Manholes needed for MH-1 and MH-2 as indicated on the drawings.
   (c) Resilient pipe connectors.
   (d) FRP or Steel Steps at 12- to 16-inch intervals.
   (e) Neenah manhole frame and covers.

33 12 16 VALVES

1. Valves AWWA nut, manual handwheel, or motor actuation, as indicated on the drawings. Buried valves shall be mechanical joint, exposed/interior valves shall be flanged. Paint shall be epoxy in the interior and on the exterior per AWWA C550.
2. Air Release Valves shall conform to AWWA C512.
   (a) Heavy-duty wastewater style
   (b) Stainless steel internal parts
   (c) Isolation valve at connection
3. Butterfly valves for water service shall conform to AWWA C504.
   (a) Ductile or cast iron body
   (b) 316 stainless steel stem
   (c) Synthetic rubber seat
4. Check valves shall by swing-type and conform to AWWA C508.
   (a) Iron body
   (b) Full opening
   (c) Stainless steel hinge pin with outside lever and weight
5. Plug valves shall conform to AWWA C517.
   (a) Cast iron body and cover
   (b) Cast or ductile iron plug
   (c) Synthetic rubber facing
6. Valve boxes shall be two-piece cast iron with extension stems and marked drop cover.

33 31 50 PIPE INSTALLATION

1. General pipe installation and jointing.
2. Polyethylene encasement for DIP.
3. Field testing.
4. Disinfection for potable water.

33 32 22 SUBMERSIBLE PUMPS

1. Equipment manufacturer: KSB, Sulzer, Flygt, or Equal.
2. Three (3) Submersible Pumps
   a. Capacity: 1,390 gpm
   b. Design Head: 33 feet
   c. Max Horsepower: 350 hp
3. Accessories:
   a. Pump Discharge Connection
   b. Rail Guides, stainless steel
   c. Lifting Chain or Cable
   d. Guide Rails
   e. Cable Holder
4. Spare Parts:
   a. Bearings – 1 complete set
   b. Wear Parts – 1 complete set

5. Startup:
    a. Supplier shall provide start-up, and testing services for pumps as specified in DIVISION 01 and Section 33 32 22.

35 20 16 SLIDE GATES

1. Equipment manufacturer: Rodney Hunt, Waterman, Hydro Gate, Whipps, Golden Harvest, or Equal.
1. Conform to AWWA C561
2. Two enclosed, Self-Contained, Rising Stem Slide Gates with manual actuators at the existing Chlorine Contact Basin
3. Five electric actuators for existing gates at the Influent Screening channel.
4. Accessories:
    a. Rising Stems, 304 stainless steel
    b. Seals, neoprene
    c. Fasteners and Anchor Bolts, 316 stainless steel
    d. Actuator Lift Nuts
    e. Wheel or Crank Operators
    f. Stop Collars
5. Spare Parts:
    a. As recommended by manufacturer.
6. Startup:
    a. Supplier shall provide start-up, and testing services for gates as specified in DIVISION 01, including leak testing.

Division 40 PROCESS CONTROL AND INSTRUMENTATION REQUIREMENTS

1. Provide Control Panels
    a. DFB-CP-060
    b. TSP-CP-060
2. Provide instrumentation and other equipment.
    a. Disinfection Building:
        i. Provide and install a radar level sensor to storage tanks (count 3), flange mount.
        ii. Provide and install one fill station to include indication and alarming for all three tanks.
        iii. Provide and install two analyzer transmitters and three chlorine sensors.
        iv. Program chemical feeds systems (count 2) for duty/standby operation, no failover, operator selectable duty pump.
        v. Chemical feed systems to dose per engineer supplied rates as calculated by mag flow meter measure date. With operator selectable manual setpoints.
        vi. Provide alarming for chlorine concentrations.
    b. Headworks
        i. Provide an install one level sensor.
    c. Transfer Pumps
        i. Provide and install four float level switches and one level sensor.

ii. Program on 3 duty/one standby control scheme for transfer pumps. Scheme shall maintain wet well level. Float backup scheme shall be hard wired.

3. Control Panel Hardware Requirements:
    a. UPS: Double conversion online-type, 15-minute backup in each PLC/RIO Enclosure
    b. Field Terminations: PLC/RIO Enclosures shall be provided with dedicated field wiring terminals. Field wires shall not terminate directly on control equipment.
    c. Enclosures shall be free-standing, NEMA 12 with 3-pt latch and pad-lockable handle for electrical rooms. NEMA 4X SS for all other locations.
    d. Communication Protocol: Ethernet/IP.
    e. Network Switches: Allen Bradley Managed Switches, with SFPs and port counts as shown in network drawing.
    f. PLCs:
        i. Allen-Bradley CompactLogix for process equipment skids
    g. RIOs
        i. Allen Bradley ControlLogix I/O system
    h. IO Counts
        i. As shown in the P&IDs. 25% spare of each type Minimum
4. Instrumentation Requirements
    a. Float Switch: Free-floating, mercury-free level switch.
    b. Magnetic Flow Meters: Remote aluminum NEMA 4X transmitter, local display, 120-Vac power supply, 4-20mA HART output, measurement + reference electrodes, flanged body, submergence rated where installed below-grade, 0.5% accuracy, grounding rings.
    c. Pressure Gages: Bourdon tube-type or diaphragm type, 4.5” dial, 1% accuracy, 2-valve block and bleed manifold except provide compatible diaphragm seals for chemical lines.
    d. Pressure Transmitters: Die-cast aluminum NEMA 4X housing, local display, 316L wetted parts, 1/2” NPT process connection, 0.075% accuracy, close-coupled mounting, 2-valve block and bleed manifold, 4-20mA HART output.
    e. Non-Contacting Level Transmitters: Radar technology, PVDF or PTFE process connection material, 4-20mA output, loop powered, 0.2-inch accuracy, echo viewing and masking capability, remote display. 6” flange connections for bulk tank and through floor sleeve connections, 2” NPT for other bracket mounted units.
    f. Remote Displays: Die-cast aluminum NEMA 4X housing, backlit LCD display, loop powered, 4-20mA input, 0.75” character height.
    g. Free Chlorine Analyzer: Packaged colorimetric analyzer suitable for EPA reporting. Package to include reagent preparation/feed, sample conditioning, and analyzer/transmitter. Transmitter to include 4-20 mA output and a min. of two (2) dry contact outputs. Analyzer to perform self-test and auto-blanking between samples to compensate for varying sample quality, line

voltage, and light source age. Package shall be capable of self-cleaning and thirty (30) days unattended operation.
(1) Hach CL17sc sensor.
(2) Supply Hach SC4500 transmitter.

5. Software Requirements:
    a. Integration with other PLC Software:
        i. Wonderware
    b. Integration with Ethernet-capable Equipment:
        i. VFDs.
    c. Integration of Process Equipment: Integrate Ethernet I/P IO from Filter Skid as indicated by P&IDs. Provide new screens for transfer pumps, disinfection, and filter to provide remote monitoring. Integrate Ethernet I/P IO from Bar Screen skid as indicated in the P&IDs to provide remote monitoring of the screening system.
    d. Integration of new equipment into Owners existing SCADA software (Wonderware). PLC logic to reside on owners existing ControlLogix PLC.

2. Other work
    a. PLC / HMI / Reports Programming Development, Testing, Startup, Training.
    b. Controls Startup, Configuration, Testing, Training, O&M Manuals.

46 21 13 FLEXIBLE RAKE BAR SCREENS

1. Equipment manufacturer: Duperon, Parkson, or Equal
2. Two (2) Influent Bar Screens
    a. Peak Capacity (each): 8 MGD
    b. Maximum Effective Spacing: ¼ inch
    c. Minimum Angle of Screen: 70 degrees
3. One (1) Screenings Conveyor
    a. Heat traced and insulated
4. One (1) Screenings Washer/Compactor
    a. Heat traced and insulated
5. Accessories:
    a. Side Frames
    b. Link System
    c. Dead Plate
    d. Rake Wiper
    e. Discharge Chute
    f. Side Shields
    g. Screen Enclosure
    h. Drive Unit
    i. Heat Tracing
    j. Conveyor Inlet Hoppers
    k. Compactor Discharge Tube

6. Spare Parts:
    a. As recommended by Manufacturer
    b. Any special tools required for maintenance
7. Startup:
    a. Provide services as specified in DIVISION 01.
    b. After installation, a field mechanical and electrical performance test shall be performed in the presence of the Purchaser.
        i. Each piece of equipment shall be tested for normal start, stop, and emergency stop cycles.
        ii. Each piece of equipment shall be field tested and the equipment calibrated to demonstrate that all equipment will satisfactorily perform the functions and criteria specified.

46 31 41 DISC FILTERS

1. Equipment manufacturer: Aqua Aerobics or Nexom.
2. One (1) Disk Cloth Filter
    a. Peak Daily Flow (PDF): 6.0 MGD
    b. Maximum Nominal Size: 10 micron
    c. Maximum Number of Disks per Filter: 12
3. Accessories:
    a. Backwash Pumps as required
    b. Instrumentation and controls by Manufacturer
4. Spare Parts:
    a. As recommended by Manufacturer.
    b. Any special tools required for maintenance.
5. Startup:
    a. Provide services as specified in DIVISION 01 and Section 46 31 41.
    b. After installation, a field mechanical and electrical performance test shall be performed in the presence of the Purchaser.
        i. Each piece of equipment shall be tested for normal start, stop, and emergency stop cycles.
        ii. Each piece of equipment shall be field tested and the equipment calibrated to demonstrate that all equipment will satisfactorily perform the functions and criteria specified.

46 33 01 CHEMICAL FEED AND STORAGE SYSTEMS

1. Liquid Feed Systems:
2. Two dual-pump skids shall be provided. One compatible with sodium hypochlorite and one compatible with sodium bisulfite.
3. Metering skids shall be provided with:
    (a) Two pumps, calibration column, pressure gauges, pressure relief valve, pulsation damper, and isolation valves. Pumps will have integral controls.
    (b) Pumps shall be diaphragm with adjustable stroke length or variable frequency drive by ProMinent, Grundfos, or Equal.

4. Chemical Storage Systems
   (a) Two 3,000 gal outdoor, single-wall bulk tanks for sodium hypochlorite
   (b) One 1,500 gal indoor, double-wall bulk tank for sodium bisulfite.
5. Chemical injection quills and diffusers by Saf-T-Flo or equal.

Pre-Final Design Drawings

The Pre-Final Design Drawing package includes the drawings listed below. All drawings are the listed Revision and dated January 9, 2023.

DRAWING No.	DRAWING NAME
GENERAL	
010G001	COVER
010G002	INDEX I
010G003	INDEX II
010G004	GENERAL LEGEND
010G005	SPACE MATERIAL MATRIX
CIVIL	
010C001	CIVIL LEGEND, ABBREVIATIONS, AND KEY MAP
010C002	CIVIL GENERAL NOTES
010CD101	CIVIL DEMOLITION PLAN AREA 2
010CD102	CIVIL DEMOLITION PLAN AREA 3
010CD103	CIVIL DEMOLITION PLAN AREA 4
010CD104	CIVIL DEMOLITION PLAN AREA 6
010CD105	CIVIL DEMOLITION PLAN AREA 7
010CD106	CIVIL DEMOLITION PLAN AREA 8
010C100	CIVIL OVERALL PROPERTY PLAN
010C101	CIVIL OVERALL SITE PLAN
010C102	CIVIL SITE PLAN AREA 2
010C103	CIVIL SITE PLAN AREA 3
010C104	CIVIL SITE PLAN AREA 4
010C105	CIVIL SITE PLAN AREA 6
010C106	CIVIL SITE PLAN AREA 7
010C107	CIVIL SITE PLAN AREA 8
010C108	CIVIL GRADING PLAN AREA 2
010C109	CIVIL GRADING PLAN AREA 3
010C110	CIVIL GRADING PLAN AREA 4
010C111	CIVIL GRADING PLAN AREA 6
010C112	CIVIL GRADING PLAN AREA 7
010C113	CIVIL GRADING PLAN AREA 8
010C114	CIVIL YARD PIPING PLAN AREA 2
010C115	CIVIL YARD PIPING PLAN AREA 3
010C116	CIVIL YARD PIPING PLAN AREA 4
010C117	CIVIL YARD PIPING PLAN AREA 6
010C118	CIVIL YARD PIPING PLAN AREA 7
010C119	CIVIL YARD PIPING PLAN AREA 8
010C120	CIVIL YARD PIPING PLAN POINT TABLES
010C501	CIVIL DETAIL SHEET 1

DRAWING No.	DRAWING NAME
010C502	CIVIL DETAIL SHEET 2
STRUCTURAL	
010S001	STRUCTURAL LEGEND AND ABBREVIATIONS
010S002	STRUCTURAL GENERAL NOTES
010S003	STATEMENT OF SPECIAL INSPECTION SHEET 1
010S004	STATEMENT OF SPECIAL INSPECTION SHEET 2
010S501	STRUCTURAL STANDARD CONCRETE DETAILS SHEET 1
010S502	STRUCTURAL STANDARD CONCRETE DETAILS SHEET 2
010S503	STRUCTURAL STANDARD CONCRETE DETAILS SHEET 3
010S504	STRUCTURAL STANDARD CONCRETE DETAILS SHEET 4
010S505	STRUCTURAL STANDARD CONCRETE DETAILS SHEET 5
010S506	STRUCTURAL STANDARD CONCRETE DETAILS SHEET 6
010S507	STRUCTURAL STANDARD STEEL DETAILS SHEET 1
010S508	STRUCTURAL STANDARD STEEL DETAILS SHEET 2
010S509	STRUCTURAL STANDARD STEEL DETAILS SHEET 3
010S510	STRUCTURAL STANDARD STEEL DETAILS SHEET 4
020SD101	INFLUENT SCREENING CONVEYOR & DEWATERING DEMOLITION PLAN AND SECTION
020S101	INFLUENT SCREENING CONVEYOR & DEWATERING PLAN @ EL 1252-89'
020S102	INFLUENT SCREENING CONVEYOR & DEWATERING PLANS
020S301	INFLUENT SCREENING CONVEYOR & DEWATERING SECTIONS AND DETAILS
040S101	TRANSFER PUMP STATION VALVE VAULT PLANS AND SECTIONS
040S102	TRANSFER PUMP STATION WET WELL PLANS
040S301	TRANSFER PUMP STATION WET WELL SECTIONS
050S101	FILTER BUILDING FOUNDATION PLAN
050S102	FILTER BUILDING ROOF PLAN
050S301	FILTER BUILDING SECTIONS
050S401	FILTER BUILDING PLATFORM ENLARGED PLAN, SECTIONS, AND DETAILS
060S101	DISINFECTION BUILDING FOUNDATION PLAN
060S102	DISINFECTION BUILDING ROOF PLAN
060S301	DISINFECTION BUILDING SECTIONS SHEET 1
060S302	DISINFECTION BUILDING SECTIONS SHEET 2
065S101	CHLORINE CONTACT BASIN TOP PLAN
065S301	CHLORINE CONTACT BASIN SECTIONS AND DETAILS SHEET 1
065S302	CHLORINE CONTACT BASIN SECTIONS AND DETAILS SHEET 2
ARCHITECTURAL	
010A001	ARCHITECTURAL LEGEND AND ABBREVIATIONS
010A002	ARCHITECTURAL GENERAL NOTES
030A101	PEAK FLOW CLARIFIER PLAN AND SECTION

DRAWING No.	DRAWING NAME
030A201	PEAK FLOW CLARIFIER NORTH AND SOUTH ELEVATIONS
050A101	FILTER BUILDING FLOOR PLAN
050A102	FILTER BUILDING ROOF PLAN
050A201	FILTER BUILDING NORTH AND SOUTH ELEVATIONS
050A202	FILTER BUILDING EAST AND WEST ELEVATIONS
050A301	FILTER BUILDING SECTIONS
050A601	FILTER BUILDING SCHEDULES AND DETAILS SHEET 1
050A602	FILTER BUILDING SCHEDULES AND DETAILS SHEET 2
060A101	DISINFECTION BUILDING FLOOR PLAN AND CODE REVIEW
060A102	DISINFECTION BUILDING ROOF PLAN
060A201	DISINFECTION BUILDING NORTH AND SOUTH ELEVATIONS
060A202	DISINFECTION BUILDING EAST AND WEST ELEVATIONS
060A301	DISINFECTION BUILDING SECTIONS
060A601	DISINFECTION BUILDING SCHEDULES AND DETAILS SHEET 1
060A601	DISINFECTION BUILDING SCHEDULES AND DETAILS SHEET 2
MECHANICAL	
010M001	MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES
010M501	MECHANICAL STANDARD DETAILS
050M101	FILTER BUILDING MECHANICAL FLOOR PLAN
050M102	FILTER BUILDING MECHANICAL ROOF PLAN
050M601	FILTER BUILDING MECHANICAL SCHEDULES AND SEQUENCE OF OPERATIONS
060M101	DISINFECTION BUILDING MECHANICAL FLOOR PLAN
060M102	DISINFECTION BUILDING MECHANICAL ROOF PLAN
060M301	DISINFECTION BUILDING MECHANICAL SECTIONS AND NATURAL GAS RISER DIAGRAM
060M601	DISINFECTION BUILDING MECHANICAL SCHEDULES AND SEQUENCE OF OPERATIONS
PLUMBING	
010P501	PLUMBING STANDARD DETAILS
020P101	INFLUENT SCREENING PLUMBING PLAN
050P101	FILTER BUILDING PLUMBING FLOOR PLAN AND SCHEDULES
050P701	FILTER BUILDING PLUMBING RISER DIAGRAMS
060P101	DISINFECTION BUILDING PLUMBING FLOOR PLAN
060P301	DISINFECTION BUILDING PLUMBING SECTIONS
060P601	DISINFECTION BUILDING PLUMBING SCHEDULES AND RISER DIAGRAMS
PROCESS & INSTRUMENTATION	
010DI601	P&ID LEGEND, ABBREVIATIONS, AND GENERAL NOTES SHEET 1
010DI602	P&ID LEGEND, ABBREVIATIONS, AND GENERAL NOTES SHEET 2

DRAWING No.	DRAWING NAME
	P&ID LEGEND, ABBREVIATIONS, AND GENERAL NOTES SHEET 3
010DI603	
010DI604	INFLUENT SCREENING P&ID
010DI606	PEAK FLOW CLARIFIER AND TRANSFER PUMP STATION P&ID
010DI607	DISC FILTER P&ID
010DI608	CHEMICAL VAULT AND SAMPLING P&ID
010DI609	CHEMICAL DISINFECTION P&ID
010DI610	SODIUM HYPOCHLORITE FEED SYSTEM P&ID
010DI611	SODIUM BISULFITE FEED SYSTEM P&ID
PROCESS	
010D001	PROCESS LEGEND, ABBREVIATIONS AND GENERAL NOTES
010D501	PROCESS STANDARD DETAILS SHEET 1
010D502	PROCESS STANDARD DETAILS SHEET 2
010D503	PROCESS STANDARD DETAILS SHEET 3
010D601	PROCESS FLOW DIAGRAM
010D602	PEAK FLOW HYDRAULIC PROFILE
010D603	PEAK FLOW DESIGN PARAMETERS
020DD101	INFLUENT SCREENING DEMOLITION PLAN
020D101	INFLUENT SCREENING PLAN
020D102	INFLUENT SCREENING LOWER LEVEL PLAN
020D301	INFLUENT SCREENING SECTION A
020D302	INFLUENT SCREENING SECTION B
040D101	TRANSFER PUMP STATION PLAN
040D301	TRANSFER PUMP STATION SECTION
050D101	FILTER BUILDING PLAN
050D301	FILTER BUILDING SECTIONS
060D101	DISINFECTION BUILDING PLAN
060D301	DISINFECTION BUILDING SECTIONS
065DD101	CHLORINE CONTACT BASIN DEMOLITION PLAN
065DD301	CHLORINE CONTACT BASIN DEMOLITION SECTION
065D101	CHLORINE CONTACT BASIN PLAN
065D301	CHLORINE CONTACT BASIN SECTION
ELECTRICAL	
010E001	ELECTRICAL LEGEND
010E011	OVERALL ONE-LINE DIAGRAM
010E012	BAR SCREEN 480V TEMPORARY POWER PANEL ONE-LINE DIAGRAM
010E013	TRANSFER PUMP STATION TEMPORARY POWER PANEL ONE-LINE DIAGRAM
010E014	FILTER 480V POWER PANEL ONE-LINE DIAGRAM
010E015	DISINFECTION 480V POWER ONE-LINE DIAGRAM
010E021	OVERALL NETWORK DIAGRAM
010E022	PHASE 1 NETWORK DIAGRAM

DRAWING No.	DRAWING NAME
010E041	PANELBOARD SCHEDULES SHEET 1
010E042	PANELBOARD SCHEDULES SHEET 2
010E051	LUMINAIRE SCHEDULE
010E061	CONTROL DIAGRAMS SHEET 1
010E101	OVERALL ELECTRICAL SITE PLAN
010E102	ELECTRICAL SITE PLAN AREA 2
010E103	ELECTRICAL SITE PLAN AREA 3
010E104	ELECTRICAL SITE PLAN AREA 7
010E301	ELECTRICAL DUCT BANK SECTIONS
010E501	ELECTRICAL STANDARD DETAILS SHEET 1
010E502	ELECTRICAL STANDARD DETAILS SHEET 2
010E503	ELECTRICAL STANDARD DETAILS SHEET 3
010E504	ELECTRICAL STANDARD DETAILS SHEET 4
010E505	ELECTRICAL STANDARD DETAILS SHEET 5
020E101	INFLUENT SCREENING CONVEYOR AND DEWATERING POWER AND GROUNDING LOWER LEVEL PLAN
020E102	INFLUENT SCREENING CONVEYOR AND DEWATERING POWER AND GROUNDING UPPER LEVEL PLAN
020E103	INFLUENT SCREENING CONVEYOR AND DEWATERING INSTRUMENTATION AND CONTROLS LOWER LEVEL PLAN
020E104	INFLUENT SCREENING CONVEYOR AND DEWATERING INSTRUMENTATION AND CONTROLS UPPER LEVEL PLAN
020E301	INFLUENT SCREENING CONVEYOR AND DEWATERING SECTIONS A, B, C
030E101	PEAK FLOW CLARIFIER ELECTRICAL PLAN
040E101	TRANSFER PUMP STATION ABOVE GRADE ELECTRICAL PLAN
040E102	TRANSFER PUMP STATION BELOW GRADE ELECTRICAL PLAN
050E101	FILTER BUILDING POWER AND GROUNDING PLAN
050E102	FILTER BUILDING SMALL POWER AND LIGHTING PLAN
050E103	FILTER BUILDING INSTRUMENTATION AND CONTROLS PLAN
050E104	FILTER BUILDING ELECTRICAL ROOF PLAN
050E301	FILTER BUILDING SECTION A
060E101	DISINFECTION BUILDING POWER AND GROUNDING PLAN
060E102	DISINFECTION BUILDING SMALL POWER AND LIGHTING PLAN
060E103	DISINFECTION BUILDING INSTRUMENTATION AND CONTROLS PLAN
060E104	DISINFECTION BUILDING ROOF ELECTRICAL PLAN
065E101	CHLORINE CONTACT BASIN ELECTRICAL PLAN
065E501	CHLORINE CONTACT BASIN CHEMICAL VAULT

REFERENCE

HOOD - RICH ARCHITECTS & CONSULTING ENGINEERS	
22	CHLORINE CONTACT CHAMBERS & FLOW METER & OUTLET STRUCTURES

DRAWING No.	DRAWING NAME
SCOTT CONSULTING ENGINEERS, P.C.	
10	INFLUENT PUMPING STATION PLANS, SECTIONS AND DETAILS
11	INFLUENT PUMPING STATION SECTIONS AND DETAILS

EXHIBIT L – ARPA SPECIFICATION INSERTS

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS
(EXECUTIVE ORDER 11246)

1. As used in these specifications:
   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   b. "Director" means Director, Office of Federal Contract Compliance Programs United States Department of Labor, or any person to whom the Director delegates authority;
   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
   d. "Minority" includes:
      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting it's EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than once month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory affect by continually monitoring all personnel and employment related activities to ensure that

the EEO policy and the Contractor's obligations under these Specifications are being carried out.

n. Ensure that all facilities and company activities re nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications providing that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these Specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these Specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligation under these Specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these Specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these Specifications, the Director shall proceed in accordance with 41-CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables	Goals for minority participation for each trade	Goals for female participation in each trade
All years	2%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

Participation Goals for Minority Contractors per the
October 2019 Department of Labor OFCCP - Technical Assistance Guide

Missouri Counties

Adair 4.0	Howard 4.0	Ray 12.7
Andrew 3.2	Howell 2.3	Reynolds 11.4
Atchison 10.0	Iron 11.4	Ripley 11.4
Audrain 4.0	Jackson 12.7	St. Charles 14.7
Barry 2.3	Jasper 2.3	St. Clair 14.7
Barton 2.3	Jefferson 14.7	St. Francois 11.4
Bates 10.0	Johnson 10.0	Ste. Genevieve 11.4
Benton 10.0	Knox 4.0	St. Louis 14.7
Bollinger 11.4	Laclede 2.3	St. Louis City 14.7
Boone 4.0	Lafayette 10.0	Saline 10.0
Buchanan 3.2	Lawrence 2.3	Schuyler 4.0
Butler 11.4	Lewis 3.1	Scotland 4.0
Caldwell 10.0	Lincoln 11.4	Scott 11.4
Callaway 4.0	Linn 4.0	Shannon 2.3
Camden 4.0	Livingston 10.0	Shelby 4.0
Cape Girardeau 11.4	McDonald 2.3	Stoddard 11.4
Carroll 10.0	Macon 4.0	Stone 2.3
Carter 11.4	Madison 11.4	Sullivan 4.0
Cass 12.7	Maries 11.4	Taney 2.3
Cedar 2.3	Marion 2.4	Texas 2.3
Chariton 4.0	Mercer 10.0	Vernon 2.3
Christian 2.0	Miller 4.0	Warren 11.4
Clark 3.4	Mississippi 11.4	Washington 11.4
Clay 12.7	Moniteau 4.0	Wayne 11.4
Clinton 10.0	Monroe 4.0	Webster 2.3
Cole 4.0	Montgomery 11.4	Worth 10.0
Cooper 4.0	Morgan 4.0	Wright 2.3
Crawford 11.4	New Madrid 26.5	
Dade 2.3	Newton 2.3	
Dallas 2.3	Nodaway 10.0	
Daviess 10.0	Oregon 2.3	
De Kalb 10.0	Osage 4.0	
Dent 11.4	Ozark 2.3	
Douglas 2.3	Pemiscot 26.5	
Dunklin 26.5	Perry 11.4	
Franklin 14.7	Pettis 10.0	
Gasconade 11.4	Phelps 11.4	
Gentry 10.0	Pike 3.1	
Greene 2.0	Platte 12.7	
Grundy 10.0	Polk 2.3	
Harrison 10.0	Pulaski 2.3	
Henry 10.0	Putnam 4.0	
Hickory 2.3	Ralls 3.1	
Holt 10.0	Randolph 4.0	

EXECUTIVE ORDER
05-30

WHEREAS, since 1990, the Office of Administration, State of Missouri has endeavored to "establish and implement a plan to increase and maintain the participation of certified socially and economically disadvantaged small business concerns or minority business enterprises, directly or indirectly, in contracts for supplies, services, and construction contracts, consistent with targets determined after an appropriate study conducted to determine the availability of socially and economically disadvantaged small business concerns and minority business enterprises in the marketplace;" pursuant to Senate Bills 808 & 672 passed by the General Assembly and signed into law by then Governor Ashcroft; and

WHEREAS, such a study was conducted and found statistically significant disparities in state contractual expenditures for construction and the purchase of goods and services, as compared to the ready, willing and able minority and women-owned business enterprises (M/WBEs) in the state; and

WHEREAS, Executive Order 98-21 established goals to increase the percentage of goods and services procured from certified M/WBEs; and

WHEREAS, the goals for M/WBE participation established in Executive Order 98-21 have not been substantially met; and statistically significant disparities in state contractual expenditures for construction and the purchase of goods and services from minority and women-owned businesses in the state still exist; and

WHEREAS, on September 27, 2004, Behavioral Interventions, Inc. filed a lawsuit in the U.S. District Court, in the Western District of Missouri challenging the propriety of Missouri's M/WBE program. In January 2005, a preliminary injunction was issued ordering the Office of Administration, State of Missouri to suspend the placing of M/WBE requirements in any procurement by the State of Missouri. Because of the uncertainty created in the aftermath of the litigation, the program has undergone comprehensive revision not only to withstand constitutional scrutiny, but also to more adequately address the compelling needs and obstacles of minority and women-owned businesses to gain greater access to business opportunities, both public and private, within the state of Missouri; and

WHEREAS, the State of Missouri is dedicated to the compelling governmental interest in remedying race and sex based discrimination in a manner consistent with state and federal law; and

WHEREAS, the State of Missouri is committed to enhancing the economic health and prosperity of the state by promoting the greater use of minority and women-owned businesses. Job creation for Missouri residents, and therefore the success of minority and women-owned businesses, are paramount goals of this Administration; and

WHEREAS, the State of Missouri will gain enormously from improvements in expanded business opportunities for Missouri residents created by the expansion of minority and women-owned businesses and through the additional tax revenues generated by those individuals and businesses; and

WHEREAS, to further these goals, which are of the highest priority of this Administration, it is the policy of this Administration to develop economic opportunities for minority and women-owned businesses wherever possible.

NOW, THEREFORE, I, Matt Blunt, Governor of the State of Missouri, under the authority vested in me under the constitution and the laws of this state, to fulfill the mandate of the General Assembly in Senate Bills 808 & 672 and to pursue the compelling interest of remedying discrimination, do hereby declare the following narrowly tailored policies and procedures shall be adopted by the Executive Branch of state government in procuring all types of goods and services:

1. The Office of Supplier and Workforce Diversity (OSWD) is established to replace the Office of Equal Opportunity. All the authority, powers and privileges of the Office of Equal Opportunity is transferred to the OSWD. The Director of OSWD shall be appointed by the Governor. The Director of OSWD shall report to the Commissioner of Administration. The Director shall have primary responsibility for assisting in the coordination and implementation of affirmative action throughout all departments of the executive branch of state government, including programs to increase M/WBE participation, and advising the Governor on issues regarding equal employment opportunity, affirmative action, and efforts to administer affirmative action goals and timetables for implementation throughout the departments of the executive branch.

   The Office of State Compliance Officer is hereby abolished. The Director of OSWD shall be the State's chief compliance officer for the executive branch of state government to ensure that the State of Missouri is complying with all federal and state laws concerning equal employment opportunity and affirmative action. If needed, the Director shall assist each department in developing an Affirmative Action Plan of Implementation. Additionally, the Director of OSWD shall review progress reports of the departments and shall meet biannually with each department director to evaluate departmental results and determine the course of future affirmative action goals, timetables, recruiting, planning, and implementation. The results of each meeting shall be reported in writing to the Governor and Commissioner of Administration.

   Not later than January first of each calendar year, the Director of OSWD shall provide a report to the Governor and the Commissioner of Administration which summarizes the activities of each department pursuant to this Order and which contains recommendations for additional programs to accomplish the purposes of this Order.

   The Commissioner of Administration shall provide the Director of OSWD with such facilities, staff, resources, equipment, and supplies as are necessary to carry out the duties set forth herein. The Director of OSWD shall submit a proposal each fiscal year to the Commissioner of Administration detailing the needs of the Office of Supplier and Workforce Diversity.

2. All state agencies shall continue to make every feasible effort to target the percentage of goods and services procured from certified MBEs and WBEs to 10% and 5%, respectively. These efforts shall include participation in an Executive Branch Contract Compliance Council which shall, in cooperation with the OSWD, review procurement efforts to assist in meeting the requirements of this Executive Order.

3. The Divisions of Purchasing and Materials Management (PMM) and Facilities Management, Design and Construction (FMDC) within the Office of Administration shall be authorized to implement the following programs to increase M/WBE procurement:

   a. PMM shall be authorized to encourage prime contractors to subcontract with M/WBEs on all contracts of $100,000 or greater. OSWD contracts shall include a provision for participation which will allow the bidders to tailor a plan to fit the contract. Mandatory percentage goals of M/WBE participation shall not be established in violation of federal or state law. M/WBE participation shall be encouraged by PMM in consultation with OSWD and the user agency depending on the availability of M/WBE vendors in the applicable commodity/service and geographical area. PMM shall consider M/WBE participation as a significant factor in a contract bid. The M/WBE participation will be evaluated along with other criteria in the award of a bid. It is intended that 10% MBE and 5% WBE percentage is desired. The participation can be met through the use of prime contractors, subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful opportunities for M/WBE participation.

OSWD in conjunction with PMM shall also appoint a M/WBE Purchasing Manager for the purpose of promoting and coordinating the participation of M/WBEs in State of Missouri contracts.

b. FMDC shall be authorized to evaluate M/WBE participation in design contracts, as part of the quality-based selection process, for construction projects worth $1.5 million or more. On contracts with lesser value, FMDC shall make special efforts to target M/WBEs as prime contractors. Overall participation targets for each fiscal year shall be 10% MBE and 5% WBE; however, mandatory percentage goals shall not be established in violation of federal or state law. The targets may be met through the use of prime contractors, subcontractors, joint ventures, or other arrangements that afford meaningful opportunities for M/WBE participation.

FMDC shall also be authorized to seek participation of M/WBEs on construction contracts. The targets shall be set on a project by project basis by FMDC in consultation with the OSWD, taking into account the availability of M/WBE contractors in the applicable geographic area and construction trade, with the overall participation targets for each fiscal year at 10% MBE and 5% WBE. The targets may be met through the use of prime contractors, subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful opportunities for M/WBE participation.

c. Both FMDC and the PMM shall establish policies or rules to implement these programs which shall include a waiver provision for prime contractors who make a good faith effort to attain such targets but do not succeed. They shall also establish enforcement procedures in cooperation with the OSWD to assist contractors to meet subcontracting commitments. Their programs shall be reviewed annually to determine whether targets should be modified.

d. FMDC and PMM are authorized and directed to identify and consult with such entities as the St. Louis Minority Business Council, the Kansas City Minority Supplier Council and the Kansas City Council of Women Business Owners in identifying M/WBEs to participate in state procurements.

4. OSWD shall monitor the programs and work with FMDC and PMM in their implementation. The OSWD shall have the following responsibilities and carry out the following tasks:

a. to actively recruit, facilitate and serve as a clearinghouse for M/WBE contractors to participate in the programs;

b. to cooperate with the PMM and the FMDC in the administration and enforcement of the M/WBE participation programs;

c. to cooperate with the PMM and the FMDC in the development of policies, forms, and procedures to carry out the requirements of the M/WBE participation programs;

d. to participate in M/WBE target setting;

e. to perform fact-gathering and record-keeping to determine both the effectiveness of state participation programs and the availability and utilization of eligible M/WBEs on individual projects, including levels of participation and availability in specific areas;

f. to certify contractors as M/WBEs;

g. to assess the continuing need for M/WBE participation targets for specific contracting areas;

h. to monitor contractor participation with M/WBE targets; and

i. to recommend sanctions for contractors who fail to faithfully execute M/WBE participation plans during the course of contract performance.

5. The programs shall be reviewed annually to monitor the level of M/WBE participation achieved in state contracting areas during the previous year. An assessment of the programs and whether their continuation is necessary shall be delivered to the Governor and the General Assembly. After it is determined that M/WBEs participate in state contracts in a manner commensurate with their presence and capability in the state marketplace, the programs set forth in section 2 will be terminated.

6. Executive Order No. 98-21 (1998) and article II of Executive Order 94-03 (1994) are hereby superseded and replaced by this Executive Order.

IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Missouri, in the City of Jefferson, on this 8th day of September, 2005.

Matt Blunt
Governor

ATTEST:

Robin Carnahan
Secretary of State

EXECUTIVE ORDER
15-06

WHEREAS, the State of Missouri is committed to enhancing the economic health and prosperity of Minority and Women Business Enterprises (M/WBEs) through the use of M/WBE contract benchmarks established in state contracts for supplies, services, and construction that are consistent with §§37.020 – 37.023, RSMo, and the findings of the most current disparity study; and

WHEREAS, upon funding being appropriated by the General Assembly in 2013, the Office of Administration (OA) commissioned a Disparity Study which was completed on October 24, 2014, that studied the utilization of M/WBEs in state contracts and the availability of M/WBEs in the applicable marketplace; and

WHEREAS, Executive Order 14-07 established the Disparity Study Oversight Review Committee to review the findings of the 2014 Disparity Study and to produce meaningful recommendations to assist the State of Missouri in developing a contracting process that is inclusive, promotes diversity, and provides greater opportunity for M/WBEs; and

WHEREAS, after conducting a thorough review and analysis of the findings of the 2014 Disparity Study, the Disparity Study Oversight Review Committee submitted its report to the Governor on January 27, 2015; and

WHEREAS, the Disparity Study Oversight Review Committee's report sets forth recommendations to help eliminate the lingering effects of discrimination to ensure a level playing-field for all Missouri business owners; and

WHEREAS, on September 14, 2015, the Ferguson Commission, created pursuant to Executive Order 14-15, released its final report which called for Missouri to implement a statewide M/WBE program "with outcomes measures that incorporate capacity building, mentoring, and education with respect to the state and local procurement system;" and

WHEREAS, the State of Missouri is dedicated to the compelling governmental interest of remedying race and sex based discrimination in a manner consistent with state and federal law.

