



Request for Proposals

FOR

Conduit/Fiber Placement Project

Proposals Due:

July 19, 2021

2:00 P.M.

City Hall

Auditors Department

225 4th St N

Fargo, ND 58102

701-241-1324

I. Overview

The City of Fargo wants to connect fiber to the Sheyenne Lift Station and to connect between our 3 of our Communications Sheds to the Water Tower bases. Also, The City of Fargo wants to connect to our Landfill Buildings.

II. Background

The City of Fargo is the most populous city in North Dakota, with a population over 125,000. Over 20 different departments plan, track, and manage capital projects/purchases across a wide array of funding sources.

III. Scope of Work

The attached specifications and diagrams show the routes to establish connections to the water towers and other locations.

Below is an estimated breakdown from the diagrams of the quantities needed for the conduit and fiber.

**Route #01
(Sheyenne)**

	52nd Ave to Sheyenne Lift Station
12 SM Fiber Optic Cable	
2" HDPE Conduit (Trace Wire Incidental)	
Fiber Splices	
450 FOSC Splice Enclosure	
Concrete Polymer Vault	

**Route #02
(WT10)**

	64th Ave S Water Tower (WT10)
Routing & Fiber Splices/Terminations	

**Route #03
(WT11)**

	32 nd Ave S/43 rd St. Water Tower (WT11)
12 SM Fiber Optic Cable	
2" HDPE Conduit (Trace Wire Incidental)	
Fiber Splices/Terminations	

**Route #04
(WT07)**

	45 th St Water Tower (WT07)
12 SM Fiber Optic Cable	
2" HDPE Conduit (Trace Wire Incidental)	
Fiber Splices/Terminations	

**Route #05
(Landfill)**

	7 th Ave N to Maintenance Building & Household Hazardous Waste Building
12 SM Fiber Optic Cable	
2" HDPE Conduit (Trace Wire Incidental)	
Fiber Splices	
450 FOSC Splice Enclosure	
Concrete Polymer Vault	
24" PVC Pull Box	

Route #2 goes from the Communications Shed to the Water Tower base. Underground conduit connects the locations. Fiber is already placed in this route. The fiber is coiled in the Water Tower base. But, the fiber route needs to be completed on each end. This includes routing the fiber to the racks, termination on the racks, and testing of the fiber.

Route #3 goes from the Communications Shed to the Water Tower base. Underground conduit connects the locations. Fiber needs to be placed through this underground conduit, routed inside each location, terminated in the racks, and tested.

Route #4 goes from the Communications Shed to the Water Tower base. Outdoor overhead cable trays connect the locations. Fiber needs to be placed between the locations using the overhead cable tray, routed inside each location, terminated in the racks, and tested.

Route #5 connects our current fiber plant to future Landfill Maintenance Building and to the household hazardous Waste Building.

The City will provide information requested by an Offeror. Please specify additional data, if any, required from the City in your proposal.

IV. Submission Requirements

Offerors should submit the proposed costs based on the layout below. Late Proposals cannot be accepted and will be returned unopened to the Offeror.

Base Bid	Routes		Cost:
Part 1	01	52 nd Ave to Sheyenne Lift Station	\$
	02	64 th Ave S Water Tower (WT10)	\$
	03	32 nd Ave S/43 rd St. Water Tower (WT11)	\$
	04	45 th St Water Tower (WT07)	\$
		Part 1 Total:	\$
Part 2	05	7 th Ave N to Maintenance Building & Household Hazardous Waste Building	\$
			Part 2 Total:
Any Added Addendums			\$
		Addendum Total:	\$
		Base Bid Total:	\$

Offeror can add any additional information to their proposal for clarification.

V. Questions and Answers

All questions related to this Request for Proposal should be emailed to rgronneberg@cityoffargo.com.

The answers to Offeror's questions will be compiled and posted on the same website used for downloading the RFP, either as an addendum, or as *Project Q&A*. Offerors shall bear the responsibility for checking the website for *Project Q&A*, which will only be visible if there are any questions answered. Failure to do so may result in the Offeror not receiving all clarifications necessary to present a responsive Proposal.

VI. Projected Timetable

The City reserves the right to modify the timeline if necessary.

RFP Available for Viewing	July 7, 2021
Proposals Due	2:00 PM July 19, 2021
Estimated date for Commission Approval	July 26, 2021
Work Completed	Nov. 1, 2021

VII. Summary

The City reserves the right to reject any/all Proposal(s) or accept what is, in its judgment, the Proposal which is in the City's best interest. The City further reserves the right, in the best interests of the City, to waive any technical defects or irregularities in any/all Proposal(s) submitted.

Submit Proposals in accordance with the conditions set forth. Late or faxed Proposals will not be accepted.

Reference: [Ad Number RFV21124]

ATTACHMENTS

Specifications.docx – Provides details on the conduit, vaults and fiber.

