

**VILLAGE OF TUSCARAWAS
TUSCARAWAS COUNTY, OHIO**

WATER SYSTEM IMPROVEMENTS

ADDENDUM #1

MARCH 30, 2021

THRASHER PROJECT #101-010-10001

TO WHOM IT MAY CONCERN:

A Pre-Bid Conference was held on March 23, 2021 on the above-referenced project, a copy of the sign-in sheet is included in this Addendum. The following are clarifications and responses to questions posed by contractors for the above-referenced project.

A. SPECIFICATIONS

1. Added Specification 263200 – Transfer Switches in its entirety.
2. Added Specification 263213 – Packaged Natural Gas Engine Generators in its entirety.
3. Under Specification 466121 – Pressure Filters, 2.1.K.1.a, the “Rinse to Waste” valve shall be a 4-inch.
4. Revised Advertisement for Bid.

Under C-111, Advertisement for Bid

- a. Page 1, Substantial completion of 510 days has been revised to 456 days.
 - b. Page 1, Ready for final payment within 18 months has been revised to 14 months.
 - c. Page 2, Bid Bond of ten percent (10%) has been revised to five percent (5%).
 - d. Page 2, A Bidder may not withdraw his Bid for a period of thirty (30) days, has been revised to sixty (60).
 - e. Page 2, the words Bid Guarantee have been revised to say Bid Bond.
5. Revised Page BOR-1 is attached to Addendum.

Under BOR Checklist, American Iron and Steel Acknowledgement form and DBE Forms have been added to the Checklist.

B. DRAWINGS

1. Replace Plan Sheet D1 in its entirety. Sheet has been revised to show recent waterline changes. Revised Plan Sheet D1 is attached to Addendum.
2. Plan Sheet C3, added note number 5, “At completion of project, access drive must meet or exceed existing conditions.” Revised Plan Sheet C3 is attached to Addendum.
3. Replace Plan Sheet C4 in its entirety. Drawing has been revised to show recent waterline changes. Addition Notes 1-4 added explaining existing control system relocation. Revised Plan Sheet C4 is attached to Addendum.
4. Replace Plan Sheet C6 in its entirety. Drawing revised to show recent waterline changes with proposed connection to existing waterline revised. Add notes number 5-7. Revised Plan Sheet C6 is attached to Addendum.
5. Replace Plan Sheet P1 in its entirety. “Relocated Antenna” shown connected to proposed water storage tank in details. Revised Plan Sheet P1 is attached to Addendum.

C. QUESTIONS AND RESPONSES

QUESTION

1. American Iron and Steel Acknowledgement Form is not listed on the BOR checklist. Was this an error or does it not need to be included?

RESPONSE

The American Iron and Steel Acknowledgement Form shall be included per Article 7.01.B of the Bid Form, as well as the revised BOR Checklist.

QUESTION

2. When was the reservoir last cleaned?

RESPONSE

The reservoir was last cleaned out 3 years ago.

QUESTION

3. What is the percentage of DBE?

RESPONSE

The current negotiated goals for construction related activities are 1.3% of all contracts to MBEs and 1.0% of all contracts to WBEs.

QUESTION

4. Is the project Federal or State prevailing wages?

RESPONSE

Federal Wage Rates.

QUESTION

5. Who is the prevailing wage coordinator?

RESPONSE

Prevailing wage coordinating will be through the Village of Tuscarawas.

QUESTION

6. Where are the boring locations? Where is that information?

RESPONSE

A geotechnical report is available once the Contractor submits a signed Geotechnical Waiver Form to Thrasher. A blank geotechnical waiver form is provided with this addendum.

QUESTION

7. Who is doing certified payroll?

RESPONSE

Thrasher will review the certified payrolls.

QUESTION

8. Do all bidders need a contractor's license?

RESPONSE

Per Article 25 on page 10 of C-200, Instructions to Bidders, All bidders are required to have an Ohio Contractor's License per Section 4740 of the Ohio Administrative Code. Also, all subcontractors shall furnish their contractor's license number to the prime contractor prior to the award of the contract.

QUESTION

9. Please confirm what type of bid bond & the percentage is required for this bid? The Advertisement for bids says 10% on page 1, and then says a Bid Guarantee on page 2, and the Instructions to Bidders says 5%.

RESPONSE

The Bid Bond amount is 5%.

QUESTION

10. Is the video and protection of the septic tank part of the Access Drive item?

RESPONSE

Yes. The septic tank shall be pumped out and the contents properly disposed of at a wastewater treatment facility and videotaped for pre-construction condition documentation and the septic tank shall be protected by the Contractor from damage during construction.

QUESTION

11. Who is the tank manufacturer?

RESPONSE

12. The tank was designed based on Aquastore. Approved equal water tanks are acceptable for this project.

QUESTION

13. On sheet A3.01A, is the roof design for the control building what was intended?

RESPONSE

Yes.

If you have any questions or comments, please feel free to contact me at your earliest convenience. As a reminder, bids will be received until 10:30 a.m. on Wednesday, April 7, 2021 at 212 E Cherry St, Tuscarawas, OH, 44682.

Good luck to everyone and thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.



Scott Wangler, P.E.
Project Manager



**VILLAGE OF TUSCARAWAS
 TUSCARAWAS COUNTY, OHIO
 WATER SYSTEM IMPROVEMENTS**

**PRE-BID CONFERENCE
 Tuesday, March 23, 2021**

Thrasher Project #101-010-10001

Name	Representing	Phone #	Email Address
Kevin Tuggle	S.E.T., INC	(330) 719-9263	KEVIN@SETINC.COM
Ed Wilson	Tucson, Inc	330 440-5033	ewilson@tucsonohio.com
Kevin Lewis	OHIO LECET	614 315 1589	KLewis@OHIOLECET.COM
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David Dyer	Kinsey	240 922-3516	david@kinseyexcavating.com
RYAN SCHUSTER	THRASHER	330.451.2042 EXT: 6030	rschuster@thethrashergroup.com
Scott Waugler	Thrasher	330-451-2042	swaugler@TheThrasherGroup.com
DJ Meek	Village of Tuscarawas		
Dana Moore	Village of Tuscarawas		

Name	Representing	Phone #	Email Address
Joe Gotschall	Thrasher	330-451-2042	JGotschall@theThrasherGroup.com
Don Walkup	Village of Tuscarawas		
Harold Booth	Village of Tuscarawas		

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SECTION 263200 - TRANSFER SWITCHES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes transfer switches rated 600 V and less, including the following:

1. Automatic transfer switch.

1.2 SUBMITTALS

- A. Product Data: Include ratings and dimensioned plans, sections, and elevations showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
- B. Wiring Diagrams: Detail wiring for transfer switches and differentiate between manufacturer-installed and field-installed wiring. Show both power and control wiring.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article.
- D. Field Test Reports: Test and inspection results for compliance with performance requirements in Part 3.
- E. Maintenance Data: For each type of product to include in maintenance manuals. Include all features and operating sequences, both automatic and manual. List all factory settings of relays and provide relay-setting and calibration instructions, including software, where applicable.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Maintain a service center capable of providing emergency maintenance and repairs at Project site with an eight-hour maximum response time.
- B. Testing Agency Qualifications: Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the InterNational Electrical Testing Association and that is acceptable to authorities having jurisdiction.
1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies (Level 3 or higher), to supervise on-site testing specified in Part 3.
- C. Source Limitations: Obtain automatic transfer switch, bypass/isolation switch, remote annunciators, and remote annunciator and control panels through one source from a single manufacturer.

