

On Wednesday, July 12, 2023, at 4:35 p.m., agenda was posted at the front doors of City Hall, on the bulletin board in the lobby of City Hall, and on the City of Bethany website: [cityofbethany.org](http://cityofbethany.org). The City of Bethany encourages participation from all its citizens. If participation at any public meeting is not possible due to a disability, notification to the City Clerk at least 48 hours prior to the scheduled meeting is encouraged to make the necessary accommodations. The City may waive the 48-hour rule if signing is not the necessary accommodation.

## Notice of

# EMERGENCY CALLED MEETING

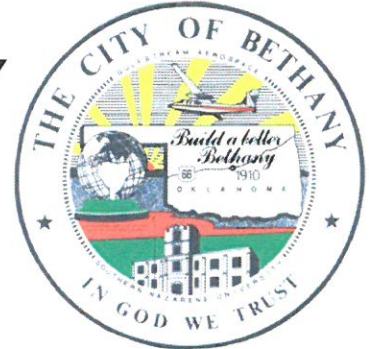
## BETHANY CITY COUNCIL

## BETHANY PUBLIC WORKS AUTHORITY

THURSDAY, JULY 13, 2023

4:00 P.M.


BETHANY CITY HALL  
6700 NW 36<sup>TH</sup> ST  
BETHANY, OKLAHOMA



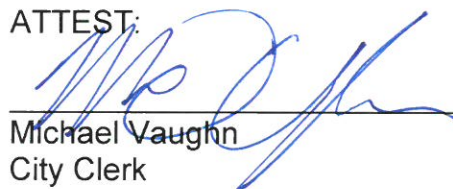
### Call to Order

1. Presentation by TEIM Design regarding emergency water repair on NW 23<sup>rd</sup> Street and Council Road due to a line collapse and discussion by council. *(Elizabeth Gray, City Manager)*
2. Consideration and possible approval to ratify expenses for emergency repairs due to water line collapse at NW 23<sup>rd</sup> Street and N Council Road for an amount not to exceed \$75,000 which is the City Manager's emergency spending limit. *(Elizabeth Gray, City Manager)*
3. Presentation by TEIM Design to discuss and consider action for emergency options to evaluate, repair, and replace drainage structure and intersection at NW 23<sup>rd</sup> Street and Council Road with estimated costs between \$250,000-\$550,000. *(Elizabeth Gray, City Manager)*

### Adjourn

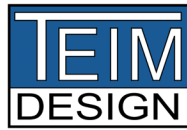
  
Nikki Lloyd  
Mayor

ATTEST:

  
Michael Vaughn  
City Clerk

This notice of emergency called meeting and filed with the City Clerk of Bethany Oklahoma on Wednesday, July 12, 2023, at 4:34 P.M.

Public Participation Note: The City Council and Staff of the City of Bethany strongly encourages the input and involvement of the citizens to help ensure that the City government provides the highest level of services to meet the public needs and desires. If you have any concerns or comments about an agenda item, or any other issue, please contact the Mayor, your Ward Council Members or City Hall Staff. You may also contact the City Manager's office if you would like to have an item placed on a future agenda to address the Council as a whole. (Guidelines are available in the Council Chambers and in City Hall Lobby.)



TRANSPORTATION • ENVIRONMENTAL • INFRASTRUCTURE • MUNICIPAL

July 11, 2023

City of Bethany  
Ms. Elizabeth Gray  
6700 NW 36<sup>th</sup> Street  
Bethany, Oklahoma 73008

**Re: NW 23<sup>rd</sup> Street & Council Road Intersection Emergency Repairs**

Dear Ms. Gray,

The City of Bethany staff identified a possible waterline break due to significant reductions in water tower elevations on Sunday morning. With no surface leaks visible, staff began inspecting storm sewer outfalls and identified significant flows with a strong chlorine odor at the Eagle Lane outfall Sunday afternoon. Staff moved upstream of the outfall and pinpointed the leak at the NW 23<sup>rd</sup> Street and Council Road intersection Sunday night. Matthews Trenching mobilized to the intersection and located the broken line at 11:00 p.m. Matthews Trenching uncovered a collapsed waterline and a large cavern.

The first priorities were to secure the site, acquire water from OKC, and stop the water leak. Barricades were installed blocking two lanes on the northeast quadrant of the intersection. The concrete street was removed exposing a large cavern and a collapsed 12" waterline as shown in Figure 1.



FIGURE 1 – COLLAPSED 12" WATERLINE

The City of Bethany crew was able to stop the flow on the north leg of the 12" waterline, however, the flow could not be stopped on the east leg of the waterline. To be able to stop all water flow, a new 12" gate valve was installed approximately 40' east of the 12" line collapse on Monday night as shown in Figure 2.



FIGURE 2 – 12" GATE VALVE INSTALLED

With the new valve installed and closed, the water system is filling the water tanks. We have reached out to the businesses on the northwest corner and have confirmed they have water service. Tuesday morning, the repair to the collapsed 12" line is being completed.