Route-01_Sheyenne Lift Station Shey Lift Station.pdf

Route-02_64th-WT.png

Route-03_32nd-Ave-WT.png

Route-04_45th-St-WT.png

Route-05_12th Ave_Landfill.pdf

1. LOCATION OF EXISTING UTILITIES

- A Existing utilities have been shown to direct the Contractor's attention to their existence. Such utilities have been plotted from record drawings. The location of private utilities shown on the plans are approximate.
- B The Contractor is cautioned that not all existing utilities may be shown. The location of existing utilities is not guaranteed, and the Contractor will be responsible for determining the exact location and protection of the existing utilities. The Contractor, before commencing any excavation or construction, shall find out the location and seek aid in locating all public and private utilities. The Contractor shall contact ND One-Call 1-800-795-0555 and request locates prior to beginning construction. Sub cutting or scarifying over utility lines may be eliminated if, in the opinion of the Engineer, a hazardous situation exists.
- C The Contractor is responsible for verifying and following minimum horizontal and vertical clearance between light and/or signal standards and overhead power lines.

2. PULL BOXES

2.1 Furnish and Install Pull Box

- A. This shall include the cost to supply and install a Pull Box. The pull box shall be manufactured by Channell, and be Grade Level box BULK 4. The size shall be 24" x 30" x 48" deep, part number BULKU243648J061010. The cover shall be Composite and be rated for 33,750 lbs of proof load. Cover shall be secured with stainless steel bolts, and have a logo of "Traffic Signals", and color shall be gray
- B. Pull boxes in landscaped areas shall have the top of the box level with the final grade and sloped to match the slope of the final grade on all four quadrants. Pull boxes in concrete area shall be set with the top of the box flush with the final grade at all four quadrants.
- C. ALL pull boxes and covers SHALL be a minimum of 24" from the back of the curb unless approved by the engineer.

- D. All boxes shall have a minimum of 2' of pea rock below for drainage, and backfill around pullboxes shall be a Class 3 gravel with 90% compaction.

2.2 Furnish and Install Fiber Vault

- A. This shall include the cost to supply and install a Fiber Vault. The vault shall be manufactured by Channell, and be Grade Level box BULK 7. The size shall be 30" x 48" x 48" deep, part number BULKU304848J061010. The cover shall be Composite and be rated for 33,750 lbs of proof load. Cover shall be secured with stainless steel bolts, and have a logo of "Traffic Signals", and color shall be gray.
- B. Two feet of pea rock shall be installed for drainage below the pull box, will extend 6" beyond the outside edge of pull box, and backfill around pullboxes shall be a Class 3 gravel with 90% compaction. The box shall be a minimum of 4' from the back of curb, and the top of box shall be at final grade and sloped to match. A 6' x 6' concrete pad shall be installed around the IT-Pull box. The concrete pad shall be 6" thick, reinforced with 6" x 6" x 10 GA welded wire fabric and shall be incidental to the price bid for IT-Pull Box. All conduit entrances shall be a minimum of 24" from top of box. ALL conduits shall extend into pull box a minimum of 2" and a maximum of 3".

3. COMMUNICATION CABLE

- A. The communication cable shall be a 12 to 144-strand single mode fiber optic cable (see plans or notes for fiber count) suitable for outside plant operations manufactured by OCC Fiber, Corning, Superior Essex, or approved equal. The cable shall be a loose tube, single jacket, all dielectric cable design. The buffer tubes can be non or-gel filled, and the cable shall have a dielectric central strength member and a dry water blocking system. Tube colors shall follow fiber industry color standards.
- B. The fiber optic cable shall be dual window single-mode fiber with a maximum attenuation of 0.35 db/km at 1310 wavelength and maximum attenuation of 0.25 db/km at 1550 wavelength and shall meet or exceed Ethernet transmission standard IEEE 802.3ae.
- C. Fiber cable construction shall be loose tube gel-filled color-coding per TIA/EIA 598B standards. The Central Strength member shall contain no metallic

conductors. The overall strength member shall be aramid fiber yarn or fiberglass; the inner jacket shall be black UV and moisture resistant PE. The outer jacket will be black UV and moisture resistant PE with sequential meter markings.