NOW, THEREFORE, I, JEREMIAH W. (JAY) NIXON, GOVERNOR OF THE STATE OF MISSOURI, in recognition of the obligations of the State of Missouri and by virtue of the authority vested in me by the Constitution and the Laws of the State of Missouri, do hereby state that the following narrowly tailored policies and procedures shall be adopted by the Executive Branch of state government in procuring goods and services:

1. All state agencies shall make every feasible effort to increase the percentage of goods and services procured from certified M/WBEs in order to achieve the annual goals of 10% MBEs and 10% WBEs of all annual Executive Branch procurement funds. These efforts shall include participation in an Executive Branch Contract Compliance Council which shall, in cooperation with the Office of Administration, Office of Equal Opportunity (OEO), review procurement efforts to assist in meeting the requirements of this Executive Order.

2. Both the Division of Purchasing and Facilities Management, Design and Construction (FMDC) within the Office of Administration shall be authorized to implement the following program to increase M/WBE procurements:

   a. Division of Purchasing and FMDC shall encourage prime contractors to subcontract with M/WBEs on state contracts. Division of Purchasing and FMDC contracts are permitted to include a provision setting forth participation of M/WBEs as prime contractors or subcontractors who perform a commercially useful function. M/WBE participation requirements shall be determined by the Division of Purchasing and FMDC, in consultation with OEO and the user agency, by evaluating the availability of M/WBE vendors in the applicable commodity/service and geographical area as determined by the most recent disparity study and other applicable factors. Division of Purchasing and FMDC shall use individual contract percentages to help meet the

state's annual program goals. The M/WBE participation will be evaluated for responsiveness along with other criteria in the award of a bid. The participation can be met through the use of prime contractors, subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful opportunities for M/WBE participation.

b. Division of Purchasing and FMDC shall revise their policies and regulations to further implement this program which shall include a waiver provision for prime contractors who make a good faith effort to take all necessary and reasonable steps to attain such percentages but are otherwise unable to achieve them. Division of Purchasing and FMDC shall also establish enforcement procedures, in cooperation with OEO and the Contract Oversight Office within the Office of Administration, which shall include consequences for failure to meet percentage commitments unless a good faith waiver is obtained from the Division of Purchasing or FMDC, respectively.

c. Division of Purchasing and FMDC are authorized and directed to identify and consult with such other certifying entities as recommended by OEO in order to facilitate M/WBEs to participate in state procurements.

3. The Office of Administration shall also be authorized to:

a. Conduct a comprehensive review of OEO and determine the need for increased funding and personnel to enable OEO to carry out the work it has been assigned.

b. Evaluate the state's current M/WBE eligibility standards and determine what revisions, if any, should be considered to applicable statutes and regulations. This includes an evaluation of whether M/WBE eligibility should be capped based upon a firm's gross income and/or personal net worth. The Office of Administration should refer to the Disparity Study and the Committee's report as a reference regarding potential revisions to the program's eligibility standards.

c. Research existing bonding and financing programs for small vendors that enhance access to bonding and working capital in order to reduce barriers to business development and success, and determine the feasibility of developing such a program within OEO.

d. Evaluate the existing experience and surety bonding requirements and determine what adjustments, if any, should be considered to facilitate increased M/WBE participation.

e. Evaluate the possibility of lengthening solicitation periods for vendors, whenever possible, in an effort to increase M/WBE participation.

f. Research the feasibility and consider establishing a Mentor-Protégé Program within OEO, whereby a larger firm provides instruction and training to an emerging firm to increase the protégé's skills, capacities, and business areas.

g. Educate and advise state agencies on implementing internal procedures that ensure compliance with §8.690 RSMo.

h. Implement an electronic contracting system that provides access to state contracting information and collects measureable data to document the achievement of M/WBE goals.

4. OEO shall work with the Division of Purchasing and FMDC in the implementation of this Executive Order, and shall have the following responsibilities:

a. Actively recruit, certify, and serve as a clearinghouse for M/WBEs to participate in the program.

b. Partner with agencies and organizations that conduct similar services that can provide technical assistance and supportive services.

c. Cooperate with the Division of Purchasing, FMDC, and the Contract Oversight Office in the administration and enforcement of the M/WBE participation program and contract requirements.

d. Cooperate with the Division of Purchasing and FMDC in the development of policies, forms, and procedures to carry out the requirements of the M/WBE participation program.

e. Provide guidance to the Division of Purchasing and FMDC in the setting of M/WBE individual contract percentages.

f. Review and record the effectiveness of the state agencies' participation in the program in light of the availability and utilization of eligible M/WBEs on individual contracts, and make recommendations to the agencies for improvement and enforcement of the program.

g. Provide outreach to M/WBEs to educate firms about the program, the state's procurement process, and business elements such as obtaining bonding, lines of credit, or other related services. Outreach efforts shall also serve to foster enhanced working relationships between M/WBEs and prime contractors.

h. Recommend sanctions for contractors who fail to faithfully execute M/WBE participation requirements during the course of contract performance.

5. OEO shall review the program annually to monitor the level of M/WBE participation achieved in state contracting areas during the previous fiscal year. An assessment of the program and whether the continuation is necessary shall be prepared by OEO and delivered to the Governor and the General Assembly by March after the completion of the fiscal year. After it is determined by OEO that M/WBEs participate in state contracts at a level commensurate with their presence and capability in the state marketplace, then the program set forth in this Executive Order shall be terminated. If the program is still deemed to be necessary on March 1, 2019, a new Disparity Study should be conducted and a new Disparity Study Oversight Review Committee should be appointed to review the results of that study.

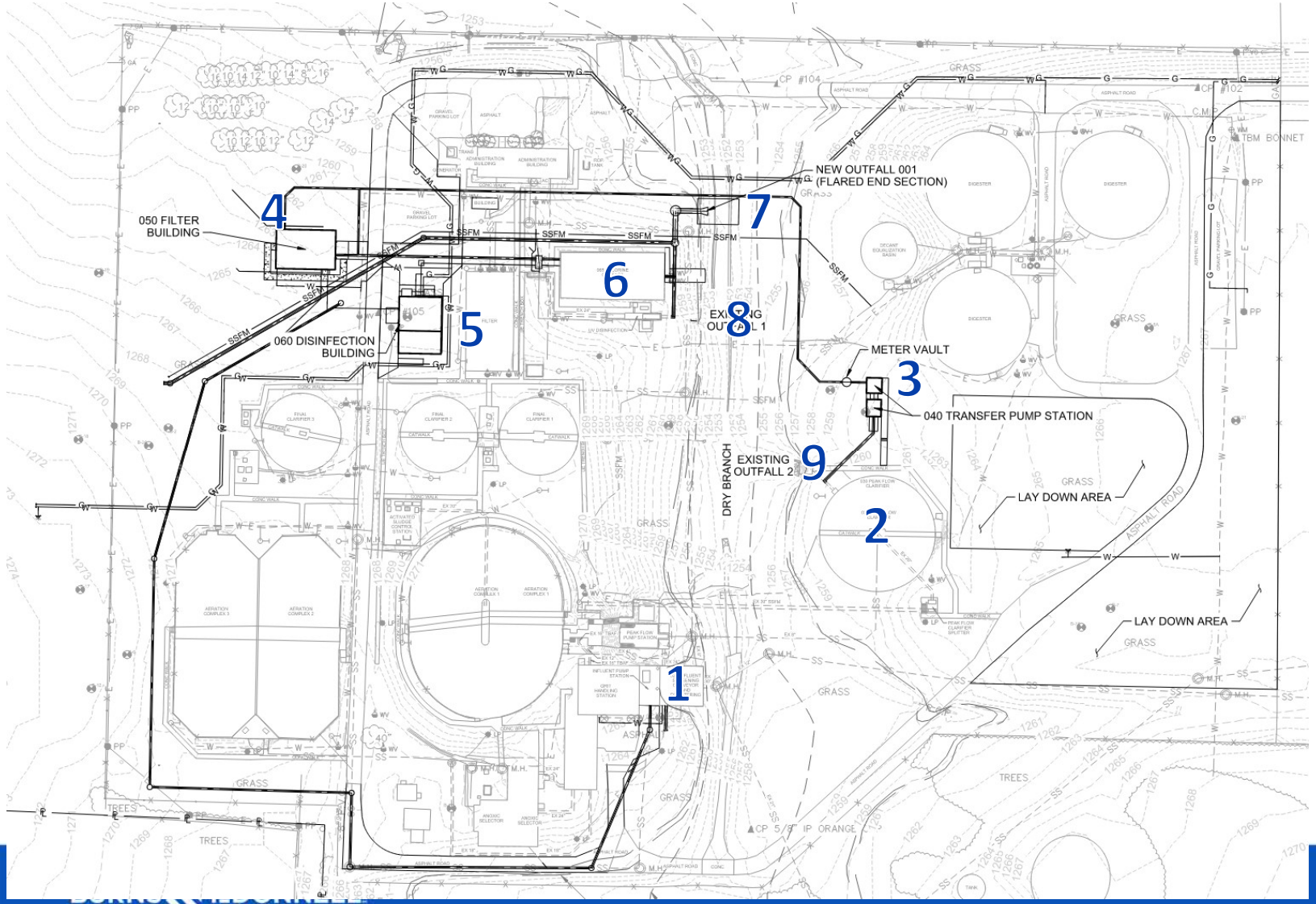
6. This Order shall take effect immediately and supersedes Executive Order 05-30.

IN WITNESS WHEREOF, I have hereunto set my hand and cause to be affixed the Great Seal of the State of Missouri, in the City of Jefferson, on this 21st day of October, 2015.

Jeremiah W. (Jay) Nixon
Governor

ATTEST:

Jason Kander
Secretary of State



1) INFLUENT SCREENING
2) PEAK FLOW CLARIFIER
3) TRANSFER PS
4) FILTER BLDG
5) DISINFECTION BLDG
6) CHLORINE CONTACT BASIN
7) OUTFALL 001
8) EX OUTFALL 1
9) EX OUTFALL 2

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-R-27 A Resolution of the City Council Authorizing Execution of a Phase 2 Contract Price Amendment with Burns and McDonnell Engineering Co., Inc. for Capital Improvement Project #7 (CIP #7).
Submitted By:	Karen Haynes, BUILDS Administrator
Date:	April 11, 2023

Issue Statement

A Resolution authorizing the City Administrator to execute a contract with Burns & McDonnell for Phase 2 services for Capital Improvement Project (CIP) #7.

Discussion and/or Analysis

The City executed a Phase 1 Design-Build Contract with Burns & McDonnell for CIP #7 in February 2022, which included engineering design for the McElhaney Lift Station and Forcemain Project (CIP #7); the target price for the project was $5,750,000.

The Phase 2 Contract includes completion of design services, procurement of all materials, and equipment, and construction of the improvements for a total contract price of $5,993,300, to be completed within (596) calendar days after the date of commencement of the contract.

The contract also includes additional provisions for Allowances for unforeseen conditions, MODOT and Greene County coordination, restoration, and additional asphalt repair with an estimated total of $165,000 across all Allowances, not included in the total contract sum. The work associated under CIP #7 is budgeted and approved under the Master Services Contract with Burns & McDonnell for wastewater system improvements.

Recommended Action

Staff recommends approval.

A RESOLUTION OF THE CITY COUNCIL AUTHORIZING EXECUTION OF A PHASE 2 CONTRACT PRICE AMENDMENT WITH BURNS AND MCDONNELL ENGINEERING CO., INC. FOR CAPITAL IMPROVEMENT PROJECT #7 (CIP#7)

WHEREAS, the City of Republic, Missouri, ("City" and/or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized and existing under the laws of the State of Missouri; and

WHEREAS, on February 15, 2022, via Resolution 22-R-09, the Council authorized the City to engage Burns & McDonnell Engineering Co., Inc. ("Engineer") to provide engineering design and construction services on five (5) separate Phase 1 projects as part of the various improvements to the City's wastewater system ("the Project"); and

WHEREAS, in Resolution 22-R-09, the Council acknowledged the City's intent to engage Engineer for five (5) additional projects to be known as "Phase 2", for the construction of the designed improvements following completion of Phase 2; and

WHEREAS, on February 18, 2022, the City and Engineer entered into a 'Progressive Design-Build Agreement for Water and Wastewater Projects' ("CIP#7 Master Agreement") for the design and (future) construction of the McElhaney Lift Station and Forcemain Project (CIP#7); and

WHEREAS, pursuant to the CIP#7 Master Agreement, prior to beginning work on Phase 2, the City and Engineer are required to execute a 'Phase 2 Contract Price Amendment,' which shall govern the price(s) and specifications for the CIP#7 work in Phase 2; and

WHEREAS, in advance of proceeding with construction on CIP#7, the City now seeks the Council's authorization to execute the Phase 2 Contract Price Amendment with Engineer, allowing the parties to move forward with construction pursuant to the terms therein.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1. The City Administrator, or designee, on behalf of the City, is authorized to execute the Phase 2 Contract Price Amendment for CIP#7, to be in substantially the same form as that attached hereto as "Attachment 1," and provide or execute any other documents required to effect execution of said agreement.

Section 2. The City Administrator, or designee, on behalf of the City, is authorized to take the necessary steps to execute this Resolution.

Section 3. The whereas clauses are hereby specifically incorporated herein by reference.

Section 4. This Resolution shall take effect after passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____
Matt Russell, Mayor

Attest:

_____
Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

AMENDMENT 1

Phase 2 Contract Price Amendment

CIP#7: McElhaney Lift Station and Forcemain Project

This Amendment is entered into this _____ day of _____, 2023 (the "Effective Date") between the City of Republic ("Owner") and Burns & McDonnell Engineering Co., Inc., a Missouri company ("Design-Builder"), and is governed by the terms and conditions of the Progressive Design-Build Agreement for Water and Wastewater Projects- CIP#7: McElhaney Lift Station and Forcemain Project dated February 18, 2022 ("Agreement"), which is incorporated herein by reference. Owner and Design-Builder are referred to individually as a "Party" and collectively as the "Parties".

1. Phase 2 Services to be performed:
   1.1 The Phase 2 Services to be performed shall be as listed in Exhibit B – Scope of Services.

2. Phase 2 Contract Price:

   2.1 Owner shall pay Design-Builder in accordance with Article 6 of the General Conditions of Contract the sum of Five Million Nine Hundred Ninety-Three Thousand Three Hundred Dollars ($5,993,300.00) for the Phase 2 services, subject to adjustments made in accordance with the Agreement and the General Conditions of Contract. This cost does not include Owner Allowances.

3. Phase 2 Contract Time:

   3.1 Substantial Completion of the entire Work shall be achieved no later than 596 calendar days after the Date of Commencement ("Scheduled Substantial Completion Date").
   3.2 The Phase 2 Contract Time and adjustments thereto shall be as governed by the Agreement and the General Conditions of Contract.

4. The following Exhibits are incorporated herein by reference:
   4.1 Exhibit "A" – Not Used
   4.2 Exhibit "B" – Scope of Services
   4.3 Exhibit "C" – Assumptions, Clarifications & Exclusions
   4.4 Exhibit "D" – Not Used
   4.5 Exhibit "E" – Anticipated Lost Days to Inclement / Adverse Weather
   4.6 Exhibit "F" – Not Used
   4.7 Exhibit "G" – Allowances
   4.8 Exhibit "H" – Permit and Easement Matrix
   4.9 Exhibit "I" – Geotechnical Soils Report
   4.10 Exhibit "J" – Schedule
   4.11 Exhibit "K" – Pre-final Design Documents

IN WITNESS WHEREOF, the parties have executed this Amendment as of the date first above written.

OWNER:	**DESIGN-BUILDER:**
City of Republic *(Name of Owner)*	Burns & McDonnell Engineering Company, Inc. *(Name of Design-Builder)*
_____ *(Signature)*	_____ *(Signature)*
_____ *(Printed Name)*	_____ *(Printed Name)*
_____ *(Title)*	_____ *(Title)*
Date: _____	Date: _____

EXHIBIT B - SCOPE OF SERVICES

1) The parties agree that the Design-Builder's Scope of Services includes and is limited to the following:

1.1 Project Management:

(1) Design-Builder will host monthly project update meetings and will provide meeting minutes with updated Action Item log.
(2) Design-Builder will host a weekly on-site construction coordination meeting with Owner to document work completed the past week, planned work for the next week and key interfaces between Design-Builder and Owner.
(3) Design-Builder will provide a monthly invoice that includes the following:
    (a) AIA Payment application with approved schedule of values and based on percent complete.

1.2 Engineering Services:

(1) Advance the design to Issued for Construction (IFC) and produce a deliverable for the Owner's review. The IFC drawings will include feedback from Owner's previous review of the Pre-Final documents.
(2) Review and approve compliance submittals for equipment and materials to be incorporated into the Work. PDF versions of the final approved ("A" status) equipment submittals will be provided to Owner for Owner's information and records.
(3) Provide engineering submittal management associated with submittals throughout the construction period.
(4) Review third party test reports for equipment and materials to be incorporated into the project.
(5) Provide clarification and interpretation of the Issued for Construction design documents throughout the construction period. (Respond to Requests for Information [RFIs])
(6) Revise Issued for Construction design documents as needed to support any changes during construction.
(7) Prepare a PDF set of Conformed As-Constructed design documents incorporating any changes made to the Issued for Construction design documents during the construction process.

1.3 Procurement:

(1) Issuance and subsequent execution of supplier/vendor purchase orders.
(2) Receive, review, and process supplier/vendor payment applications, in accordance with the terms of the purchase orders.
(3) Perform supplier/vendor purchase order administration including the review and processing of RFIs, potential change order requests, change orders, etc.
(4) Manage equipment and material deliveries as needed to facilitate the project schedule.
(5) Review equipment and materials delivered to the site for compliance with the IFC documents and approved submittals prior to being implemented to the Work.

1.4 Construction Services:

(1) Coordinate site preconstruction conference.
(2) Conduct weekly construction coordination meetings with subcontractors and Owner personnel.

(3) Receive, review, and process subcontractor payment applications.
(4) Perform subcontract administration including the review and processing of RFIs, potential change order requests, change orders, etc.
(5) Manage Subcontractors to construct installation of the Work in accordance with the Contract Documents.
(6) Third party services, including surveying and materials testing.

1.5 Commissioning & Start-up:

(1) Design-Builder will lead all commissioning and start-up activities in coordination with the Owner, key equipment suppliers and subcontractors.

EXHIBIT C – ASSUMPTIONS, CLARIFICATIONS & EXCLUSIONS

GENERAL / COMMERICAL

1. The Scope of Services, Contract Time and Contract Price are based on Exhibit K – Pre-Final Design Documents.
2. The Contract Price and Contract Times are based on the Contract being executed and Notice to Proceed issued before April 13, 2023.
3. The Contract Price and Contract Times are based on a standard 5-day week working 8 hours per day.
4. Taxes including sales, use, or special use on permanent equipment and materials are not included as a Tax Exemption Certificate has been provided by Owner to Design-Builder.
5. “Buy American” requirements are not included.
6. Labor rates for all craft labor are based upon Missouri Division of Labor Standards Wage and Hour Section, Annual Wage Order No. 29 for Greene County Missouri, dated March 10, 2022, Building Construction Rates, attached herein. Federal Davis-Bacon wage and fringe rates are not included.
7. COVID-19. The uncertainty and potential disruptions to the labor force and supply chain caused by the global outbreak and spread of COVID-19 (“coronavirus”) may have an impact on this Project, the exact cost and duration of which Design-Builder can neither predict nor control. Government orders and restrictions may also delay or prevent performance as anticipated. Design-Builder will be granted with a period of relief in performance and appropriate cost relief where circumstances arise that are beyond Design-Builder’s control, including COVID-19 related events. To the extent applicable, the doctrines of “commercial impracticability” or “frustration of purpose” under the Uniform Commercial Code may also excuse performance if delivery pursuant to our contract’s terms has been made “impracticable” by the occurrence of a contingency, the non-occurrence of which both parties assumed when the contract was made. At this time, it is impossible to foresee or to predict the full impact of COVID-19 around the world and, therefore, have not included price or schedule contingency specifically for COVID-19.
8. The Contract Times are based on current lead times provided by the equipment and material suppliers. If these lead times are impacted by supply chain issues, the Design-Builder may request an increase in the Contract Times.
9. Owner’s contingency or Owner’s other costs are not included.
10. Performance & Payment Bonds are included.
11. Builder’s Risk Insurance is included.
12. Spare parts are not included, unless called out in the Exhibit K – Pre-Final Design Documents.
13. Excludes charges for consumption fees for providing utility services (water, sewer). All consumption fees to be paid directly by Owner.
14. Owner will provide all water for construction and testing to Design-Builder at no cost.
15. Local Building Permit and right-of way fees have not been included as it was assumed these fees would be waived by the Owner.
16. All existing utilities are assumed to be as shown on the pre-final design drawings. If actual locations of existing utilities are different than shown on the pre-final design drawings, it will be considered a differing site condition.
17. The Design-Builder has not included any cost for easements. Easements will be procured by the Owner. The schedule is based on all easements being acquired before mobilization.
18. Design-Builder shall install 552 feet of gravity sewer as indicated in the contract drawings.

SITE CONSTRUCTION AND ACCESS :

1. Owner will provide adequate material staging, parking, and lay-down space for use during construction. This area is directly north of the existing McElhaney pump station and access drive. Design-Builder has included cost for installing stone for the laydown area, as well as restoring the disturbed area at Project Completion.
2. We have assumed excess spoils may be hauled to the City's site adjacent to the existing WWTP.
3. It is assumed that Design-Builder will not encounter any existing Hazards including, but not limited to, lead, asbestos, or contaminated soils. Mitigation/abatement of all existing hazardous substances is not included.
4. Seeding of disturbed areas is included. Landscape plantings or sodding are not included.
5. It is assumed groundwater will not be encountered in any excavations. Design-Builder has included pumping for precipitation water.
6. Design-Builder has included 3 months of by-pass pumping. By-pass pump sizing and pricing was based on a flow rate of 600 gallons per minute at 190' total dynamic head (130' static head).
7. Traffic control is based on MUTCD standards.
8. Design-Builder will keep the west bound lane of Farm Road 174 open during construction.
9. Design-Builder is connecting to an existing forcemain for bypass pumping during construction and is assuming that the forcemain is adequate for use for these purposes. No cost is included for repair to damage to the existing forcemain or any subsequent environmental impacts and cleanup.

DEMOLITION

1. Design-Builder has included demolition of the existing pump station, generator, and appurtenances.

PROCESS MECHANICAL & EQUIPMENT

1. Design-Builder has included cost of fuel for testing of the generator. First fill of the tank after startup, testing, and commissioning will be provided by the Owner.
2. Based on review of the bids received for the process equipment, Owner and Design-Builder have mutually agreed to using the following equipment manufacturers:
    a. Submersible Pumps – Environmental Process Systems (Sulzer)
    b. FRP Building - Shelter Works
3. Painting of ductile iron pipe is not included. The pumps will be factory painted.

ELECTRICAL, INSTRUMENTATION, & CONTROLS

1. Excludes work at the Wastewater Treatment Plant to receive a signal from the control panel at the new pump station constructed in this project. Work at the WWTP to receive this signal will be included in a future project at the WWTP.
2. Based on review of the bids received for the electrical equipment, Owner and Design-Builder have mutually agreed to use Cummins for the Generator and Automatic Transfer Switch.
3. Based on review of the bids received for the Instrumentation, Control Panel, and System Integration scope of work, Owner and Design Builder have mutually agreed to use R. E. Pedrotti Inc. to provide the lift station control panel, instrumentation, and system integration.
4. Excludes any new security devices or systems (cameras, card readers, etc.).

EXHIBIT E – ANTICPATED LOST DAYS TO INCLEMENT / ADVERSE WEATHER

The chart below provides the days per month that the Design-Builder anticipates will be lost due to inclement / adverse weather. The days shown in this Exhibit B shall not accumulate month-to-month, but are to be used for determining only the anticipated adverse weather in a given month. Adverse Weather shall be as defined in Article 6 of the Agreement.

Anticipated Lost Days per Month	
Month	**Anticipated Lost Days**
January	2
February	2
March	1
April	2
May	3
June	3
July	2
August	2
September	2
October	2
November	1
December	1

EXHIBIT G – ALLOWANCES

The parties have agreed to establish the following Allowance Items and Allowance Values. Allowance items are elements of work that are identified to potentially occur, but it cannot be determined if they will occur or the magnitude of the occurrence, so they are not included in the Design-Builder's current Scope of Work. The Allowance Value is the value which the parties have agreed to establish for an Allowance Item in accordance with Article 7.7 of the Agreement.

The Allowance Values are not included in the Phase 2 Contract Price. If Allowances are utilized, the Design-Builder shall be compensated for its costs and the Design-Builder's markup. Design-Builder and Owner shall agree to the compensation method prior to work being performed. It is noted that use of an Allowance may also require a schedule adjustment in certain situations.

1. Unforeseen Conditions, $50,000: This Allowance Item is established to fund differing site conditions that may be encountered through execution of the work. Examples of these items include, but are not limited to, the presence of unmarked utilities or existing utilities that were not previously identified in the Contract Documents, actual existing tie-in locations differ from what is shown on the Contract Documents, unforeseen underground obstructions that have not been previously identified (including rock), over-excavation of lean/fat clay, and additional work at tie-in locations due to poor quality of existing piping.

2. MODOT and Greene County Coordination, $30,000: This Allowance Item is established to fund additional cost that may arise due to coordination with MODOT and/or Greene County. MODOT will require the Owner to enter into an easement agreement for work within the Wilson Creek Boulevard/Highway ZZ right of way. The Design-Builder has excluded any cost that may arise due to changes MODOT makes to the alignment design. Cost for additional insurance specific to the MODOT easement agreement are not included.

3. Restoration Allowance, $55,000: This Allowance item is established to fund additional cost that may arise due to coordination and final restoration requests made by property owners along the alignment. The cost in this Amendment includes seeding of disturbed areas. Additional restoration work such as sodding and landscaping have not been included. If additional restoration work beyond the seeding that has been included in the Amendment pricing is required, it will be funded through this allowance item.

4. Additional Asphalt Repair, $30,000: This Allowance item is established to fund additional asphalt repairs above and beyond what is identified in the Contract Documents. Examples of items to be funded through this allowance include but are not limited to additional asphalt driveway demo and replacement,

EXHIBIT H – PERMIT AND EASEMENT MATRIX

BURNS McDONNELL

Republic, Missouri, Projects
CIP-7 Permit Matrix

Wetlands/Surface Water Permits									
Item #	**Permit/Clearance**	**Regulatory Agency**	**Description**	**Thresholds**	**Estimated Preparation Timeframe**	**Estimated Agency Review Time**	**Estimated Permit Application Fees**	**Notes**	**CIP-7**
1	Clean Water Act - Section 404 Permit (Wetlands)	**Missouri State Regulatory Office** 515 East High Street #202 Jefferson City, MO 65101 Tel: 573-634-2248 Fax : 573-634-7960 Regulatory.MissouriState@usace.army.mil **Little Rock District** ATTN: CESWL-RD 700 West Capitol Avenue Little Rock, AR 72201-3221 (501) 324-5295 ceswl-regulatory@usace.army.mil	If impacting over 0.1 acres of wetlands a Joint Application must be submitted to the Corps and MDNR. The Corps will determine if the project qualifies for a Nationwide Permit (NWP) or if an Individual Permit (IP and for wetland impacts over 0.50 acres) will be required. Corps has authorization to issue a Section 401 Water Quality Certification (WQC) with a NWP; however, if an IP is required then a separate WQC must be obtained from the MDNR. If a permit is required from the USACE then Section 106 for cultural resources and review of T&E species applies.	- Nationwide Permit required for impacts above 0.1 acres - Individual Permit required for impacts above 0.5 acres	The wetlands review, delineation, and report preparation could take 30 days to complete.	A NWP can take 60 to 90 days. An IP can take 90 to 120 days or more.	Typically no fees	**Based on the project route and the minimal, temporary impacts associated with this type of project, the USACE would authorize the project under a Nationwide Permit 58 for Utility Line Activities for Water and Other Substances. A Pre-Construction Notification would not be need to be submitted to the USACE because the Project would be cut into the pavement and would not permanently impact any streams or wetlands.**	Desktop Study only due to No Stream or Wetland Impacts
2	Clean Water Act - Section 401 Water Quality Certification	Missouri Department of Natural Resources (MDNR) Water Protection Program P.O. Box 176 Jefferson City, MO 65102 800-361-4827	The MDNR has authority to issue water quality certification (WQC) for projects that will impact wetlands or other waters of the US within the state of Missouri. MDNR has issued WQC for many of the NWPs if WQC conditions are followed. For all IPs and NWPs for which WQC has not been issued, an application must be submitted to the MDNR for an individual WQC. The application for WQC consists of submitted a copy of the Section 404 permit application to MDNR with a request for WQC.	Project impacting wetlands or waters of the United States.	60-90 days	45 days; occurs in parallel to the USACE review.	Typically no fees	**WQC will likely be issued along with the NWP 58 from the USACE. A separate WQC will likely not be required from MDNR.**	Desktop Study only due to No Stream or Wetland Impacts
3	Greene County, Missouri Floodplain Development Permit/Application	Tyler Goodwyn P.E. Greene County Stormwater Engineer Environmental Division 940 N Boonville Ave Room 315 Springfield, MO 65802 (417) 868-4147	Any construction located within a floodplain may require a floodplain permit from the City of Republic or Greene County. If development is within a regulatory floodway then a No Rise certification must be obtained from State and included with application.	Placement of any structures or fill within a floodplain.	60 Days	30-60 Days	$250	**Project crosses a 100-year floodplain. A floodplain development permit would likely be required.**	Permit Likely Required to Construct within Zone A Floodplain

Stormwater Permits									
Item #	**Permit/Clearance**	**Regulatory Agency**	**Description**	**Thresholds**	**Estimated Preparation Timeframe**	**Estimated Agency Review Time**	**Estimated Permit Application Fees**	**Notes**	**CIP-7**
4	NPDES Stormwater Permit and SWP2 Plan for Construction Activities and associated NOI	Missouri Department of Natural Resources (MDNR) Water Protection Program P.O. Box 176 Jefferson City, MO 65102 800-361-4827	A general stormwater permit is required for construction activities that disturb 1 or more acres of land. A stormwater pollution prevention plan (SWP2 Plan) is also required per the permit. Submittal information includes the NOI, location map, pertinent project information, application fee, and correspondence from Missouri Department of Conservation (MDC) and the State Historic Preservation Office (SHPO). The completed NOI must be submitted to MDC electronically prior to construction.	Disturbance of one acre or more of soil.	NOI: 2 days SWPPP: 10 days	60 Days	$515	**NOI must be submitted electronically.**	Required

Cultural Resources									
Item #	**Permit/Clearance**	**Regulatory Agency**	**Description**	**Thresholds**	**Estimated Preparation Timeframe**	**Estimated Agency Review Time**	**Estimated Permit Application Fees**	**Notes**	**CIP-7**
5	National Historic Preservation Act - Section 106 Cultural Resources Concurrence	Missouri State Historic Preservation Office (SHPO), P.O. Box 176; Jefferson City, Missouri 65102	If the project is considered a federal undertaking and Section 106 applies (Corps permit or federal funding), the following is typically required: background investigation; SHPO consultation; depending on SHPO consultation a phase II survey and report may be required; SHPO determination of proposed impacts; and curation of collected artifacts during survey. At minimum, the project must demonstrate consultation with SHPO to meet requirements for NPDES construction stormwater permit.	Project that is either: - Activities carried out by or on the behalf of a federal agency - Funded partially or entirely with federal assistance - Requires a federal permit, license, or approval	30 Days	45 Days	Typically there is no review fee; however, background research may involve on-line database fees.	**Cultural Resources field surveys would only be required if a USACE permit application is submitted.**	Desktop Study only due to No Potential USACE Permitting

Wildlife Permits									
Item #	**Permit/Clearance**	**Regulatory Agency**	**Description**	**Thresholds**	**Estimated Preparation Timeframe**	**Estimated Agency Review Time**	**Estimated Permit Application Fees**	**Notes**	**CIP-7**
6	Endangered Species Act -Threatened & Endangered Species Concurrence and Migratory Bird Treaty Act / Bald and Golden Eagle Protection Act Compliance	Fish and Wildlife Service (FWS) **Columbia, Missouri Ecological Services Field Office** 101 Park DeVille Drive, Suite A Columbia, MO 65203-0057 Phone: 573-234-2132	Coordination with the FWS will determine the level of effort needed for the project to proceed (e.g., habitat assessment, species surveys, avian impact studies, etc.).	Potential to impact threatened or endangered species.	14 Days	30 to 45 days for initial consultation; additional 30 to 45 days for report review and determination	Typically no fees	**1) Avoid Clearing trees from April 1 to November 15 to avoid impacts to protected bat species.** **2) Avoid clearing trees in from April 1 to July 15 to avoid impacts to nesting migratory birds.**	Desktop Study only due to No Potential USACE Permitting
7	State Protected Species	Missouri Department of Conservation (MDC) Environmental Review Coordinator Resource Science Division 2901 West Truman Blvd. Jefferson City, MO 65102 573-522-4115 ext. 3182	If the project will potentially impact protected species or their respective habitat, or if a Section 404 and/or State permit is required then the MDC should be contacted. A Missouri Natural Heritage Review can be completed online and will determine the level of effort needed for the project to proceed (e.g. habitat assessment, species surveys, lek surveys, avian impact studies, etc.).	Potential to impact threatened or endangered species.	14 Days	Initial Online Review is instantaneous; additional surveys would require 30 to 45 days for report review and determination	Typically no fees		Desktop Study only due to No Potential USACE Permitting

Additional Permits									
Item #	**Permit/Clearance**	**Regulatory Agency**	**Description**	**Thresholds**	**Estimated Preparation Timeframe**	**Estimated Agency Review Time**	**Estimated Permit Application Fees**	**Notes**	**CIP-7**
9	MoDOT Utility Crossing Permit	Ms. Teresa Nixon, Traffic Specialist (417) 766-3847 Missouri Department of Transportation Southwest District 3025 East Kearney St., Springfield, MO 65803	Permit will be required to install/construct across State Highway ZZ right-of-way.	Installation of facilities within MoDOT road right-of-way.	30 Days	45 Days	Exact fees TBD	**Only Required for crossing of Wilson's Creek Blvd/State Route ZZ.**	MoDOT Permit Required for Hwy ZZ Crossing
9	Greene County Utility Crossing Permit	Mr. Rick Artman Highway Department Administrator Highway Department Greene County Highway Department 2065 N Clifton Ave Springfield, MO 65803 (417) 831-3591	Permit will be required to install install/construct across county road right-of-way.	Installation of facilities within county road right-of-way.	30 Days	45 Days	$500 for a Road Bore and $1,000 for Open Cut - exact fees TBD	**Permit Likely Required for construction within a county public road right-of-way.**	County Permit Required for West Farm Road 174

Count	Address Number	Address Street	Owner	Type	Project
36	4660	S. Wilsons Creek Blvd.	GERDES, KARL ERIC TRUST	TCE	CIP #7
37	6310	W. Republic Rd.	REPUBLIC SCHOOL DIST R-III	ESMT_TCE	CIP #7

EXHIBIT I – GEOTECHNICAL SOILS REPORT

Geotechnical Engineering Report

CIP 7: McElhaney Lift Station & Force Main
Republic, MO
April 8, 2022
Terracon Project No. B5215110

Prepared for:
Burns & McDonnell Engineering Co.
Kansas City, Missouri

Prepared by:
Terracon Consultants, Inc.
Springfield, Missouri

April 8, 2022

Burns & McDonnell Engineering Co.
9400 Ward Parkway
Kansas City, Missouri 64114

Attn: Ms. Allison White, P.E.
P: (314) 328 5431
E: alwhite@burnsmcd.com

Re: Geotechnical Engineering Report
CIP 7: McElhaney Lift Station & Force Main
Along W. Farm Road 174
Republic, MO
Terracon Project No. B5215110

Dear Ms. White:

We have completed a subsurface exploration and geotechnical engineering exploration for the referenced project. This study was performed in general accordance with Terracon Proposal No. P5215110, dated November 19, 2021. This report presents the findings of the subsurface exploration and provides geotechnical recommendations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Ripken B. Dodson, E.I.
Staff Geotechnical Engineer

Ty G. Alexander, P.E.
Office Manager/Principal
Missouri: PE-2009002087

REPORT TOPICS

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

REPORT SUMMARY

A geotechnical exploration has been performed for the proposed Republic utility line upgrade located along Farm Road 174 in Republic, Missouri. Twenty-three (23) borings, designated 7-1 through 7-24 (7-17 was skipped intentionally), were performed to depths of approximately 7 to 45 feet below the existing ground surface. The following geotechnical considerations were identified:

- The recommendations and data in this report, regarding the foundations and lateral earth pressures for the lift station, align with the planned lift station extending to a depth of 20 feet below existing grade. The foundation bearing elevation is estimated based on a provided lift station foundation depth of 20 feet below existing grade. This indicates an elevation of approximately 1160 feet (±) for the base of the lift station. If the foundation bearing elevation is modified, Terracon should be notified to evaluate/provide any necessary modifications to our foundation recommendations.