Further investigation of the site revealed that a large (57" x 36"), over 60-year-old corrugated metal drainage pipe was below the collapsed 12" waterline as shown in Figure 3.



FIGURE 3 – CORRUGATED METAL PIPE & BAND

The metal band that connects the two joints failed, allowing drainage water to erode around the pipe. Over a long period of time, the soil around the drainage pipe eroded creating the large cavern. With the loss of the soil, the waterline was unsupported and collapsed. Once the waterline collapsed, hundreds of thousands of gallons of water continued to erode the soil and eventually seeped back into the corrugated metal drainage pipe. The overall storm sewer outfall with the specific waterline failure is shown in Figure 4.

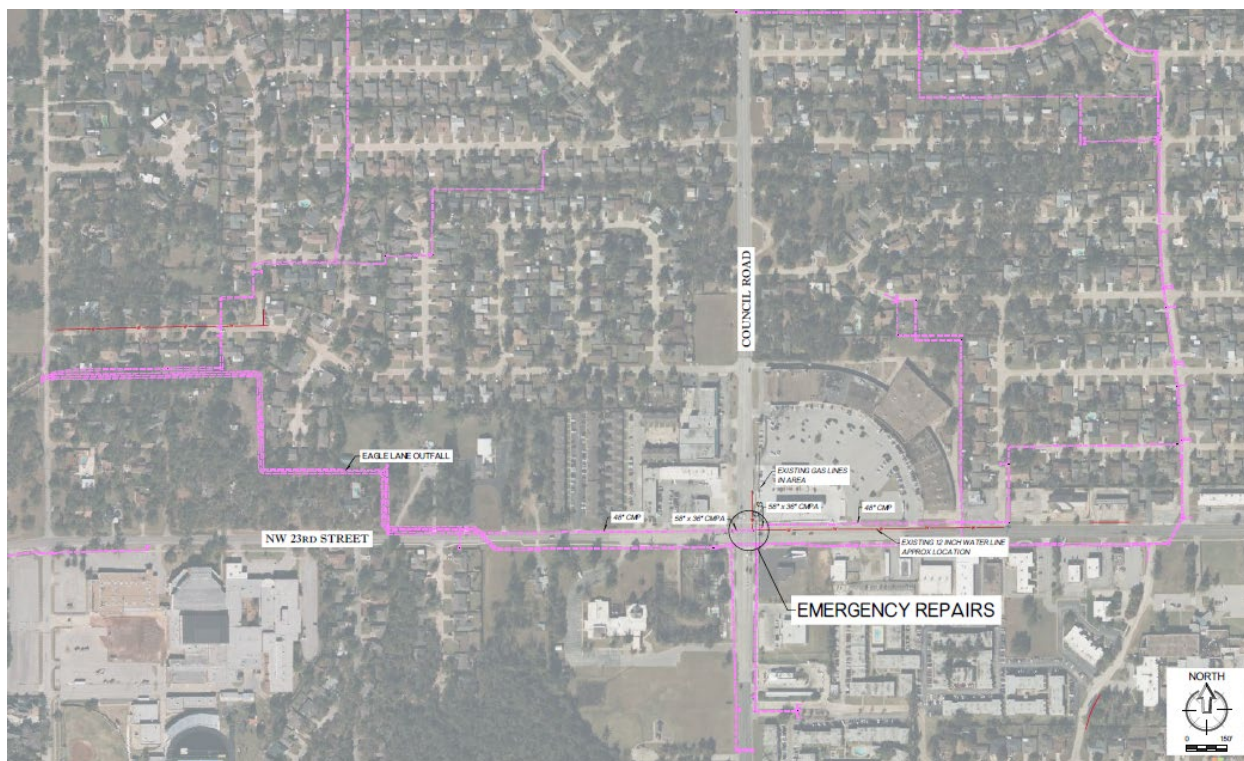


FIGURE 4 – REPAIR LOCATION

### **Waterline Repairs**

Extensive effort was displayed by Bethany Staff and Matthews Trenching to repair the waterline. To restore water pressure, employees worked around the clock beginning early Sunday morning and extending through late Tuesday night. The emergency repair for the 12" waterline is estimated at approximately \$40,000 with Matthews Trenching invoice forthcoming.

### **Storm Sewer Repairs**

TEIM Design developed two options for repairing the corrugated metal storm sewer pipe. Both options were developed without results from nondestructive testing downstream of the emergency waterline repair. TEIM contracted with Standard Testing to begin testing for possible subgrade voids. The testing is projected to begin 7-15-23.

## Option 1

Option 1 replaces the arched corrugated metal pipe with an arched reinforced concrete pipe from the east junction box to the failed corrugated metal joint. A concrete collar will be placed around the new concrete arch pipe and existing corrugated metal pipe. The storm sewer repairs will essentially extend across two lanes of Council Road. Concrete repairs will include the pavement section to install the 12” gate valve and the new storm sewer. The engineer’s cost opinion is \$235,705 with the detailed cost opinion shown in Table 1.