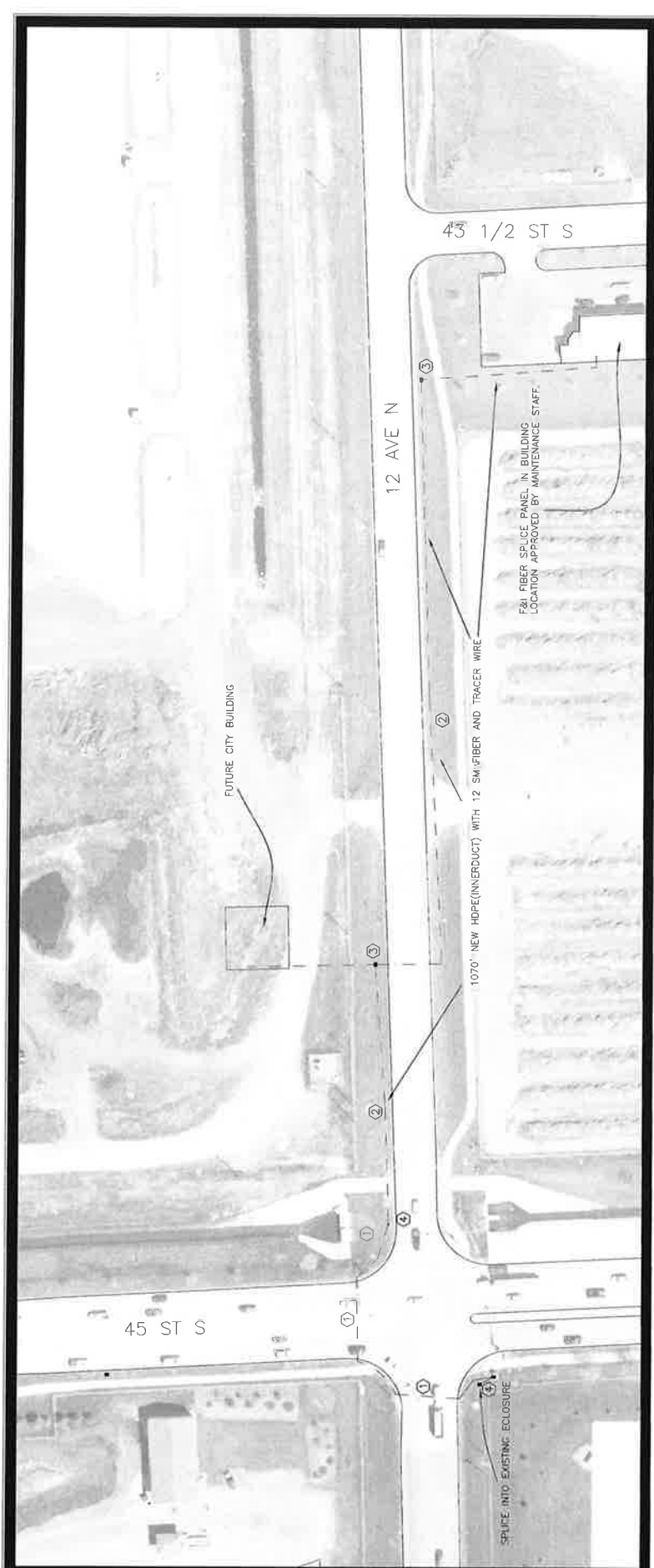
- D. Fiber optic cable insulation shall have a maximum tensile load of 600 lbs. for installation and 200 lbs. for in-service load. The minimum bend radius shall be 20XOD for installation and 10XOD for in-service.
- E. The item "Communication Cable" will be measured by the linear foot. The quantities measured will be paid for at the contract price and shall be full compensation for all labor, equipment, and material necessary to complete the installation of the communication cable.
- F. Cables or inner duct shall be carefully inspected by the Contractor during placement operation to be certain that the fiber optic cable and inner duct are free from damage before placement.
- G. Bends of small radii and twists that might damage cable or wire shall be avoided. During the placement operation, fiber optic cable shall not be bent in a radius less than 20 times the outside diameter of the cable.
- H. Care is to be exercised during the placing operation, to feed the cable into the inner duct loosely and at no tension. Equipment and construction methods shall be such as to assure compliance with this requirement. The Contractor shall furnish competent supervision at all times at the site of cable placing operations to assure compliance with this requirement.
- I. Every instance of damaged cable or wire observed at any time whether prior to installation, occurring during construction, or discovered by test of observation subsequent to installation in plant, shall be immediately called to the attention of the Engineer. The method of repair or correction of such damage shall be in accordance with the written instructions of the Engineer. The Contractor shall promptly repair such damage or make such corrections in accordance with such written instruction of the Engineer. Minor damage to the outer jacket of the cable or wire observed prior to or occurring during construction shall be repaired in accordance with RUS Splicing Standard Bulletin 1753F-401 (PC-2).
- J. The Contractor shall use a break-away swivel rated for 600 lb. break load for pulling all fiber optic cables.