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- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, for emergency service under UL 1008, by a testing agency acceptable to authorities having jurisdiction.
- E. Comply with NEMA ICS 1.
- F. Comply with NFPA 70.
- G. Comply with NFPA 99.
- H. Comply with NFPA 110.
- I. Comply with UL 1008.

PART 2 - PRODUCTS

2.1 TRANSFER SWITCH

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Generac Industrial Power
 - 2. Cummins Power Generation
 - 3. Caterpillar, Inc.
 - 4. Kohler Co.

2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

- A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.
- B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
 - 1. Where Transfer Switch Includes Internal Fault-Current Protection: Rating of switch and trip unit combination exceeds indicated fault-current value at installation location.
- C. Solid-State Controls: Repetitive accuracy of all settings is plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.
- D. Resistance to Damage by Voltage Transients: Components meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- E. Neutral Terminal: Solid and fully rated, unless otherwise indicated.

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- F. Oversize Neutral: Ampacity and switch rating of neutral path through units indicated for oversize neutral are double nominal rating of circuit in which switch is installed.
- G. Enclosures: General-purpose NEMA 250, Type 1 complying with NEMA ICS 6; UL 508, unless otherwise indicated.
 - 1. Outdoor: NEMA 250, Type 3R stainless steel.
- H. Heater: Equip switches exposed to outdoor temperature and humidity conditions, and other units indicated, with an internal heater. Provide thermostat within enclosure to control heater.
- I. Factory Wiring: Train and bundle factory wiring and label consistent with Shop Drawings, either by color code or by numbered or lettered wire and cable tape markers at terminations.
 - 1. Designated Terminals: Pressure type suitable for types and sizes of field wiring indicated.
 - 2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
 - 3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.
- J. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.
- K. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
 - 1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
 - 2. Switch Action: Double throw; mechanically held in both directions.
 - 3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units rated 225 A and greater have separate arcing contacts.

2.3 AUTOMATIC TRANSFER SWITCHES

- A. Comply with Level 1 equipment according to NFPA 110.
- B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated.
- C. Manual Switch Operation: Under load, with door closed and with either or both sources energized. Transfer time is the same as for electrical operation. Control circuit automatically disconnects from electrical operator during manual operation.
- D. Manual Switch Operation: Unloaded. Control circuit automatically disconnects from electrical operator during manual operation.
- E. Programmed Neutral Switch Position: Switch operator has a programmed neutral position arranged to provide a midpoint between the two working switch positions, with an intentional, time-controlled pause at midpoint during transfer. Pause is adjustable from 0.5 to 30 seconds minimum and factory set for 0.5 second, unless otherwise indicated. Time delay occurs for both transfer directions. Pause is disabled, unless both sources are live.

2.4 AUTOMATIC TRANSFER-SWITCH FEATURES

- A. Undervoltage Sensing for Each Phase of Normal Source: Senses low phase-to-ground voltage on each phase. Pickup voltage is adjustable from 85 to 100 percent of nominal, and dropout voltage is adjustable from 75 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
- B. Time delay for override of normal-source voltage sensing delays transfer and engine start signals. Adjustable from zero to six seconds, and factory set for one second.
- C. Voltage/Frequency Lockout Relay: Prevents premature transfer to generator set. Pickup voltage is adjustable from 85 to 100 percent of nominal. Factory set for pickup at 90 percent. Pickup frequency is adjustable from 90 to 100 percent of nominal. Factory set for pickup at 95 percent.
- D. Time Delay for Retransfer to Normal Source: Adjustable from 0 to 30 minutes; factory set for 10 minutes. Provides automatic defeat of delay on loss of voltage or sustained undervoltage of emergency source, provided normal supply has been restored.
- E. Test Switch: Simulates normal-source failure.
- F. Switch-Position Pilot Lights: Indicate source to which load is connected.
- G. Source-Available Indicating Lights: Supervise sources via transfer-switch, normal- and emergency-source sensing circuits.
 - 1. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
 - 2. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."
- H. Unassigned Auxiliary Contacts: Two normally open single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.
- I. Transfer Override Switch: Overrides automatic retransfer control so automatic transfer switch will remain connected to emergency power source regardless of condition of normal source. Pilot light indicates override status.
- J. Engine Starting Contacts: One isolated, normally closed and one isolated, normally open, rated 10 A at 32-V dc minimum.
- K. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes; factory set for five minutes. Initiates shutdown at remote engine-generator controls after retransfer of load to normal source.
- L. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine-generator set and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 7-day exercise cycle, 20-minute running period, and 5-minute cool-down period. Exerciser features include the following:

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1. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.
2. Push-button programming control with digital display of settings.
3. Integral battery operation of time switch when normal control power is not available.

2.5 BATTERY CHARGER

- A. Switch mounted, pre-wired, current-limiting, automatic-equalizing and float-charging type. Unit complies with UL 1236 and includes the following features:
 1. Operation: Equalizing-charging rate of 10 A is initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit then automatically switches to a lower float-charging mode and continues operating in that mode until battery is discharged again.
 2. Automatic Temperature Compensation: Adjusts float and equalizes voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
 3. Automatic Voltage Regulation: Maintains output voltage constant regardless of input voltage variations up to plus or minus 10 percent.
 4. Ammeter and Voltmeter: Flush mounted in door. Meters indicate charging rates.

2.6 FINISHES

- A. Enclosures: Manufacturer's standard enamel over corrosion-resistant pretreatment and primer.

2.7 SOURCE QUALITY CONTROL

- A. Factory Test Components, Assembled Switches, and Associated Equipment: Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Floor-Mounted Switch: Level and anchor unit to floor.
- B. Identify components according to Division 26 Section "Basic Electrical Materials and Methods."

3.2 WIRING TO REMOTE COMPONENTS

- A. Match type and number of cables and conductors to control and communications requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.

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3.3 CONNECTIONS

- A. Ground equipment as indicated and as required by NFPA 70.