- Existing undocumented fill was encountered at each of the boring locations, except 7-3 to depths ranging from approximately 2 to 8 feet.

- Some relatively high moisture content soils were encountered in the upper levels of some of the borings and may be exposed in excavations and cuts. These soils may become unstable when disturbed. During periods of dry weather, these soils may be stable upon initial exposure; however, these soils, if exposed, may become relatively soft and unstable under construction traffic. We recommend that the owner budget for the possibility that overexcavation and/or subgrade stabilization may be required and contractors be prepared to handle potentially unstable and/or soft conditions.

- Bedrock is present at approximately 22.5 feet below grade at Boring 7-1. Due to potential variation in bedrock elevation, it is possible bedrock may be encountered during foundation and utility line construction. Accordingly, we recommend the owner obtain unit rates for rock excavation which may be required for foundation construction and utility installation.

- Additionally, auger refusal was encountered at an approximate depth of 7 to 9 feet below existing grade in borings 7-2, 7-5, 7-12, and 7-21. Rock may be encountered at varying depths between borings as the site is located over a pinnacled bedrock unit. Pinnacles may extend into utility excavations. Accordingly, we recommend the owner obtain unit rates for rock excavation which may be required for shallow foundation construction and utility installation.

The professional opinions and recommendations presented in this report are based on evaluation of data developed by testing discrete samples obtained from widely-spaced borings. Site subsurface conditions have been inferred from available data, but actual subsurface conditions will only be revealed by excavation. So that variations in subsurface conditions which may affect the

design can be addressed as they are encountered, we recommend that Terracon be retained to observe excavations and perform tests during the site preparation, earthwork and foundation construction phases of the project.

This executive summary should not be separated from or used apart from this report. This report presents fully developed recommendations and opinions based on our understanding of the project at the time the report was prepared. The report limitations are described in the **General Comments** section of this report.

Geotechnical Engineering Report
CIP 7: McElhaney Lift Station & Force Main
Along W. Farm Road 174
Republic, MO

Terracon Project No. B5215110
April 8, 2022

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed CIP 7: McElhaney Lift Station & Force Main to be located at Along W. Farm Road 174 in Republic, MO. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil (and rock) conditions
- Groundwater conditions
- Site preparation and earthwork
- Foundation design and construction
- Lateral earth pressures
- Excavation considerations

The geotechnical engineering services for this project included the advancement of twenty-three (23) test borings to depths ranging from approximately 8 to 43 feet below existing site grades.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and/or as separate pages in the **Exploration Results** section.

The **General Comments** section provides an understanding of the report limitations.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at Along W. Farm Road 174 in Republic, MO. (See **Site Location**)
Existing Improvements	The planned alignment will be along W. Farm Road 174.

Item	Description
Current Ground Cover	Ground cover varies along the length of the planned alignment. Outside of roadways, the alignment is primarily grass covered with occasional residential driveways and wooded areas.
Existing Topography	Varies along length of planned alignment; based on boring surface elevations provided by Allgeier Martin and Associates, there is approximately 60 feet in elevation change across the explored area.
Geology	Based on the Geological Map of Missouri prepared by the Missouri Department of Natural Resources (MDNR), the subject site is located over the Burlington Limestone Bedrock Units. The Burlington Formation is composed primarily of limestone. Small amounts and layers of shale and chert are noted within this bedrock unit.
Geological Concerns	Solution features, including springs, caves, and sinkholes, are commonly present in the Burlington Series Bedrock Unit in this area. Based on the review of information available from Greene County GIS databases, the subject site does not contain any previously identified sinkhole formations, although sinkholes and springs are noted on the **Geologic Map** in the vicinity of the site. It is difficult to predict future sinkhole activity. Site grading and drainage may alter site conditions and could possibly cause sinkholes in areas that have no history of this activity.

We also collected photographs at the time of our field exploration program. Representative photos are provided in our **Photography Log**.

PROJECT DESCRIPTION

The table below presents a brief summary of our project understanding. This summary has been used as the basis of our analyses and recommendations. Any changes to this summary should be made known to Terracon immediately so revisions can be provided if necessary.

Item	Description
Information Provided	Information was provided by Ms. Allison White, P.E., with BMcD.
Project Description	The project consists of approximately 8,000 linear feet of force main sewer line primarily along W. Farm Road 174 to the planned McElhaney lift station.

GEOTECHNICAL CHARACTERIZATION

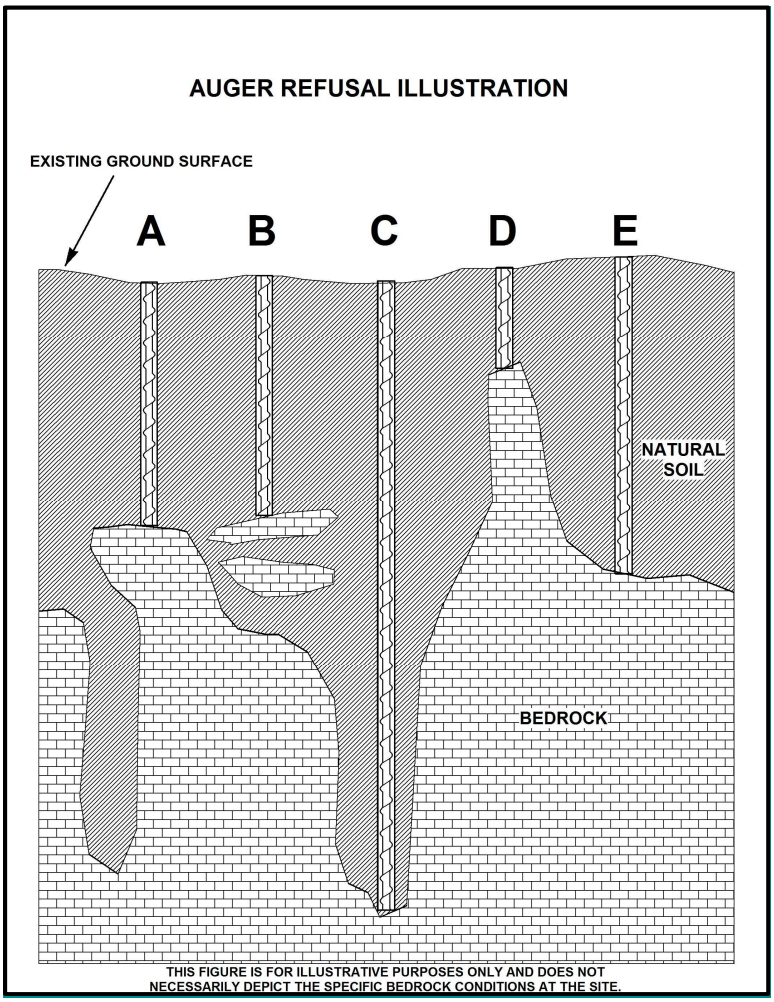
We have developed a general characterization of the subsurface conditions based upon the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration

point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Topsoil/Asphalt with Base**	Ground covering. Either topsoil or asphalt with aggregate base rock depending on boring.
2	**Fill-Lean Clay with Gravel**	Fill-Brown lean clay with gravel and varying amounts of sand.
3	**Lean Clay with Gravel**	Brown lean clay with gravel and varying amounts of sand.
4	**Fat Clay with Gravel**	Red fat clay with gravel and varying amounts of sand.
5	**Limestone Bedrock**	Gray limestone bedrock. Strong, slightly weathered, and slightly fractured.

Auger refusal is defined as the depth below the ground surface at which a boring can no longer be advanced with the soil drilling technique being used. Auger refusal is subjective and is based upon the type of drilling equipment used, the types of augers used, and the effort exerted by the driller. Auger refusal can occur on the upper surface of discontinuous bedrock (A), slabs of unweathered rock suspended in the residual soil matrix or "floaters" (B), in widened joints that may extend well below the surrounding bedrock surface (C), on rock "pinnacles" (D) rising above the surrounding bedrock surface, or on the upper surface of continuous bedrock (E). These possible auger refusal conditions are illustrated in the figure below. Linear interpolation of apparent bedrock elevations based upon the boring data is often used but can misrepresent actual rock removal quantities where anomalies exist, such as pinnacled rock, where rock could be shallower than that encountered in the borings. Additional borings, auger probes, test pits, or geophysical testing could be performed to obtain more specific bedrock information.



Groundwater Conditions

The boreholes were observed while drilling and after completion for the presence and level of groundwater. Groundwater was not observed in the borings while drilling, or for the short duration the borings were left open prior to backfilling. However, this does not necessarily mean the borings terminated above groundwater. Due to the low permeability of the soils encountered in the borings, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole. Long-term observations in piezometers or observation wells, sealed from the influence of surface water, are often required to define groundwater levels in materials of this type.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be different than the

levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

General

We recommend that the exposed subgrade be thoroughly evaluated after stripping of any topsoil and at the base of all cut areas, and prior to the start of any fill operations. We recommend that the geotechnical engineer be retained to evaluate the bearing material for the foundations and subgrade soils. Subsurface conditions, as identified by the field and laboratory testing programs, have been reviewed and evaluated with respect to the proposed project plans known to us at this time.

Possible Karst Development

Karst development in this area occurs from the dissolution of the native limestone bedrock material. Over time, groundwater can transport the surrounding soil into bedrock voids causing visible surface features such as circular depressions or areas of drainage. However, some sinkholes may not be readily visible from the surface because they are plugged or capped with a thin layer of rock. Maintaining and managing adequate storm water drainage is important within karst prone areas, as described in the **Grading and Drainage** section. The image below, provided by MDNR, depicts the development of sinkholes over time.

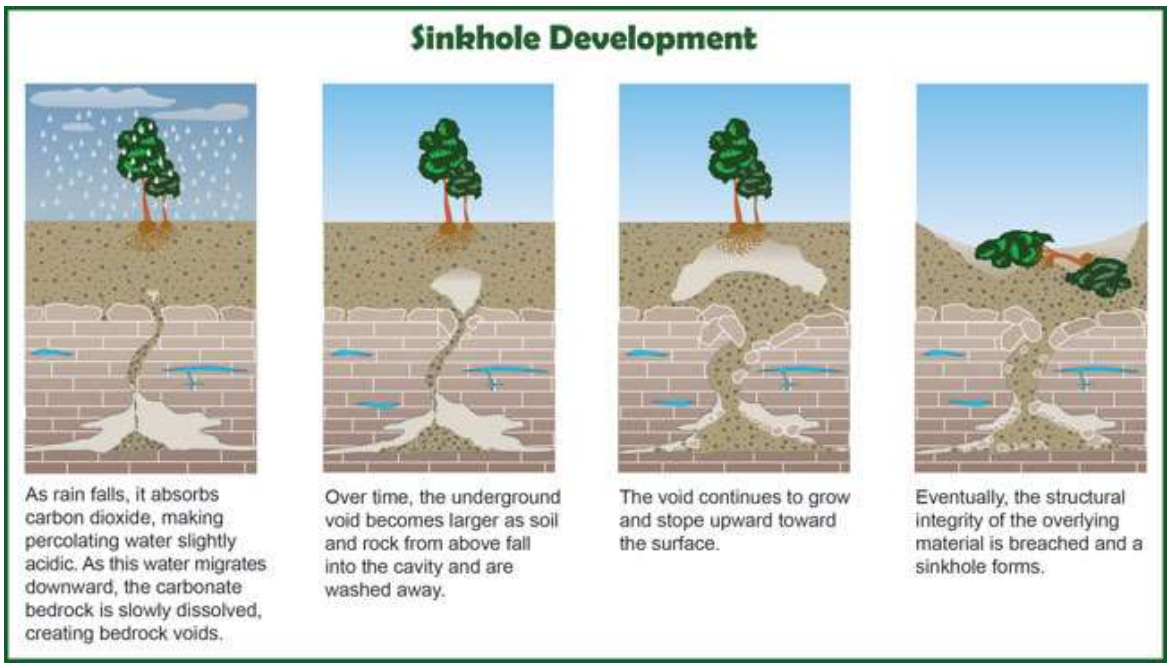


Image courtesy of MDNR

Additional testing of the subgrade including additional borings, bedrock profiling, and subsurface resistivity testing can aid in the detection of sinkholes and karst development. However, this additional testing can be costly and does not guarantee that existing or developing sinkholes will be identified.

Bedrock Considerations

Auger and/or sampler refusal on apparent intact bedrock was encountered in Borings 7-1, 7-2, 7-5, 7-12, and 7-21 at depths between about 7 and 23 feet below present grades. Prior to auger refusal, about ½ to 3 feet of weathered bedrock was encountered in Borings 7-1, 7-5, 7-12, and 7-21. The weathered rock was penetrated with the augers with some effort. Accordingly, site grading and excavations for the foundations and utilities may encounter bedrock. There is a possibility that the utility line could encounter shallow bedrock based on the auger refusal at select borings.

Weathered rock that is penetrated with drilling augers can typically be excavated with large excavation equipment fitted with rock teeth using concentrated effort or ripped with large bulldozers. Layers of intact rock may be present within the weathered zones, which could require breaking with pneumatic rock breakers or blasting. Excavations in weathered rock often result in larger excavations than in soils, which subsequently require more backfill.

The foundations could bear entirely on soil (native or engineered fill), entirely on intact bedrock, or partially on soil and partially on bedrock. If the foundations are either supported *entirely* on intact bedrock or *entirely* on soil, then the shallow foundations can bear directly on these materials. However, if the foundations will be supported partially on soil and partially on bedrock, then when rock is encountered in footing excavations, we recommend that the footings be overexcavated 1 foot below the design bearing level into the bedrock. The overexcavation should also extend laterally a sufficient distance to provide room for installation of a bond break with the sides of the footing excavation. The overexcavation into the bedrock should be backfilled with compacted, cohesive soil as described in section **Material Requirements**. Compactive effort should be in accordance with recommendations provided in section **Compaction Requirements**. The purpose of the overexcavation is to reduce differential settlement due to differing bearing materials.

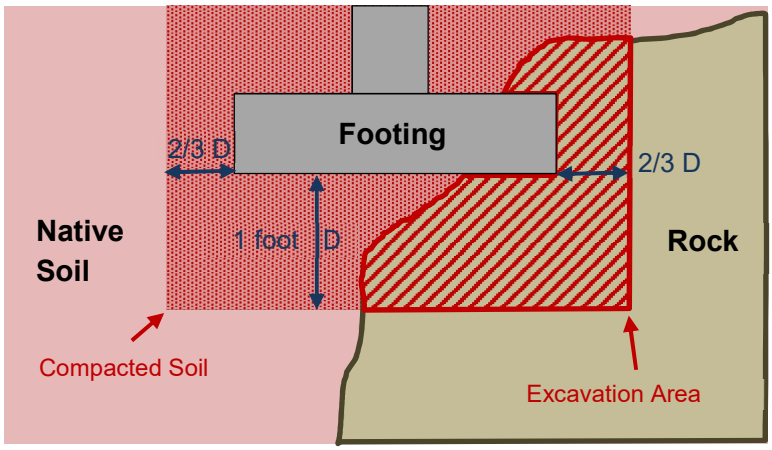


IMAGE NOT TO SCALE

Because of the variable bedrock depths, pinnacled bedrock, at this site, the client should anticipate encountering inconsistent bedrock elevations in areas not explored with soil borings. We recommend the owner obtain unit rates for rock excavation for shallow foundations.

When the proposed grading plan is available and prior to foundation construction, additional borings or auger probes could be performed to obtain more specific bedrock information. Linear interpolation of apparent bedrock elevations based upon the boring data is often used but can misrepresent actual rock removal quantities where such anomalies exist.

Existing Undocumented Fill

Existing fill was encountered to depths of approximately 2 feet to 8 feet in all Borings except B-3. The fill could extend deeper in areas not explored. While the N-values obtained in the undocumented fill materials were generally equal to or higher than the existing native soils, no documentation or records regarding the placement of this fill were provided for our review. If records of the fill are available, Terracon should be supplied with these documents to better assess the suitability of the existing fill.

Due to the clayey gravels at the subject site, differentiating between native materials and man placed fill in soil boring samples is difficult and, in some cases, impossible without documentation. The designation of possible fill has been given to materials that are suspected of being fill but no definite indications of fill were noted in the sampling process. These materials should be carefully observed and inspected during excavations for indications of fill by a representative of Terracon. If indications of fill are found during the excavations, then the material should be treated as fill and the recommendations noted below should be considered.

Proposed utilities are anticipated to extend through the undocumented fill depths. However, fill depths may vary between borings. Areas of soft/unsuitable soils may be encountered beneath

proposed utilities. If these conditions are encountered during construction, additional recommendations may be required. Some overexcavation and replacement of unsuitable soils may be necessary to properly support the proposed sewer line. We recommend budgeting for this possibility.

Soft Subgrade Potential

The subgrade soils may become unstable when disturbed. During periods of dry weather, these soils may be stable upon initial exposure, however, these soils could become relatively soft and unstable under construction traffic. Further, depending upon site conditions during construction, overexcavation or stabilization of the subgrade and/or base of overexcavations may be needed to achieve a suitable working surface. Accordingly, we recommend that the owner budget for the possibility that overexcavation and/or subgrade stabilization may be required and contractors be prepared to handle potentially unstable and/or soft conditions.

EARTHWORK

Earthwork is anticipated to include clearing and grubbing, excavations, and fill placement.

Site Preparation

The subgrade should be observed, and we recommend that engineered fill be tested for moisture content and compaction throughout the construction phase. Areas which fail density testing should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or modified by following the recommendations in the **Subgrade Stabilization** section. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted.

Fill Material Types

Materials used for fill should meet the following material property requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
High Plasticity Material	CH (LL≥70 or PI≥40)	2 feet below foundations; and 1 foot below base of pavements
Moderate to High Plasticity Material [2]	CH or CL, with 70>LL≥45 or 40>PI≥25	2 feet below base of floor slabs and any other lightly-loaded structures, 1 foot below base of pavements
Granular Material [3]	GM, GC, SM, or SC	All locations and elevations

Low Plasticity Material [4]	CL (LL<45 & PI<25) or Granular Material [3]

1. Compacted structural fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to Terracon for evaluation. On-site soils generally appear suitable for use as fill, subject to the "acceptable location for placement" limitations described in this table.
2. Delineation of moderate to high plasticity clays should be performed in the field by a representative of the Geotechnical Engineer, and could require additional laboratory testing. If fat clay material contains greater than 35 percent granular material retained on a ¾-inch sieve, it may be used in the low volume change zone.
3. Crushed limestone aggregate, or granular material such as sand, gravel or crushed stone containing at least 15 percent low plasticity fines.
4. Low plasticity cohesive soil or granular soil having low plasticity fines. Material should be approved by the geotechnical engineer.

Fill Compaction Requirements

Fill should meet the following compaction requirements.

Item	Description
Fill Lift Thickness [1]	9 inches or less in loose thickness
Compaction Requirements [2]	At least 95 percent of the material's maximum standard Proctor dry density [3]
Water Content Range	Low plasticity cohesive: -2 percent to +2 percent of optimum [3] High plasticity cohesive: 0 to +4 percent of optimum [3] Granular: Workable moisture levels [4]

1. Reduced lift thicknesses of 4 to 6 inches are recommended in confined areas (e.g., utility trenches, foundation excavations, and foundation backfill) and when hand-operated compaction equipment is used.
2. We recommend that engineered fill be tested for moisture content and compaction during placement. If the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved. As stated within ASTM D 698, this procedure is intended for soils with 30 percent or less material larger than ¾ inch. Accordingly, we recommend full time proofroll observation be performed instead of moisture density testing for materials containing more than 30 percent aggregate retained on the ¾-inch sieve.
3. As determined by the standard Proctor test (ASTM D 698).
4. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proofrolled.

Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of clay fill to reduce the infiltration and conveyance of surface water through the trench backfill.

Utility trenches are common sources of water infiltration and mitigation. All utility trenches that penetrate beneath structures should be effectively sealed to restrict water intrusion and flow through the trenches that could mitigate below the structure. We recommend constructing an effective “trench plug” that extends at least 5 feet out from the face of the structure exterior. The plug material should consist of clay compacted as recommended in the Earthwork section of this report. The clay fill should be placed to completely surround the utility line and be compacted in accordance with recommendations in this report. Alternatively, flowable fill could be used to construct the trench plug.

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks.

Exposed ground should be sloped and maintained at a minimum 5 percent away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure’s maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade water content. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade becomes excessively wet or dry, frozen, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to further construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, “Excavations” and its appendices, and in accordance with any applicable local, and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for

construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be observed and tested by a representative of the Geotechnical Engineer. Observation and testing should include documentation of removal of vegetation and topsoil, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unacceptable conditions are encountered, the Geotechnical Engineer should be contacted to recommend mitigation options.

SHALLOW FOUNDATIONS

Provided the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for design of shallow foundations.

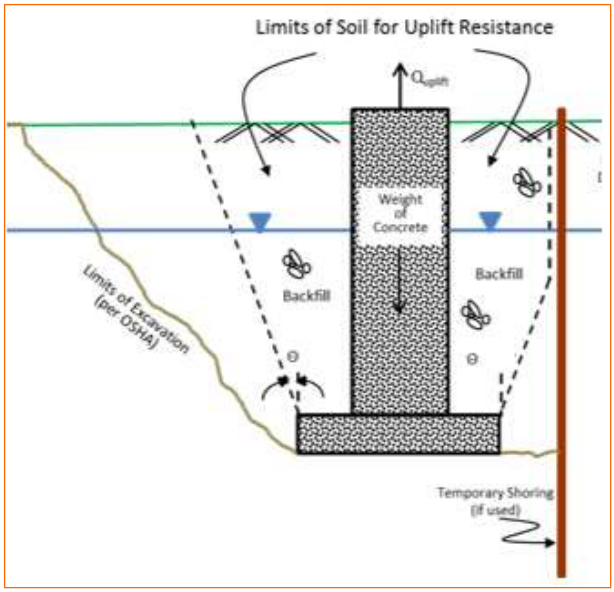
Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing pressure [1, 2, 3]	3,000 psf (foundation bearing on undisturbed native clay soils) 7,000 psf (foundation bearing on competent bedrock)
Minimum Foundation Dimensions	Columns: 30 inches Continuous: 18 inches
Ultimate Passive Resistance [4] **(equivalent fluid pressures)**	250 pcf (cohesive backfill) 350 pcf (granular backfill)
Ultimate Coefficient of Sliding Friction [5]	0.32 (native clay) 0.40 (granular material)
Minimum Embedment below Finished Grade	30 inches on soil N/A on bedrock
Estimated Total Settlement from Structural Loads [2]	Less than about 1 inch Less than about ½ inch on bedrock
Estimated Differential Settlement [2, 6]	About ¾ of total settlement

Item	Description
1.	The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. A factor of safety of 2.5 has been applied. Values assume that exterior grades are no steeper than 20 percent within 10 feet of the structure.
2.	Values provided are for the maximum loads noted in **Project Description**.
3.	Unsuitable or soft soils, including undocumented fill, should be overexcavated and replaced per the recommendations presented in **Earthwork**.
4.	Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face.
5.	Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions. Should be neglected if passive pressure will be used to resist lateral loads.
6.	Differential settlements are as measured over a span of up to 50 feet.

Design Parameters - Uplift Loads

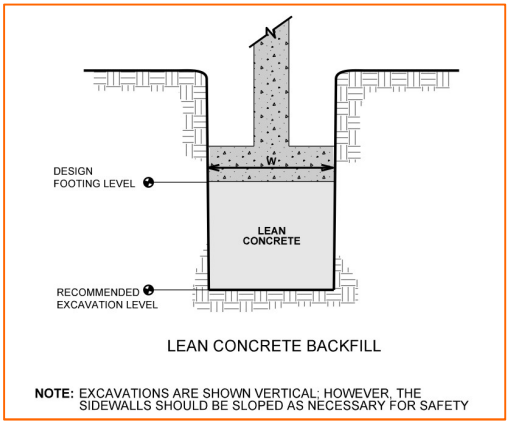
Uplift resistance of spread footings can be developed from the effective weight of the footing and the overlying soils. As illustrated on the subsequent figure, the effective weight of the soil prism defined by diagonal planes extending up from the top of the perimeter of the foundation to the ground surface at an angle, θ, of 20 degrees from the vertical can be included in uplift resistance. The maximum allowable uplift capacity should be taken as a sum of the effective weight of soil plus the dead weight of the foundation, divided by an appropriate factor of safety. A maximum total unit weight of 100 pcf should be used for the backfill. This unit weight should be reduced to 40 pcf for portions of the backfill or natural soils below the groundwater elevation.



Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be observed and tested by a representative Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed. Placement of a lean concrete mudmat over the bearing soils should be considered if the excavations must remain open for an extended period of time.

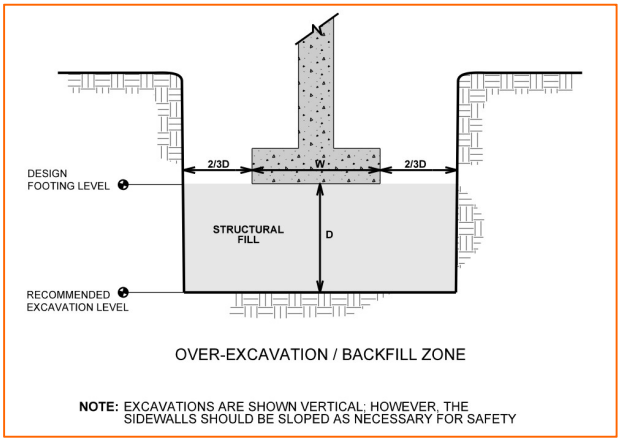
If unsuitable bearing soils are encountered at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. This is illustrated on the sketch below. Care will need to be taken to maintain at least 12 inches of cohesive material between the bottom of the footing and/or lean concrete, and the top of rock for soil supported foundations.



LEAN CONCRETE BACKFILL

NOTE: EXCAVATIONS ARE SHOWN VERTICAL; HOWEVER, THE SIDEWALLS SHOULD BE SLOPED AS NECESSARY FOR SAFETY

Over-excavation for structural fill placement below footings should be conducted as shown below. The over-excavation should be backfilled up to the footing base elevation with suitable fill materials, as recommended in the **Earthwork** section.



SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. The Site Class is required to determine the Seismic Design Category for a structure. The Site Class is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the subsurface conditions encountered at the site and as described on the exploration logs and results, it is our professional opinion that the **Seismic Site Class is C**. Subsurface explorations at this site were extended to a maximum depth of 40 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. We could perform additional deeper borings or geophysical testing to confirm the conditions below the current boring depths. The table below summarizes the values gathered in an ACSE 7 Hazard Report.

Description	Value
2018 International Building Code Site Classification[1]	C
Site Latitude	37.1327 ° N
Site Longitude	-93.4189 ° W
Risk Category	IV
S_{DS} Spectral Acceleration for a Short Period[2]	0.21
S_{D1} Spectral Acceleration for a 1-Second Period[2]	0.11
F_a Site Coefficient	1.2

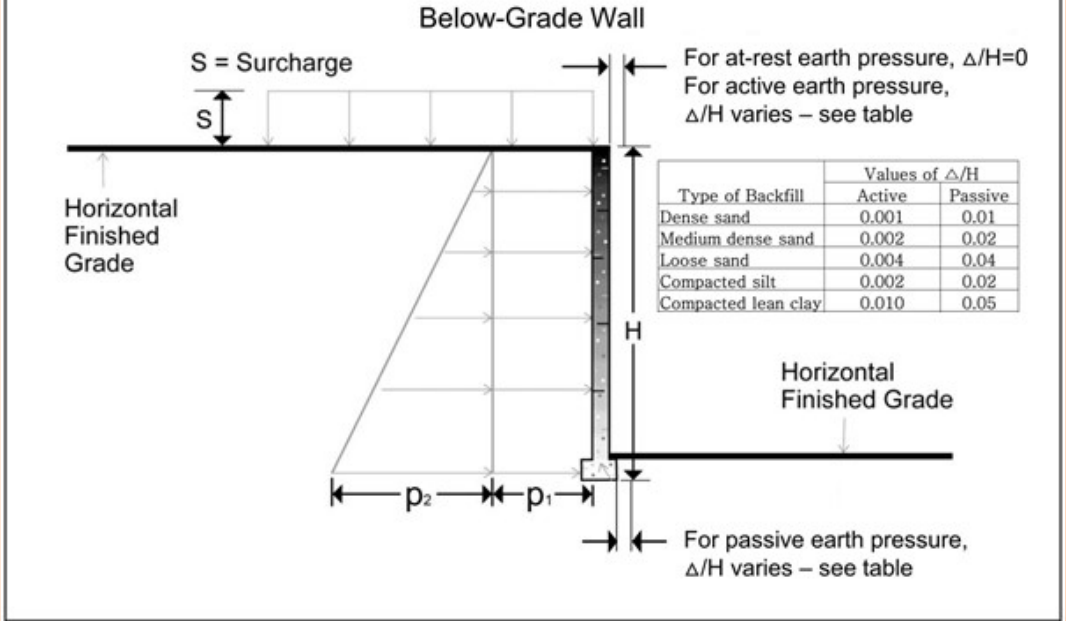
F_V Site Coefficient	1.68

1. Seismic site classification in general accordance with the 2018 International Building Code, which refers to ASCE 7-10.
2. These values were obtained using online seismic design maps and tools provided by the USGS (http://earthquake.usgs.gov/hazards/designmaps/) .

LATERAL EARTH PRESSURES

Design Parameters

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The “at-rest” condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



Type of Backfill	Values of Δ/H	
	Active	Passive
Dense sand	0.001	0.01
Medium dense sand	0.002	0.02
Loose sand	0.004	0.04
Compacted silt	0.002	0.02
Compacted lean clay	0.010	0.05

Table from Movements Required to Reach Active or Passive Earth Pressure Conditions (Clough and Duncan, 1991)

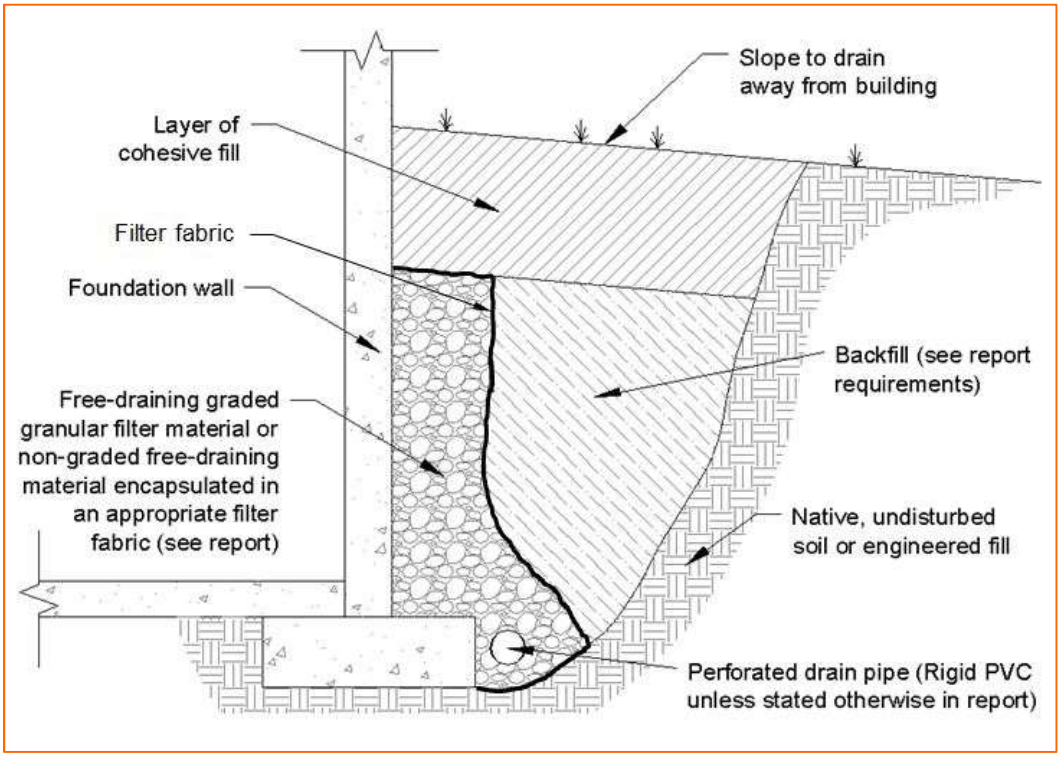
Lateral Earth Pressure Design Parameters				
Earth Pressure Condition [1]	**Coefficient for Backfill Type** [2]	**Surcharge Pressure** [3, 4, 5] **p_1 (psf)**	**Effective Fluid Pressures (psf)** [2, 4, 5]	
			Unsaturated [6]	**Submerged** [6]
Active (Ka)	Granular - 0.31 Fine Grained - 0.41	(0.31)S (0.41)S	(40)H (50)H	(80)H (85)H
At-Rest (Ko)	Granular - 0.47 Fine Grained - 0.58	0.47)S (0.58)S	(55)H (70)H	(90)H (95)H
Passive (Kp)	Granular - 3.25 Fine Grained - 2.46	--- ---	(390)H (295)H	(250)H (205)H

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, compacted to at least 95% of the ASTM D 698 maximum dry density, rendering a maximum unit weight of 120 pcf.
3. Uniform surcharge, where S is surcharge pressure.
4. Loading from heavy compaction equipment is not included.
5. No safety factor is included in these values.
6. To achieve "Unsaturated" conditions, follow guidelines in **Subsurface Drainage for Below-Grade Walls** below. "Submerged" conditions are recommended when drainage behind walls is not incorporated into the design.

Backfill placed against structures should consist of granular soils or low plasticity cohesive soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a pre-fabricated drainage structure may be used. A pre-fabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion, and is fastened to the wall prior to placing backfill.