- K. The Contractor shall include an **ORANGE** No. 12 Copper Clad Trace Wire with HDPE insulation, rated at a minimum 250 LB of breaking load, running the full length and parallel to each communication cable installed in conduits as a trace wire. This is not a separate bid item. The cost shall be included in the price bid for communication cable. The trace wire shall be labeled with the intersection address that it connects to. If the distance is too long to have a trace wire unspliced then the Contractor may splice the trace wire with an approved underground splice connector. Dead end of all runs shall be grounded.
- L. The Contractor shall provide 30' of slack cable in each pull box and 150' slack for each cable at the cabinet pull box where termination or splicing will occur or 85' of slack if the fiber cable is completely cut and is the end of the fiber run. The Contractor shall remove 10' of each cable end that was used to pull cable prior to installing the required amount of slack to be left in the pull box. Contractor is required to contact the Engineer in the field to discuss all footages left in pull boxes and what is needed for splicing before pulling in fiber and cutting it.
- M. The price bid for Fiber Optic Terminations and Equipment shall include all necessary connectors, terminations, equipment, labor and all other miscellaneous material to install a fully functional communication system including, but not limited to, the following:
1. ONLY fusion splicing is allowed.
 2. Supplying and installing all OCC fiber optic distribution panels, or approved equals as per plan sheet.
 3. OCC Fiber distribution enclosure. Standard is a ZDMB6B enclosure, or approved equal. Adapter plates shall be 6112DLC, or approved equal. Adapter plate may vary depending on the number of fibers to be landed in the signal cabinet. See fiber splice diagrams for details.
 4. Distribution panel labels shall be labeled with the intersection address/building of the cable's other end, the port group as shown on the detail, and the number of the fiber strand terminated, and placed on the face of the distribution panel adjacent to the cable's fiber ports.

5. Labeling all fiber cables, fiber tubes, trace wires, fiber pigtails, fiber distribution panels, fiber scalability centers, fibers jumpers, and all individual terminated fibers.
6. When all terminations are complete, the City of Fargo must inspect all splices inside the FOOSC enclosures before the fiber optic communication system can be put into use. Contractor must set up a time to have the cases inspected, Contractor must open splice cases and show all splices and fiber tubes inside the splice case to the Engineer in the field. All fiber tubes shall be labeled inside the splice enclosure.
7. The Contractor shall test all terminated fibers at both ends with an OTDR tester and light meter recording the results on a City of Fargo Fiber Test Report Form and providing a computer printout from the OTDR of each fiber tested. If multi-mode fiber tests at 850 NM and 1300 NM are not within the City of Fargo standards of .5 dB loss for each Type of connector at the bulkhead, .2 dB loss for each fusion splice, and .1 dB loss per 100 feet for 850 NM and .1 dB loss per 300 feet for 1300 NM of fiber being tested, then the Contractor shall repair/replace and the Contractor shall re-test the fiber with City personnel present. If single-mode fiber tests at 1310 NM and 1550 NM are not within the City of Fargo standards of .5 dB loss for each Type of connector at the bulkhead, .2 dB loss for each fusion splice, .1 dB loss per 600 feet for 1310 NM and .1 dB loss per 750 feet for 1550 NM of fiber being tested, then the Contractor shall repair/replace and the Contractor shall re-test the fiber with City personnel present. All fiber shall be tested at each end. Any terminated fiber run that doesn't meet the testing tolerances specified shall be repaired/replaced by the Contractor. If any connectors or fusion splices fail, the Contractor shall repair the connection, if a fiber cable is

damaged or broke between connections the Contractor shall replace the entire cable between connections.

8. Single mode fiber when tested shall be allowed the following tolerances:
.1 dB per 600' (1310nm), .1 dB per 750' (1550nm) of fiber, .2 dB for each fusion splice, .5 dB for each Type of connector, and .5 dB for each end that is bare fiber tested.



45 1/2 ST S

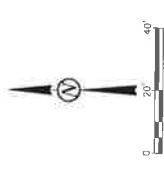
12 AVE N

45 ST S

- ① EXISTING DUCT WITH TRACE WIRE. F&I NEW 12SM APPROVED FIBER.
- ② F&I NEW 2" HDPE FIBER CONDUIT. F&I NEW 12SM FIBER
- ③ F&I NEW FIBER VAULT(S).
- ④ EXISTING PVC/CONCRETE TRAFFIC SIGNAL PULL BOX.