3.4 FIELD QUALITY CONTROL

- A. Testing: Test transfer-switch products by operating them in all modes. Perform tests recommended by manufacturer under the supervision of manufacturer's factory-authorized service representative. Correct deficiencies and report results in writing. Record adjustable relay settings.
- B. Testing: Owner will engage a qualified testing agency to perform the following field quality-control testing:
- C. Testing: Engage a qualified testing agency to perform the following field quality-control testing:
- D. Testing: Perform the following field quality-control testing under the supervision of the manufacturer's factory-authorized service representative in addition to tests recommended by the manufacturer:
 - 1. Before energizing equipment, after transfer-switch products have been installed:
 - a. Measure insulation resistance phase-to phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Meet manufacturer's specified minimum resistance.
 - b. Check for electrical continuity of circuits and for short circuits.
 - c. Inspect for physical damage; proper installation and connection; and integrity of barriers, covers, and safety features.
 - d. Verify that manual transfer warnings are properly placed.
 - e. Perform manual transfer operation.
 - 2. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
 - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
 - c. Verify time-delay settings.
 - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
 - e. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for one pole deviating by more than 50 percent from other poles.
 - f. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown sequence.
- E. Coordinate tests with tests of generator plant and run them concurrently.

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- F. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.

3.5 CLEANING

- A. After completing equipment installation, inspect unit components. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish.
- B. Clean equipment internally, on completion of installation, according to manufacturer's written instructions.

3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's personnel to adjust, operate, and maintain transfer switches and related equipment as specified below:
 - 1. Coordinate this training with that for generator equipment.
 - 2. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment.
 - 3. Review data in maintenance manuals.
 - 4. Schedule training with Owner, through Engineer, with at least seven days' advance notice.
 - 5. Provide a minimum of four hours of instruction.

END OF SECTION 263200

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SECTION 263213 - PACKAGED ENGINE GENERATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes packaged natural gas engine generator sets with the following features and accessories:
 - 1. Engine generator set.
 - 2. Muffler.
 - 3. Outdoor enclosure.
 - 4. Starting battery.

1.2 DEFINITIONS

- A. Standby Rating: Power output rating equal to the power the generator set delivers continuously under normally varying load factors for the duration of a power outage.
- B. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.
- C. Steady-State Voltage Modulation: The uniform cyclical variation of voltage within the operational bandwidth, expressed in Hertz or cycles per second.

1.3 SUBMITTALS

- A. Product Data: Include data on features, components, ratings, and performance. Include the following:
 - 1. Dimensioned outline plan and elevation drawings of engine generator set and other components specified.
 - 2. Thermal damage curve for generator.
 - 3. Time-current characteristic curves for generator protective device.
- B. Shop Drawings: Indicate fabrication details, dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 1. Wiring Diagrams: Detail wiring for power and control connections and differentiate between factory-installed and field-installed wiring.
- C. Field Test and Observation Reports: Test results and inspection records as specified in Part 3.
- D. Certified summary of prototype-unit test report.
- E. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.

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- F. Certified Summary of Performance Tests: Demonstrate compliance with specified requirement to meet performance criteria for sensitive loads.
- G. Factory Test Reports: For units to be shipped for this Project, showing evidence of compliance with specified requirements.
- H. Sound measurement test report.
- I. Maintenance Data: For each packaged engine generator and accessories. Include the following:
 - 1. Detail operating instructions for both normal and abnormal conditions.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Maintain a service center capable of emergency maintenance and repairs at the Project with eight hours' maximum response time.
- B. Source Limitations: Obtain packaged engine generator and auxiliary components specified in this Section through one source from a single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- D. Comply with NFPA 70.
- E. Comply with NFPA 99.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver engine generator set and system components to their final locations in protective wrappings, containers, and other protection that will exclude dirt and moisture and prevent damage from construction operations. Remove protection only after equipment is safe from such hazards.

1.6 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace packaged engine generator and auxiliary components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

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1.7 MAINTENANCE SERVICE

- A. Maintenance: At Substantial Completion, begin 12 months' full maintenance by skilled employees of the manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Maintenance agreements shall include parts and supplies as used in the manufacture and installation of original equipment.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Filters: One set each of lubricating oil, fuel, and combustion-air filters.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Caterpillar
 - 2. Cummins.
- B. Generator: 125 KW, 277/480V, 3 phase, 4 wire natural gas generator with 200amp main breaker.

2.2 ENGINE GENERATOR SET

- A. Furnish a coordinated assembly of compatible components.
- B. Output Connections: Three phase, four wire.
- C. Safety Standard: Comply with ASME B15.1.
- D. Nameplates: Each major system component is equipped with a conspicuous nameplate of component manufacturer. Nameplate identifies manufacturer of origin and address, and model and serial number of item.
- E. Limiting dimensions indicated for system components are not exceeded.
- F. Skid: Adequate strength and rigidity to maintain alignment of mounted components without depending on a concrete foundation. Skid is free from sharp edges and corners. Lifting attachments are arranged to facilitate lifting with slings without damaging any components.

2.3 GENERATOR-SET PERFORMANCE

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- A. Steady-State Voltage Operational Bandwidth: 4 percent of rated output voltage from no load to full load.
- B. Steady-State Voltage Modulation Frequency: Less than 1 Hz.
- C. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage recovers to remain within the steady-state operating band within three seconds.
- D. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
- E. Steady-State Frequency Stability: When system is operating at any constant load within rated load, there are no random speed variations outside the steady-state operational band and no hunting or surging of speed.
- F. Transient Frequency Performance: Less than 5 percent variation for a 50 percent step-load increase or decrease. Frequency recovers to remain within the steady-state operating band within five seconds.
- G. Output Waveform: At no load, harmonic content measured line to line or line to neutral does not exceed 5 percent total and 3 percent for single harmonics. The telephone influence factor, determined according to NEMA MG 1, shall not exceed 50.
- H. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, the system will supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to any generator system component.

2.4 SERVICE CONDITIONS

- A. Environmental Conditions: Engine generator system withstands the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
 - 1. Ambient Temperature: 5 to 40 deg C.
 - 2. Relative Humidity: 0 to 95 percent.
 - 3. Altitude: Sea level to 700 feet.

2.5 ENGINE

- A. Rated Engine Speed: 1800 rpm.
- B. Lubrication System: Pressurized by a positive-displacement pump driven from engine crankshaft. The following items are mounted on engine or skid:
 - 1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
 - 2. Thermostatic Control Valve: Controls flow in system to maintain optimum oil temperature. Unit is capable of full flow and is designed to be fail-safe.

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3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps or siphons or special tools or appliances.
- C. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment.