CHEMICAL SUITE SUMMARY

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary								
Boring	**Sample Depth (feet)**	**Soil Description**	**Soluble Sulfate (mg/kg)**	**Soluble Chloride (mg/kg)**	**Electrical Resistivity (Ω-cm)**	**pH**	**Sulfides (mg/kg)**	**Total Salts (ppt)**
7-1	Cumulative (1'-20')	Predominantly Sandy/Gravelly Lean Clay	40	40	1,687	7.08	<.003	0.19

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 4.3.1 of ACI 318, Building Code Requirements for Structural Concrete and Commentary. Concrete should be designed in accordance with the provisions of ACI 318, Chapter 4.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations may occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

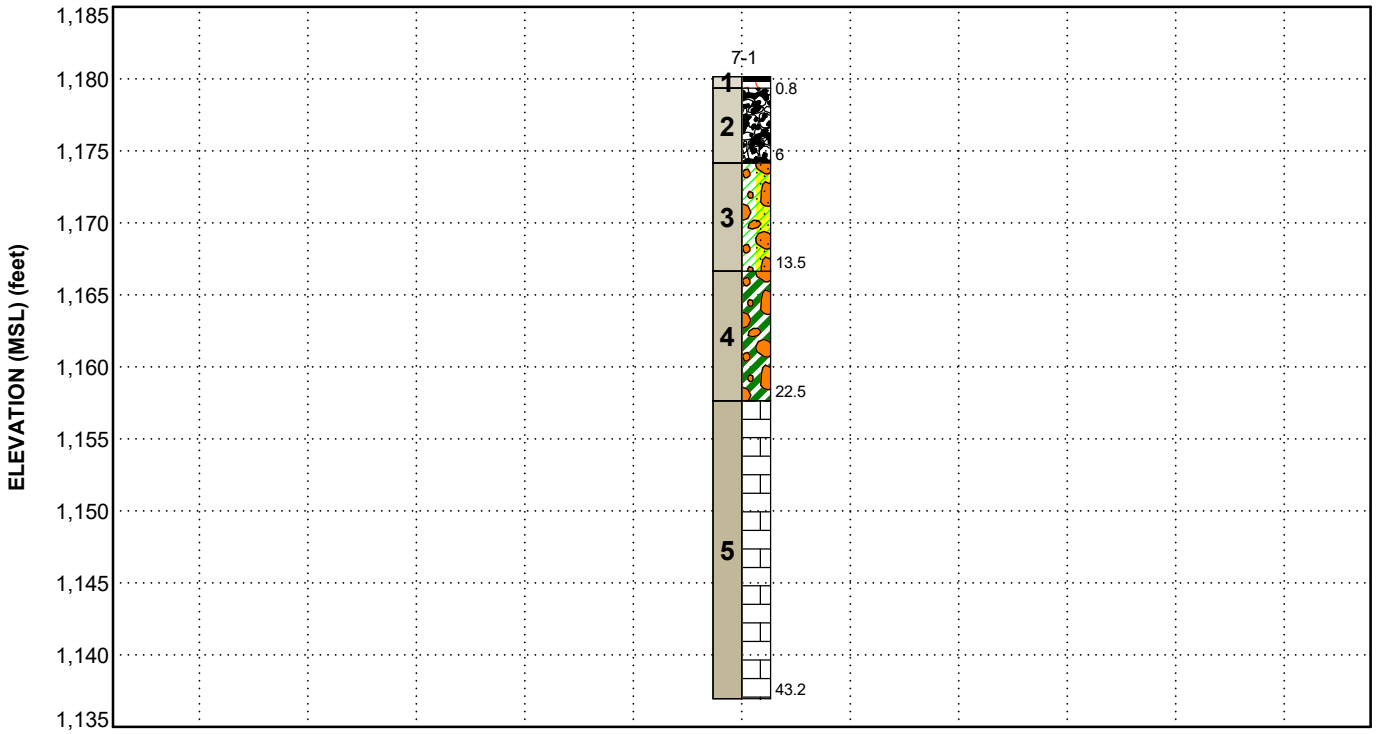
Site characteristics as provided are for design purposes and not to estimate excavation costs. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation costs. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, cost estimating, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL

Republic, MO CIP 7- McElhaney Lift Station and Forcemain ■ Republic, MO
Terracon Project No. B5215110



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Topsoil/Asphalt with Base	Ground covering. Either topsoil or asphalt with agreggate base rock depedning on boring.
2	Fill-Lean Clay with Gravel	Fill-Brown lean clay with gravel and varying amounts of sand.
3	Lean Clay with Gravel	Brown lean clay with gravel and varying amounts of sand.
4	Fat Clay with Gravel	Red fat clay with gravel and varying amounts of sand.
5	Limestone Bedrock	Gray limestone bedrock. Strong, slightly weathered, and slightly fractured.

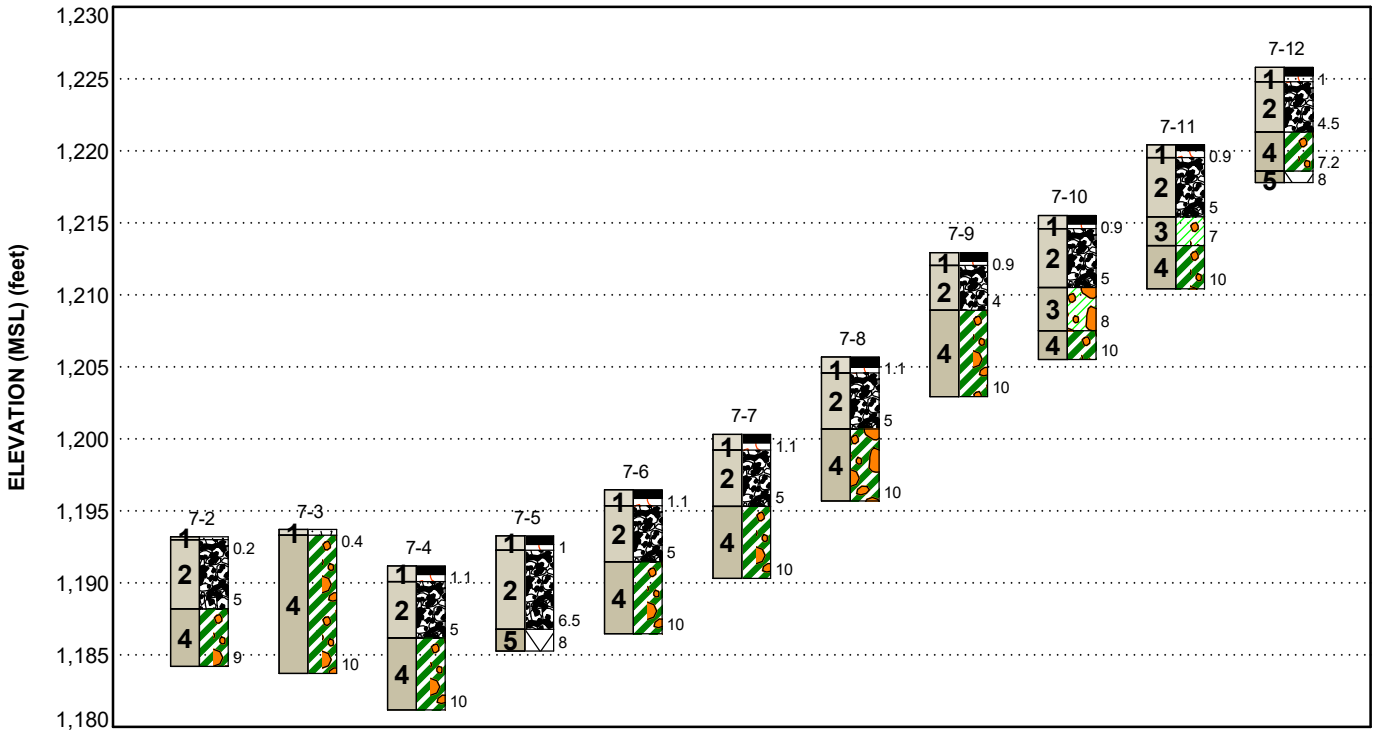
LEGEND

- Asphalt
- Aggregate Base Course
- Fill
- Gravelly Lean Clay with Sand
- Gravelly Fat Clay
- Limestone

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL

Republic, MO CIP 7- McElhaney Lift Station and Forcemain ■ Republic, MO
Terracon Project No. B5215110



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Topsoil/Asphalt with Base	Ground covering. Either topsoil or asphalt with agreggate base rock depedning on boring.
2	Fill-Lean Clay with Gravel	Fill-Brown lean clay with gravel and varying amounts of sand.
3	Lean Clay with Gravel	Brown lean clay with gravel and varying amounts of sand.
4	Fat Clay with Gravel	Red fat clay with gravel and varying amounts of sand.
5	Limestone Bedrock	Gray limestone bedrock. Strong, slightly weathered, and slightly fractured.

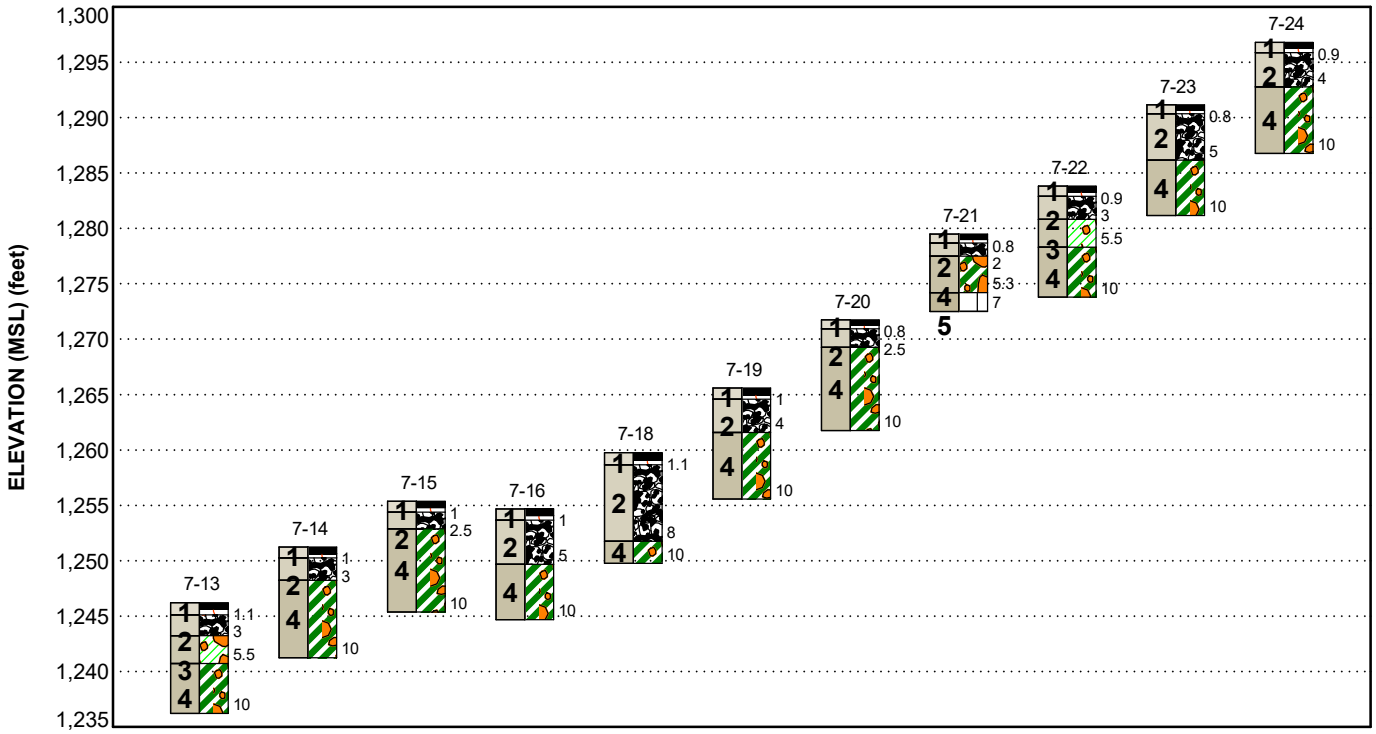
LEGEND

- Topsoil
- Asphalt
- Gravelly Fat Clay
- Fill
- Aggregate Base Course
- Gravelly Lean Clay
- Fat Clay with Gravel
- Weathered Rock
- Lean Clay with Gravel

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL

Republic, MO CIP 7- McElhaney Lift Station and Forcemain ■ Republic, MO
Terracon Project No. B5215110



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Topsoil/Asphalt with Base	Ground covering. Either topsoil or asphalt with agreggate base rock depedning on boring.
2	Fill-Lean Clay with Gravel	Fill-Brown lean clay with gravel and varying amounts of sand.
3	Lean Clay with Gravel	Brown lean clay with gravel and varying amounts of sand.
4	Fat Clay with Gravel	Red fat clay with gravel and varying amounts of sand.
5	Limestone Bedrock	Gray limestone bedrock. Strong, slightly weathered, and slightly fractured.

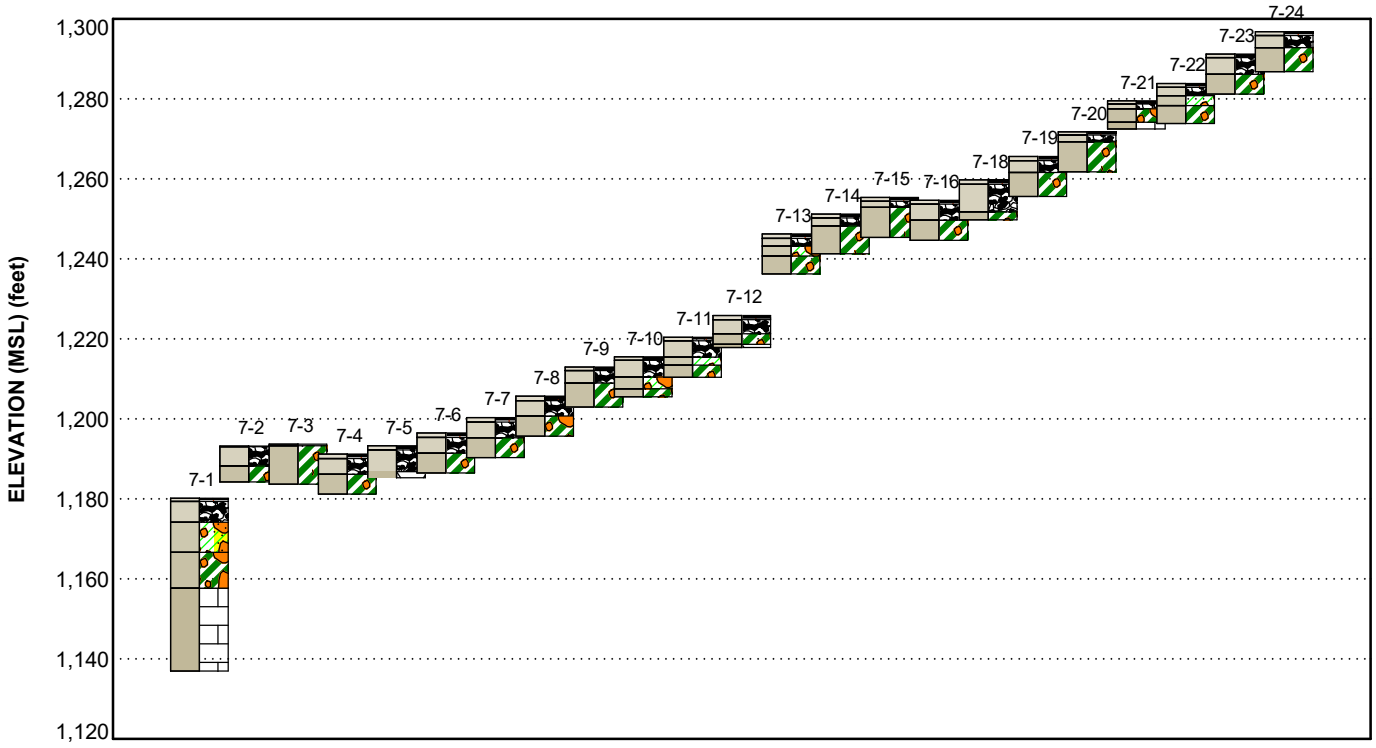
LEGEND

- Asphalt
- Aggregate Base Course
- Fill
- Gravelly Lean Clay
- Fat Clay with Gravel
- Gravelly Fat Clay
- Limestone
- Lean Clay with Gravel

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL

Republic, MO CIP 7- McElhaney Lift Station and Forcemain ■ Republic, MO
Terracon Project No. B5215110



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Topsoil/Asphalt with Base	Ground covering. Either topsoil or asphalt with agreggate base rock depedning on boring.
2	Fill-Lean Clay with Gravel	Fill-Brown lean clay with gravel and varying amounts of sand.
3	Lean Clay with Gravel	Brown lean clay with gravel and varying amounts of sand.
4	Fat Clay with Gravel	Red fat clay with gravel and varying amounts of sand.
5	Limestone Bedrock	Gray limestone bedrock. Strong, slightly weathered, and slightly fractured.

LEGEND

- Asphalt
- Aggregate Base Course
- Fill
- Gravelly Lean Clay with Sand
- Gravelly Fat Clay
- Limestone
- Topsoil
- Fat Clay with Gravel
- Weathered Rock
- Gravelly Lean Clay
- Lean Clay with Gravel

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Boring Depth (feet) [1]	Planned Location
22	10 or auger refusal[2]	Planned gravity alignment
1	50 or auger refusal[2,3]	Lift station location

1. Below ground surface
2. Borings 7-1, 7-2, 7-5, 7-12, and 7-21 encountered auger refusal on a possible cobble, boulder, or bedrock prior to their planned termination depth. All other borings extended to their planned depths.
3. Boring 1 (7-1) extended to a minimum depth of 40' with 20' of rock coring.

Boring Layout and Elevations: The boring layout was provided by Mr. Michael Canull, with Burnes and McDonnell. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±20 feet). Approximate elevations and coordinates were later obtained with a survey provided by Archer & Elgin.

Subsurface Exploration Procedures: The borings were advanced with an ATV-mounted rotary drill rig using continuous flight, solid-stem augers. Samples were obtained in the borings as noted in **Exploration Results**. The thin-walled tube sampling was performed with a thin-walled, seamless steel tube with a sharp cutting edge that was pushed hydraulically into the soil to obtain a relatively undisturbed sample. The split-barrel sampling procedure was performed using a standard 2-inch outer diameter, split-barrel sampling spoon that was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The automatic hammer used in our exploration has an hammer energy correction factor of 1.37. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration was recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at their respective test depths. Water levels were observed and recorded during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion. Pavements were patched with cold-mix asphalt and/or pre-mixed concrete.

Auger refusal materials were explored with rock coring procedures. An NQ2 rock core barrel was utilized to perform the rock cores at Boring 7-1. Water was used as a drilling fluid for cooling the rock bit and the spent water was discharged on site. Due to the use of water for rock coring, groundwater observations were not performed after the start of rock coring and through the completion of the boring.

The sampling depths, penetration distances, and other sampling information were recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the

materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

Classification of the soil samples was performed in general accordance with the Unified Soil Classification System (USCS) based on the material's texture and plasticity. The project engineer reviewed the field data and assigned laboratory tests to better understand the engineering properties of the various soil and rock strata.

- Water (Moisture) Content of Soil and Rock by Mass
- Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- Unconfined compressive strength of rock
- Pocket Penetrometer Results
- Chemical Analyses- pH, Sulfates, Chloride Ion, Electrical Resistivity

Boring log rock classification was determined using the Description of Rock Properties and locally accepted practices for engineering purposes. Petrographic analysis may reveal other rock types. Rock core samples typically provide an improved specimen for this classification.

Shelby tube samples were not taken at the lift station location due to the high gravel content. High gravel content can result in poor recovery or damage to the tube/equipment. Pocket penetrometer results give an indication of the shear strength of the soil.

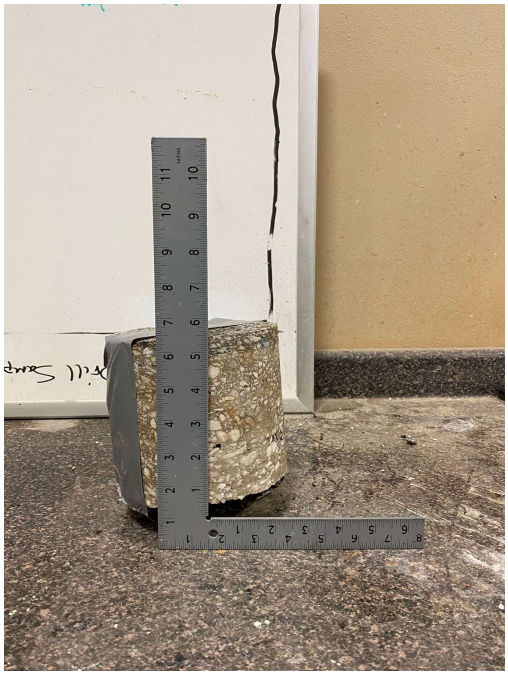
Rock Core Unconfined Compressive Strength

The following table is the results of rock core breaks and the corresponding values for unconfined compressive strength at Boring 7-1, the lift station boring.

Sample Depth (feet) [1]	Height (in.)	Width (in.)	Weight (g)	Break (lb)	Qu (psi)
26.1	4.09	1.97	544.6	15670	5141
40.5	3.66	2.00	473.1	20730	6599

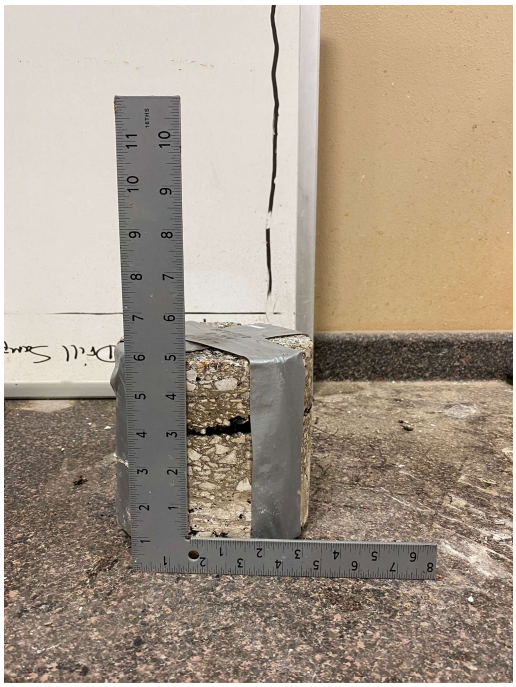
1. Below ground surface

PHOTOGRAPHY LOG

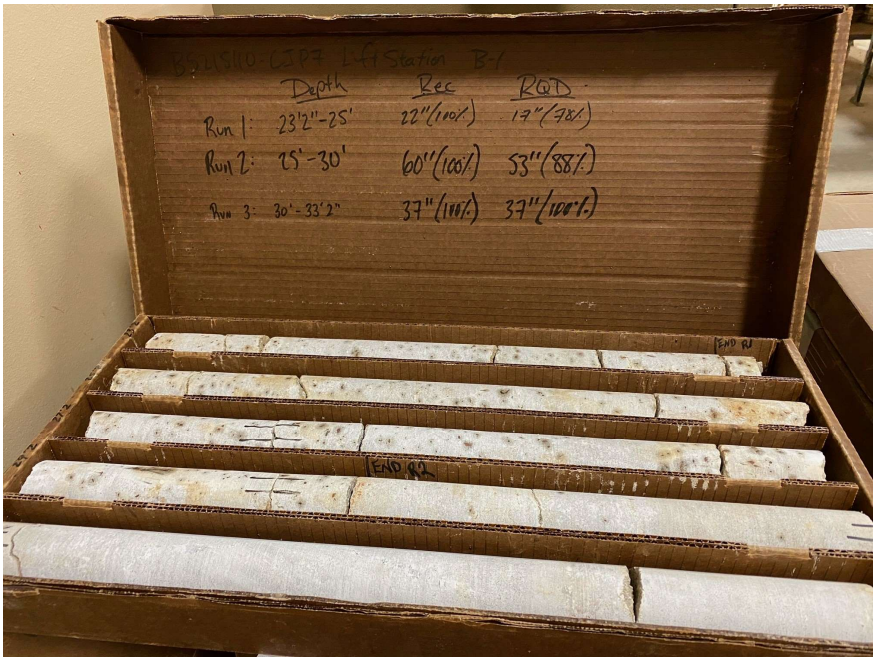


7-6 Asphalt Core

7-18 Asphalt Core



7-24 Asphalt Core



7-1 Rock Core: Run 1-3

7-1 Rock Core: Run 3-5

SITE LOCATION AND EXPLORATION PLANS

Contents:

SITE LOCATION

CIP 7: McElhaney Lift Station & Force Main ■ Republic, MO
April 8, 2022 ■ Terracon Project No. B5215110

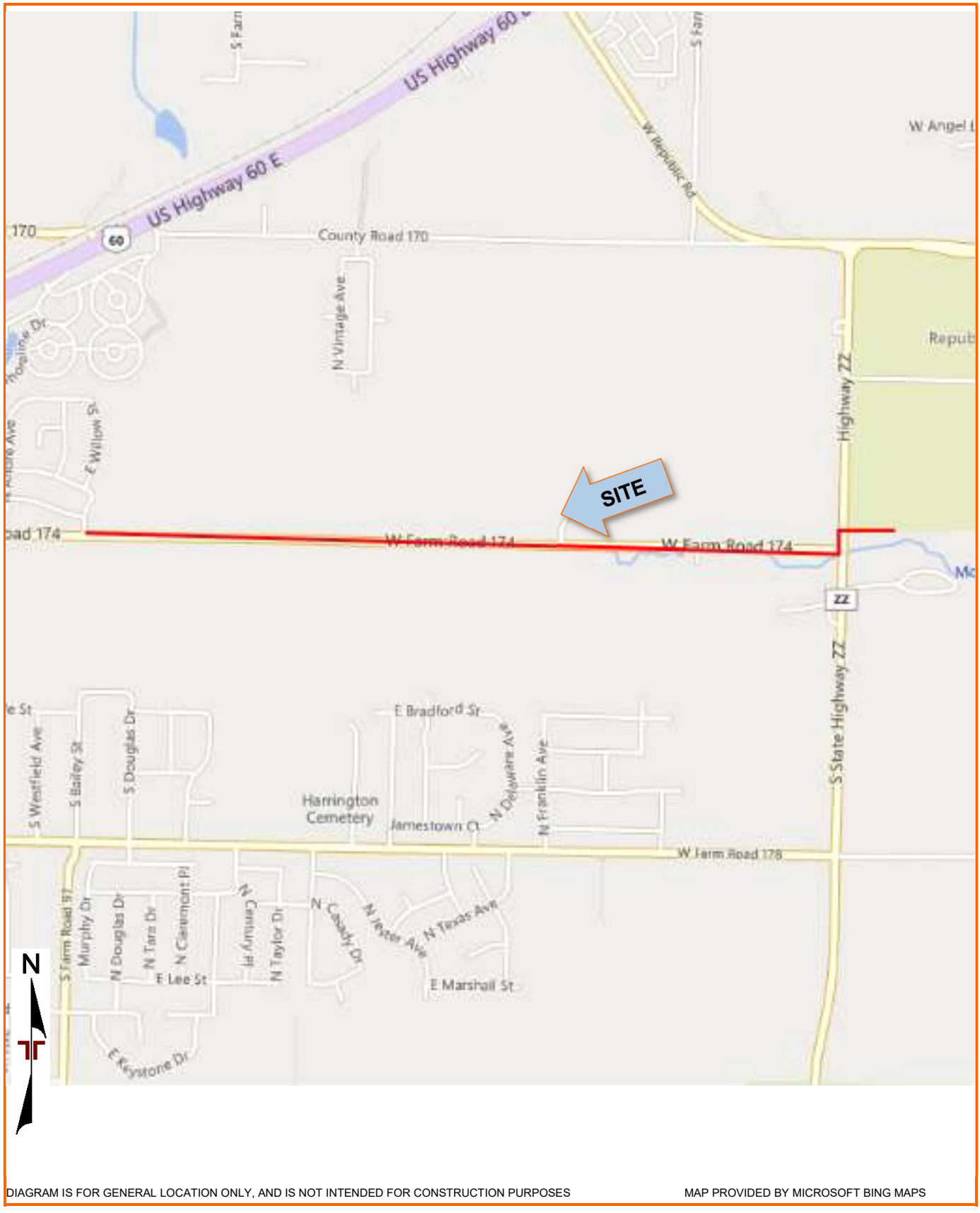


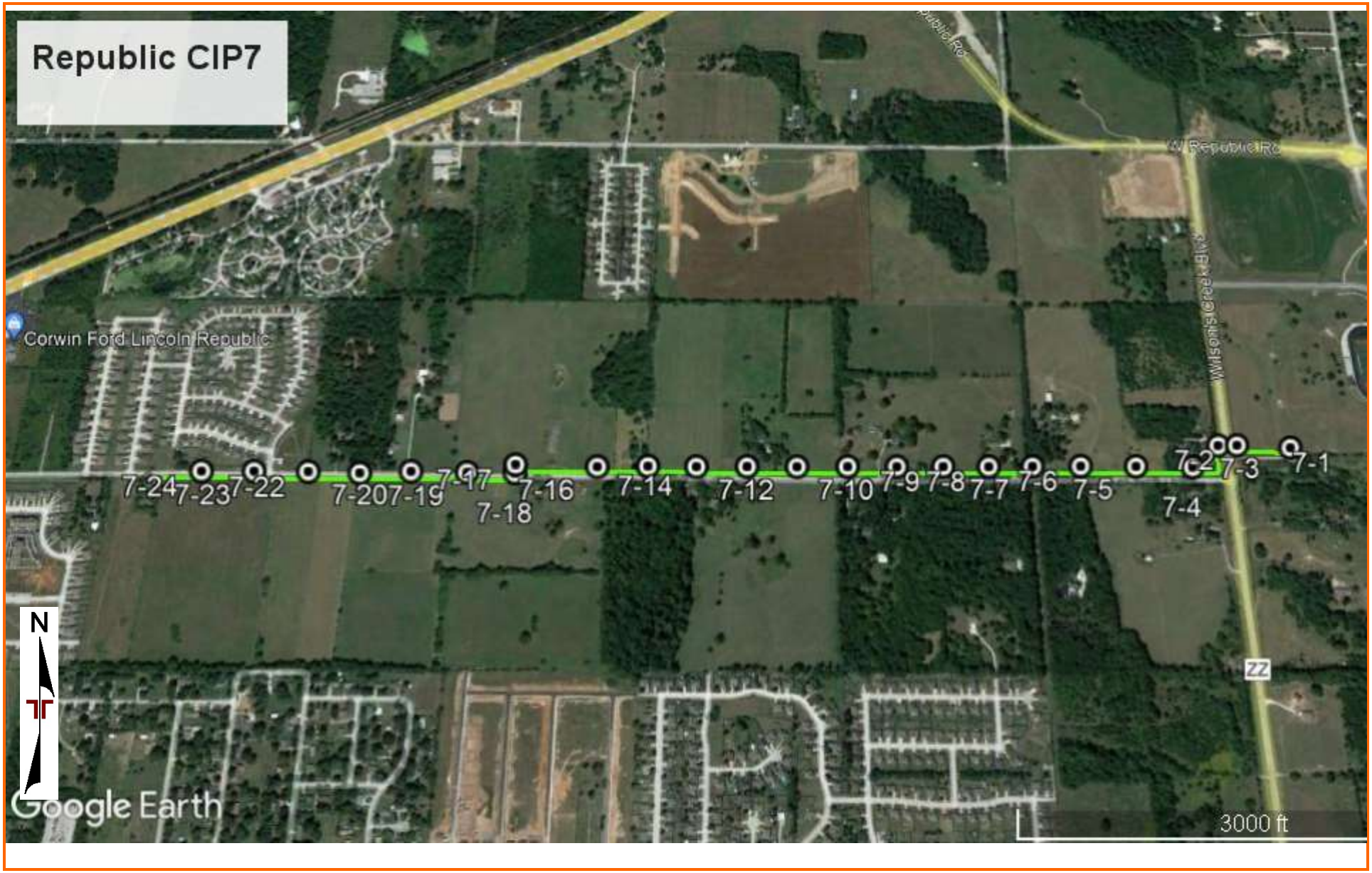
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

BORING LOCATION PLAN

CIP 7: McElhaney Lift Station & Force Main ■ Republic, MO

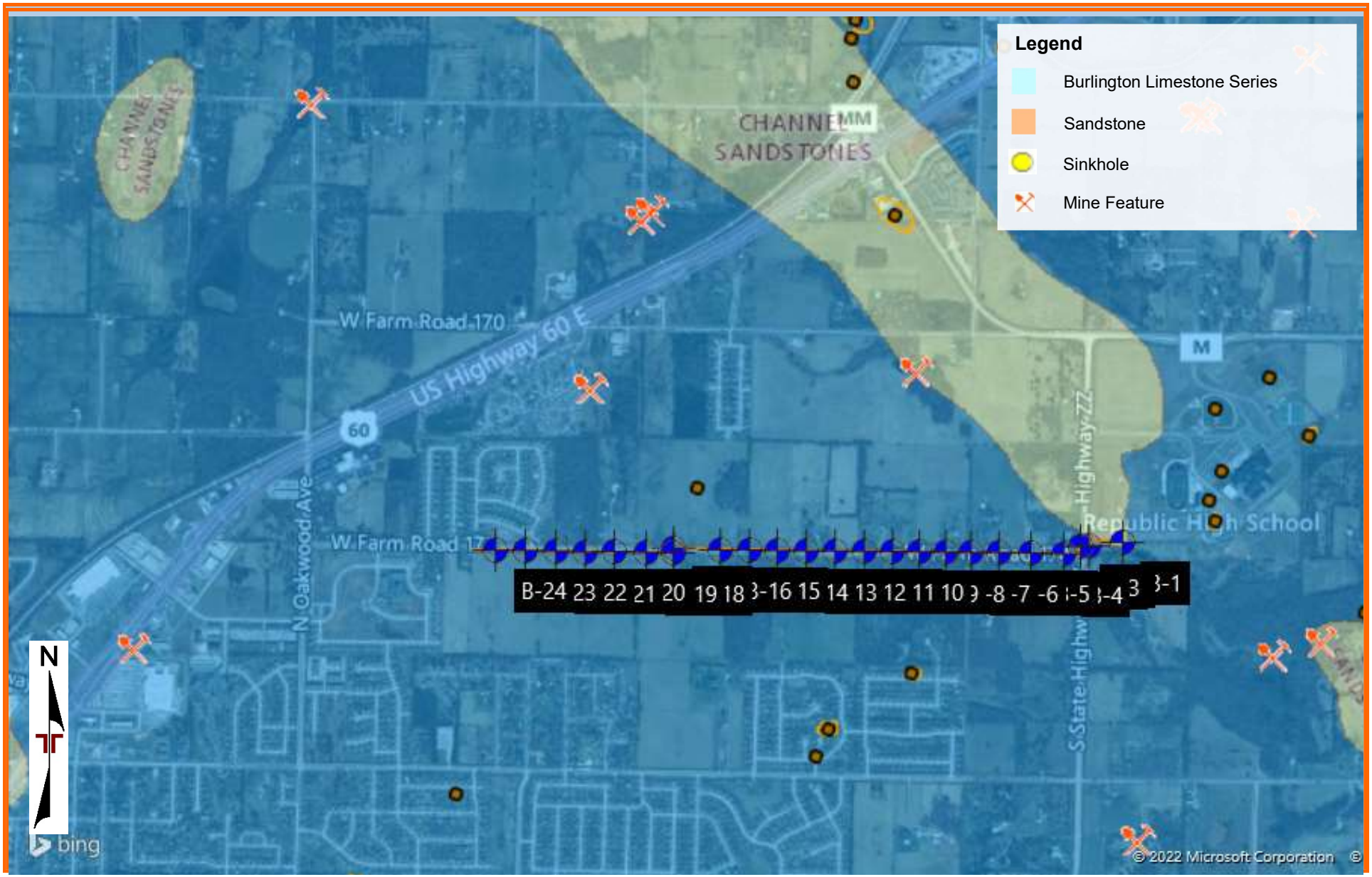
April 8, 2022 ■ Terracon Project No. B5215110



GEOLOGIC MAP

CIP 7: McElhaney Lift Station & Force Main ■ Republic, MO
April 8, 2022 ■ Terracon Project No. B5215110

Terracon GeoReport



EXPLORATION RESULTS

Contents:

BORING LOG NO. 7-1

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1327° Longitude: -93.4189°

Surface Elev.: 1180.15 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.3	1180									
		0.8	1179.5									
			ASPHALT (4")									
			AGGREGATE BASE COURSE (6")									
2			**FILL - GRAVELLY LEAN CLAY WITH SAND (CL)**, brown and tan				14	5-5-6 N=11				
							10	8-10-5 N=15				
		6.0	1174	5								
3			**GRAVELLY LEAN CLAY WITH SAND (CL)**, brown, hard				10	10-10-11 N=21				
							6	15-10-11 N=21				
		13.5	1166.5	10								
4			**GRAVELLY FAT CLAY (CH)**, red, stiff to hard				14	21-30-42 N=72				
				15								
							11	3-8-7 N=15				
				20								
		22.5	1157.5									
5			**LIMESTONE**, with quartz veins, fine to medium-grained, slightly fractured, laminated bedding, slightly weathered, strong rock				22	22-17	85%			
				25								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A until 23.2', then rock core until 43.2'

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-07-2022 | Boring Completed: 02-07-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-1

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1327° Longitude: -93.4189°

Surface Elev.: 1180.15 (Ft.)