23rd and Council Road Intersection Repair RCP (East Half Intersection)					
Pay Item	Description	Units	Quantity	Quantity Price	Total Price
1	Design Services, Construction Administration and Testing Services	LSUM	1	\$ 22,000.00	\$ 22,000.00
2	Contingency (Including Emergency Phased Construction) (30%)	LSUM	1	\$ 44,200.00	\$ 44,200.00
3	Mobilization (15%)	LSUM	1	\$ 22,100.00	\$ 22,100.00
4	Traffic Control	LSUM	1	\$ 30,000.00	\$ 30,000.00
5	12-Inch P.C. Concrete Pavement (High Early Strength)	SY	150	\$ 200.00	\$ 30,000.00
6	6-Inch Integral Curb	LF	12	\$ 25.00	\$ 300.00
7	Saw Cutting	LF	75	\$ 15.00	\$ 1,125.00
8	Aggregate Base (ODOT Type A)	Ton	310	\$ 75.00	\$ 23,250.00
9	58-Inch x 36-Inch Arched RCP	LF	30	\$ 406.00	\$ 12,180.00
10	Concrete Collar	EA	2	\$ 5,000.00	\$ 10,000.00
11	Pressure Grouting	LSUM	1	\$ 25,000.00	\$ 25,000.00
12	Sodding	LSUM	1	\$ 1,500.00	\$ 1,500.00
13	Valve Stem/Operator	EA	1	\$ 1,500.00	\$ 1,500.00
14	Reset Oklahoma Natural Gas Valve Operator	EA	1	\$ 500.00	\$ 500.00
15	Striping	LSUM	1	\$ 4,500.00	\$ 4,500.00
16	Structrual Removal (58-Inch x 36-Inch Arch CGMP)	LF	30	\$ 100.00	\$ 3,000.00
17	Pavement Removal	SY	130	\$ 35.00	\$ 4,550.00
				<b>Total</b>	<b>\$ 235,705.00</b>

TABLE 1  
OPTION 1 - DETAILED COST OPINION

## Option 2

Option 2 replaces the arched corrugated metal pipe with watertight, o-ringed reinforced concrete pipe. Two existing brick junction boxes under Council Road will be replaced with pre-cast concrete junction boxes. The new o-ringed pipe will connect the two new junction boxes. The storm sewer repairs will extend across all lanes of Council Road. Concrete repairs will include the pavement section to install the 12" gate valve and the new storm sewer. The engineer's cost opinion is approximately \$512,000 with the detailed cost estimate shown in Table 2.

23rd and Council Road Intersection Repair (Full Reconstruction)					
Pay Item	Description	Units	Quantity	Quantity Price	Total Price
1	Design Services, Construction Administration and Testing Services	LSUM	1	\$ 28,000.00	\$ 28,000.00
2	Contingency (Including Emergency Phased Construction) (30%)	LSUM	1	\$ 100,000.00	\$ 100,000.00
3	Mobilization (15%)	LSUM	1	\$ 50,000.00	\$ 50,000.00
4	Traffic Control	LSUM	1	\$ 60,000.00	\$ 60,000.00
5	12-Inch P.C. Concrete Pavement (High Early Strength)	SY	250	\$ 200.00	\$ 50,000.00
6	6-Inch Integral Curb	LF	12	\$ 25.00	\$ 300.00
7	Saw Cutting	LF	175	\$ 15.00	\$ 2,625.00
8	Aggregate Base (ODOT Type A)	Ton	655	\$ 75.00	\$ 49,125.00
9	48-Inch Reinforced Concrete Pipe (O-Ring)	LF	60	\$ 315.00	\$ 18,900.00
10	6 ft by 6 ft Junction Box	EA	2	\$ 35,000.00	\$ 70,000.00
11	Waterline Relocation (12-inch)	LSUM	1	\$ 40,000.00	\$ 40,000.00
12	Sodding	LSUM	1	\$ 1,500.00	\$ 1,500.00
13	Valve Stem/Operator	EA	1	\$ 1,500.00	\$ 1,500.00
14	Reset Oklahoma Natural Gas Valve Operator	EA	1	\$ 500.00	\$ 500.00
15	Striping	LSUM	1	\$ 9,000.00	\$ 9,000.00
16	Structrual Removal (58-Inch x 36-Inch Arch CGMP)	LF	60	\$ 100.00	\$ 6,000.00
17	Structrual Removal (Junction Box)	EA	2	\$ 10,000.00	\$ 20,000.00
18	Pavement Removal	SY	230	\$ 20.00	\$ 4,600.00
				<b>Total</b>	<b>\$ 512,050.00</b>

TABLE 2  
OPTION 2 - DETAILED COST OPINION

If you have any further questions, please do not hesitate to contact me.

Sincerely,



Joe B. Davis, P.E.  
President