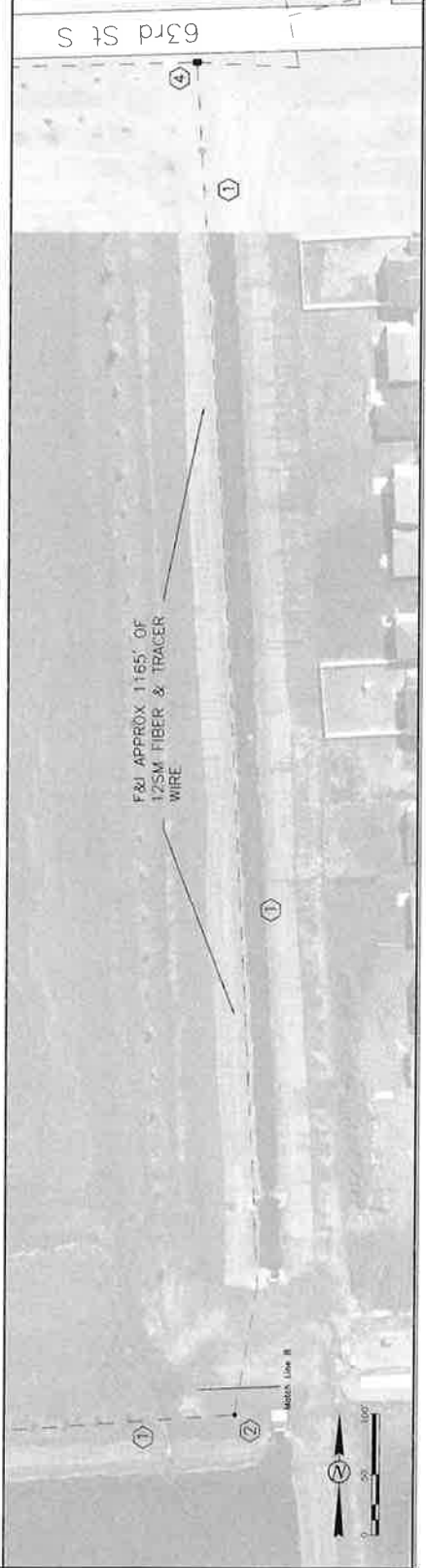
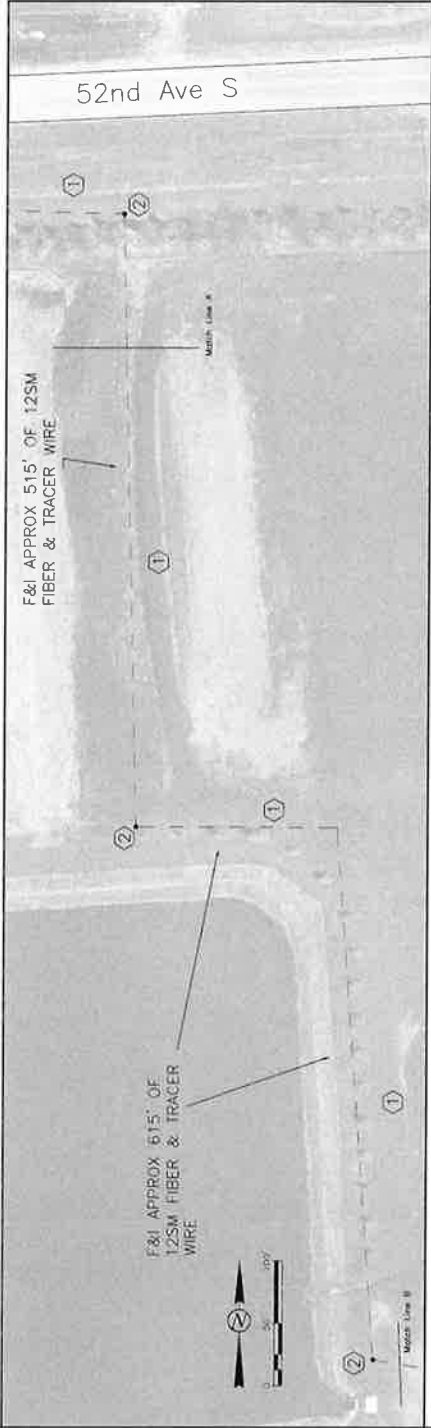
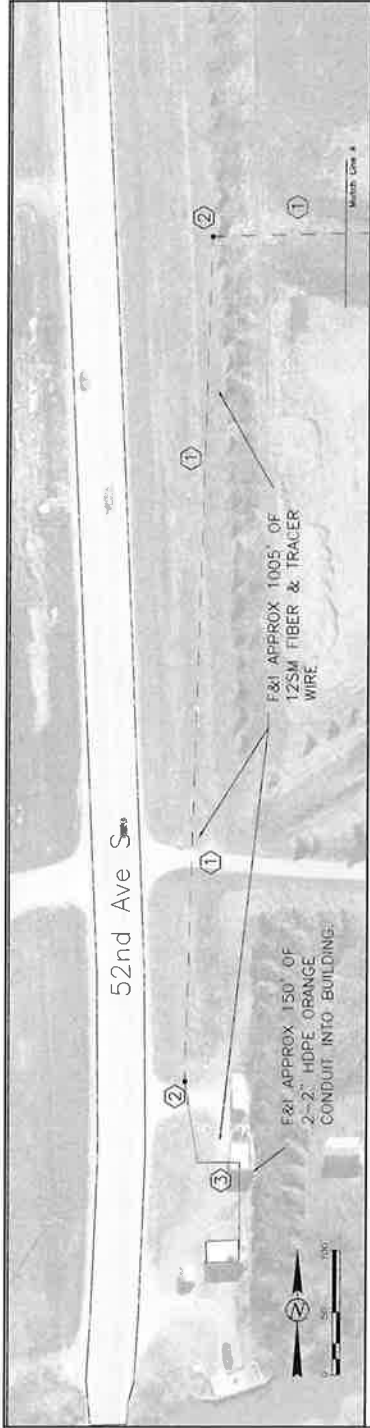
Approximate quantities:

- 2200' 12SM FIBER OPTIC CABLE
- 1070' 2" HDPE CONDUIT INSTALLED
- 2EA FIBER VAULTS
- 24EA FIBER SPLICES
- 8EA FIBER ENDS(LC)
- 1EA FIBER SPICE PANEL



REVISIONS	
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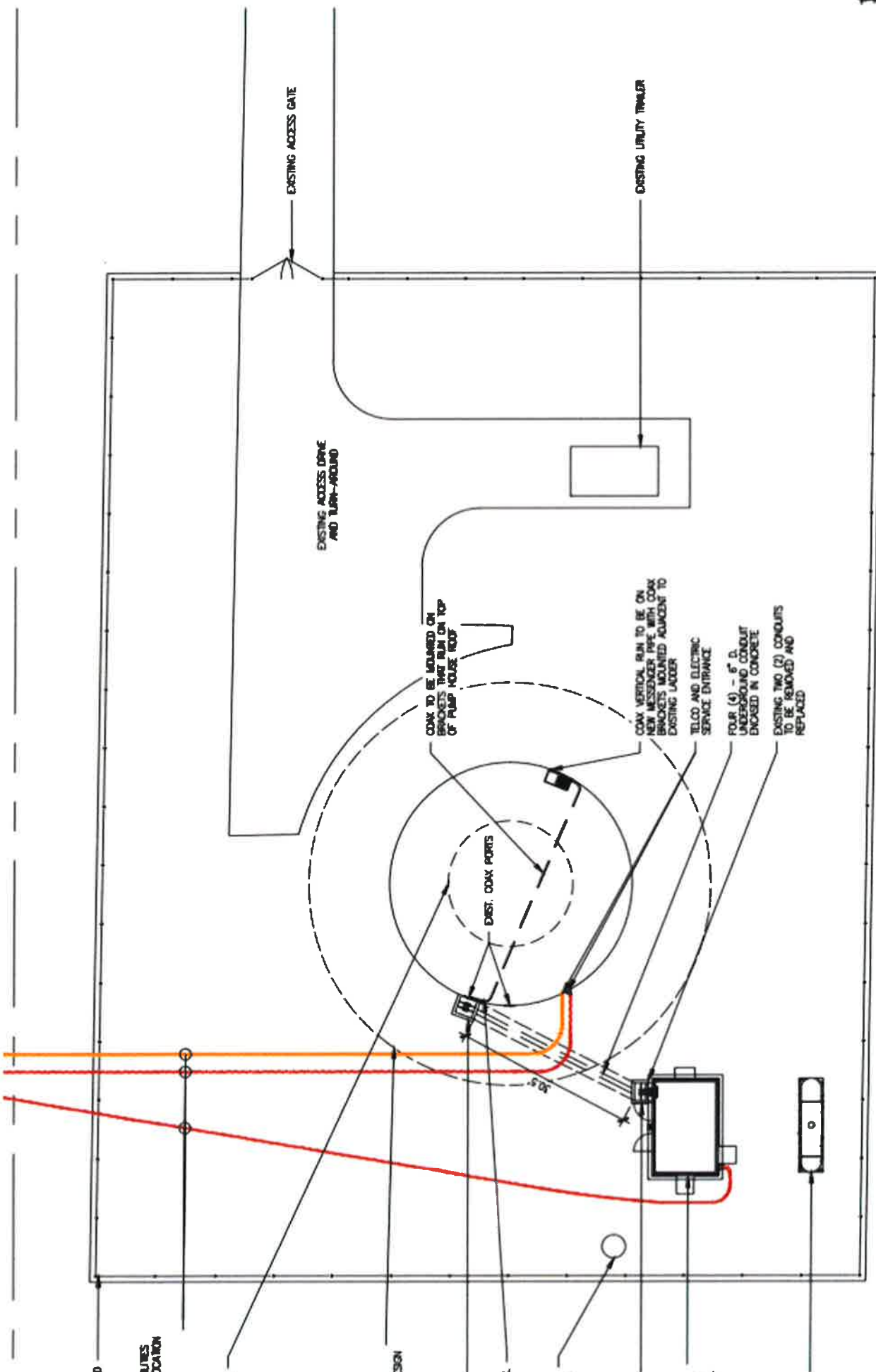
FIBER 32 Ave S Water Tower			
DESIGN BY: JAB	CHECKED BY: JAB	DATE: 03/17/2018	
DRAWN BY: JAB			
SECTION NO.		SHEET NO.	
160		3	
Fargo			



- ① F&I NEW 12SM FIBER WITH TRACE WIRE INTO EXISTING DUCT.
 - ② EXISTING PVC PULL BOXES.
 - ③ F&I NEW 2-2" HDPE ORANGE CONDUITS WITH 12SM FIBER AND TRACER WIRE.
 - ④ EXISTING CONCRETE POLYMER TRAFFIC SIGNAL VAULT.
- TOTAL APPROXIMATE QUANTITIES:
 -400' of HDPE Conduit
 -3500' of 12SM Fiber w/tracer wire.