DEPTH ELEVATION (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
5					60	60-53	88%			
		30			60	60-56.5	94%			
		35			60	60-60	100%			
		40			38	38-38	100%			

LIMESTONE, with quartz veins, fine to medium-grained, slightly fractured, laminated bedding, slightly weathered, strong rock *(continued)*

43.2 1137

Boring Terminated at 43.2 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A until 23.2', then rock core until 43.2'

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-07-2022 Boring Completed: 02-07-2022

Drill Rig: #840 Driller: DH

Project No.: B5215110

BORING LOG NO. 7-2

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1327° Longitude: -93.4202°

Surface Elev.: 1193.21 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.2	1193									
		TOPSOIL (2")										
		FILL - LEAN CLAY WITH GRAVEL (CL), brown										
2							5	3-8-50 N=58		2.5 (HP)	15.2	
							8	5-6-5 N=11		4.0 (HP)	12.3	
		5.0	1188	5								
4		**FAT CLAY WITH GRAVEL (CH)**, red, stiff										
							11	6-6-7 N=13		3.0 (HP)	27.4	
		9.0	1184				0	41-50/2"		N/A	15.1	
		Refusal at 9 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:
Sampler refusal on possible cobble, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-07-2022 | Boring Completed: 02-07-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-3

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1327° Longitude: -93.4205°

Surface Elev.: 1193.7 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.4	1193.5									
		TOPSOIL (5")										
4		**FAT CLAY WITH GRAVEL (CH)**, red, soft to stiff										
						X	15	3-2-3 N=5		1.5 (HP)	21.8	
				5		X	9	4-4-6 N=10		1.5 (HP)	16.7	
						X	14	4-3-4 N=7		2.75 (HP)	37.9	
						X	5	6-7-6 N=13		1.5 (HP)	38.1	
		10.0	1183.5	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-07-2022 | Boring Completed: 02-07-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-4

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1324° Longitude: -93.4214°

Surface Elev.: 1191.18 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6	1190.5									
		ASPHALT (7")										
		1.1	1190									
		AGGREGATE BASE COURSE (6")										
2		**FILL - GRAVELLY FAT CLAY (CL)**, brown				X	6	13-15-7 N=22		1.0 (HP)	7.7	
						X	13	7-9-12 N=21		1.0 (HP)	20.3	
		5.0	1186	5								
4		**FAT CLAY WITH GRAVEL (CH)**, red, medium stiff to very stiff										
						X	18	3-4-3 N=7		2.5 (HP)	52.2	
						X	14	4-6-9 N=15		2.5 (HP)	53.7	
		10.0	1181	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-5

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1324° Longitude: -93.4227°

Surface Elev.: 1193.27 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6	1192.5									
		ASPHALT (7")										
		1.0	1192.5									
		AGGREGATE BASE COURSE (5")										
2		**FILL - LEAN CLAY WITH GRAVEL (CL)**					12	6-5-3 N=8		2.0 (HP)	21.9	
				5			11	4-6-5 N=11		1.0 (HP)	21.6	
		6.5	1187				5	4-50/4"		1.0 (HP)	18.0	
5		**LIMESTONE**, weathered										
		8.0	1185.5									
		Auger Refusal at 8 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:
Auger refusal on possible cobble, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-6

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1324° Longitude: -93.4240°

Surface Elev.: 1196.46 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		0.6	1196									
1		**ASPHALT (7")**										
		1.1	1195.5									
2		**AGGREGATE BASE COURSE (6")**				X	13	3-2-3 N=5		2.25 (HP)	22.4	
		FILL - LEAN CLAY WITH GRAVEL (CL), brown										
						X	8	3-6-7 N=13		2.0 (HP)	31.3	
		5.0	1191.5	5								
4		**FAT CLAY WITH GRAVEL (CH)**, red, medium stiff				X	13	3-6-2 N=8		2.0 (HP)	53.7	
						X	14	3-3-4 N=7		2.0 (HP)	45.9	
		10.0	1186.5	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-7

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1324° Longitude: -93.4250°

Surface Elev.: 1200.32 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6 **ASPHALT (7")**	1199.5									
		1.1 **AGGREGATE BASE COURSE (6")**	1199									
2		**FILL - LEAN CLAY WITH GRAVEL (CL)**, brown					6	6-5-4 N=9		3.0 (HP)	16.7	
							6	10-8-7 N=15		1.5 (HP)	13.7	
		5.0	1195.5	5								
4		**FAT CLAY WITH GRAVEL (CH)**, red, soft to stiff										
							17	3-4-5 N=9		1.5 (HP)	54.3	
							17	3-2-1 N=3		N/A	113.0	
		10.0	1190.5	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-8

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1324° Longitude: -93.4260°

Surface Elev.: 1205.68 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.7	1205									
		1.1	1204.5									
		ASPHALT (8")										
		AGGREGATE BASE COURSE (5")										
2		**FILL - LEAN CLAY WITH GRAVEL (CL)**, brown					7	5-5-4 N=9		N/A	21.9	
							8	6-6-9 N=15		2.5 (HP)	26.4	
		5.0	1200.5	5								
4		**GRAVELLY FAT CLAY (CH)**, red, stiff to very stiff										
							6	7-10-5 N=15		.5 (HP)	25.3	
							18	4-4-5 N=9		3.0 (HP)	49.4	
		10.0	1195.5	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-9

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1324° Longitude: -93.4274°

Surface Elev.: 1212.94 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6	1212.5									
		0.9	1212									
2			**ASPHALT (7")**									
			AGGREGATE BASE COURSE (4")									
			FILL - LEAN CLAY (CL), brown				6	5-6-4 N=10		2.5 (HP)	23.5	
		4.0	1209									
4			**FAT CLAY WITH GRAVEL (CH)**, red brown, stiff to very stiff	5			9	5-6-8 N=14		3.0 (HP)	25.7	
							14	3-6-7 N=13		2.5 (HP)	33.9	
		10.0	1203	10			9	8-14-9 N=23		1.5 (HP)	23.8	
			Boring Terminated at 10 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-10

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1324° Longitude: -93.4283°

Surface Elev.: 1215.51 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6	1215									
		0.9	1214.5									
			ASPHALT (7")									
			AGGREGATE BASE COURSE (4")									
2			**FILL - LEAN CLAY (CL)**, brown				11	3-3-3 N=6		1.0 (HP)	24.9	
							7	3-3-3 N=6		1.5 (HP)	25.3	
		5.0	1210.5	5								
3			**LEAN CLAY WITH GRAVEL (CL)**, brown, stiff									
							5	6-7-6 N=13		1.0 (HP)	26.1	
		8.0	1207.5									
4			**FAT CLAY WITH GRAVEL (CH)**, red brown, hard				4	7-24-18 N=42		N/A	23.2	
		10.0	1205.5	10								
			Boring Terminated at 10 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-11

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1325° Longitude: -93.4296°

Surface Elev.: 1220.43 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.4	1220									
		0.9	1219.5									
		ASPHALT (5")										
		AGGREGATE BASE COURSE (6")										
2		**FILL - LEAN CLAY WITH GRAVEL (CL)**, brown					8	3-7-5 N=12		1.5 (HP)	19.2	
							12	4-5-6 N=11		2.5 (HP)	25.0	
		5.0	1215.5	5								
3		**LEAN CLAY WITH GRAVEL (CL)**, brown, very stiff										
		7.0	1213.5				8	7-14-12 N=26		2.5 (HP)	21.7	
4		**FAT CLAY WITH GRAVEL (CH)**, red, stiff										
							3	12-10-4 N=14		N/A	25.0	
		10.0	1210.5	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-12

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1325° Longitude: -93.4306°

Surface Elev.: 1225.81 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6 **ASPHALT (7")**	1225									
		1.0 **AGGREGATE BASE COURSE (5")**	1225									
2		**FILL - LEAN CLAY WITH GRAVEL (CL)**, brown					6	3-3-3 N=6		1.0 (HP)	17.2	
		4.5	1221.5				8	4-5-4 N=9		1.5 (HP)	23.2	
4		**FAT CLAY WITH GRAVEL (CH)**, red, medium stiff		5								
							10	3-4-50/4"		1.5 (HP)	51.3	
		7.2	1218.5									
5		8.0 **LIMESTONE**, weathered	1218									
		Auger Refusal at 8 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:
Auger refusal on possible cobble, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-13

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1325° Longitude: -93.4320°

Surface Elev.: 1246.22 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		0.6	1245.5									
1		**ASPHALT (7")**										
		1.1	1245									
2		**AGGREGATE BASE COURSE (6")**										
		FILL - LEAN CLAY WITH GRAVEL (CL), brown				X	11	3-7-16 N=23		2.0 (HP)	17.5	
		3.0	1243									
3		**GRAVELLY LEAN CLAY (CL)**, brown, hard				X	7	11-32-18 N=50		N/A	16.7	
		5.5	1240.5	5								
4		**FAT CLAY WITH GRAVEL (CH)**, red, stiff				X	9	12-6-4 N=10		3.0 (HP)	33.9	
						X	12	6-6-6 N=12		4.0 (HP)	34.3	
		10.0	1236	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-14

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1325° Longitude: -93.4332°

Surface Elev.: 1251.24 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6 **ASPHALT (7")**	1250.5									
		1.0 **AGGREGATE BASE COURSE (5")**	1250									
2		**FILL - LEAN CLAY WITH GRAVEL (CL)**, brown				X	5	8-8-3 N=11		1.5 (HP)	21.2	
		3.0	1248									
4		**FAT CLAY WITH GRAVEL (CH)**, red, stiff		5		X	8	4-5-9 N=14		2.5 (HP)	45.5	
						X	17	4-4-5 N=9		3.0 (HP)	43.8	
				10		X	18	6-6-5 N=11		3.0 (HP)	49.8	
		10.0	1241									
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-08-2022 | Boring Completed: 02-08-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-15

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1325° Longitude: -93.4343°

Surface Elev.: 1255.38 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6 **ASPHALT (7")**	1255									
		1.0 **AGGREGATE BASE COURSE (5")**	1254.5									
2		**FILL - GRAVELLY LEAN CLAY (CL)**, brown				X	8	10-8-5 N=13		1.5 (HP)	25.3	
		2.5	1253									
4		**FAT CLAY WITH GRAVEL (CH)**, red, stiff to very stiff		5		X	10	4-11-15 N=26		3.5 (HP)	41.0	
						X	10	7-11-3 N=14		3.0 (HP)	43.3	
						X	8	6-14-6 N=20		2.0 (HP)	48.2	
		10.0	1245.5	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-16

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1326° Longitude: -93.4356°

Surface Elev.: 1254.67 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		0.6	1254									
1		**ASPHALT (7")**										
		1.0	1253.5									
		AGGREGATE BASE COURSE (5")										
2		**FILL - GRAVELLY LEAN CLAY (CL)**, brown					7	5-11-7 N=18		N/A	18.8	
							12	9-8-4 N=12		1.5 (HP)	27.5	
		5.0	1249.5	5								
4		**FAT CLAY WITH GRAVEL (CH)**, red, medium stiff to very stiff										
							18	3-3-3 N=6		2.5 (HP)	55.9	
							10	7-12-7 N=19		1.0 (HP)	58.8	
		10.0	1244.5	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-18

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1326° Longitude: -93.4374°

Surface Elev.: 1259.76 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
		0.7	1259									
1		**ASPHALT (8")**										
		1.1	1258.5									
2		**AGGREGATE BASE COURSE (5")**										
		FILL - LEAN CLAY WITH GRAVEL (CL)										
							5	4-3-4 N=7		N/A	15.7	
							16	1-0-1 N=1		.5 (HP)	24.2	
				5			8	4-3-3 N=6		2.0 (HP)	20.7	
		8.0	1252									
4		**FAT CLAY WITH GRAVEL (CH)**, red, very stiff					8	4-9-12 N=21		2.0 (HP)	19.5	
		10.0	1250	10								
		Boring Terminated at 10 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-19

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1326° Longitude: -93.4386°

Surface Elev.: 1265.58 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.6	1265									
		1.0	1264.5									
			ASPHALT (7")									
			AGGREGATE BASE COURSE (5")									
2			**FILL - GRAVELLY LEAN CLAY (CL)**, brown				15	6-9-6 N=15		1.5 (HP)	20.4	
		4.0	1261.5									
4			**FAT CLAY WITH GRAVEL (CH)**, red, stiff	5			10	6-9-6 N=15		2.0 (HP)	21.6	
							14	4-6-8 N=14		2.0 (HP)	45.5	
							17	7-8-6 N=14		2.0 (HP)	51.0	
		10.0	1255.5	10								
			Boring Terminated at 10 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-20

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1326° Longitude: -93.4398°

Surface Elev.: 1271.75 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.5	1271.5									
		0.8	1271									
2			**ASPHALT (6")**									
			AGGREGATE BASE COURSE (4")									
			FILL - GRAVELLY LEAN CLAY (CL), brown			X	15	9-9-4 N=13		1.5 (HP)	18.5	
		2.5	1269.5									
4			**FAT CLAY WITH GRAVEL (CH)**, red, stiff to very stiff									
				5		X	15	6-7-7 N=14		3.5 (HP)	46.9	
						X	13	6-8-8 N=16		3.0 (HP)	49.8	
				10		X	10	7-8-9 N=17		4.0 (HP)	44.7	
		10.0	1262									
			Boring Terminated at 10 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-21

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1326° Longitude: -93.4411°

Surface Elev.: 1279.49 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.5	1279									
		0.8	1278.5									
2			**ASPHALT (6")**									
			AGGREGATE BASE COURSE (4")									
		2.0	**FILL - LEAN CLAY (CL)**, brown, 1277.5				14	6-8-13 N=21		.5 (HP)	21.2	
4			**GRAVELLY FAT CLAY (CH)**, red, stiff									
							7	16-10-5 N=15		N/A	18.6	
		5.3	1274	5								
5			**LIMESTONE**, weathered, Bedrock per driller's notes									
							0	50/0"				
		7.0	1272.5									
			Auger Refusal at 7 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:
Auger refusal on possible cobble, boulder, or bedrock.

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-22

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1326° Longitude: -93.4424°

Surface Elev.: 1283.81 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.5	1283.5									
		0.9	1283									
			ASPHALT (6")									
			AGGREGATE BASE COURSE (5")									
2			**FILL - LEAN CLAY WITH GRAVEL (CL)**, brown				14	2-7-9 N=16		.5 (HP)	21.9	
		3.0	1281									
3			**LEAN CLAY WITH GRAVEL (CL)**, brown, very stiff	5			12	8-8-8 N=16		2.0 (HP)	24.6	
		5.5	1278.5									
4			**FAT CLAY WITH GRAVEL (CH)**, red, stiff to very stiff				11	4-9-7 N=16		1.5 (HP)	52.6	
							5	15-10-5 N=15		1.5 (HP)	44.9	
		10.0	1274	10								
			Boring Terminated at 10 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-23

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1326° Longitude: -93.4436°

Surface Elev.: 1291.16 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.5	1290.5									
		0.8	1290.5									
			ASPHALT (6")									
			AGGREGATE BASE COURSE (4")									
2			**FILL - LEAN CLAY WITH GRAVEL (CL)**, brown				14	4-5-12 N=17		4.0 (HP)	22.4	
							5	24-50/4"		1.5 (HP)	17.3	
		5.0	1286	5								
4			**FAT CLAY WITH GRAVEL (CH)**, red, stiff to very stiff				7	4-5-5 N=10		2.0 (HP)	38.5	
							10	8-9-8 N=17		2.5 (HP)	45.9	
		10.0	1281	10								
			Boring Terminated at 10 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

BORING LOG NO. 7-24

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

CLIENT: Burns & McDonnell Engineering Company Inc Kansas City, MO

SITE: Along W. Farm Road 174 Republic, MO

LOCATION See Exploration Plan

Latitude: 37.1327° Longitude: -93.4444°

Surface Elev.: 1296.78 (Ft.)

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (Inches)	FIELD TEST RESULTS	RQD (%)	LABORATORY HP (tsf)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI
1		0.5	1296.5									
		0.9	1296									
			ASPHALT (6")									
			AGGREGATE BASE COURSE (5")									
2			**FILL - GRAVELLY LEAN CLAY (CL)**, brown				11	11-16-8 N=24		N/A	30.6	
		4.0	1293									
4			**FAT CLAY WITH GRAVEL (CH)**, red, very stiff to hard	5			12	21-20-11 N=31		N/A	20.2	
							15	5-8-11 N=19		2.5 (HP)	45.3	
							7	8-13-32 N=45		N/A	45.1	
		10.0	1287	10								
			Boring Terminated at 10 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" C.F.A

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were provided by others.

Notes:

WATER LEVEL OBSERVATIONS

Terracon
4765 W Junction St
Springfield, MO

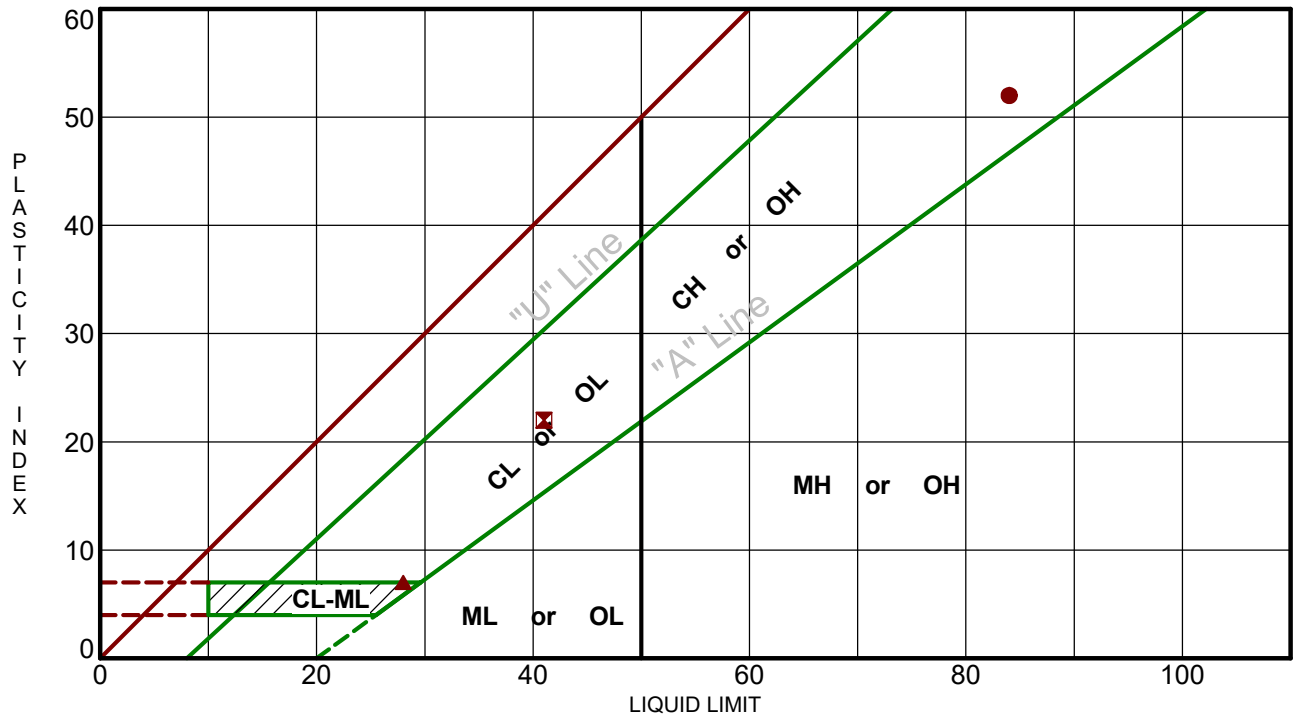
Boring Started: 02-09-2022 | Boring Completed: 02-09-2022

Drill Rig: #840 | Driller: DH

Project No.: B5215110

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth	LL	PL	PI	Fines	USCS	Description
●	B-3	6 - 7.5	84	32	52		CH	Fat Clay
⊠	B-12	3.5 - 5	41	19	22		CL	Lean Clay
▲	B-18	3.5 - 5	28	21	7		CL	Lean Clay

PROJECT: Republic, MO CIP 7- McElhaney Lift Station and Forcemain

SITE: Along W. Farm Road 174 Republic, MO

Terracon
4765 W Junction St
Springfield, MO

PROJECT NUMBER: B5215110

CLIENT: Burns & McDonnell Engineering Company Inc
Kansas City, MO

MMET, Inc • 316 N Airport Rd • Strafford, MO 65757
tel: 417-736-6016 • fax: 417-736-6018 • toll: 877-581-MMET
Email mmet@mmetinc.com Est. 1997

MMET LABORATORY

LABORATORY REPORT

Report Number: M260175
Lab Number: 220302
Report Date: 3/14/2022

Customer: Terracon
4765 W. Junction Street
Springfield, MO 65802
Phone 417-864-5100
Fax 417-864-0871
Cell 417-773-2500 Ripken.Dodson@terracon.com
Email Joshua.Elson@terracon.com Nic.Arens@terracon.com
Purchase Order No. David.Williams@terracon.com

Project Manager: Ripken Dodson, EI Staff Engineer
Project Name: B5215008 & B5215110
Project Location: Republic CIP3 & CIP7
Sample Matrix: Soil
Sampled By: Ripken Dodson, EI Staff Engineer
Sample ID: CIP 7:B-1 Depth: Cumulative
Date Sampled:
Date Received 2/10/2022 1700

Paramter	Method	Results	Units	Date of Analysis	Analyst
Sulfate	AASHTO T290-91	40	mg/Kg	3/11/2022	WAM
Sulfide	SM 4500-S D	< 0.003	mg/Kg	3/11/2022	WAM
Chloride	AASHTO T291	40	mg/Kg	3/14/2022	WAM
pH 1:1	EPA 9045C / AASHTO T289-91	7.08	SU	3/14/2022	WAM
Electrical Conductivity 1:2	SM 2510	366	µS	3/14/2022	WAM
TDS		184	ppm	3/14/2022	WAM
Salt		0.19	ppt	3/14/2022	WAM
Minimum Lab Soil Resistivity	AASHTO T288-91	1,687	Ω cm	3/13/2022	WAM

Report Approved by:

Wayne A. Middleton, Pres., Lab Dir.

SUPPORTING INFORMATION

Contents:

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu ≥ 4 and 1 ≤ Cc ≤ 3 [E]		GW	Well-graded gravel [F]
			Cu < 4 and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu ≥ 6 and 1 ≤ Cc ≤ 3 [E]		SW	Well-graded sand [I]
			Cu < 6 and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

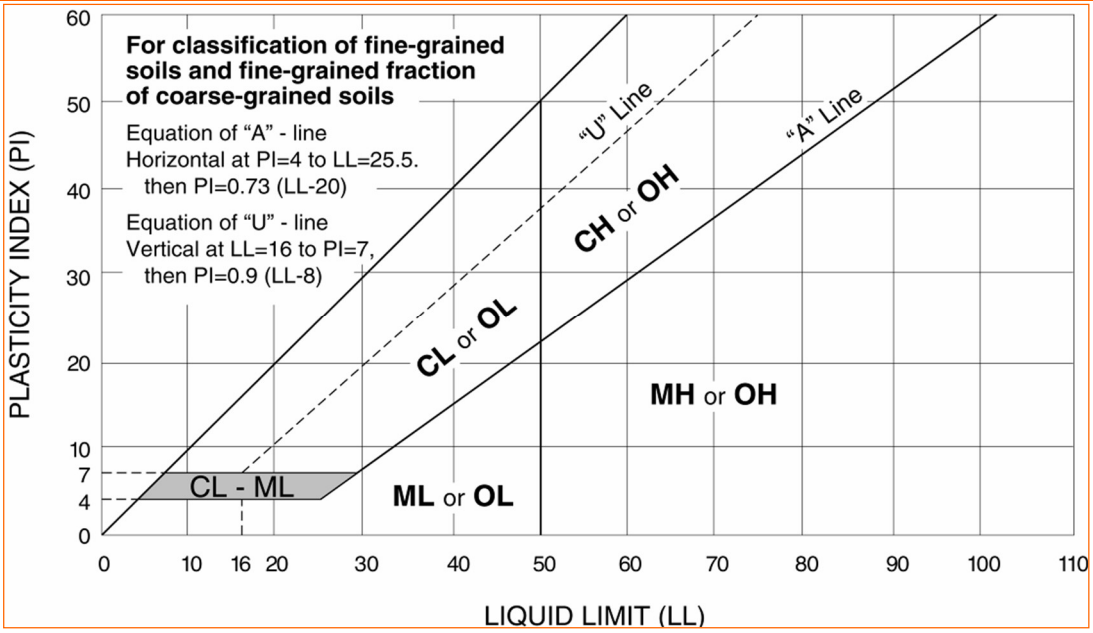
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Term	**Description**
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Slightly weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Moderately weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Extremely close	< ¾ in (<19 mm)	**Laminated**	< ½ in (<12 mm)
Very close	¾ in – 2-1/2 in (19 - 60 mm)	**Very thin**	½ in – 2 in (12 – 50 mm)
Close	2-1/2 in – 8 in (60 – 200 mm)	**Thin**	2 in – 1 ft. (50 – 300 mm)
Moderate	8 in – 2 ft. (200 – 600 mm)	**Medium**	1 ft. – 3 ft. (300 – 900 mm)
Wide	2 ft. – 6 ft. (600 mm – 2.0 m)	**Thick**	3 ft. – 10 ft. (900 mm – 3 m)
Very Wide	6 ft. – 20 ft. (2.0 – 6 m)	**Massive**	> 10 ft. (3 m)

Discontinuity Orientation (Angle): Measure the angle of discontinuity relative to a plane perpendicular to the longitudinal axis of the core. (For most cases, the core axis is vertical; therefore, the plane perpendicular to the core axis is horizontal.) For example, a horizontal bedding plane would have a 0-degree angle.

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009 Technical Manual for Design and Construction of Road Tunnels – Civil Elements

DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Very slight	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints stained, and discoloration extends into rock up to 1 in. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately severe	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil". Rock "fabric" no discernible or discernible only in small, scattered locations. Quartz may be present as dikes or stringers.
HARDNESS (for engineering description of rock – not to be confused with Moh's scale for minerals)	
Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to ¼ in. deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-in. maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

Joint, Bedding, and Foliation Spacing in Rock [1]

Spacing	Joints	Bedding/Foliation
Less than 2 in.	Very close	Very thin
2 in. – 1 ft.	Close	Thin
1 ft. – 3 ft.	Moderately close	Medium
3 ft. – 10 ft.	Wide	Thick
More than 10 ft.	Very wide	Very thick

1. Spacing refers to the distance normal to the planes, of the described feature, which are parallel to each other or nearly so.

Rock Quality Designator (RQD) [1]

RQD, as a percentage	Diagnostic description
Exceeding 90	Excellent
90 – 75	Good
75 – 50	Fair
50 – 25	Poor
Less than 25	Very poor

1. RQD (given as a percentage) = length of core in pieces 4 inches and longer / length of run

Joint Openness Descriptors

Openness	Descriptor
No Visible Separation	Tight
Less than 1/32 in.	Slightly Open
1/32 to 1/8 in.	Moderately Open
1/8 to 3/8 in.	Open
3/8 in. to 0.1 ft.	Moderately Wide
Greater than 0.1 ft.	Wide

References: American Society of Civil Engineers. Manuals and Reports on Engineering Practice - No. 56. Subsurface Investigation for Design and Construction of Foundations of Buildings. New York: American Society of Civil Engineers, 1976. U.S. Department of the Interior, Bureau of Reclamation, Engineering Geology Field Manual.

EXHIBIT J – PROJECT SCHEDULE

BURNS McDONNELL

Republic, MO WWTP - CIP7

Activity ID	Activity Name	Remaining Duration	Start	Finish
Republic, MO WWTP - CIP7		479	16-Feb-22 A	28-Jan-25
CIP7 Schedule		479	16-Feb-22 A	28-Jan-25
Major Milestones		0	13-May-22 A	22-Nov-24
Engineering		0	13-May-22 A	01-Mar-23 A
CIP7-MS-30-1	Conceptual Design Ready for Q2 Review	0		13-May-22 A
CIP7-MS-1170	BODR Approved by Owner	0		27-May-22 A
CIP7-MS-30-2	Conceptual Design Ready for Submittal to Owner	0		27-May-22 A
CIP7-MS-60-1	Preliminary Design Ready for Q2 Review	0		28-Oct-22 A
CIP7-MS-60-2	Preliminary Design Ready for Submittal to Owner	0		28-Oct-22 A
CIP7-MS-90-2	Pre-Final Design Ready for Submittal to Owner	0		08-Feb-23 A
CIP7-MS-90-1	Pre-Final Design Ready for Q2 Review	0		15-Feb-23 A
CIP7-MS-100	Phase 1 Substantial Completion	0		01-Mar-23 A
Estimating		0	27-May-22 A	01-Mar-23 A
CIP7-MS-30-EST	Budget Estimate Completed (Conceptual Design)	0		27-May-22 A
CIP7-MS-60-EST	Preliminary Design Estimate Completed	0		16-Jan-23 A
CIP7-MS-90-EST	Pre-Final Design Estimate Completed	0		01-Mar-23 A
Construction		0	22-Nov-24	22-Nov-24
CIP7-MS-100-CN	Phase 2 Substantial Completion	0		22-Nov-24
CIP7-MS-101-CN	Phase 2 Final Completion	0		22-Nov-24
BODR & Conceptual Design		0	16-Feb-22 A	08-Jun-22 A
CIP7-BODR-1240	Site Investigation and Data Review	0	16-Feb-22 A	15-Apr-22 A
CIP7-BODR-1280	Conceptual Design	0	16-Feb-22 A	13-May-22 A
CIP7-BODR-1110	Prepare BODR	0	16-Feb-22 A	20-Apr-22 A
CIP7-BODR-1130	Prepare and Submit Drawing List	0	16-Feb-22 A	13-May-22 A
CIP7-BODR-1140	Prepare and Submit Specification List	0	16-Feb-22 A	13-May-22 A
CIP7-BODR-1120	BODR Q3/Q4 Review and Incorporate Comments	0	21-Apr-22 A	29-Apr-22 A
CIP7-BODR-1010	BODR Review & Approval by Owner	0	02-May-22 A	27-May-22 A
CIP7-BODR-1030	Budget Estimate (Conceptual Design)	0	16-May-22 A	27-May-22 A
CIP7-BODR-1330	Conceptual Design Q2 Review and Incorporate Cor	0	16-May-22 A	27-May-22 A
CIP7-BODR-1007	Site Plan Finalized	0	27-May-22 A	27-May-22 A
CIP7-BODR-1260	Primary Power Feed Finalized	0	27-May-22 A	27-May-22 A
CIP7-BODR-1650	Conceptual Design Documents Review and Approv	0	31-May-22 A	08-Jun-22 A
CIP7-BODR-1020	Owner Conceptual Design Workshop	0	08-Jun-22 A	08-Jun-22 A
Preliminary Design		0	09-Jun-22 A	02-Nov-22 A
Pre-Final Design		0	02-Nov-22 A	10-Mar-23
CDB Tasks		0	31-May-22 A	09-Feb-23 A
Environmental Permitting		65	28-Mar-22 A	09-Jun-23
Phase 2		479	27-Jan-23 A	28-Jan-25
CIP7-PH2-1100	Execute DB Phase 2 Contract	21	31-Mar-23	28-Apr-23
IFC Design		58	10-Mar-23	31-May-23
NPDES Stormwater Permit		41	30-Aug-23	26-Oct-23
Permitting (TBD)		358	30-Aug-23	28-Jan-25
Procurement		296	10-Mar-23	07-May-24
Subcontracts		181	27-Jan-23 A	22-Nov-23
Construction		260	24-Nov-23	02-Dec-24

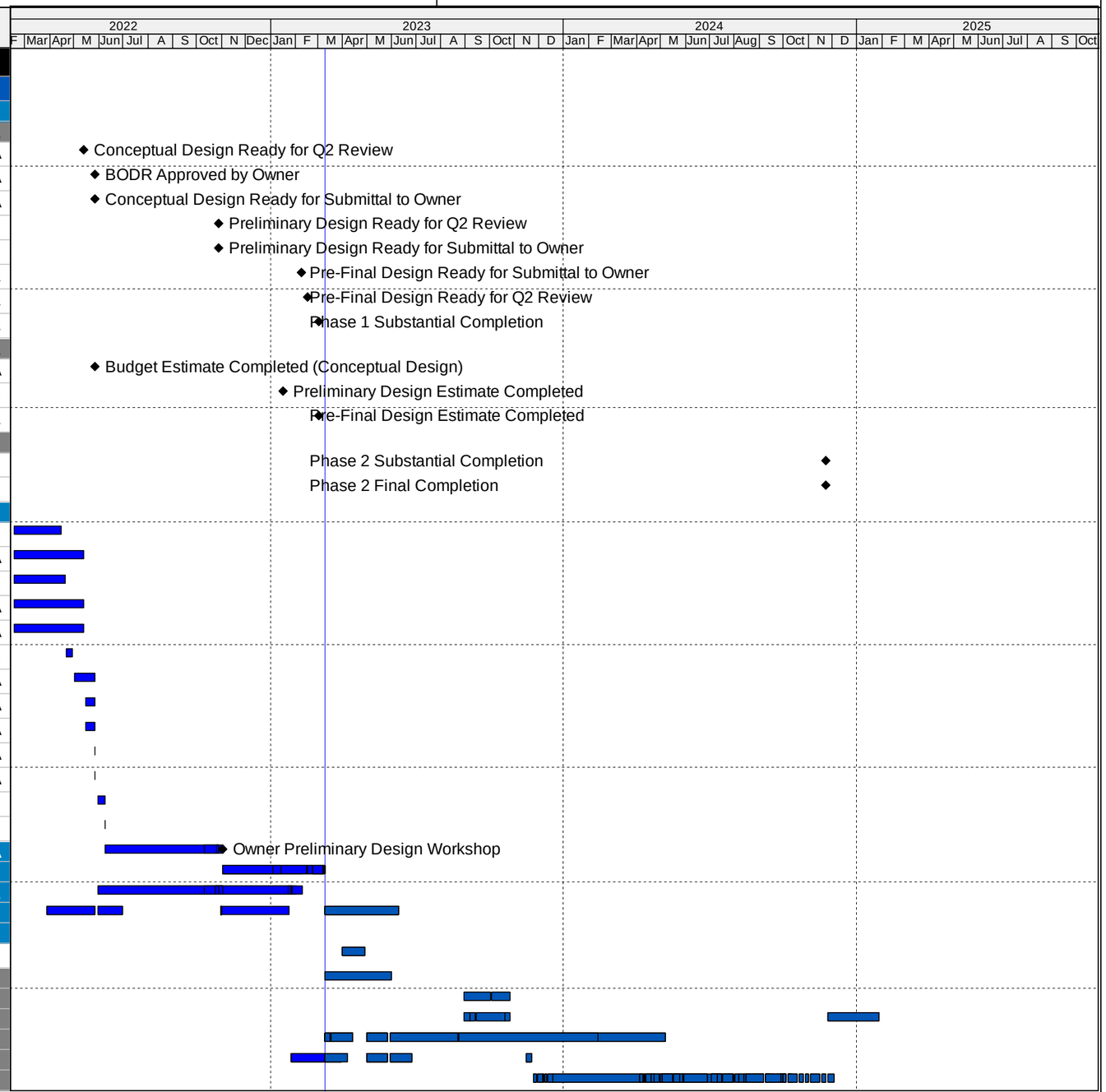


EXHIBIT K – PRE-FINAL DESIGN DOCUMENTS

The Pre-final Design Documents consist of the Work Description and Pre-Final Design Drawings.

Work Description

This Work Description identifies major definable components of the Project as they can be defined at the time that the Agreement was prepared. In addition to the major components called out herein, the Work Description outlines the general requirements for each design element. The intent of this document is to establish the scope and criteria of products, materials, and equipment to be furnished and install under the Agreement. The Design-Builder will develop the final design documents and construct the Work in accordance with the criteria identified herein.

010000 GENERAL CONDITIONS

1. All supervision, administrative costs, and temporary facilities necessary to construct the work.
2. Owner to provide sales tax exemption certificate for the project. Sales tax will be exempt for all permanent materials incorporated into the project.
3. There are no applicable local building permits for the project.
4. Any chemicals required for startup, testing or operation of the facility will be provided by Owner.
5. Builders risk insurance will be provided by Design-Builder.
6. Design and construction administration are included for the duration of the schedule.
7. Design will be completed pursuant to the codes listed below:
    a. International Building Code (IBC), 2018 Edition
    b. International Energy Conservation Code (IECC), 2018 Edition
        i. Climate Zone: 4A
    c. International Mechanical Code (IMC), 2018 Edition
    d. International Plumbing Code (IPC), 2018 Edition
    e. International Fuel Gas Code (IFGC), 2018 Edition
    f. National Electric Code (NEC), 2017 Edition
8. Civil testing lab services will be performed by a 3rd party and paid for by the Design-Builder, including civil testing for soil, concrete, and/or asphalt testing. This testing includes:
    a. Concrete air and slump testing
    b. Concrete compressive cylinder testing
    c. Soils proctors
    d. Soils and aggregate compressive testing
9. Testing Provided by the applicable trade subcontractor include:
    a. Hydrostatic pipe testing
    b. Cable Megger Testing
    c. Grounding System Testing
10. Performance, payment and statutory bonds are included for the entire contract amount.
11. O&M's supplied by equipment suppliers shall be turned over to the Owner, paper (3 sets) and electronic PDF form.
12. Work shall be completed in accordance with all applicable Federal and State rules, regulations, and requirements as well as the applicable City standards.
13. All work and materials in accordance with AWWA where required.
14. This project is subject to current prevailing wages as of the date of the contract execution.
15. No costs are included for any special inspections required by the current IBC.
16. In the event that there are discrepancies between the Technical Memoranda and this document, this document shall govern.
17. Short Circuit, Coordination, and Arc Flash Studies are not included.

010100 SPECIAL SITE CONDITIONS

1. No hazardous or special waste are known of at this time or anticipated to be encountered in the course of this project.
2. No provisions for groundwater are included. Normal surface water will be handled by small, localized pumps and are assumed to be discharged to the stormwater system.