2.6 GOVERNOR

- A. Type: Adjustable isochronous, with speed sensing.

2.7 ENGINE COOLING SYSTEM

- A. Description: Closed loop, liquid cooled, with radiator factory mounted on engine generator-set skid and integral engine-driven coolant pump.
- B. Radiator: Rated for specified coolant.
- C. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
- D. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
- E. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.
 1. Rating: 50-psig maximum working pressure with 180 deg F coolant, and noncollapsible under vacuum.
 2. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.
- F. Coolant piping external to engine generator set. Use ASTM B 88, Type L copper tubing with brazed joints, sized as recommended by diesel engine manufacturer. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping installation and joint construction. Refer to Division 15 Section "Hydronic Piping" for materials and installation requirements for piping.

2.8 ENGINE EXHAUST SYSTEM

- A. Muffler: Residential type, sized as recommended by engine manufacturer. Measured sound level at a distance of 10 feet from exhaust discharge, is 95 dBA or less.
- B. Connections from Engine to Exhaust System: Flexible section of corrugated stainless-steel pipe.

2.9 STARTING SYSTEM

- A. Description: 12 or 24-V electric, with negative ground and including the following items:

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1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: As required by NFPA 110 for system level specified.
4. Cranking Cycle: 60 seconds.
5. Battery: Adequate capacity within ambient temperature range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above to provide specified cranking cycle at least twice without recharging.
6. Battery: Adequate capacity within ambient temperature range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above to provide specified cranking cycle at least three times without recharging.
7. Battery Cable: Size as recommended by generator set manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
8. Battery Compartment: Factory fabricated of metal with acid-resistant finish and thermal insulation. Thermostatically controlled heater is arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above. Include accessories required to support and fasten batteries in place.
9. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.

2.10 CONTROL AND MONITORING

- A. Functional Description: When the mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic-transfer switches initiate starting and stopping of the generator set. When the mode-selector switch is switched to the on position, the generator set manually starts. The off position of the same switch initiates generator-set shutdown. When the generator set is running, specified system or equipment failures or derangements automatically shut down the generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down the generator set.
- B. Functional Description: Switching on-off switch on the generator control panel to the on position starts the generator set. The off position of the same switch initiates generator-set shutdown. When the generator set is running, specified system or equipment failures or derangements automatically shut down the generator set and initiate alarms.
- C. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages are grouped on a common control and monitoring panel mounted on the generator set. Mounting method isolates the control panel from generator-set vibration.
- D. Indicating and Protective Devices and Controls: Include the following:
 1. AC voltmeter.
 2. AC ammeter.
 3. AC frequency meter.
 4. DC voltmeter (alternator battery charging).
 5. Engine-coolant temperature gage.

Village of Tuscarawas
Water System Improvements

6. Engine lubricating-oil pressure gage.
 7. Running-time meter.
 8. Ammeter-voltmeter, phase-selector switch(es).
 9. Generator-voltage adjusting rheostat.
 10. Start-stop switch.
 11. Overspeed shutdown device.
 12. Coolant high-temperature shutdown device.
 13. Coolant low-level shutdown device.
 14. Oil low-pressure shutdown device.
 15. Generator overload.
- E. Supporting Items: Include sensors, transducers, terminals, relays, and other devices, and wiring required to support specified items. Locate sensors and other supporting items on engine, generator, or elsewhere as indicated. Where not indicated, locate to suit manufacturer's standard.

2.11 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Generator Circuit Breaker: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489.
1. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
 2. Trip Settings: Matched to generator thermal damage curve as closely as possible.
 3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
 4. Mounting: Adjacent to or integrated with control and monitoring panel.
- B. Generator Protector: Microprocessor-based unit that continuously monitors current level in each phase of generator output, integrates generator heating effect over time, and predicts when thermal damage of the alternator will occur. When signaled by the protector or other generator-set protective devices, a shunt-trip device in the generator disconnect switch shall open the switch to disconnect the generator from the load circuits. Protector performs the following functions:
1. Initiates a generator overload alarm when the generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other generator-set malfunction alarms.
 2. Under single or three-phase fault conditions, regulates the generator to 300 percent of rated full-load current for up to 10 seconds.
 3. As heating effect on the generator of overcurrent approaches the thermal damage point of the unit, the protector switches the excitation system off, opens the generator disconnect switch, and shuts down the generator set.
 4. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot.

2.12 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1 and specified performance requirements.

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Water System Improvements

- B. Drive: Generator shaft is directly connected to engine shaft. Exciter is rotated integrally with generator rotor.
- C. Electrical Insulation: Class H or Class F.
- D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.
- E. Construction prevents mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- F. Excitation uses no slip or collector rings, or brushes, and is arranged to sustain generator output under short-circuit conditions as specified.
- G. Enclosure: Dripproof.
- H. Instrument Transformers: Mounted within generator enclosure.
- I. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.
 - 1. Adjusting rheostat on control and monitoring panel provides plus or minus 5 percent adjustment of output- voltage operating band.
- J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.
- K. Subtransient Reactance: 12 percent, maximum.

2.13 OUTDOOR GENERATOR-SET ENCLOSURE

- A. Description: Vandal-resistant, weatherproof steel housing, wind resistant up to 100 mph. Multiple panels are lockable and provide adequate access to components requiring maintenance. Panels are removable by one person without tools. Instruments and control are mounted within enclosure.
- B. Muffler Location: External to enclosure.
- C. Engine Cooling Airflow through Enclosure: Adequate to maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for two hours with ambient temperature at top of range specified in system service conditions.

2.14 FINISHES

- A. Outdoor Enclosures: Manufacturer's standard enamel over corrosion-resistant pretreatment and compatible standard primer.

2.15 SOURCE QUALITY CONTROL

- A. Factory Tests: Include prototype testing and Project-specific equipment testing (testing of equipment manufactured specifically for this Project).

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Water System Improvements

- B. Prototype Testing: Performed on a separate engine generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
 - 1. Tests: Comply with those required for Level 1 energy converters in Paragraphs 3.2.1, 3.2.1.1, and 3.2.1.2 of NFPA 110.
 - 2. Generator Tests: Comply with IEEE 115.
 - 3. Components and Accessories: Items furnished with installed unit that are not identical to those on tested prototype have been tested to demonstrate compatibility and reliability.

- C. Project-Specific Equipment Tests: Factory test engine generator set and other system components and accessories before shipment. Perform tests at rated load and power factor. Include the following tests.
 - 1. Full load run.
 - 2. Maximum power.
 - 3. Voltage regulation.
 - 4. Transient and steady-state governing.
 - 5. Single-step load pickup.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, equipment foundations, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine generator performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

- B. Examine roughing-in of cooling-system piping systems and electrical connections. Verify actual locations of connections before packaged engine generator installation.