REVISIONS	
①	②
SEAL	
FIBER CONDUIT TO GSR	
DESIGN BY: JLF	CHECKED BY:
DRAWN BY: JLF	DATE: 04/12/2018
SECTION NO.	SHEET NO.
160	1





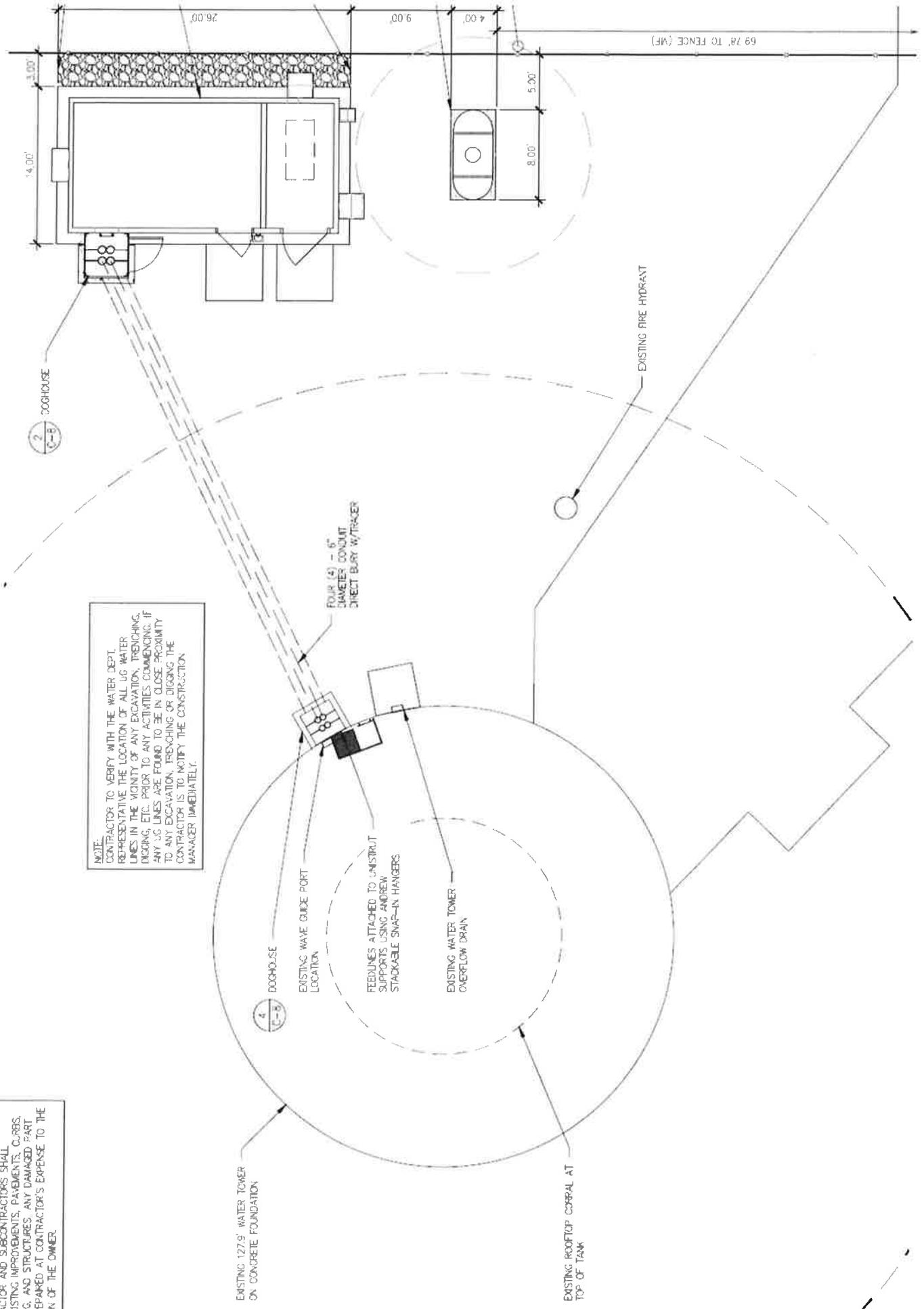
Enlarged Site Plan

 MISSION 1 <small>6322 Constitution Drive, Suite C Fort Wayne, IN 46825</small>				ENLARGED SITE PLAN	C-
				64TH AVENUE WT 64TH AVENUE S FARGO, ND 58104	