010150 OWNER FURNISHED ITEMS

1. Operation and maintenance of existing facilities during construction.
2. Land acquisition easements or Right-of-Way as required.
3. Cost of offsite utility upgrades if required.
4. Emergency backup generator, including fuel, until permanent generator is commissioned.
5. Permanent water, sewer, and gas connection fees will be paid by the Owner.

013300 SUBMITTALS

1. Design Builder will provide shop drawings for major process and electrical equipment to the Owner for review and comment. Owner will provide comments within 10 business days.
2. Design-Builder will provide Conformed to Construction Drawings.

015000 CONSTRUCTION EQUIPMENT

1. All construction equipment necessary to complete the work is included.

015100 TEMPORARY UTILITIES AND FACILITIES

1. Design-Builder will provide temporary sanitary facilities to support the construction staff.
2. Design-Builder has excluded cost for electricity consumed during construction. Owner will pay Utility directly for power used during construction.
3. Design-Builder has excluded cost for water consumption during construction. Water will be provided to Design-Builder at no cost. Design-Builder will be responsible for conveyance of water from the Owner's source to the Work as required, including providing and installing temporary piping and/or hoses.

015200 FIELD OFFICES AND SHEDS

1. Design-Builder will supply field offices and sheds as required.

015700 TEMPORARY BARRIERS AND CONTROLS

1. Design-Builder will provide all barriers and controls necessary to complete the work.
2. Design-Builder will provide dust and erosion control BMPs and maintenance as required.
3. Design-Builder will provide any temporary access roads and construction staging as required.

031000 FORMWORK

1. Exterior Form
    a. Fill any repairable honeycomb; patch all tie holes.
    b. All wall surfaces will have a formed finish.
    c. Joints to be noticeable, but not protruding. Grind all form fins over ½".
    d. Chamfer all exposed edges.

032000 REINFORCING

1. Deformed Bars: ASTM A615, Grade 60.
2. Welded Wire Fabric: ASTM A1064.
3. No epoxy coated reinforcement except at driveway dowels.

033000 CONCRETE

1. ASTM C 150 Type I/II or ASTM C595 Type IL (MS) with Type F fly ash.
   a. Fly ash shall be omitted if Type F is not available.
   b. If ASTM C595 Portland Lime Cement (PLC) is used, Type IL (HS) is also acceptable.
   c. Silica fume may be substituted up to 10% replacement of Portland Cement (PC) or Portland Lime Cement (PLC)

1. 1" nominal maximum aggregate, air entrained.
2. 28-Day Compressive Strength:
   a. Mud slabs (seal slabs): 2,000 psi
   b. Fill and encasement – 3,000 psi
   c. Site pavements, curbs, gutters, sidewalks: 4,000 psi
   d. Structural concrete: 4,500 psi
3. All concrete supplied for the project will meet the latest applicable code.
4. Foundations
   a. All foundations will be supported on minimum of 24" of engineered structural fill or 12" of engineered structural fill if supported on bedrock.

034120 PRECAST CONCRETE

1. 28-Day Compressive Strength: As determined by precast manufacturer design.

050519 CONCRETE ANCHORS

1. For wet or submerged service: AISI Type 304 or 316 stainless steel adhesive anchors where indicated.
2. Other exterior applications: AISI type 304 stainless steel wedge or adhesive anchors.
3. Low corrosion potential: galvanized wedge or adhesive anchors

051200 METALS

1. Wet Well Trench:
   a. Grating: 1" AISI Type 316 stainless steel type 19-W-4
   b. Embedded angles:
      - AISI Type 316 stainless steel
      - Welding shall conform to AWS D1.6
   c. Headed studs: AISI Type 316 stainless steel

07 16 00 DAMPPROOFING

1. Apply to exterior of concrete walls at the following locations:
   a. Lift Station Valve Vault
   b. Lift Station Meter Vault
2. Product: Coal Tar-Epoxy Dampproofing:
   a. Tnemec Tneme-Tar Hi Build Series 46H-413; 16-20 mils DFT.
      - Or Engineer Approved Equal
3. Bituminous Dampproofing:
   a. General: Provide products recommended by manufacturer for designated application and suitable for service intended.

b. Cold-Applied, Coal Tar-Epoxy Dampproofing: Roll or spray applied heavy-duty water-resistant epoxy coating made with pitch for protection of concrete from severe chemical fumes and corrosive vapors. Coating shall be suitable for buried or immersion conditions.

083483 ACCESS HATCHES

1. Wet well and vault hatches shall be of aluminum construction.

260000 ELECTRICAL

1. All work to be completed per National Electric Code (2020).
2. All electrical equipment shall be UL listed.
3. All equipment to be new and unused.
4. Includes trenching, excavation and backfill per design documents for electrical conduits.
    a. Concrete encasement (minimum 4,000 psi) under all main drives. Flowable fill used for backfill material for all other areas.
    b. All conduits installed below grade shall be installed 30-inches or more to be under frost depth.
5. Includes install of vendor supplied control panels and equipment. Design-Builder to furnish and install all conduit/conductors as needed for a complete functional system.
6. General Material Uses and Types:
    a. Power conductors shall be type XHHW copper, single stranded conductor, for all 480Vac loads.
    b. Lighting and 120Vac branch circuits shall be type THHN/THWN stranded copper.
    c. Control wiring shall be single conductor XHHW stranded, conductor size per contract drawings.
    d. Instrument wiring shall be TC #18TSP.
    e. Underground conduit shall be SCHED 40 PVC, conduit elbows and risers shall be PVC coated RGS. All conduit installed below grade shall be as indicated on contract drawings. Where encased, conduits shall have a minimum of 3-inches of concrete around all conduits, backfill with fill dirt and seed accordingly.
    f. Underground service conduit installation shall be per Liberty Utility design standards.
    g. All above grade conduit shall be Rigid Aluminum.
    h. All exterior strut and mounting hardware shall be 304 stainless steel. All interior strut and mounting hardware shall be aluminum.
    i. All concrete anchors, washers and nuts shall be 304 stainless steel.
    j. Connections to equipment may be LTFMC (aluminum core), for lengths not to exceed max. 36”.
    k. Provide all conduit seal fittings as required.
    l. All pilot lights shall be push-to-test.
    m. Provide weatherproof while-in-use covers for all exterior receptacles. Provide weatherproof covers for all exterior light switches.
7. Exterior Pull Boxes/Junction Boxes/Wireway:
    a. All exterior boxes shall be NEMA 4X Stainless Steel.
    b. Size as Required.
8. Grounding location and size shown on Contract Drawings.
    a. All ground rods shall be ¾” x 10’-0” copper clad.
    b. All grounding conductor shall be Tinned Copper.
    c. Grounding conductor encased in Concrete shall be Bare Copper.
    d. Connections shall be exothermic weld or irreversible splice for cable to cable, cable to ground rod, cable to equipment.

9. Supply, Installation, startup, and connections for the following.
    a. One (1) 400kW generator
        i. Spare parts shall include:
            1. Two complete sets of oil, air and fuel filters.
            2. One quart of touch-up paint.
            3. Two spare sets of fuses of each type and rating.
    b. One (1) 600A automatic transfer switch with integral surge protector
    c. One (1) 600A power panel
    d. Three (3) 160 HP VFDs with integral bypass
    e. One (1) lighting panel

312050 SITE EXCAVATION / BACKFILL

1. Site to be stripped and stockpiled as required; all materials to be utilized or wasted on site.
2. Stockpile top 6” of topsoil from site excavation.
3. Excavation shall be as necessary to construct structures in accordance with the drawings.
4. Over excavation of lean clay to fat clay and fat clay material is excluded. If over-excavation is required, payment for over-excavation will be through owner allowance.
5. Fill will be native, onsite material except as indicated at select structures.
6. Excess spoils will be wasted on site or at City provided dump site.
7. Fill will be native, onsite material if lean clay and clayey sand is available. If lean clay is not available onsite, MODOT type 1 or Type 5 aggregate shall be used for fill material below slab.
8. Lean clay and clayey sand shall be at Optimum Moisture Content to 4 percent above Optimum Moisture Content. Granular shall be workable moisture content and shall not pump when proof-rolled.
9. Imported fill materials compacted to at least 95 percent of Standard Proctor with material listed above, maximum 9-inch lifts when using heavy self-propelled compaction equipment or maximum 6-inch lifts when using hand guided or light self-propelled equipment.
10. In situ soil or compacted material to 95 percent of Standard Proctor under structures or roadways, maximum 9-inch lifts when using heavy self-propelled compaction equipment or maximum 6-inch lifts when using hand guided or light self-propelled equipment.
11. Site grading and backfilling of Structures to 90 percent of Standard Proctor.
12. Backfill around structure walls will be completed with on-site soils to extent possible
13. 4” aggregate bedding below and 12” above pipe – ¾ -inch open graded materials.

321123 CRUSHED AGGREGATE BASE COURSE

1. For new City of Republic Streets asphalt pavement base, 6-inches of MODOT type 5 aggregate base.
2. For new Greene County Streets asphalt pavement base, 4-inches of MODOT type 5 aggregate base
3. For new asphalt driveway base, 6-inches of MODOT type 5 aggregate base.
4. For new asphalt sidewalk detail, 6-inches of MODOT type 5 aggregate base.
5. For new concrete curb and gutter, 6-inches of MODOT type 1 aggregate base.
6. For new concrete driveways base, 4-inches of MODOT type 4 aggregate base.
7. For new gravel driveway bases, 8-inches of MODOT type 5 aggregate base
8. For structural fill below structures where required, MODOT Type 5.

321214 PRIME COAT

1. MC-30 Cutback Bitumen per ASTM D2027

321215 TACK COAT

1. SS-1 Asphalt Emulsions per ASTM D977

32 12 17 HOT MIX ASPHALT

1. Mix design conforms to Section 401 of Missouri Standard Specifications for Highway Construction, Latest Edition for Composition of the Mix
2. For new City of Republic Streets asphalt pavement, 6-inches of mix BB, overlaid by 2-inches of BP-1 or BP-2
3. For new Greene County Streets asphalt pavement base, 5-inches of mix BB, overlaid by 2-inches of BP-1 or BP-2
4. For new asphalt driveway base, variable depth of mix BB to match existing depth, overlaid by 2-inches of BP-1 or BP-2
5. For new asphalt sidewalk detail, , 5-inches of mix BB

321600 CONCRETE WALKS CURBS AND GUTTERS

1. New concrete sidewalks, 4-inches thick, 4-foot control joints.
2. New concrete aprons, 5-minimum inches thick Pavement Concrete or Class B-1 concrete in accordance with Section 501 of Missouri Standard Specifications for Highway Construction, Latest Edition, 10-foot each way control joints.

323113 CHAINLINK FENCES AND GATES

1. Fence and gates to conform to federal specifications RR-F-191
2. All materials are galvanized in conformance with FS RR-F-191J/GEN
3. Fence fabric height of 6-foot, with barbed wire
4. Gate widths as indicated.

329200 SEEDING

1. Return stripped topsoil and fine grade site and seed any disturbed areas.
2. Seed will be standard contractor mix consisting of Alta Fescue, Rye Grass, Kentucky Blue Grass, and Creeping Red Fescue.

330524 UTILITY CASINGS

1. Sizes as indicated, steel casing with fusion boded epoxy and abrasion resistant overcoat

331100 PRESSURE PIPE

1. Ductile iron pipe shall conform to AWWA C115, C150 and C151
2. Buried ductile iron pipe shall be mechanical and push-on type, cement lined.
3. Interior ductile iron pipe shall be flanged and drilled ANSI B16.1 Class 125.
4. Pipe supports for piping located above ground shall be stainless steel.
5. Buried sanitary sewer forcemain shall be PVC C-905 DR-25 with ductile fittings.

331216 UTILITY VALVES AND ACCESSORIES

1. Eccentric plug valves
    a. Design
        i. Style: Flanged, ANSI B16.1, Class 125
        ii. Port areas shall be at least 80% of full pipe area

b. Materials of Construction
    i. Body: ASTM A126 Class B Cast iron
    ii. Plug: ASTM A126 Class B Cast iron or ASTM A536 ductile iron. Resilient plug or body seats shall be Buna N or approved equivalent compound suitable for wastewater use.
    iii. Seat ring: corrosion resistant stainless steel, nickel, or Monel.
    iv. Exposed fastening hardware: zinc plated or stainless steel.
c. Actuators
    1. 2-inch nut actuator for use with tee handle valve key
    2. Handwheels shall be located in positions indicated on drawings

2. Standard Swing Check Valves
    a. Design
        i. Conform to AWWA C508
        ii. Style: Flanged, ANSI B16.1, Class 125
    b. Materials of Construction
        i. Body and cover: Cast iron
        ii. Rubber faced discs or disc rings: Buna N for use in wastewater application
3. Air Valves
    a. Design
        i. Conform to AWWA C512
        ii. Style: Heavy duty combination air release style
    b. Materials of Construction
        i. Body and cover: ASTM A126 Class B Cast iron or ASTM A536 ductile iron
        ii. Float: Stainless steel
        iii. Internal parts: Stainless steel
    c. Operation
        i. Release air when filling line
        ii. Release accumulated air while pipeline is full and operating under pressure
    d. Connection
        i. Tapped bosses or flanged outlets
        ii. Connecting fittings and pipe shall be bronze, brass, or copper rated for 150 psi service
        iii. Isolation valves shall be provided and shall be bronze gate valves

333113 GRAVITY PIPE

1. Buried sanitary sewer pipe shall be minimum SDR 26 PVC with PVC fittings.

333222 SUBMERSIBLE PUMPS

1. Three (3) submersible pumps capable of pumping raw wastewater sewage with up to 3-inch diameter spherical solids. Includes pump casings, shafts, bearings, seals, piping assemblies, guide rails, anchor bolts, motors, controls, power cable and accessories required for proper installation, operation, and maintenance.
    a. Design
        i. Operation: 2 duty/1 standby
        ii. Duty point: 3,500 gpm at 170 feet of Total Dynamic Head
        iii. Maximum motor HP: 140 hp
        iv. Motor: Variable Frequency Drive
        v. Pump discharge connection to receive discharge connection without bolts
    b. Materials of Construction
        i. Motor housing, pump casing, and major components shall be cast iron conforming to ASTM A48
        ii. Impeller: Hard iron or equivalent design

c. Pump model
    i. Sulzer Model XFP

333900 UTILITY STRUCTURES

1. All structures shall be pre-cast in accordance with 034120.
2. Air Release Valve vaults to have interior epoxy coating
3. Coal-tar waterproofing on all exterior wall from base slab to grade

400000 INSTRUMENTATION AND CONTROLS

1. Field Equipment, including:
    a. 14” Magnetic Flow Meter, including accessories.
    b. 4 Float Level Switches, including accessories.
    c. 1 Analog level transmitter
    d. 1 Pressure gauge.
2. Lift Station Control panel
    a. Float based control with PLC (CompactLogix) primary mode and relay backup.
    b. Panel to include:
        i. • 120VAC TVSS
        ii. • UPS outlet and cord set
        iii. • Mount and wire pump protection module for each pump (supplied by pump manufacturer)
        iv. Cellular Router
        v. UPS, and required power supplies.
        vi. Intrinsically safe relays, pilot lights, pump pilot controls, and other panel components as required.
3. Other Services
    a. SCADA System Programming and Screen Development
    b. Telemetry Startup, testing, and tie in with WWTP
    c. Instrumentation and control system startup, calibration and testing.
    d. On-site training.
    e. Approval of submittals and O&M Documentation.
4. Spare parts
    a. Fuses: Provide two of each type used
    b. Two spare LED indicating lamps for each type and color used.

Pre-final Design Drawings

The Pre-final Design Drawing package includes the drawings listed below. All drawings are Revision C dated January 11, 2023.

CONTRACT DRAWINGS

GENERAL DRAWINGS

DRAWING NO	DRAWING TITLE
G001	COVER
G002	INDEX
G003	GENERAL NOTES

CIVIL DRAWINGS

DRAWING NO	DRAWING TITLE
C001	FORCEMAIN PLAN & PROFILE SHEET 1
C002	FORCEMAIN PLAN & PROFILE SHEET 2
C003	FORCEMAIN PLAN & PROFILE SHEET 3
C004	FORCEMAIN PLAN & PROFILE SHEET 4
C005	FORCEMAIN PLAN & PROFILE SHEET 5
C006	FORCEMAIN PLAN & PROFILE SHEET 6
C007	FORCEMAIN PLAN & PROFILE SHEET 7
C008	FORCEMAIN PLAN & PROFILE SHEET 8
C009	FORCEMAIN PLAN & PROFILE SHEET 9
C010	FORCEMAIN PLAN & PROFILE SHEET 10
C011	MCELHANEY LIFT STATION DEMO PLAN
C012	MCELHANEY LIFT STATION SITE PLAN
C013	CIVIL DETAILS 1
C014	CIVIL DETAILS 2

ARCHITECTURAL DRAWINGS

DRAWING NO	DRAWING TITLE
A001	ARCHITECTURAL LEGEND & ABBREVIATIONS
A002	ARCHITECTURAL GENERAL NOTES
A003	ELECTRICAL BUILDING FLOOR PLAN
A004	ELECTRICAL BUILDING ELEVATIONS
A005	ELECTRICAL BUILDING SECTION
A006	ELECTRICAL BUILDING ROOF PLAN, SCHEDULES AND DETAILS

STRUCTURAL DRAWINGS

DRAWING NO	DRAWING TITLE
S001	LEGEND, ABBREVIATIONS, AND GENERAL NOTES
S002	STRUCTURAL STANDARD DETAILS SHEET 1

S003	STRUCTURAL STANDARD DETAILS SHEET 2
S004	STRUCTURAL STANDARD DETAILS SHEET 3
S005	ELECTRICAL BUILDING FOUNDATION PLAN AND SECTION
S006	WET WELL PLANS
S007	WET WELL SECTIONS
S008	VALVE VAULT PLANS AND SECTIONS

MECHANICAL DRAWINGS

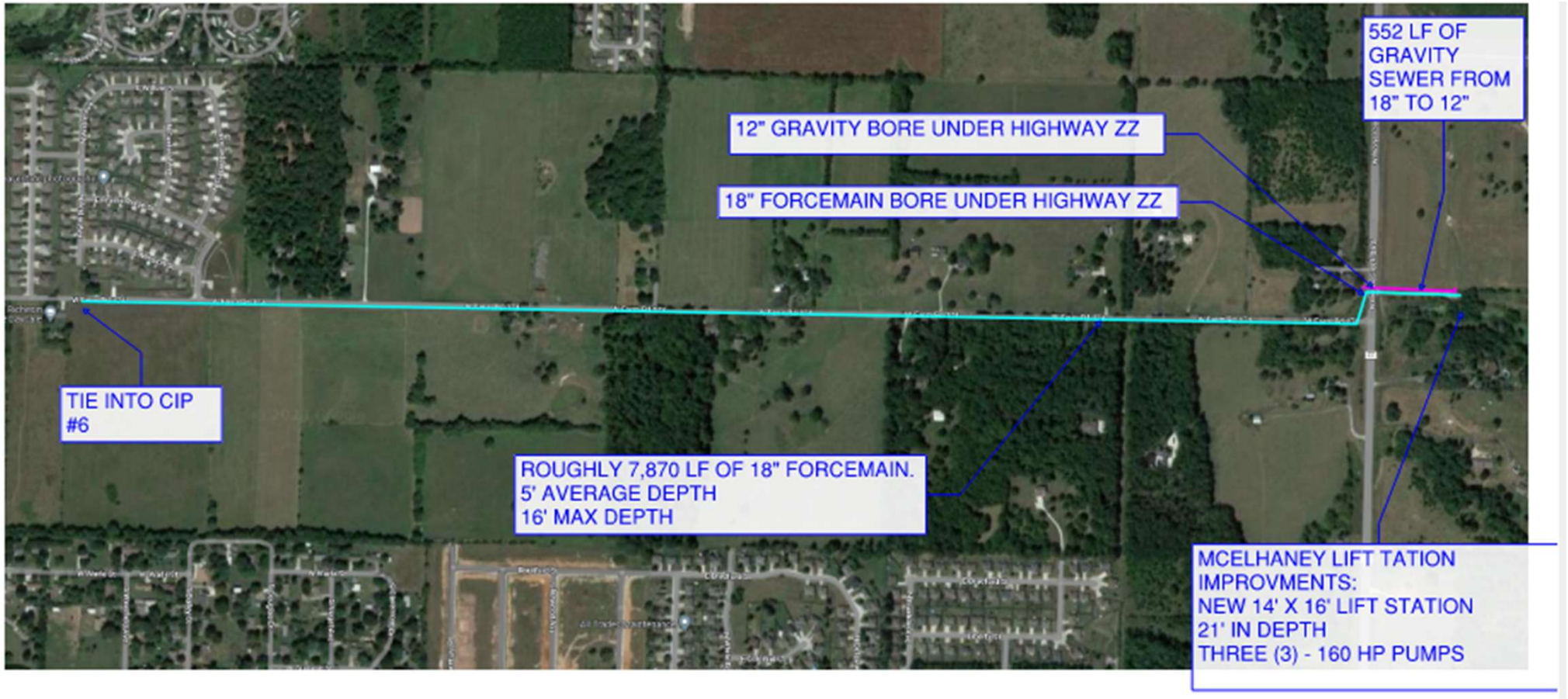
DRAWING NO	**DRAWING TITLE**
M001	GENERAL NOTES, ABBREVIATIONS, & LEGEND
M002	MECHANICAL SCHEDULES, DETAILS & SEQUENCE OF OPERATIONS
M003	ELECTRICAL ROOM HVAC PLAN

PROCESS DRAWINGS

DRAWING NO	**DRAWING TITLE**
DI001	P&ID LEGEND, ABBREVIATIONS, & GENERAL NOTES SHEET 1
DI002	P&ID LEGEND, ABBREVIATIONS, & GENERAL NOTES SHEET 2
DI003	P&ID LEGEND, ABBREVIATIONS, & GENERAL NOTES SHEET 3
DI004	LIFT STATION P&ID
D001	PROCESS LEGEND, ABBREVIATIONS, AND GENERAL NOTES
D002	PROCESS STANDARD DETAILS
D003	LIFT STATION PLAN & SECTION

ELECTRICAL DRAWINGS

DRAWING NO	**DRAWING TITLE**
E001	ELECTRICAL LEGEND
E002	MCELHANEY LIFT STATION ELECTRICAL DEMO PLAN
E003	MCELHANEY LIFT STATION ELECTRICAL SITE PLAN
E004	ELECTRICAL POWER AND CONTROL SINGLE LINE DIAGRAMS
E005	CONTROL SCHEMATICS SHEET 1 OF 2
E006	CONTROL SCHEMATICS SHEET 2 OF 2
E007	WIRING DIAGRAMS
E008	ELECTRICAL ROOM LAYOUT
E009	ELECTRICAL DETAILS AND SECTIONS


552 LF OF GRAVITY SEWER FROM 18" TO 12"
12" GRAVITY BORE UNDER HIGHWAY ZZ
18" FORCEMAIN BORE UNDER HIGHWAY ZZ
TIE INTO CIP #6
ROUGHLY 7,870 LF OF 18" FORCEMAIN.
5' AVERAGE DEPTH
16' MAX DEPTH
MCELHANEY LIFT TATION IMPROVMENTS:
NEW 14' X 16' LIFT STATION
21' IN DEPTH
THREE (3) - 160 HP PUMPS

AGENDA ITEM ANALYSIS

Project/Issue Name:	23-R-28 A Resolution of the City Council Awarding the Bid for a Portion of the City's 2023 Paving Overlays, Improvements to the Intersection of Hines and Lynn, and Full Depth Asphalt of the School Storage Lane.
Submitted By:	Garrett Brickner, Assistant BUILDS Administrator
Date:	April 11, 2023

Issue Statement

To award a bid for paving to JD Wallace Construction, APAC Inc, and Blevins Asphalt.

Discussion and/or Analysis

The City requested bids for Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays. Staff bid these projects all together in one Invitation for Bid, to encourage a more competitive price for the bundled work. The city received 5 bids from local contractors.

JD Wallace Construction was the lowest bid for the Hines and Lynn Intersection at $525,000. This will be paid for out of the capital improvement sales tax fund.

APAC was the lowest bid for the Full Depth Asphalt for School Storage Lane at $238,808. This will be initially paid for by the Street department capital project fund and will be reimbursed by Republic Schools as per Developers agreement approved by City Council on March 7th, 2023.

Blevins Asphalt was the lowest bid for the 2023 Overlays at $77.80 per ton asphalt and $2.40 per square yard of Milling, with a maximum not to exceed amount of $750,000. These overlays will be paid for out of the Street Fund Capital projects.

Recommended Action

Staff recommends approval.

A RESOLUTION OF THE CITY COUNCIL AWARDING THE BID FOR A PORTION OF THE CITY'S 2023 PAVING OVERLAYS, IMPROVEMENTS TO THE INTERSECTION OF HINES AND LYNN, AND FULL DEPTH ASPHALT OF THE SCHOOL STORAGE LANE

WHEREAS, the City of Republic, Missouri ("City" or "Republic") is a municipal corporation and Charter City located in Greene County, Missouri, being duly created, organized, and existing under the laws of the State of Missouri; and

WHEREAS, the City published an Invitation for Bids ("IFB") for paving and overlay work to include full depth asphalt services to the school storage lane, improvements to the intersection of Hines and Lynn, and paving overlays to various City streets in accord with the City's 2023 overlay plans ("Project"); and

WHEREAS, five (5) bids were received in response to the City's IFB; and

WHEREAS, after hearing presentation and recommendations by City staff, the City Council desires to accept bids from three (3) of the five (5) submitters, each to perform services on specified portions of the Project at the lowest cost to the City, respectively; and

WHEREAS, for the Hines and Lynn Intersection Improvements, the Council desires to accept the bid submitted by JD Wallace Contracting, LLC, as it appears to demonstrate the necessary qualifications for a responsible bid and is the lowest cost to the City for that portion of the Project, at an estimated total expenditure of $525,551.75; and

WHEREAS, for the Full Depth Asphalt of School Storage Lane, the Council desires to accept the bid submitted by APAC-Central, Inc., as it appears to demonstrate the necessary qualifications for a responsible bid and is the lowest cost to the City for that portion of the Project, at an estimated total expenditure of $238,808.00; and

WHEREAS, for the City street overlays in accord with the 2023 Overlay Plan, the Council desires to accept the bid submitted by Blevins Asphalt Construction Co., Inc., as it appears to demonstrate the necessary qualifications for a responsible bid and is the lowest cost to the City for that portion of the Project, at an estimated total expenditure of $685,000.00.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF REPUBLIC, MISSOURI, AS FOLLOWS:

Section 1. The submitted bid from JD Wallace Contracting, LLC, attached and labeled "Exhibit 1" and expressly incorporated herein, is accepted for the Hines and Lynn Intersection Improvements portion of the Project at the estimated cost(s) shown thereon, but in no event to exceed a total of $580,000.00 without separate approval from Council.

Section 2. The submitted bid from APAC-Central Inc., attached and labeled "Exhibit 2" and expressly incorporated herein, is accepted for the Full Depth Asphalt of the School

Storage Lane portion of the Project, at the estimated cost(s) shown thereon, but in no event to exceed a total of $240,000.00 without separate approval from Council.

Section 3. The submitted bid from Blevins, attached and labeled "Exhibit 3" and expressly incorporated herein, is accepted for the City street overlays in accord with the 2023 Overlay Plan portion of the Project, at the estimated cost(s) shown thereon, but in no event to exceed a total of $750,000.00 without separate approval from Council.

Section 4. The City Administrator, and his/her designee, on behalf of the City, is authorized to take the necessary steps to execute this Resolution.

Section 5. The whereas clauses are specifically incorporated herein by reference.

Section 6. This Resolution shall take effect after passage as provided by law.

PASSED AND APPROVED at a regular meeting of the City Council of the City of Republic, Missouri, this _____ day of _____, 2023.

_____

Attest: Matt Russell, Mayor

_____

Laura Burbridge, City Clerk

Approved as to Form:

Megan McCullough, City Attorney

Final Passage and Vote:

ATTACHMENT A - BID SUBMISSION FORM

BIDDERS MUST PROVIDE THE FOLLOWING INFORMATION:

Description of Work	Price

• Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays
• Bid Alternate Price individually, do not add all prices together.
• All Bids to include:
  ○ Travel Expenses
  ○ Delivery Costs
  ○ Administrative costs
  ○ Traffic Control
 	
Please note any of the following:
• **Any labor personnel requests of the City of Republic for this project.**
• **Any other requests or responsibilities of the City of Republic for this project.**
	Hines & Lynn Roundabout: $ 525,551.75
	
	School Storage Lane: $ NO BID
	
	2023 Overlays: $ NO BID

In compliance with this Invitation for Bid and to all terms, conditions, and specifications imposed therein and hereby incorporated byreference, the undersigned offers and agrees to furnish the goods and/or services described herein.

City of Republic, Missouri

IFB for: Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Republic, MO 65738

Company Legal Name: JD Wallace Contracting LLC

Address: PO Box 3754
Springfield MO 65804

Signature:

Name and Title: Justin Wallace - President

Telephone: 417-830-8309

Cellular: 417-830-8309

Email: justin@jdwallace.co chris@jdwallace.co

Dated: 4/6/2023

Bidder's Federal ID Number: 84-4182429

CITY OF REPUBLIC ROADWAY IMPROVEMENTS

E. HINES & N. LYNN ROUNDABOUT

BID SCHEDULE

Item	Description	Units	Est. Quantity	Unit Price	Extended Total
1	Mobilization	LS	1	$38,000.00	$38,000.00
2	Removal Of Improvements - Sidewalk & Ditch Liner	SY	405.0	$4.95	$2,004.75
3	Removal Of Improvements - Curb Inlets	EACH	3	$360.00	$1,080.00
4	Removal Of Improvements - Asphalt	SY	2,250	$2.50	$5,625.00
5	Removal Of Improvements - Curb & Gutter	LF	1,100	$7.30	$8,030.00
6	Removal Of Improvements - Signs	EACH	3	$305.00	$915.00
7	Adjustment Of Manhole / Valve Box Rim	EACH	7	$775.00	$5,425.00
8	Precast Curb Inlets (8' X 4')	EACH	4	$5,900.00	$23,600.00
9	15" R.C.P. Including Trench, Bedding & Backfill	LF	35	$115.00	$4,025.00
10	18" R.C.P. Including Trench, Bedding & Backfill	LF	60	$92.00	$5,520.00
11	24" R.C.P. Including Fernco Couplings, Trench, Bedding & Backfill	LF	15	$308.00	$4,620.00
12	6'-0" X 4'-0" Precast Concrete Box Culvert	LF	90	$800.00	$72,000.00
13	4'-0" X 4'-0" Precast Concrete Junction Box	EACH	1	$4,700.00	$4,700.00
14	Concrete Headwall	EACH	1	$28,250.00	$28,250.00
15	Pipe Connection To Box Culvert	EACH	2	$1,750.00	$3,500.00
16	Standard Curb & Gutter (Including Granular Stone Base)	LF	900	$26.25	$23,625.00
17	Mountable Curb & Gutter (Including Granular Stone Base)	LF	200	$31.50	$6,300.00
18	Type "S" Curb (Including Granular Base)	LF	625	$42.00	$26,250.00
19	Type 1 Pavement - 2" Thick Asphaltic Surface, 6" Asphaltic Base (Including Granual Stone Base, Surface Prep., Tack, Primer)	SY	2,150.0	$59.73	$128,419.50
20	Type 2 Pavement - 4" Thick Concrete Surface - Sidewalks And Islands (Including Granular Stone Base and Surface Prep.)	SY	610.0	$48.45	$29,554.50
21	Type 3 Pavement - 6" Thick Concrete Surface - Driveways And Mountable (Including Granular Stone Base and Surface Prep.)	SY	200.0	$66.15	$13,230.00
22	Sidewalk Tactile Warning Strip (Truncated Dome)	SF	65.0	$40.40	$2,626.00
23	MoDOT R4-7C - Complete Sign Assembly (Narrow Keep Right Sign)	EACH	4	$265.00	$1,060.00
24	MoDOT R1-2 - Complete Sign Assembly (Yield Sign)	EACH	7	$265.00	$1,855.00
25	MoDOT W11-2 & W16-7P - Complete Sign Assembly (Left Diagonal Arrow & Pedestrian Traffic)	EACH	6	$295.00	$1,770.00
26	MoDOT R6-4 & R6-4 - Complete Sign Assembly (Two Chevrons)	EACH	4	$385.00	$1,540.00
26	Center Island Logo Tinting and Island Stamping	LS	1	$10,000.00	$10,000.00
27	High Build Acrylic Waterborne Pavement Marking Paint (4" Wide White)	LF	400	$2.50	$1,000.00
28	High Build Acrylic Waterborne Pavement Marking Paint 12" Wide White)	LF	210	$2.50	$525.00
29	Excavation (Unclassified)	LS	1	$12,750.00	$12,750.00
30	Compacted Embankment	LS	1	$33,250.00	$33,250.00
31	Inlet Check (Sand Bag Sediment Trap)	EACH	5	$230.00	$1,150.00
32	Silt Fence	LF	185	$11.20	$2,072.00
33	Traffic Control	LS	1	$10,280.00	$10,280.00
34	Finish Grade, Seed & Mulch	ACRE	0.20	$55,000.00	$11,000.00
			SUBTOTAL	$	$525,551.75

Bid Date: 04/06/2023

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we JD Wallace Contracting, LLC
PO Box 3754, Springfield MO 65804
(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and **RLI Insurance Company**
(Here insert full name and address or legal title of Surety)

P.O. Box 3967 Peoria, IL 61612
a corporation duly organized under the laws of the State of Illinois
as Surety, hereinafter called the Surety, are held and firmly bound unto City of Republic MO
(Here insert full name and address or legal title of Owner)

213 N Main Ave, Republic MO 65738

as Obligee, hereinafter called the Obligee, in the sum of ----------Ten Percent of Bid----------
Dollars (10% of Bid), for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for New Roundabout- Hines and Lynn Rd, Republic
(Here insert full name and address and description of project)

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contact with another party to perform the Work covered by said bid, then this obligation shall be null and void; otherwise to remain in full force and effect.

Signed and sealed this 6th day of April, 2023.

JD Wallace Contracting, LLC
PO Box 3754, Springfield MO 65804 (Seal)
(Principal)

RLI Insurance Company (Seal)
(Surety)

Sheryl C. Amos, Attorney in Fact

AIA DOCUMENT A310• BID BOND• AIA® • FEBRUARY 1970 ED• THE AMERICAN INSTITUTE OF ARCHITECTS, 1735 N.Y. AVE., N.W., WASHINGTON, D.C. 20006

Printed on Recycled Paper

9/93

POWER OF ATTORNEY

RLI Insurance Company
Contractors Bonding and Insurance Company

9025 N. Lindbergh Dr. Peoria, IL 61615
Phone: 800-645-2402

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes executed, but may be detached by the approving officer if desired.

That **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, each an Illinois corporation, (separately and together, the "Company") do hereby make, constitute and appoint:

Luke Nixon, Roger Lindstrom, Aaron Sharpe, Greg Lindstrom, Mark Gambon, Kellie Sansom, Emily Berg, Sheryl C. Amos, Jared Ballard, jointly or severally

in the City of Springfield, State of Missouri its true and lawful Agent(s) and Attorney(s) in Fact, with full power and authority hereby conferred, to sign, execute, acknowledge and deliver for and on its behalf as Surety, in general, any and all bonds and undertakings in an amount not to exceed **Twenty Five Million** Dollars (**$25,000,000.00**) for any single obligation.

The acknowledgment and execution of such bond by the said Attorney in Fact shall be as binding upon the Company as if such bond had been executed and acknowledged by the regularly elected officers of the Company.

RLI Insurance Company and/or **Contractors Bonding and Insurance Company**, as applicable, have each further certified that the following is a true and exact copy of a Resolution adopted by the Board of Directors of each such corporation, and is now in force, to-wit:

"All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, as applicable, have caused these presents to be executed by its respective Vice President with its corporate seal affixed this 11th day of October, 2022.

CONTRACTORS BONDING AND INSURANCE COMPANY CORPORATE SEAL ILLINOIS

RLI INSURANCE COMPANY CORPORATE SEAL ILLINOIS

RLI Insurance Company
Contractors Bonding and Insurance Company

By: _____
Barton W. Davis — Vice President

State of Illinois }
County of Peoria } SS

On this 11th day of October, 2022, before me, a Notary Public, personally appeared Barton W. Davis, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company** and acknowledged said instrument to be the voluntary act and deed of said corporation.

By: _____
Catherine D. Glover — Notary Public

CATHERINE D. GLOVER
OFFICIAL SEAL
Notary Public - State of Illinois
My Commission Expires
March 24, 2024

CERTIFICATE

I, the undersigned officer of **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company** this 6th day of April, 2023.