3.2 INSTALLATION

- A. Set packaged engine generator set on concrete bases.
 - 1. Support generator-set mounting feet on rectangular metal blocks and shims or on metal wedges having small taper, at points near foundation bolts to provide 3/4- to 1-1/2-inch gap between pump base and foundation for grouting.
 - 2. Adjust metal supports or wedges until generator is level.

- B. Install packaged engine generator to provide access for periodic maintenance, including removal of drivers and accessories.

- C. Install cooling-system piping, accessories, hangers and supports, and anchors for complete installation.
 - 1. Extend drain piping from heat exchangers to point of disposition.

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- D. Install exhaust-system piping for diesel engines. Extend to point of termination outside structure. Size piping according to manufacturer's written instructions.
- E. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.
 - 1. Verify that electrical wiring is installed according to manufacturers' submittal and installation requirements in Division 26 Sections. Proceed with equipment startup only after wiring installation is satisfactory.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in Division 40 Sections. Drawings indicate general arrangement of piping and specialties. The following are specific connection requirements:
 - 1. Install piping adjacent to packaged engine generator to allow service and maintenance.
 - 2. Connect water supply to cooling system.
 - 3. Connect cooling-system water supply and drain piping to diesel-engine heat exchangers. Install flexible connectors at connections to engine generator and remote radiator.
 - 4. Connect exhaust-system piping to diesel engines.
- B. Electrical wiring and connections are specified in Division 26 Sections.
- C. Ground equipment.
 - 1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 IDENTIFICATION

- A. Identify system components according Division 26 Section "Basic Electrical Materials and Methods."

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections, and to assist in testing. Report results in writing.
- B. Testing: Owner will engage a qualified testing agency to perform field quality-control testing.
- C. Testing: Perform field quality-control testing under the supervision of the manufacturer's factory-authorized service representative.
- D. Tests: Include the following:
 - 1. Tests recommended by manufacturer.

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2. InterNational Electrical Testing Association Tests: Perform each visual and mechanical inspection and electrical and mechanical test stated in NETA ATS for emergency engine generator sets, except omit vibration baseline test. Certify compliance with test parameters for tests performed.
 3. Battery Tests: Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery. Verify acceptance of charge for each element of battery after discharge. Verify measurements are within manufacturer's specifications.
 4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
 5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
- E. Coordinate tests with tests for transfer switches and run them concurrently.
- F. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
- G. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- H. Test instruments shall have been calibrated within the last 12 months, traceable to standards of the National Institute for Standards and Technology, and adequate for making positive observation of test results. Make calibration records available for examination on request.

3.6 COMMISSIONING

- A. Battery Equalization: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.

3.7 CLEANING

- A. On completion of installation, inspect system components. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish. Clean components internally using methods and materials recommended by manufacturer.

3.8 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators as specified below:
1. Coordinate this training with that for transfer switches.
 2. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment.

Village of Tuscarawas
Water System Improvements

3. Review data in maintenance manuals.
4. Schedule training with Owner, through Engineer, with at least seven days' advance notice.
5. Minimum Instruction Period: Eight hours.

END OF SECTION 263213

**WATER SYSTEM IMPROVEMENTS
 VILLAGE OF TUSCARAWS
 TUSCARAWAS COUNTY, OHIO
 CONTRACT #PY – 2020 CDBG RPIG #C-W-20-2NJ-1; OPWC #CN07X/CN08X**

THRASHER PROJECT #101-010-10001

A two-envelope system will be used. Envelope No. 1 will be opened first, and the Bid Opening Requirement items checked for compliance, as outlined on this page. If such documents are found to be in order, sealed Envelope No. 2 “Bid Proposal”, which shall also be placed inside of Envelope #1, will then be opened and will be publicly read aloud. If the documents required to be contained in Envelope No. 1 are not in order, Envelope No. 2 “Bid Proposal” will not be opened and the Bid will be considered non-responsive and will be returned to the Bidder. At that time, the Owner will declare the Bidder non-responsive. The lowest responsive, responsible Bidder shall be the Bidder who has completed all of the requirements of the “Bid Opening Requirements” and has the lowest total bid.

Item	Completed Satisfactory (Check if completed)
1. Bid submitted on time.....	<input type="checkbox"/>
2. Bid Bond (BOR 2-3)	<input type="checkbox"/>
3. Certification of receipt of all addenda to Plans and Specifications. (BOR-4)	<input type="checkbox"/>
4. Equal Opportunity Employment Certification (BOR-5)	<input type="checkbox"/>
5. Independent Contractor Indemnification Clause (BOR-6).....	<input type="checkbox"/>
6. Bidder’s Affidavit: Foreign Corporation (BOR-7)	<input type="checkbox"/>
7. Sub-Contractor – Section 3 Plan Format (BOR 8-9)	<input type="checkbox"/>
8. Affidavit: Non-collusion (BOR-10)	<input type="checkbox"/>
9. Certification Regarding Debarment, Suspension & other Responsibility Matters (BOR-11-12)	<input type="checkbox"/>
10. Certification of Nonsegregated Facilities (Over \$100,000) (BOR 13-15).....	<input type="checkbox"/>
11. Certification of Eligibility (BOR 16).....	<input type="checkbox"/>
12. Proof of Coverage under Ohio Workman’s Compensation (BOR 17)	<input type="checkbox"/>
13. Proof of Drug-Free Workplace Program (BOR-18)	<input type="checkbox"/>
14. Affidavit: Non-Delinquent Taxes (BOR-19)	<input type="checkbox"/>
15. Additional Provisions (Kick-Back Act) – (BOR-20)	<input type="checkbox"/>
16. Cert of Subcontractor Regarding EEO (BOR-21)	<input type="checkbox"/>
17. State Subcontracts Breakdown Table (BOR-22).....	<input type="checkbox"/>
18. HUD 4010 Forms (BOR-23-27)	<input type="checkbox"/>

- 19. American Iron and Steel Acknowledgement Form (AISR).....
- 20. DBE Forms (DBE).....