CAO MA	
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BT	OK APP

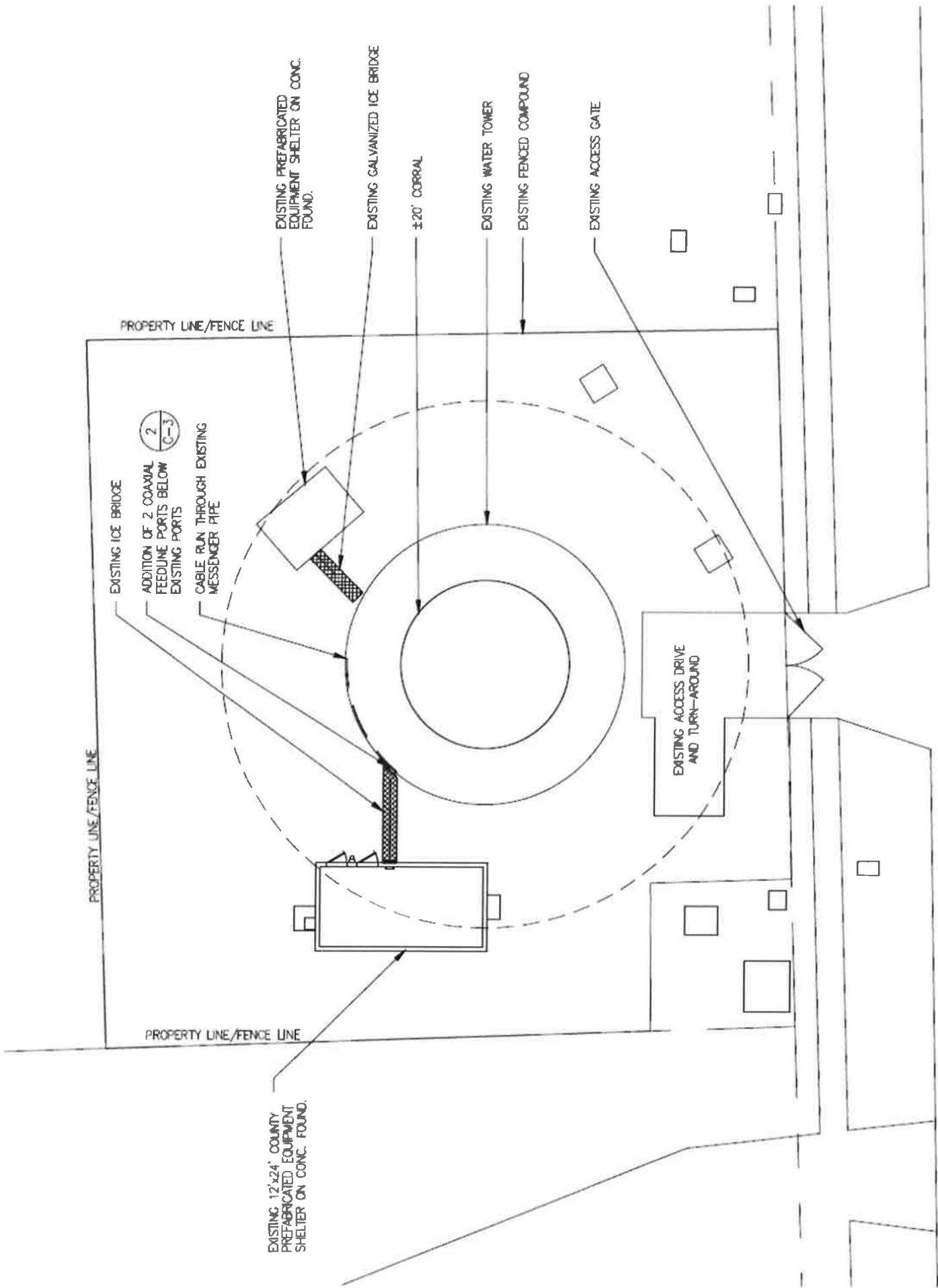
NOTE:
 THE CONTRACTOR AND SUBCONTRACTORS SHALL
 PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS,
 LANDSCAPING, AND STRUCTURES. ANY DAMAGED PART
 SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE
 SATISFACTION OF THE OWNER.

NOTE:
 CONTRACTOR TO VERIFY WITH THE WATER DEPT.
 REPRESENTATIVE THE LOCATION OF ALL UG WATER
 LINES IN THE VICINITY OF ANY EXCAVATION, TRENCHING,
 DIGGING, ETC. PRIOR TO ANY ACTIVITIES COMMENCING. IF
 ANY UG LINES ARE FOUND TO BE IN CLOSE PROXIMITY
 TO ANY EXCAVATION, TRENCHING OR DIGGING THE
 CONTRACTOR IS TO NOTIFY THE CONSTRUCTION
 MANAGER IMMEDIATELY.



Enlarged Site Plan





Enlarged Site Plan