RLI Insurance Company
Contractors Bonding and Insurance Company

By: _____
Jeffrey D. Fick — Corporate Secretary

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 01/1

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	**CONTACT NAME:** Angela Lindeman		
Nixon & Lindstrom Insurance	**PHONE (A/C, No, Ext):** (417) 881-6623	**FAX (A/C, No):** (417) 881-8269	
901 E. Battlefield Road	**E-MAIL ADDRESS:** alindeman@nixonins.com		
	INSURER(S) AFFORDING COVERAGE		**NAIC #**
Springfield MO 65807-4811	**INSURER A :** United Fire & Casualty		13021
INSURED	**INSURER B :** ICW Group		27847
JD Wallace Contracting LLC	**INSURER C :**		
870 S White Diamond Ct	**INSURER D :**		
	INSURER E :		
Springfield MO 65809	**INSURER F :**		

COVERAGES **CERTIFICATE NUMBER:** 23 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:			60522007	01/13/2023	01/13/2024	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG [ ]	$ 1,000,000 $ 100,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			60522007	01/13/2023	01/13/2024	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) [ ]	$ 1,000,000 $ $ $ $
A	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 0			60522007	01/13/2023	01/13/2024	EACH OCCURRENCE AGGREGATE [ ]	$ 5,000,000 $ 5,000,000 $
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WMO 5069500 00	01/13/2023	01/13/2024	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
A	Leased & Rented Equipment			60522007	01/13/2023	01/13/2024	Limit	500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

City of Republic
204 N Main Avenue
Republic MO 65738

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Affidavit of Compliance with Section 285.500, RSMo., et seq.
for all agreements providing services in excess of $5,000.00

Effective 1/1/2009

STATE OF MISSOURI)
) ss.
COUNTY OF GREENE)

Before me, the undersigned Notary Public, in and for the County of Greene, State of Missouri, personally appeared Justin Wallace (*Name*) who is President (*Title*) of JD Wallace Contracting LLC (*Name of company*), a (*circle one*) corporation, partnership, sole proprietorship, limited liability company, and is competent and authorized to make this affidavit, and being duly sworn upon oath deposes and says as follows:

(1) that said company is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted services; and

(2) that said company does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

The terms used in this affidavit shall have the meaning set forth in Section 285.500 RSMo., *et seq.*

Documentation of participation in a federal work authorization program is attached to this affidavit.

Signature

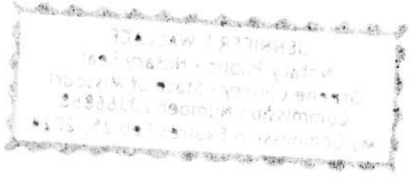
Justin Wallace
Printed Name

Subscribed and sworn to before me this 6th day of April, 2023.

Notary Public

My commission expires: Feb 25, 2024

JENNIFER L WALLACE
Notary Public - Notary Seal
Greene County - State of Missouri
Commission Number 20366868
My Commission Expires Feb 25, 2024



City of Republic, Missouri
AFFIDAVIT OF COMPLIANCE WITH INVITATION FOR BID

To be submitted with all Bids in response to this IFB

__X__ We **DO NOT** take exception to the IFB Documents/Requirements.

_____ We **TAKE** exception to the IFB Documents/Requirements as follows:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____.

I have carefully examined the Invitation for Bid and agree to abide by all submitted pricing, delivery, terms and conditions of this IFB unless otherwise stipulated herein.

Company Name JD Wallace Contracting LLC

By Justin Wallace
(Authorized Person's Signature)

Company Address
PO Box 3754
Springfield MO 65804

Telephone Number 417-830-8309

Fax Number N/A

Date 4/6/2023

ADDENDA

Offeror acknowledges receipt of the following addendum:

Addendum No. 01

Addendum No. 02

Addendum No. 03

Addendum No. _____

Email justin@jdwallace.co chris@jdwallace.co

Federal Tax ID No. 84-4182429

DBE Vendor (Yes/No): No Minority Owned: _____
Women Owned: _____
Veteran Owned: _____

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 1

3-22-2023

This is Addendum #1 to the Invitation for Bids above.

1. **Correction in Invitation for Bid: Attachment A Bid Submission form**

End of Addendum #1.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

Chris Burstadt - JJ Wallace
4/6/23

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 2

3-22-2023

This is Addendum #2 to the Invitation for Bids above.

1. **Missing time for Pre-bid Meeting:** Prebid meeting will be held between 11:30am and 1pm on Friday March 31th at Republic Community Center Room B 711 E Miller Rd. Republic, MO 65738
2. **Estimated Quantities for bidding purposes:**
    a. **Hines and Lynn Roundabout Intersection:** see quantity sheet below.
    b. **School Storage Lane**
        i. Concrete Entrance: 48 LF of Curb and Gutter
        ii. Concrete Entrance: 13.4 CY of Concrete
        iii. Base Course Asphalt: 2140 Tons
        iv. Surface Course Asphalt: 856 Tons
3. **City Overlays:** in addition to lump sum cost of all overlays, please also provide the following unit costs per square foot:
        i. 2" overlay on existing roadway
        ii. 2" mill and overlay on existing roadway
        iii. Full depth pavement (5" base, 2" surface) on previously unpaved roadway (base rock to be prepared by City)

All quantities are approximated estimates for bidding purposes, actual field quantities may vary. Please submit bids based off quantities supplied in this addendum.

End of Addendum #1.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

Chris Burstadt - JD Wallace
4/6/23

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 3

3-31-2023

This is Addendum #3 to the Invitation for Bids above.

1. **City Overlays: this addendum will supersede Addendum two request for cost provided per square foot.** in addition to lump sum cost of all overlays, please also provide the following unit costs:
    i. Per ton cost Asphalt
    ii. Per SY cost Milling
2. **Clarification:** W Hines st. no asphalt repair is necessary, just two-inch overlay.
3. **School Storage Lane:** Fine grading work to be done by contractor. Base rock material will be provided by the city.

End of Addendum #3.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

Chris Burstadt - JDWallace
4/6/23

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 1

3-22-2023

This is Addendum #1 to the Invitation for Bids above.

1. **Correction in Invitation for Bid: Attachment A Bid Submission form**

End of Addendum #1.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 2

3-22-2023

This is Addendum #2 to the Invitation for Bids above.

1. **Missing time for Pre-bid Meeting:** Prebid meeting will be held between 11:30am and 1pm on Friday March 31th at Republic Community Center Room B 711 E Miller Rd. Republic, MO 65738
2. **Estimated Quantities for bidding purposes:**
    a. **Hines and Lynn Roundabout Intersection:** see quantity sheet below.
    b. **School Storage Lane**
        i. Concrete Entrance: 48 LF of Curb and Gutter
        ii. Concrete Entrance: 13.4 CY of Concrete
        iii. Base Course Asphalt: 2140 Tons
        iv. Surface Course Asphalt: 856 Tons
3. **City Overlays:** in addition to lump sum cost of all overlays, please also provide the following unit costs per square foot:
        i. 2" overlay on existing roadway
        ii. 2" mill and overlay on existing roadway
        iii. Full depth pavement (5" base, 2" surface) on previously unpaved roadway (base rock to be prepared by City)

All quantities are approximated estimates for bidding purposes, actual field quantities may vary. Please submit bids based off quantities supplied in this addendum.

End of Addendum #1.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

CITY OF REPUBLIC ROADWAY IMPROVEMENTS

E. HINES & N. LYNN ROUNDABOUT

BID SCHEDULE

Item	Description	Units	Est. Quantity	Unit Price	Extended Total
1	Mobilization	LS	1	38,000.00	38,000.00
2	Removal Of Improvements - Sidewalk & Ditch Liner	SY	405.0	5.20	2,106.00
3	Removal Of Improvements - Curb Inlets	EACH	3	378.00	1,134.00
4	Removal Of Improvements - Asphalt	SY	2,250	2.65	5,962.50
5	Removal Of Improvements - Curb & Gutter	LF	1,100	7.70	8,470.00
6	Removal Of Improvements - Signs	EACH	3	320.00	960.00
7	Adjustment Of Manhole / Valve Box Rim	EACH	7	815.00	5,705.00
8	Precast Curb Inlets (8' X 4')	EACH	4	6,200.00	24,800.00
9	15" R.C.P. Including Trench, Bedding & Backfill	LF	35	120.00	4,200.00
10	18" R.C.P. Including Trench, Bedding & Backfill	LF	60	97.00	5,820.00
11	24" R.C.P. Including Fernco Couplings, Trench, Bedding & Backfill	LF	15	323.00	4,845.00
12	6'-0" X 4'-0" Precast Concrete Box Culvert	LF	90	840.00	75,600.00
13	4'-0" X 4'-0" Precast Concrete Junction Box	EACH	1	4,935.00	4,935.00
14	Concrete Headwall	EACH	1	30,000.00	30,000.00
15	Pipe Connection To Box Culvert	EACH	2	1,840.00	3,680.00
16	Standard Curb & Gutter (Including Granular Stone Base)	LF	900	27.60	24,840.00
17	Mountable Curb & Gutter (Including Granular Stone Base)	LF	200	33.00	6,600.00
18	Type "S" Curb (Including Granular Base)	LF	625	44.00	27,500.00
19	Type 1 Pavement - 2" Thick Asphaltic Surface, 6" Asphaltic Base (Including Granual Stone Base, Surface Prep., Tack, Primer)	SY	2,150.0	62.00	133,300.00
20	Type 2 Pavement - 4" Thick Concrete Surface - Sidewalks And Islands (Including Granular Stone Base and Surface Prep.)	SY	610.0	51.00	31,110.00
21	Type 3 Pavement - 6" Thick Concrete Surface - Driveways And Mountable (Including Granular Stone Base and Surface Prep.)	SY	200.0	70.00	14,000.00
22	Sidewalk Tactile Warning Strip (Truncated Dome)	SF	65.0	43.00	2,795.00
23	MoDOT R4-7C - Complete Sign Assembly (Narrow Keep Right Sign)	EACH	4	280.00	1,120.00
24	MoDOT R1-2 - Complete Sign Assembly (Yield Sign)	EACH	7	280.00	1,960.00
25	MoDOT W11-2 & W16-7P - Complete Sign Assembly (Left Diagonal Arrow & Pedestrian Traffic)	EACH	6	310.00	1,860.00
26	MoDOT R6-4 & R6-4 - Complete Sign Assembly (Two Chevrons)	EACH	4	405.00	1,620.00
26	Center Island Logo Tinting and Island Stamping	LS	1	10,500.00	10,500.00
27	High Build Acrylic Waterborne Pavement Marking Paint (4" Wide White)	LF	400	2.70	1,080.00
28	High Build Acrylic Waterborne Pavement Marking Paint 12" Wide White)	LF	210	2.70	567.00
29	Excavation (Unclassified)	LS	1	14,000.00	14,000.00
30	Compacted Embankment	LS	1	35,000.00	35,000.00
31	Inlet Check (Sand Bag Sediment Trap)	EACH	5	242.00	1,210.00
32	Silt Fence	LF	185	12.00	2,220.00
33	Traffic Control	LS	1	11,000.00	11,000.00
34	Finish Grade, Seed & Mulch	ACRE	0.20	58,000.00	11,600.00
			SUBTOTAL	**$**	550,099.50

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 3

3-31-2023

This is Addendum #3 to the Invitation for Bids above.

1. **City Overlays: this addendum will supersede Addendum two request for cost provided per square foot.** in addition to lump sum cost of all overlays, please also provide the following unit costs:
    i. Per ton cost Asphalt
    ii. Per SY cost Milling
2. **Clarification:** W Hines st. no asphalt repair is necessary, just two-inch overlay.
3. **School Storage Lane:** Fine grading work to be done by contractor. Base rock material will be provided by the city.

End of Addendum #3.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bond Number:

Bid Bond

CONTRACTOR:
(Name, legal status and address)

APAC-Central, Inc.
755 E. Millsap Road
Fayetteville, AR 72703

SURETY:
(Name, legal status and principal place of business)
Fidelity and Deposit Company of Maryland
1299 Zurich Way
Schaumburg, IL 60196-1056
State of Inc: Illinois

OWNER:
(Name, legal status and address)
City of Republic
213 N. Main
Republic, MO 65738

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

BOND AMOUNT: Ten Percent (10%) of Amount Bid

PROJECT:
(Name, location or address, and Project number, if any)
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane and 2023 City Overlays

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 6th day of April , 2023

Lorraine Lawler
(Witness) Lorraine Lawler

Ronda Stidham
(Witness) Ronda Stidham

APAC-Central, Inc.
(Principal) *(Seal)*
(Title) Michael Eshleman, Vice President

Fidelity and Deposit Company of Maryland
(Surety) *(Seal)*
(Title) Doug Fronick, Attorney-In-Fact

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **Robert D. Murray, Vice President**, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Brandon Lefevre, Murry Cline, Michael Dugan, Kristopher McClanahan, Michael Eshleman, Doug Luetjen, James Hawkins, Joshua Davis and Doug Fronick, all of Fayetteville, Arkansas**, EACH, its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: Any and all bid bonds issued on behalf of **APAC - Central, Inc. of Fayetteville, Arkansas** each in a penalty not to exceed the sum of $1,000,000, **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 3rd day of January, A.D. 2023.

ATTEST:
ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Robert D. Murray
Vice President

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 3rd day of January, A.D. 2023, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **Robert D. Murray, Vice President and Dawn E. Brown, Secretary** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Iva Bethea
Notary Public
My Commission Expires September 30, 2023

Authenticity of this bond can be confirmed at bondvalidator.zurichna.com or 410-559-8790

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 6th day of April, 2023.

By: Mary Jean Pethick
Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056
Ph: 800-626-4577

If your jurisdiction allows for electronic reporting of surety claims, please submit to:
reportsfclaims@zurichna.com

Authenticity of this bond can be confirmed at bondvalidator.zurichna.com or 410-559-8790

ATTACHMENT A - BID SUBMISSION FORM

BIDDERS MUST PROVIDE THE FOLLOWING INFORMATION:

Description of Work	Price
• Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays • Bid Alternate Price individually, do not add all prices together. • All Bids to include: ○ Travel Expenses ○ Delivery Costs ○ Administrative costs ○ Traffic Control **Please note any of the following:** • **Any labor personnel requests of the City of Republic for this project.** • **Any other requests or responsibilities of the City of Republic for this project.**	**Hines & Lynn Roundabout:** $ 550,099.50 **School Storage Lane:** $ 238,808.00 **2023 Overlays:** $ 803,900.00 i. Per ton cost for Surface Asphalt: $80.45 ii. Per SY cost for 2" Milling: $2.75

In compliance with this Invitation for Bid and to all terms, conditions, and specifications imposed therein and hereby incorporated byreference, the undersigned offers and agrees to furnish the goods and/or services described herein.

City of Republic, Missouri **IFB for: Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays** **Republic, MO 65738**	**Company Legal Name:** APAC-Central, Inc. **Address:** 4580 W. Calhoun Springfield, MO 65802 **Signature:** **Name and Title:** Douglas Fronick, Estimating Manager
Telephone: 417-868-6700 **Cellular:** 417-773-3068 **Email:** david.foreman@apac.com	**Dated:** 4/6/23 **Bidder's Federal ID Number:** 58-1401469

NOTICE AND INSTRUCTIONS TO BIDDERS/VENDORS
Regarding Sections 285.525 through 285.550 RSMo., effective January 1, 2009, and Section 292.675 RSMo., effective August 28, 2009

Effective January 1, 2009 and pursuant to Section 285.530(1) of the Revised Statutes of Missouri, "[n]o business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri."

State law additionally provides that, as a condition for the award of any contract or grant in excess of five thousand dollars by the state or by any political subdivision of the state (*e.g., the City of Republic*) to a business entity (*e.g., potential bidders in response to this IFB*), the business entity (Company) shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. *See* § 285.530(2), RSMo.

Section 285.530 RSMo. pertains to all solicitations for services over $5,000, but does not apply to solicitations for goods only. If a solicitation is for a combination of services and goods, Section 285.530 RSMo. applies if the services portion of the solicitation is over $5,000.

1. **Required Affidavit for Contracts Over $5,000.00 (US)** – Effective 1-1-2009, the company (submitting a Bid) shall comply with the provisions of Section 285.525 through 285.550, RSMo., which require certain statements to be made under penalty of perjury pertaining to employment of unauthorized aliens. The award of any contract under this IFB is expressly contingent on the company (submitting a Bid) providing an acceptable, notarized affidavit, stating as follows:

    a. that said company is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted services; and

    b. that said company does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

    The terms used in this affidavit shall have the meaning set forth in Section 285.500 RSMo., *et seq*.

2. Additionally, Company must provide documentation evidencing current enrollment in a federal work authorization program (e.g. electronic signature page from E-Verify Program's Memo of Understanding (MOU). See attached sample.

A copy of the required affidavit is included on the following page. A digital copy of the affidavit can also be accessed and downloaded from the City of Republic's official website, URL address: https://www.republicmo.com/DocumentCenter/View/77/Affidavit-of-Compliance-with-Section-285500-RSMO-PDF?bidId=

The City of Republic is an E-Verify employer. The City of Republic encourages companies that are not already enrolled and participating in a federal work authorization program to do so. E-Verify is an example of a federal work authorization program. Information regarding E-Verify is available at http://www.uscis.gov/e-verify or by calling **888-464-4218.**

Affidavit of Compliance with Section 285.500, RSMo., et seq.
for all agreements providing services in excess of $5,000.00

Effective 1/1/2009

STATE OF MISSOURI)
) ss.
COUNTY OF GREENE)

Before me, the undersigned Notary Public, in and for the County of Greene, State of Missouri, personally appeared Douglas Fronick (*Name*) who is Estimating Manager (*Title*) of APAC-Central, Inc. (*Name of company*), a (*circle one*) corporation, partnership, sole proprietorship, limited liability company, and is competent and authorized to make this affidavit, and being duly sworn upon oath deposes and says as follows:

(1) that said company is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted services; and

(2) that said company does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

The terms used in this affidavit shall have the meaning set forth in Section 285.500 RSMo., *et seq.*

Documentation of participation in a federal work authorization program is attached to this affidavit.

Signature

Douglas Fronick, Estimating Manager
Printed Name

Subscribed and sworn to before me this 6th day of April, 2023.

Ronda Stidham
Notary Public

My commission expires: 12/19/26

RONDA STIDHAM
Notary Public – Notary Seal
STATE OF MISSOURI
Dallas County
My Commission Expires Dec.19, 2026
Commission #14426247

Company ID Number: 165031

THE E-VERIFY PROGRAM FOR EMPLOYMENT VERIFICATION

MEMORANDUM OF UNDERSTANDING

ARTICLE I

PURPOSE AND AUTHORITY

This Memorandum of Understanding (MOU) sets forth the points of agreement between the Social Security Administration (SSA), the Department of Homeland Security (DHS) and **APAC Central, Inc.** (Employer) regarding the Employer's participation in the Employment Eligibility Verification Program (E-Verify). E-Verify is a program in which the employment eligibility of all newly hired employees will be confirmed after the Employment Eligibility Verification Form (Form I-9) has been completed.

Authority for the E-Verify program is found in Title IV, Subtitle A, of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), Pub. L. 104-208, 110 Stat. 3009, as amended (8 U.S.C. § 1324a note).

ARTICLE II

FUNCTIONS TO BE PERFORMED

A. RESPONSIBILITIES OF THE SSA

1. Upon completion of the Form I-9 by the employee and the Employer, and provided the Employer complies with the requirements of this MOU, SSA agrees to provide the Employer with available information that allows the Employer to confirm the accuracy of Social Security Numbers provided by all newly hired employees and the employment authorization of U.S. citizens.

2. The SSA agrees to provide to the Employer appropriate assistance with operational problems that may arise during the Employer's participation in the E-Verify program. The SSA agrees to provide the Employer with names, titles, addresses, and telephone numbers of SSA representatives to be contacted during the E-Verify process.

3. The SSA agrees to safeguard the information provided by the Employer through the E-Verify program procedures, and to limit access to such information, as is appropriate by law, to individuals responsible for the verification of Social Security Numbers and for evaluation of the E-Verify program or such other persons or entities who may be authorized by the SSA as governed by the Privacy Act (5 U.S.C. § 552a), the Social Security Act (42 U.S.C. 1306(a)), and SSA regulations (20 CFR Part 401).

4. SSA agrees to establish a means of automated verification that is designed (in conjunction with DHS's automated system if necessary) to provide confirmation or tentative nonconfirmation of U.S. citizens' employment eligibility and accuracy of SSA records for both citizens and aliens within 3 Federal Government work days of the initial inquiry.

Company ID Number: 165031

5. SSA agrees to establish a means of secondary verification (including updating SSA records as may be necessary) for employees who contest SSA tentative nonconfirmations that is designed to provide final confirmation or nonconfirmation of U.S. citizens' employment eligibility and accuracy of SSA records for both citizens and aliens within 10 Federal Government work days of the date of referral to SSA, unless SSA determines that more than 10 days may be necessary. In such cases, SSA will provide additional verification instructions.

B. RESPONSIBILITIES OF THE DEPARTMENT OF HOMELAND SECURITY

1. Upon completion of the Form I-9 by the employee and the Employer and after SSA verifies the accuracy of SSA records for aliens through E-Verify, DHS agrees to provide the Employer access to selected data from DHS's database to enable the Employer to conduct:

- Automated verification checks on newly hired alien employees by electronic means, and
- Photo verification checks (when available) on newly hired alien employees.

2. DHS agrees to provide to the Employer appropriate assistance with operational problems that may arise during the Employer's participation in the E-Verify program. DHS agrees to provide the Employer names, titles, addresses, and telephone numbers of DHS representatives to be contacted during the E-Verify process.

3. DHS agrees to provide to the Employer a manual (the E-Verify Manual) containing instructions on E-Verify policies, procedures and requirements for both SSA and DHS, including restrictions on the use of E-Verify.. DHS agrees to provide training materials on E-Verify.

4. DHS agrees to provide to the Employer a notice, which indicates the Employer's participation in the E-Verify program. DHS also agrees to provide to the Employer anti-discrimination notices issued by the Office of Special Counsel for Immigration-Related Unfair Employment Practices (OSC), Civil Rights Division, and U.S. Department of Justice.

5. DHS agrees to issue the Employer a user identification number and password that permits the Employer to verify information provided by alien employees with DHS's database.

6. DHS agrees to safeguard the information provided to DHS by the Employer, and to limit access to such information to individuals responsible for the verification of alien employment eligibility and for evaluation of the E-Verify program, or to such other persons or entities as may be authorized by applicable law. Information will be used only to verify the accuracy of Social Security Numbers and employment eligibility, to enforce the Immigration and Nationality Act and federal criminal laws, and to ensure accurate wage reports to the SSA.

7. DHS agrees to establish a means of automated verification that is designed (in conjunction with SSA verification procedures) to provide confirmation or tentative nonconfirmation of employees' employment eligibility within 3 Federal Government work days of the initial inquiry.

Company ID Number: 165031

8. DHS agrees to establish a means of secondary verification (including updating DHS records as may be necessary) for employees who contest DHS tentative nonconfirmations and photo non-match tentative nonconfirmations that is designed to provide final confirmation or nonconfirmation of the employees' employment eligibility within 10 Federal Government work days of the date of referral to DHS, unless DHS determines that more than 10 days may be necessary. In such cases, DHS will provide additional verification instructions.

C. RESPONSIBILITIES OF THE EMPLOYER

1. The Employer agrees to display the notices supplied by DHS in a prominent place that is clearly visible to prospective employees.

2. The Employer agrees to provide to the SSA and DHS the names, titles, addresses, and telephone numbers of the Employer representatives to be contacted regarding E-Verify.

3. The Employer agrees to become familiar with and comply with the E-Verify Manual.

4. The Employer agrees that any Employer Representative who will perform employment verification queries will complete the E-Verify Tutorial before that individual initiates any queries.

A. The employer agrees that all employer representatives will take the refresher tutorials initiated by the E-Verify program as a condition of continued use of E-Verify.

B. Failure to complete a refresher tutorial will prevent the employer from continued use of the program.

5. The Employer agrees to comply with established Form I-9 procedures, with two exceptions:

- If an employee presents a "List B" identity document, the Employer agrees to only accept "List B" documents that contain a photo. (List B documents identified in 8 C.F.R. § 274a.2 (b) (1) (B)) can be presented during the Form I-9 process to establish identity).
- If an employee presents a DHS Form I-551 (Permanent Resident Card) or Form I-766 (Employment Authorization Document) to complete the Form I-9, the Employer agrees to make a photocopy of the document and to retain the photocopy with the employee's Form I-9. The employer will use the photocopy to verify the photo and to assist the Department with its review of photo non-matches that are contested by employees. Note that employees retain the right to present any List A, or List B and List C, documentation to complete the Form I-9. DHS may in the future designate other documents that activate the photo screening tool.

6. The Employer understands that participation in E-Verify does not exempt the Employer from the responsibility to complete, retain, and make available for inspection Forms I-9 that relate to its employees, or from other requirements of applicable regulations or laws, except for the following modified requirements applicable by reason of the Employer's participation in E-Verify: (1) identity documents must have photos, as described in paragraph 5 above; (2) a

rebuttable presumption is established that the Employer has not violated section 274A(a)(1)(A) of the Immigration and Nationality Act (INA) with respect to the hiring of any individual if it obtains confirmation of the identity and employment eligibility of the individual in compliance with the terms and conditions of E-Verify ; (3) the Employer must notify DHS if it continues to employ any employee after receiving a final nonconfirmation, and is subject to a civil money penalty between $500 and $1,000 for each failure to notify DHS of continued employment following a final nonconfirmation; (4) the Employer is subject to a rebuttable presumption that it has knowingly employed an unauthorized alien in violation of section 274A(a)(1)(A) if the Employer continues to employ any employee after receiving a final nonconfirmation; and (5) no person or entity participating in E-Verify is civilly or criminally liable under any law for any action taken in good faith on information provided through the confirmation system. DHS reserves the right to conduct Form I-9 compliance inspections during the course of E-Verify, as well as to conduct any other enforcement activity authorized by law.

7. The Employer agrees to initiate E-Verify verification procedures within 3 Employer business days after each employee has been hired (but after both sections 1 and 2 of the Form I-9 have been completed), and to complete as many (but only as many) steps of the E-Verify process as are necessary according to the E-Verify Manual. The Employer is prohibited from initiating verification procedures before the employee has been hired and the Form I-9 completed. If the automated system to be queried is temporarily unavailable, the 3-day time period is extended until it is again operational in order to accommodate the Employer's attempting, in good faith, to make inquiries during the period of unavailability. In all cases, the Employer must use the SSA verification procedures first, and use DHS verification procedures and photo screening tool only after the the SSA verification response has been given.

8. The Employer agrees not to use E-Verify procedures for pre-employment screening of job applicants, support for any unlawful employment practice, or any other use not authorized by this MOU. The Employer must use E-Verify for all new employees and will not verify only certain employees selectively. The Employer agrees not to use E-Verify procedures for re-verification, or for employees hired before the date this MOU is in effect. The Employer understands that if the Employer uses E-Verify procedures for any purpose other than as authorized by this MOU, the Employer may be subject to appropriate legal action and the immediate termination of its access to SSA and DHS information pursuant to this MOU.

9. The Employer agrees to follow appropriate procedures (see Article III.B. below) regarding tentative nonconfirmations, including notifying employees of the finding, providing written referral instructions to employees, allowing employees to contest the finding, and not taking adverse action against employees if they choose to contest the finding. Further, when employees contest a tentative nonconfirmation based upon a photo non-match, the Employer is required to take affirmative steps (see Article III.B. below) to contact DHS with information necessary to resolve the challenge.

10. The Employer agrees not to take any adverse action against an employee based upon the employee's employment eligibility status while SSA or DHS is processing the verification request unless the Employer obtains knowledge (as defined in 8 C.F.R. § 274a.1 (l)) that the employee is not work authorized. The Employer understands that an initial inability of the SSA or DHS automated verification to verify work authorization, a tentative nonconfirmation, or the finding of

Company ID Number: 165031

a photo non-match, does not mean, and should not be interpreted as, an indication that the employee is not work authorized. In any of the cases listed above, the employee must be provided the opportunity to contest the finding, and if he or she does so, may not be terminated or suffer any adverse employment consequences until and unless secondary verification by SSA or DHS has been completed and a final nonconfirmation has been issued. If the employee does not choose to contest a tentative nonconfirmation or a photo non-match, then the Employer can find the employee is not work authorized and take the appropriate action.

11. The Employer agrees to comply with section 274B of the INA by not discriminating unlawfully against any individual in hiring, firing, or recruitment or referral practices because of his or her national origin or, in the case of a protected individual as defined in section 274B(a)(3) of the INA, because of his or her citizenship status. The Employer understands that such illegal practices can include selective verification or use of E-Verify, discharging or refusing to hire eligible employees because they appear or sound "foreign", and premature termination of employees based upon tentative nonconfirmations, and that any violation of the unfair immigration-related employment practices provisions of the INA could subject the Employer to civil penalties pursuant to section 274B of the INA and the termination of its participation in E-Verify. If the Employer has any questions relating to the anti-discrimination provision, it should contact OSC at 1-800-255-7688 or 1-800-237-2515 (TDD).

12. The Employer agrees to record the case verification number on the employee's Form I-9 or to print the screen containing the case verification number and attach it to the employee's Form I-9.

13. The Employer agrees that it will use the information it receives from the SSA or DHS pursuant to E-Verify and this MOU only to confirm the employment eligibility of newly-hired employees after completion of the Form I-9. The Employer agrees that it will safeguard this information, and means of access to it (such as PINS and passwords) to ensure that it is not used for any other purpose and as necessary to protect its confidentiality, including ensuring that it is not disseminated to any person other than employees of the Employer who are authorized to perform the Employer's responsibilities under this MOU.

14. The Employer acknowledges that the information which it receives from SSA is governed by the Privacy Act (5 U.S.C. § 552a (i) (1) and (3)) and the Social Security Act (42 U.S.C. 1306(a)), and that any person who obtains this information under false pretenses or uses it for any purpose other than as provided for in this MOU may be subject to criminal penalties.

15. The Employer agrees to allow DHS and SSA, or their authorized agents or designees, to make periodic visits to the Employer for the purpose of reviewing E-Verify -related records, i.e., Forms I-9, SSA Transaction Records, and DHS verification records, which were created during the Employer's participation in the E-Verify Program. In addition, for the purpose of evaluating E-Verify, the Employer agrees to allow DHS and SSA or their authorized agents or designees, to interview it regarding its experience with E-Verify, to interview employees hired during E-Verify use concerning their experience with the pilot, and to make employment and E-Verify related records available to DHS and the SSA, or their designated agents or designees. Failure to comply with the terms of this paragraph may lead DHS to terminate the Employer's access to E-Verify.

Company ID Number: 165031

ARTICLE III

REFERRAL OF INDIVIDUALS TO THE SSA AND THE DEPARTMENT OF HOMELAND SECURITY

A. REFERRAL TO THE SSA

1. If the Employer receives a tentative nonconfirmation issued by SSA, the Employer must print the tentative nonconfirmation notice as directed by the automated system and provide it to the employee so that the employee may determine whether he or she will contest the tentative nonconfirmation.

2. The Employer will refer employees to SSA field offices only as directed by the automated system based on a tentative nonconfirmation, and only after the Employer records the case verification number, reviews the input to detect any transaction errors, and determines that the employee contests the tentative nonconfirmation. The Employer will transmit the Social Security Number to SSA for verification again if this review indicates a need to do so. The Employer will determine whether the employee contests the tentative nonconfirmation as soon as possible after the Employer receives it.

3. If the employee contests an SSA tentative nonconfirmation, the Employer will provide the employee with a referral letter and instruct the employee to visit an SSA office to resolve the discrepancy within 8 Federal Government work days. The Employer will make a second inquiry to the SSA database using E-Verify procedures on the date that is 10 Federal Government work days after the date of the referral in order to obtain confirmation, or final nonconfirmation, unless otherwise instructed by SSA or unless SSA determines that more than 10 days is necessary to resolve the tentative nonconfirmation..

4. The Employer agrees not to ask the employee to obtain a printout from the Social Security Number database (the Numident) or other written verification of the Social Security Number from the SSA.

B. REFERRAL TO THE DEPARTMENT OF HOMELAND SECURITY

1. If the Employer receives a tentative nonconfirmation issued by DHS, the Employer must print the tentative nonconfirmation notice as directed by the automated system and provide it to the employee so that the employee may determine whether he or she will contest the tentative nonconfirmation.

2. If the Employer finds a photo non-match for an alien who provides a document for which the automated system has transmitted a photo, the employer must print the photo non-match tentative nonconfirmation notice as directed by the automated system and provide it to the employee so that the employee may determine whether he or she will contest the finding.

3. The Employer agrees to refer individuals to DHS only when the employee chooses to contest a tentative nonconfirmation received from DHS automated verification process or when

the Employer issues a tentative nonconfirmation based upon a photo non-match. The Employer will determine whether the employee contests the tentative nonconfirmation as soon as possible after the Employer receives it.

4. If the employee contests a tentative nonconfirmation issued by DHS, the Employer will provide the employee with a referral letter and instruct the employee to contact the Department through its toll-free hotline within 8 Federal Government work days.

5. If the employee contests a tentative nonconfirmation based upon a photo non-match, the Employer will provide the employee with a referral letter to DHS. DHS will electronically transmit the result of the referral to the Employer within 10 Federal Government work days of the referral unless it determines that more than 10 days is necessary.

6. The Employer agrees that if an employee contests a tentative nonconfirmation based upon a photo non-match, the Employer will send a copy of the employee's Form I-551 or Form I-766 to DHS for review by:

- Scanning and uploading the document, or
- Sending a photocopy of the document by an express mail account (furnished and paid for by DHS).

7. The Employer understands that if it cannot determine whether there is a photo match/non-match, the Employer is required to forward the employee's documentation to DHS by scanning and uploading, or by sending the document as described in the preceding paragraph, and resolving the case as specified by the Immigration Services Verifier at DHS who will determine the photo match or non-match.

ARTICLE IV

SERVICE PROVISIONS

The SSA and DHS will not charge the Employer for verification services performed under this MOU. The Employer is responsible for providing equipment needed to make inquiries. To access the E-Verify System, an Employer will need a personal computer with Internet access.

ARTICLE V

PARTIES

This MOU is effective upon the signature of all parties, and shall continue in effect for as long as the SSA and DHS conduct the E-Verify program unless modified in writing by the mutual consent of all parties, or terminated by any party upon 30 days prior written notice to the others. Any and all system enhancements to the E-Verify program by DHS or SSA, including but not limited to the E-Verify checking against additional data sources and instituting new verification procedures, will be covered under this MOU and will not cause the need for a supplemental MOU that outlines these changes. DHS agrees to train employers on all changes made to E-Verify through the use of mandatory refresher tutorials and updates to the E-Verify manual. Even

Company ID Number: 165031

without changes to E-Verify, the Department reserves the right to require employers to take mandatory refresher tutorials.

Termination by any party shall terminate the MOU as to all parties. The SSA or DHS may terminate this MOU without prior notice if deemed necessary because of the requirements of law or policy, or upon a determination by SSA or DHS that there has been a breach of system integrity or security by the Employer, or a failure on the part of the Employer to comply with established procedures or legal requirements. Some or all SSA and DHS responsibilities under this MOU may be performed by contractor(s), and SSA and DHS may adjust verification responsibilities between each other as they may determine.

Nothing in this MOU is intended, or should be construed, to create any right or benefit, substantive or procedural, enforceable at law by any third party against the United States, its agencies, officers, or employees, or against the Employer, its agents, officers, or employees.

Each party shall be solely responsible for defending any claim or action against it arising out of or related to E-Verify or this MOU, whether civil or criminal, and for any liability wherefrom, including (but not limited to) any dispute between the Employer and any other person or entity regarding the applicability of Section 403(d) of IIRIRA to any action taken or allegedly taken by the Employer.

The employer understands that the fact of its participation in E-Verify is not confidential information and may be disclosed as authorized or required by law and DHS or SSA policy, including but not limited to, Congressional oversight, E-Verify publicity and media inquiries, and responses to inquiries under the Freedom of Information Act (FOIA).

The foregoing constitutes the full agreement on this subject between the SSA, DHS, and the Employer.

The individuals whose signatures appear below represent that they are authorized to enter into this MOU on behalf of the Employer and DHS respectively.

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify Operations at 888-464-4218.

Employer APAC Central, Inc.

Evans F Richard	
Name (Please type or print)	Title
Electronically Signed	**11/18/2008**
Signature	Date

Department of Homeland Security – Verification Division

Company ID Number: 165031

USCIS Verification Division	
Name (Please type or print)	Title
Electronically Signed	**11/18/2008**
Signature	Date

Company ID Number: 165031

INFORMATION REQUIRED
FOR THE E-VERIFY PROGRAM

Information relating to your Company:

Company Name: **APAC Central, Inc.**

Company Facility Address: **755 E Millsap**
Fayetteville, AR 72703

Company Alternate Address: **P.O. Box 9208**
Fayetteville, AR 72703

County or Parish: **WASHINGTON**

Employer Identification Number: **581401469**

North American Industry Classification Systems Code: **237**

Parent Company:

Number of Employees: **500 to 999**

Number of Sites Verified for: **3**

Are you verifying for more than 1 site? If yes, please provide the number of sites verified for in each State.