W A I V E R

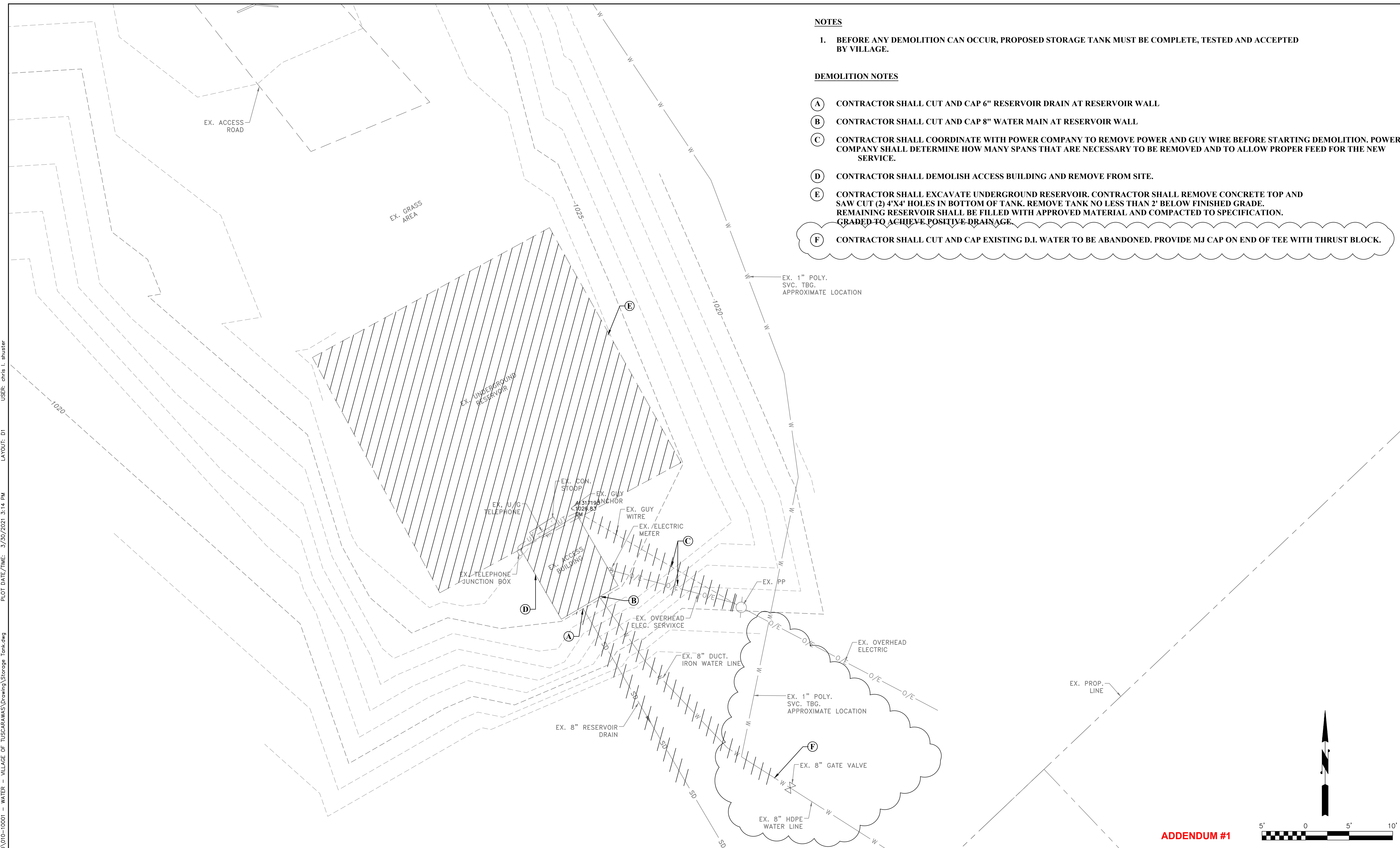
The undersigned hereby agrees that the _____, The Thrasher Group, Inc., and/or Intertek PSI will not be held liable or responsible for any information contained in the soils boring report, which may be used in the preparation of the Contractor's bid. The report is being provided for information purposes only, and does not guarantee the accuracy or completeness of the information.

By: _____

Company: _____

Date: _____

USER: chris l. shuster
 LAYOUT: D1
 PLOT DATE/TIME: 3/30/2021 3:14 PM
 CAD FILE: R:\010\010-10001 - WATER - VILLAGE OF TUSCARAWAS\Drawing\Storage Tank.dwg



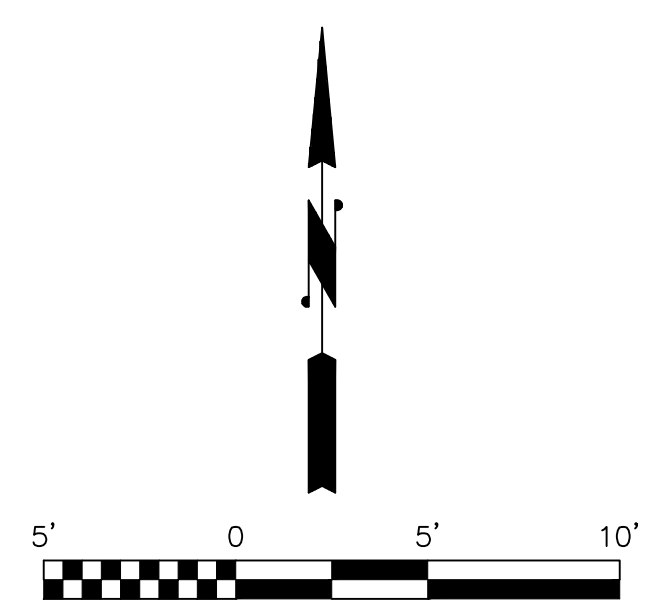
NOTES

1. BEFORE ANY DEMOLITION CAN OCCUR, PROPOSED STORAGE TANK MUST BE COMPLETE, TESTED AND ACCEPTED BY VILLAGE.

DEMOLITION NOTES

- (A) CONTRACTOR SHALL CUT AND CAP 6" RESERVOIR DRAIN AT RESERVOIR WALL
- (B) CONTRACTOR SHALL CUT AND CAP 8" WATER MAIN AT RESERVOIR WALL
- (C) CONTRACTOR SHALL COORDINATE WITH POWER COMPANY TO REMOVE POWER AND GUY WIRE BEFORE STARTING DEMOLITION. POWER COMPANY SHALL DETERMINE HOW MANY SPANS THAT ARE NECESSARY TO BE REMOVED AND TO ALLOW PROPER FEED FOR THE NEW SERVICE.
- (D) CONTRACTOR SHALL DEMOLISH ACCESS BUILDING AND REMOVE FROM SITE.
- (E) CONTRACTOR SHALL EXCAVATE UNDERGROUND RESERVOIR. CONTRACTOR SHALL REMOVE CONCRETE TOP AND SAW CUT (2) 4'X4' HOLES IN BOTTOM OF TANK. REMOVE TANK NO LESS THAN 2' BELOW FINISHED GRADE. REMAINING RESERVOIR SHALL BE FILLED WITH APPROVED MATERIAL AND COMPACTED TO SPECIFICATION. GRADED TO ACHIEVE POSITIVE DRAINAGE.
- (F) CONTRACTOR SHALL CUT AND CAP EXISTING D.I. WATER TO BE ABANDONED. PROVIDE MJ CAP ON END OF TEE WITH THRUST BLOCK.