- ARKANSAS 2 site(s)
- OKLAHOMA 1 site(s)

Information relating to the Program Administrator(s) for your Company on policy questions or operational problems:

Name: **Arianna Heras**
Telephone Number: **(479) 788 - 6365** Fax Number:
E-mail Address: **arianna.heras@apac.com**

Name: **Betancourt Erica**
Telephone Number: **(479) 587 - 3339** Fax Number: **(479) 443 - 4018**
E-mail Address: **erica.betancourt@apac.com**

Name: **Jeanette Morgans**
Telephone Number: **(918) 556 - 2249** Fax Number:
E-mail Address: **jeanette.morgans@apac.com**

Name: **Evans F Richard**

Company ID Number: 165031

Telephone Number:	**(479) 587 - 3356**	Fax Number:	**(479) 443 - 4018**
E-mail Address:	**richard.evans@apac.com**		

https://e-verify.uscis.gov/en interchange Oldcastle Field Porta... Oldcastle - My Appli... E-Verify - Employ...

E-Verify
Employment Eligibility Verification

Welcome Evans Richard | User ID ERIC2148 | Last Login 09:35 AM - 03/01/2016 | Log Out

Click any ? for help

Home
My Cases
New Case
View Cases
Search Cases
My Profile
Edit Profile
Change Password
Change Security Questions
My Company
Edit Company Profile
Add New User
View Existing Users
Close Company Account
My Reports
View Reports
My Resources
View Essential Resources
Take Tutorial
View User Manual
Share Ideas
Contact Us

Company Information

View / Edit

Company Name: APAC Central, Inc.
Company ID Number: 165031
Doing Business As (DBA) Name:
DUNS Number:

Physical Location:

Address 1: 755 E Millsap
Address 2:
City: Fayetteville
State: AR
Zip Code: 72703
County: WASHINGTON

Mailing Address:

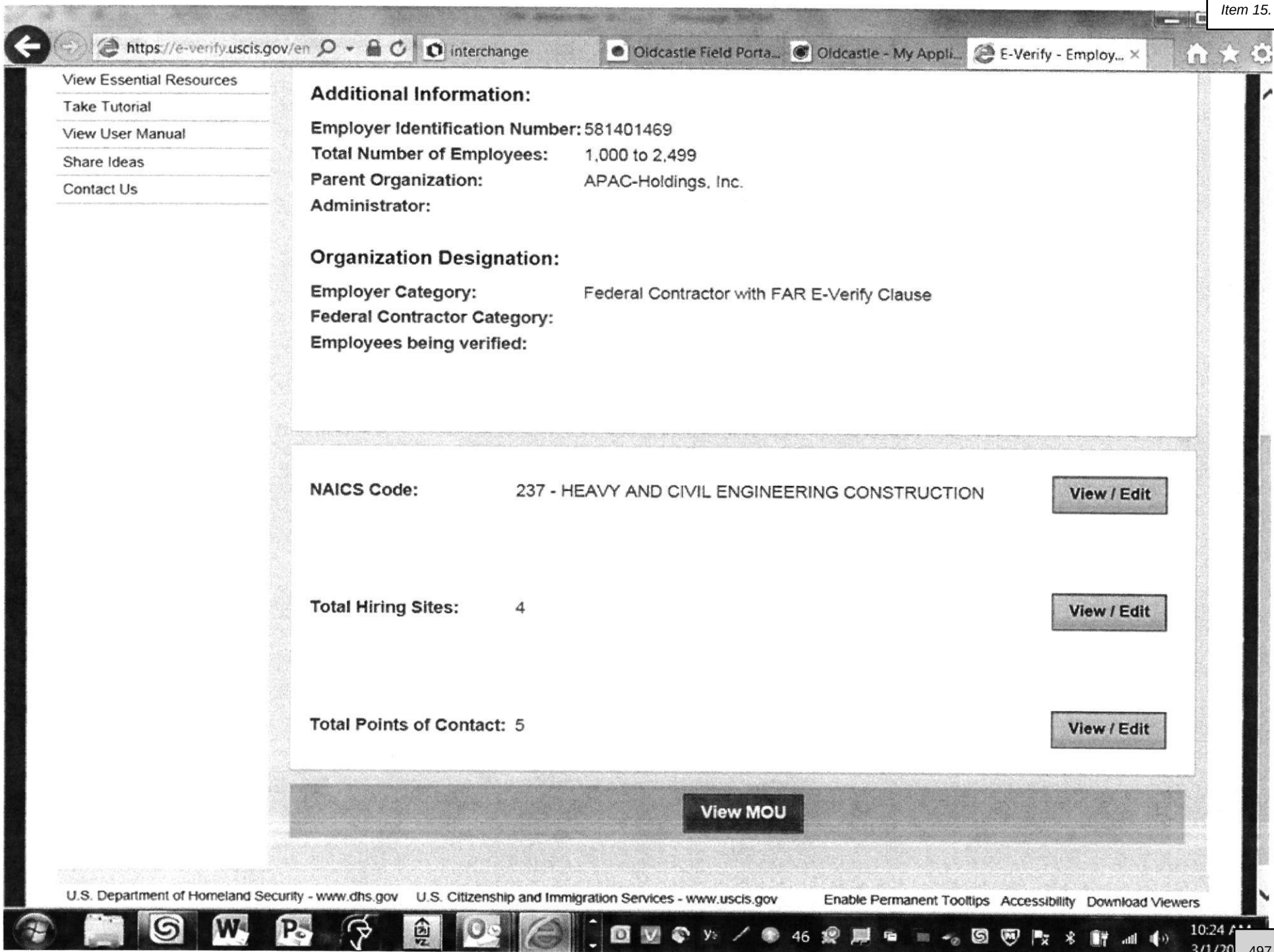
Address 1: P.O. Box 9208
Address 2:
City: Fayetteville
State: AR
Zip Code: 72703

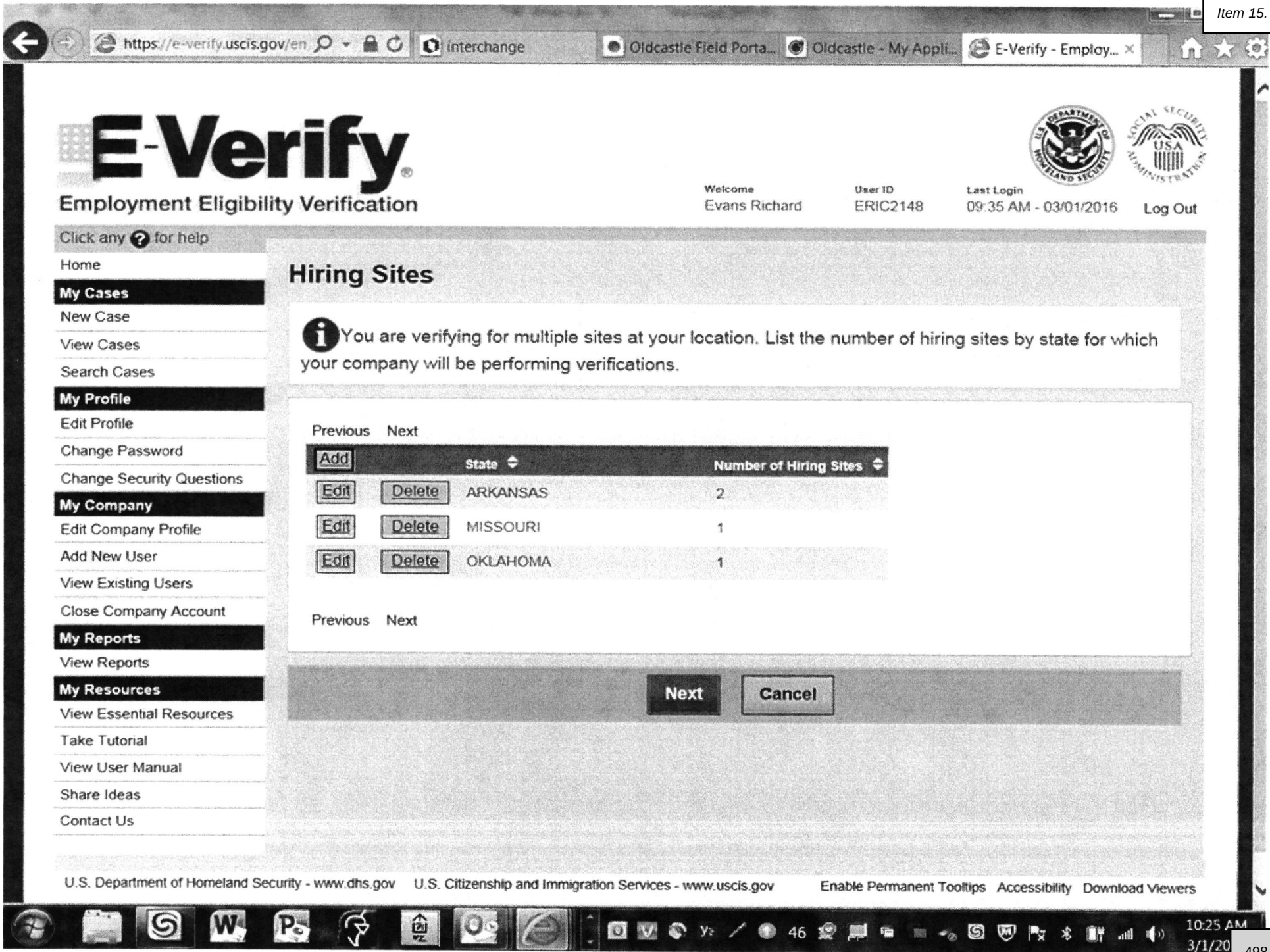
Additional Information:

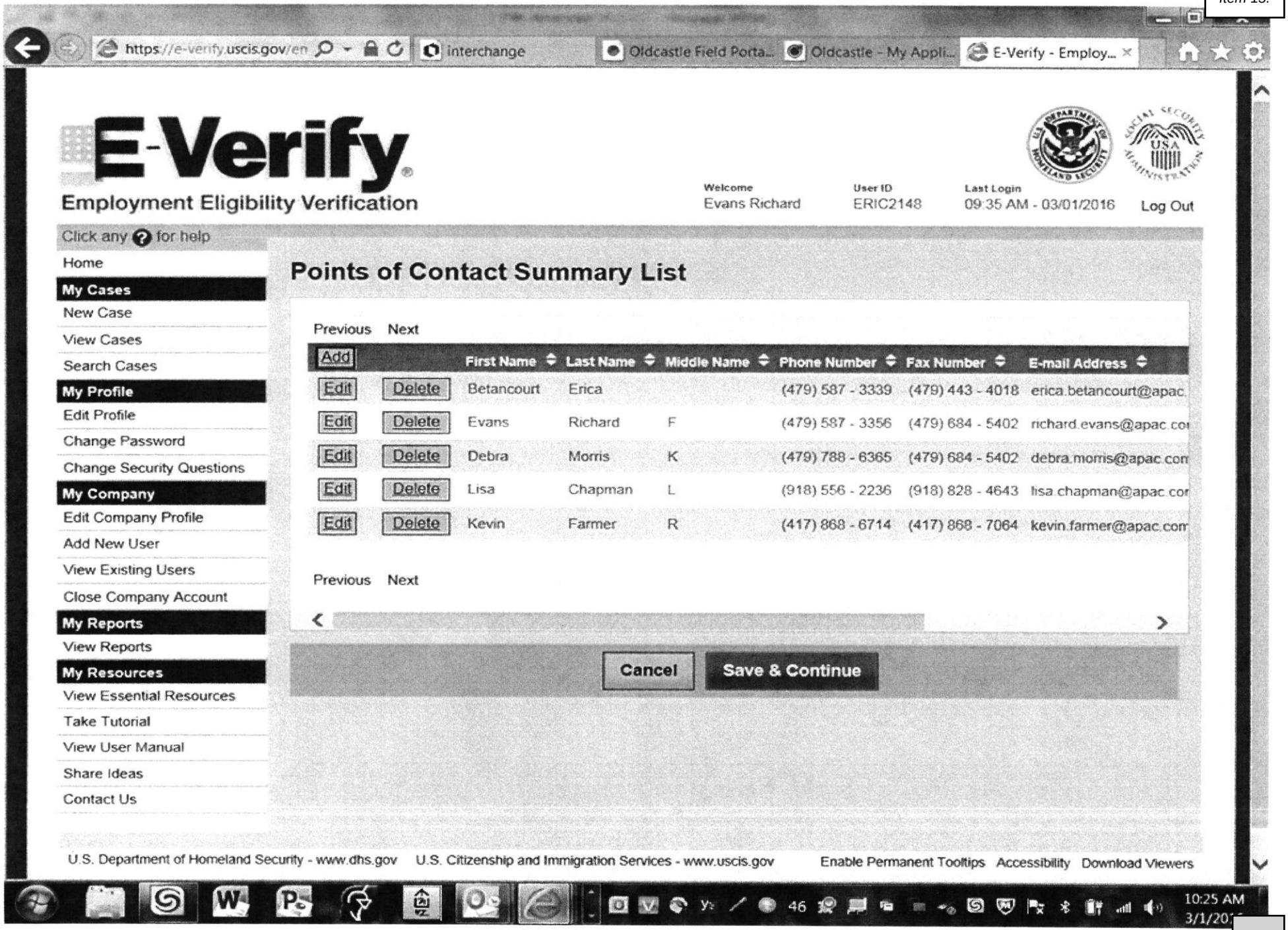
Employer Identification Number: 581401469
Total Number of Employees: 1,000 to 2,499
Parent Organization: APAC-Holdings, Inc.
Administrator:

Organization Designation:

10:23 AM 3/1/2016


https://e-verify.uscis.gov/en
interchange
Oldcastle Field Porta...
Oldcastle - My Appli...
E-Verify - Employ...
View Essential Resources
Take Tutorial
View User Manual
Share Ideas
Contact Us
Additional Information:
Employer Identification Number: 581401469
Total Number of Employees: 1,000 to 2,499
Parent Organization: APAC-Holdings, Inc.
Administrator:
Organization Designation:
Employer Category: Federal Contractor with FAR E-Verify Clause
Federal Contractor Category:
Employees being verified:
NAICS Code: 237 - HEAVY AND CIVIL ENGINEERING CONSTRUCTION
View / Edit
Total Hiring Sites: 4
View / Edit
Total Points of Contact: 5
View / Edit
View MOU
U.S. Department of Homeland Security - www.dhs.gov
U.S. Citizenship and Immigration Services - www.uscis.gov
Enable Permanent Tooltips
Accessibility
Download Viewers
10:24 A
3/1/20


https://e-verify.uscis.gov/en
interchange
Oldcastle Field Porta...
Oldcastle - My Appli...
E-Verify - Employ...
E-Verify
Employment Eligibility Verification
Welcome
Evans Richard
User ID
ERIC2148
Last Login
09:35 AM - 03/01/2016
Log Out
Click any ? for help
Home
My Cases
New Case
View Cases
Search Cases
My Profile
Edit Profile
Change Password
Change Security Questions
My Company
Edit Company Profile
Add New User
View Existing Users
Close Company Account
My Reports
View Reports
My Resources
View Essential Resources
Take Tutorial
View User Manual
Share Ideas
Contact Us
Hiring Sites
You are verifying for multiple sites at your location. List the number of hiring sites by state for which your company will be performing verifications.
Previous Next
Add
State
Number of Hiring Sites
Edit Delete ARKANSAS 2
Edit Delete MISSOURI 1
Edit Delete OKLAHOMA 1
Previous Next
Next
Cancel
U.S. Department of Homeland Security - www.dhs.gov
U.S. Citizenship and Immigration Services - www.uscis.gov
Enable Permanent Tooltips
Accessibility
Download Viewers
10:25 AM
3/1/20


https://e-verify.uscis.gov/en
interchange
Oldcastle Field Porta...
Oldcastle - My Appli...
E-Verify - Employ...
E-Verify
Employment Eligibility Verification
Welcome
Evans Richard
User ID
ERIC2148
Last Login
09:35 AM - 03/01/2016
Log Out
Click any ? for help
Home
My Cases
New Case
View Cases
Search Cases
My Profile
Edit Profile
Change Password
Change Security Questions
My Company
Edit Company Profile
Add New User
View Existing Users
Close Company Account
My Reports
View Reports
My Resources
View Essential Resources
Take Tutorial
View User Manual
Share Ideas
Contact Us
Points of Contact Summary List
Previous Next
Add
First Name
Last Name
Middle Name
Phone Number
Fax Number
E-mail Address
Edit Delete Betancourt Erica (479) 587 - 3339 (479) 443 - 4018 erica.betancourt@apac
Edit Delete Evans Richard F (479) 587 - 3356 (479) 684 - 5402 richard.evans@apac.co
Edit Delete Debra Morris K (479) 788 - 6365 (479) 684 - 5402 debra.morris@apac.com
Edit Delete Lisa Chapman L (918) 556 - 2236 (918) 828 - 4643 lisa.chapman@apac.co
Edit Delete Kevin Farmer R (417) 868 - 6714 (417) 868 - 7064 kevin.farmer@apac.com
Previous Next
Cancel
Save & Continue
U.S. Department of Homeland Security - www.dhs.gov
U.S. Citizenship and Immigration Services - www.uscis.gov
Enable Permanent Tooltips
Accessibility
Download Viewers
10:25 AM

Company ID Number: XXXXXX

The foregoing constitutes the full agreement on this subject between the SSA, DHS (Department of Homeland Security), and the Employer.

The individuals whose signatures appear below represent that they are authorized to enter into this Memorandum of Understanding on behalf of the Employer and DHS respectively.

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify Operations at 888-464-4218.

Employer, Your Company Name

John Doe _____ _____
Name (Please type or print) Title

Electronically Signed _____
Signature Date

Verification

Department of Homeland Security Division

USCIS Verification Division _____ _____
Name (Please type or print) Title

Electronically Signed _____
Signature Date

City of Republic, Missouri
AFFIDAVIT OF COMPLIANCE WITH INVITATION FOR BID

To be submitted with all Bids in response to this IFB

X We **DO NOT** take exception to the IFB Documents/Requirements.

_____ We **TAKE** exception to the IFB Documents/Requirements as follows:

I have carefully examined the Invitation for Bid and agree to abide by all submitted pricing, delivery, terms and conditions of this IFB unless otherwise stipulated herein.

Company Name APAC-Central, Inc.

By _____ Douglas Fronick
(Authorized Person's Signature)

Company Address 4580 W. Calhoun
Springfield, MO 65802

Telephone Number 417-868-6700

Fax Number 417-368-0481

Date 4/6/23

ADDENDA

Offeror acknowledges receipt of the following addendum:

Addendum No. 1

Addendum No. 2

Addendum No. 3

Addendum No. _____

Email david.foreman@apac.com

Federal Tax ID No. 58-1401469

DBE Vendor (Yes/No): No Minority Owned: _____
Women Owned: _____
Veteran Owned: _____

ATTACHMENT A - BID SUBMISSION FORM

BIDDERS MUST PROVIDE THE FOLLOWING INFORMATION:

Description of Work	Price
• Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays • Bid Alternate Price individually, do not add all prices together. • All Bids to include: ○ Travel Expenses ○ Delivery Costs ○ Administrative costs ○ Traffic Control **Please note any of the following:** • **Any labor personnel requests of the City of Republic for this project.** • **Any other requests or responsibilities of the City of Republic for this project.**	**Hines & Lynn Roundabout:** $ 535,000.00 **School Storage Lane:** $ 262,000.00 **2023 Overlays:** $ 827,445.00 Asphalt Per Ton $ 77.80 Milling Per SY $ 2.40

In compliance with this Invitation for Bid and to all terms, conditions, and specifications imposed therein and hereby incorporated byreference, the undersigned offers and agrees to furnish the goods and/or services described herein.

City of Republic, Missouri

IFB for: Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Republic, MO 65738

Company Legal Name: Blevins Asphalt Const. Co., Inc.

Address: PO Box 230
Mt. Vernon, Mo. 65712

Signature: Scott Crabtree

Name and Title: Scott Crabtree VP

Telephone: 417-466-3758

Cellular: 417-461-4559

Email: scrabtree@blevinsasphalt.com

Dated: 4/6/23

Bidder's Federal ID Number: 43-0964288

CITY OF REPUBLIC ROADWAY IMPROVEMENTS

E. HINES & N. LYNN ROUNDABOUT

BID SCHEDULE

Item	Description	Units	Est. Quantity	Unit Price	Extended Total
1	Mobilization	LS	1	$35,348.50	$35,348.50
2	Removal Of Improvements - Sidewalk & Ditch Liner	SY	405.0	$5.10	$2,065.50
3	Removal Of Improvements - Curb Inlets	EACH	3	$370.00	$1,110.00
4	Removal Of Improvements - Asphalt	SY	2,250	$2.60	$5,850.00
5	Removal Of Improvements - Curb & Gutter	LF	1,100	$7.50	$8,250.00
6	Removal Of Improvements - Signs	EACH	3	$675.00	$2,025.00
7	Adjustment Of Manhole / Valve Box Rim	EACH	7	$795.00	$5,565.00
8	Precast Curb Inlets (8' X 4')	EACH	4	$8,065.00	$24,195.00
9	15" R.C.P. Including Trench, Bedding & Backfill	LF	35	$118.00	$4,130.00
10	18" R.C.P. Including Trench, Bedding & Backfill	LF	60	$95.00	$5,700.00
11	24" R.C.P. Including Fernco Couplings, Trench, Bedding & Backfill	LF	15	$316.00	$4,740.00
12	6'-0" X 4'-0" Precast Concrete Box Culvert	LF	90	$820.00	$73,800.00
13	4'-0" X 4'-0" Precast Concrete Junction Box	EACH	1	$4,900.00	$4,900.00
14	Concrete Headwall	EACH	1	$29,000.00	$29,000.00
15	Pipe Connection To Box Culvert	EACH	2	$1,800.00	$3,600.00
16	Standard Curb & Gutter (Including Granular Stone Base)	LF	900	$27.00	$24,300.00
17	Mountable Curb & Gutter (Including Granular Stone Base)	LF	200	$32.50	$6,500.00
18	Type "S" Curb (Including Granular Base)	LF	625	$43.00	$26,875.00
19	Type 1 Pavement - 2" Thick Asphaltic Surface, 6" Asphaltic Base (Including Granual Stone Base, Surface Prep., Tack, Primer)	SY	2,150.0	$60.00	$129,000.00
20	Type 2 Pavement - 4" Thick Concrete Surface - Sidewalks And Islands (Including Granular Stone Base and Surface Prep.)	SY	610.0	$50.00	$30,500.00
21	Type 3 Pavement - 6" Thick Concrete Surface - Driveways And Mountable (Including Granular Stone Base and Surface Prep.)	SY	200.0	$68.00	$13,600.00
22	Sidewalk Tactile Warning Strip (Truncated Dome)	SF	65.0	$41.50	$2,697.50
23	MoDOT R4-7C - Complete Sign Assembly (Narrow Keep Right Sign)	EACH	4	$275.00	$1,100.00
24	MoDOT R1-2 - Complete Sign Assembly (Yield Sign)	EACH	7	$275.00	$1.925.00
25	MoDOT W11-2 & W16-7P - Complete Sign Assembly (Left Diagonal Arrow & Pedestrian Traffic)	EACH	6	$305.00	$1,830.00
26	MoDOT R6-4 & R6-4 - Complete Sign Assembly (Two Chevrons)	EACH	4	$395.00	$1,580.00
26	Center Island Logo Tinting and Island Stamping	LS	1	$10,300.00	$10,300.00
27	High Build Acrylic Waterborne Pavement Marking Paint (4" Wide White)	LF	400	$2.60	$1,040.00
28	High Build Acrylic Waterborne Pavement Marking Paint 12" Wide White)	LF	210	$2.60	$546.00
29	Excavation (Unclassified)	LS	1	$13,100.00	$13,100.00
30	Compacted Embankment	LS	1	$34,100.00	$34,100.00
31	Inlet Check (Sand Bag Sediment Trap)	EACH	5	$240.00	$1,200.00
32	Silt Fence	LF	185	$11.50	$2,127.00
33	Traffic Control	LS	1	$11,000.00	$11,000.00
34	Finish Grade, Seed & Mulch	ACRE	0.20	$57,000.00	$11,400.00
			SUBTOTAL		$ 535,000.00

Affidavit of Compliance with Section 285.500, RSMo., et seq.
for all agreements providing services in excess of $5,000.00

Effective 1/1/2009

STATE OF MISSOURI)
) ss.
COUNTY OF GREENE)

Before me, the undersigned Notary Public, in and for the County of Greene, State of Missouri personally appeared Scott Crabtree (*Name*) who is VP (*Title*) of Blevins Asphalt Construction (*Name of company*), a (*circle one*) corporation, partnership, sole proprietorship, limited liability company, and is competent and authorized to make this affidavit, and being duly sworn upon oath deposes and says as follows:

(1) that said company is enrolled in and participates in a federal work authorization program with respect to the employees working in connection with the contracted services; and

(2) that said company does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

The terms used in this affidavit shall have the meaning set forth in Section 285.500 RSMo., *et seq.*

Documentation of participation in a federal work authorization program is attached to this affidavit.

Scott Crabtree
Signature

Scott Crabtree
Printed Name

Subscribed and sworn to before me this 6 day of April, 2023.

Melinda Williford
Notary Public

My commission expires: January 21, 2025

MELINDA WILLIFORD
Notary Public, Notary Seal
State of Missouri
Greene County
Commission # 13735152
My Commission Expires 01-21-2025

E-Verify

Company ID Number: 197724

THE E-VERIFY PROGRAM FOR EMPLOYMENT VERIFICATION MEMORANDUM OF UNDERSTANDING

ARTICLE I

PURPOSE AND AUTHORITY

This Memorandum of Understanding (MOU) sets forth the points of agreement between the Department of Homeland Security (DHS) and **Blevins Asphalt Construction Co., Inc.** (Employer) regarding the Employer's participation in the Employment Eligibility Verification Program (E-Verify). This MOU explains certain features of the E-Verify program and enumerates specific responsibilities of DHS, the Social Security Administration (SSA), and the Employer. E-Verify is a program that electronically confirms an employee's eligibility to work in the United States after completion of the Employment Eligibility Verification Form (Form I-9). For covered government contractors, E-Verify is used to verify the employment eligibility of all newly hired employees and all existing employees assigned to Federal contracts.

Authority for the E-Verify program is found in Title IV, Subtitle A, of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), Pub. L. 104-208, 110 Stat. 3009, as amended (8 U.S.C. § 1324a note). Authority for use of the E-Verify program by Federal contractors and subcontractors covered by the terms of Subpart 22.18, "Employment Eligibility Verification", of the Federal Acquisition Regulation (FAR) (hereinafter referred to in this MOU as a "Federal contractor") to verify the employment eligibility of certain employees working on Federal contracts is also found in Subpart 22.18 and in Executive Order 12989, as amended.

E-Verify™

E-VERIFY IS A SERVICE OF DHS

Company ID Number: 197724

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify at 888-464-4218.

Employer Blevins Asphalt Construction Co., Inc.

Rick R Bekemeier	
Name (Please Type or Print)	Title
Electronically Signed	03/13/2009
Signature	Date

Department of Homeland Security – Verification Division

USCIS Verification Division	
Name (Please Type or Print)	Title
Electronically Signed	03/13/2009
Signature	Date

E-Verify

E-VERIFY IS A SERVICE OF DHS

Company ID Number: 197724

Information Required for the E-Verify Program

Information relating to your Company:

Company Name: Blevins Asphalt Construction Co., Inc.

Company Facility Address: 11837 Lawrence 1163
Mount Vernon, MO 65712

Company Alternate Address: PO BOX 230
Mount Vernon, MO 65712

County or Parish: LAWRENCE

Employer Identification Number: 430964288

North American Industry Classification Systems Code: 237

Parent Company:

Number of Employees: 20 to 99

Number of Sites Verified for: 1

Are you verifying for more than 1 site? If yes, please provide the number of sites verified for in each State:

- MISSOURI 1 site(s)

E-Verify

E-VERIFY IS A SERVICE OF DHS

Company ID Number: 197724

Information relating to the Program Administrator(s) for your Company on policy questions or operational problems:

Name:	**Rick R Bekemeier**		
Telephone Number:	**(417) 466 - 3758**	Fax Number:	**(417) 466 - 7914**
E-mail Address:	**rbekemeier@aol.com**		
Name:	**Susie L Osterloh**		
Telephone Number:	**(417) 466 - 3758**	Fax Number:	**(417) 466 - 7914**
E-mail Address:	**sosterloh@blevinsasphalt.com**		

Company ID Number: XXXXXX

The foregoing constitutes the full agreement on this subject between the SSA, DHS (Department of Homeland Security), and the Employer.

The individuals whose signatures appear below represent that they are authorized to enter into this Memorandum of Understanding on behalf of the Employer and DHS respectively.

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify Operations at 888-464-4218.

Employer, Your Company Name

John Doe _____ _____
Name (Please type or print) Title

Electronically Signed _____ _____
Signature Date

Verification

Department of Homeland Security Division

USCIS Verification Division _____ _____
Name (Please type or print) Title

Electronically Signed _____ _____
Signature Date

City of Republic, Missouri
AFFIDAVIT OF COMPLIANCE WITH INVITATION FOR BID

To be submitted with all Bids in response to this IFB

__X__ We **DO NOT** take exception to the IFB Documents/Requirements.

_____ We **TAKE** exception to the IFB Documents/Requirements as follows:

I have carefully examined the Invitation for Bid and agree to abide by all submitted pricing, delivery, terms and conditions of this IFB unless otherwise stipulated herein.

Company Name Blevins Asphalt Const. Co., Inc

By _____
(Authorized Person's Signature)

Company Address PO Box 230
Mt. Vernon, Mo. 65712

Telephone Number 417-466-3758

Fax Number 417-461-4559

Date 04/06/2023

ADDENDA

Offeror acknowledges receipt of the following addendum:

Addendum No. 1

Addendum No. 2

Addendum No. 3

Addendum No. _____

Email scrabtree@blevinsasphalt.com

Federal Tax ID No. 43-0964288

DBE Vendor (Yes/No): No

Minority Owned: _____
Women Owned: _____
Veteran Owned: _____

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)
Blevins Asphalt Construction Co, Inc.
PO Box 230
Mount Vernon, MO 65712

SURETY:
(Name, legal status and principal place of business)
Hartford Fire Insurance Company
One Hartford Plaza
Hartford, CT 06155

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)
City of Republic
213 N Main
Republic, MO 65738

BOND AMOUNT: Ten Percent of the Total Amount Bid (10%)

PROJECT:
(Name, location or address, and Project number, if any)
Hines & Lynn Intersection Improvements-
Full Depth Asphalt for School Storage Lane & 2023 Overlay

Project Number, if any:

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 3rd day of April, 2023

(Witness)	Blevins Asphalt Construction Co, Inc. *(Principal)* *(Seal)*
	(Title) Scott Crabtree, Vice-President
(Witness)	Hartford Fire Insurance Company *(Surety)* *(Seal)*
	(Title) Nicole M Johnson, Attorney-In-Fact

Init.

POWER OF ATTORNEY

Direct Inquiries/Claims to:
THE HARTFORD
BOND, T-11
One Hartford Plaza
Hartford, Connecticut 06155
Bond.Claims@thehartford.com
call: **888-266-3488** *or fax:* **860-757-5835**

KNOW ALL PERSONS BY THESE PRESENTS THAT:

Agency Name: BONDING AND INS SOLUTIONS LLC
Agency Code: 37-284958

- [X] **Hartford Fire Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [X] **Hartford Casualty Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [X] **Hartford Accident and Indemnity Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Hartford Underwriters Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Twin City Fire Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of Illinois**, a corporation duly organized under the laws of the State of Illinois
- [ ] **Hartford Insurance Company of the Midwest**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of the Southeast,** a corporation duly organized under the laws of the State of Florida

having their home office in Hartford, Connecticut, (hereinafter collectively referred to as the "Companies") do hereby make, constitute and appoint, ***up to the amount of*** Unlimited :
Eric A. Dedovesh, Nicole M. Johnson, Rodney W. Paddock, Nathan Paddock of LEES SUMMIT, Missouri

their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign its name as surety(ies) only as delineated above by ☒, and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

In Witness Whereof, and as authorized by a Resolution of the Board of Directors of the Companies on May 23, 2016 the Companies have caused these presents to be signed by its Assistant Vice President and its corporate seals to be hereto affixed, duly attested by its Assistant Secretary. Further, pursuant to Resolution of the Board of Directors of the Companies, the Companies hereby unambiguously affirm that they are and will be bound by any mechanically applied signatures applied to this Power of Attorney.

Shelby Wiggins, Assistant Secretary

Joelle L. LaPierre, Assistant Vice President

STATE OF FLORIDA
COUNTY OF SEMINOLE } **ss.** Lake Mary

On this 20th day of May, 2021, before me personally came Joelle LaPierre, to me known, who being by me duly sworn, did depose and say: that (s)he resides in Seminole County, State of Florida; that (s)he is the Assistant Vice President of the Companies, the corporations described in and which executed the above instrument; that (s)he knows the seals of the said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed by authority of the Boards of Directors of said corporations and that (s)he signed his/her name thereto by like authority.

Jessica Ciccone
My Commission HH 122280
Expires June 20, 2025

I, the undersigned, Assistant Vice President of the Companies, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force effective as of April 3rd, 2023.

Signed and sealed in Lake Mary, Florida.

Keith D. Dozois, Assistant Vice President

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 1

3-22-2023

This is Addendum #1 to the Invitation for Bids above.

1. **Correction in Invitation for Bid: Attachment A Bid Submission form**

End of Addendum #1.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 2

3-22-2023

This is Addendum #2 to the Invitation for Bids above.

1. **Missing time for Pre-bid Meeting:** Prebid meeting will be held between 11:30am and 1pm on Friday March 31th at Republic Community Center Room B 711 E Miller Rd. Republic, MO 65738
2. **Estimated Quantities for bidding purposes:**
    a. **Hines and Lynn Roundabout Intersection:** see quantity sheet below.
    b. **School Storage Lane**
        i. Concrete Entrance: 48 LF of Curb and Gutter
        ii. Concrete Entrance: 13.4 CY of Concrete
        iii. Base Course Asphalt: 2140 Tons
        iv. Surface Course Asphalt: 856 Tons
3. **City Overlays:** in addition to lump sum cost of all overlays, please also provide the following unit costs per square foot:
        i. 2" overlay on existing roadway
        ii. 2" mill and overlay on existing roadway
        iii. Full depth pavement (5" base, 2" surface) on previously unpaved roadway (base rock to be prepared by City)

All quantities are approximated estimates for bidding purposes, actual field quantities may vary. Please submit bids based off quantities supplied in this addendum.

End of Addendum #1.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

REPUBLIC
MISSOURI

Addendum to Invitation for Bid
Hines and Lynn Intersection Improvement, Full Depth Asphalt for School Storage Lane, and 2023 City Overlays

Addendum # 3

3-31-2023

This is Addendum #3 to the Invitation for Bids above.

1. **City Overlays: this addendum will supersede Addendum two request for cost provided per square foot.** in addition to lump sum cost of all overlays, please also provide the following unit costs:
    i. Per ton cost Asphalt
    ii. Per SY cost Milling
2. **Clarification:** W Hines st. no asphalt repair is necessary, just two-inch overlay.
3. **School Storage Lane:** Fine grading work to be done by contractor. Base rock material will be provided by the city.

End of Addendum #3.

Any questions regarding this addendum may be directed as follows:

Garrett Brickner PE
Assistant Builds Administrator
BUILDS Department
City of Republic, Missouri
417.732.3405
gbrickner@republicmo.com

Agency Name City of Republic
Bid Number IFB-006-0-2023/GB
Bid Name Hines and Lynn, School Queuing, and Overlays for 2023

Bid Due Date April 6, 2023 3:00 p.m.

Company	Hines and Lynn Roundabout	School Storage Lane	2023 Overlays-Asphalt	2023 Overlays-Milling	2023 Overlays-Total
Blevins Asphalt	$535,000.00	$262,000.00	$77.80	$2.40	$827,445.00
Capital Paving	No Bid	$265,000.00	$89.00	$3.85	$804,382.00
APAC	$550,099.50	$238,808.00	$80.45	$2.75	$803,900.00
Emery Sapp and Sons, Inc.	$585,958.43	$253,097.23	2" 87.25/5" 83.75	$2.70	$935,639.25
JD Wallace Contracting	$525,551.75	no bid	no bid	no bid	no bid