ADDENDUM #1



1	CLS	3/30/21	REVISED TO SHOW RECENT WATERLINE CHANGES AND ADDED NOTE F
NO.	BY	DATE	DESCRIPTION

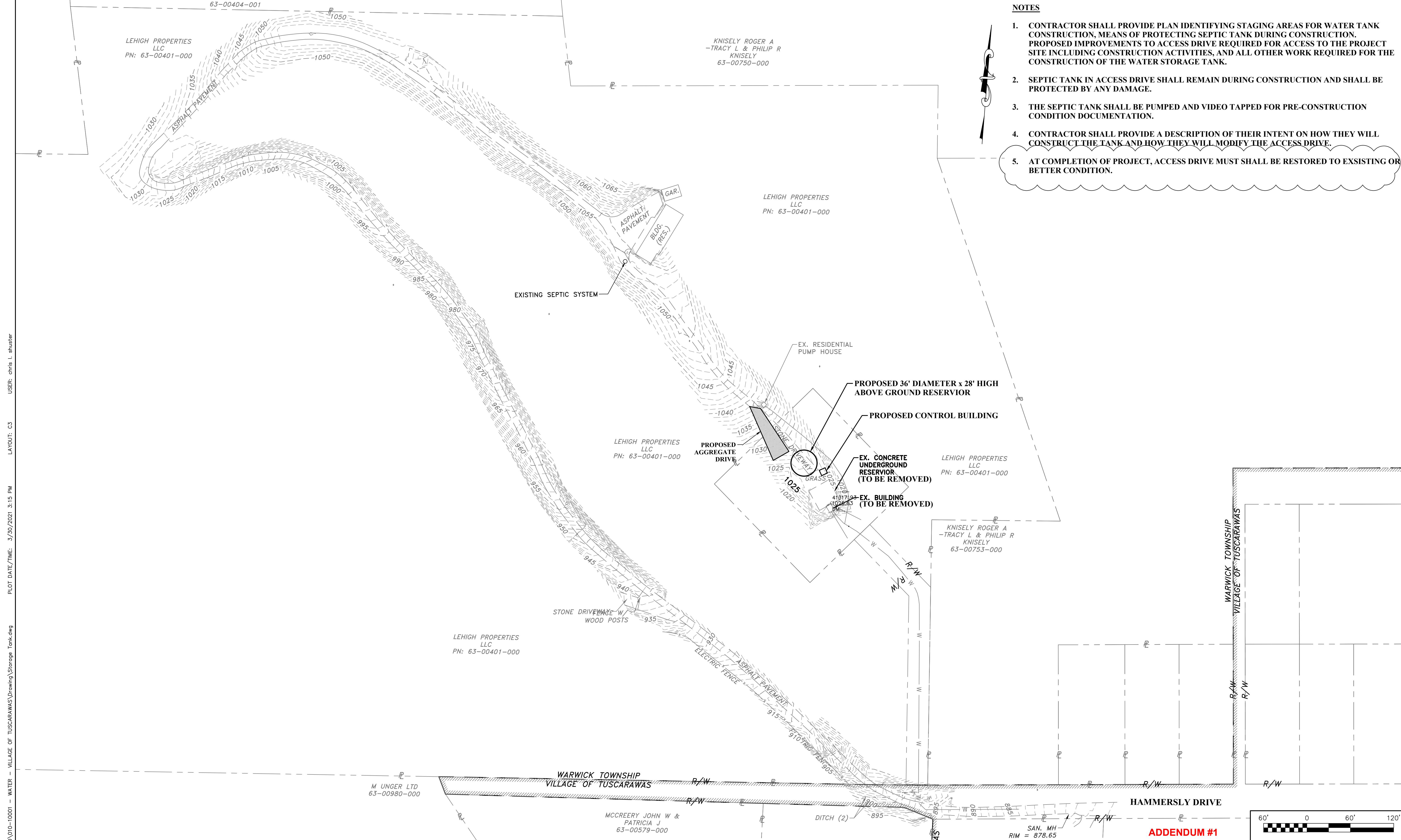
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PHASE No.
CONTRACT No.
PROJECT No.
101-010-10001

VILLAGE OF TUSCARAWAS
TUSCARAWAS COUNTY, OHIO
WATER SYSTEM IMPROVEMENTS
EXISTING RESERVOIR DEMOLITION PLAN

SHEET No.
D1



- NOTES**
1. CONTRACTOR SHALL PROVIDE PLAN IDENTIFYING STAGING AREAS FOR WATER TANK CONSTRUCTION, MEANS OF PROTECTING SEPTIC TANK DURING CONSTRUCTION, PROPOSED IMPROVEMENTS TO ACCESS DRIVE REQUIRED FOR ACCESS TO THE PROJECT SITE INCLUDING CONSTRUCTION ACTIVITIES, AND ALL OTHER WORK REQUIRED FOR THE CONSTRUCTION OF THE WATER STORAGE TANK.
 2. SEPTIC TANK IN ACCESS DRIVE SHALL REMAIN DURING CONSTRUCTION AND SHALL BE PROTECTED BY ANY DAMAGE.
 3. THE SEPTIC TANK SHALL BE PUMPED AND VIDEO TAPPED FOR PRE-CONSTRUCTION CONDITION DOCUMENTATION.
 4. CONTRACTOR SHALL PROVIDE A DESCRIPTION OF THEIR INTENT ON HOW THEY WILL CONSTRUCT THE TANK AND HOW THEY WILL MODIFY THE ACCESS DRIVE.
 5. AT COMPLETION OF PROJECT, ACCESS DRIVE MUST SHALL BE RESTORED TO EXISTING OR BETTER CONDITION.

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 LAYOUT: C3
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1	CLS	3/30/21	ADDED NOTES
NO.	BY	DATE	DESCRIPTION

SCALE: 1:60
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 CHECKED: RSS DATE: AUGUST 2020
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 SURVEY DATE:
 SURVEY BY:
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101-010-10001

ADDENDUM #1
 VILLAGE OF TUSCARAWAS
 TUSCARAWAS COUNTY, OHIO
 WATER SYSTEM IMPROVEMENTS
 PROPOSED WATER STORAGE TANK
 ACCESS ROAD

SHEET No.
C3

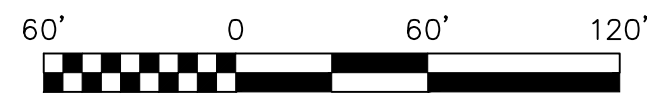




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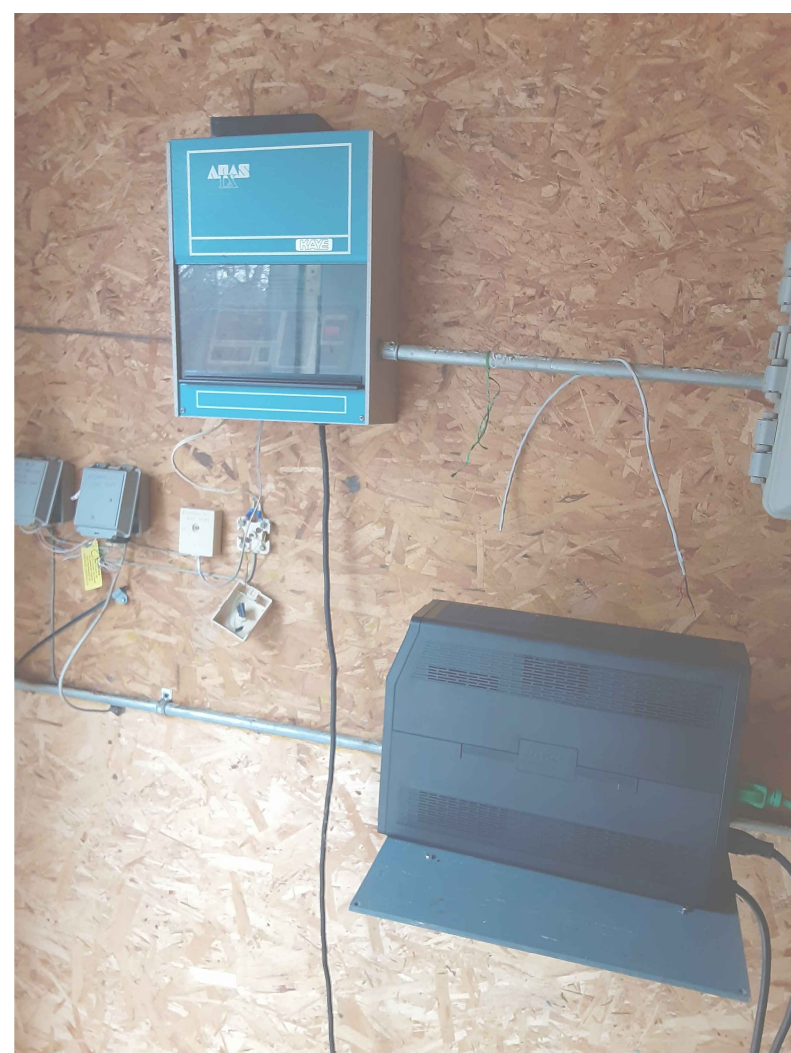
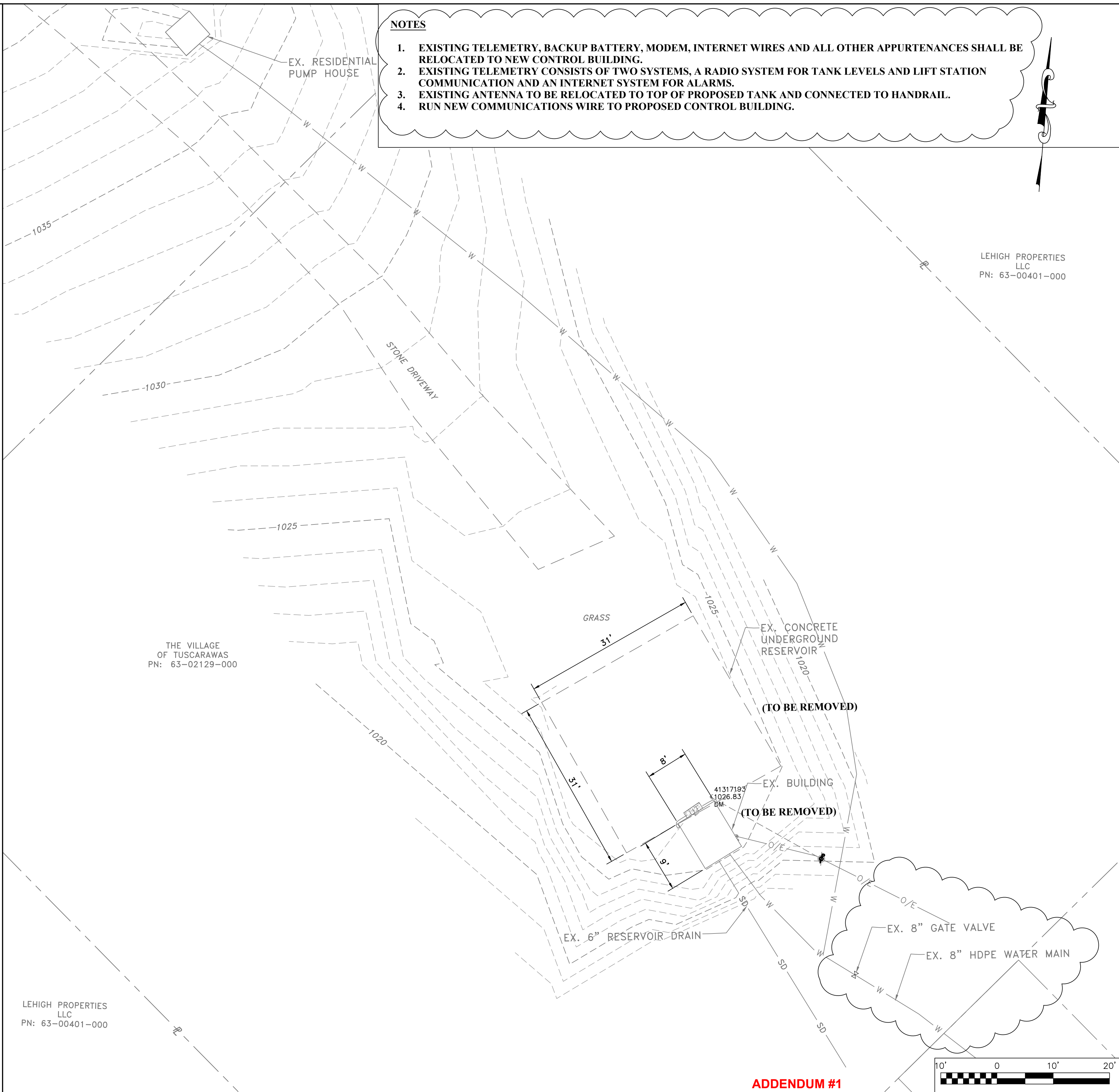


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NO.	BY	DATE	DESCRIPTION
1	CLS	3/30/21	ADDED NOTES 1-4, REVISED RECENT WATERLINE CHANGES

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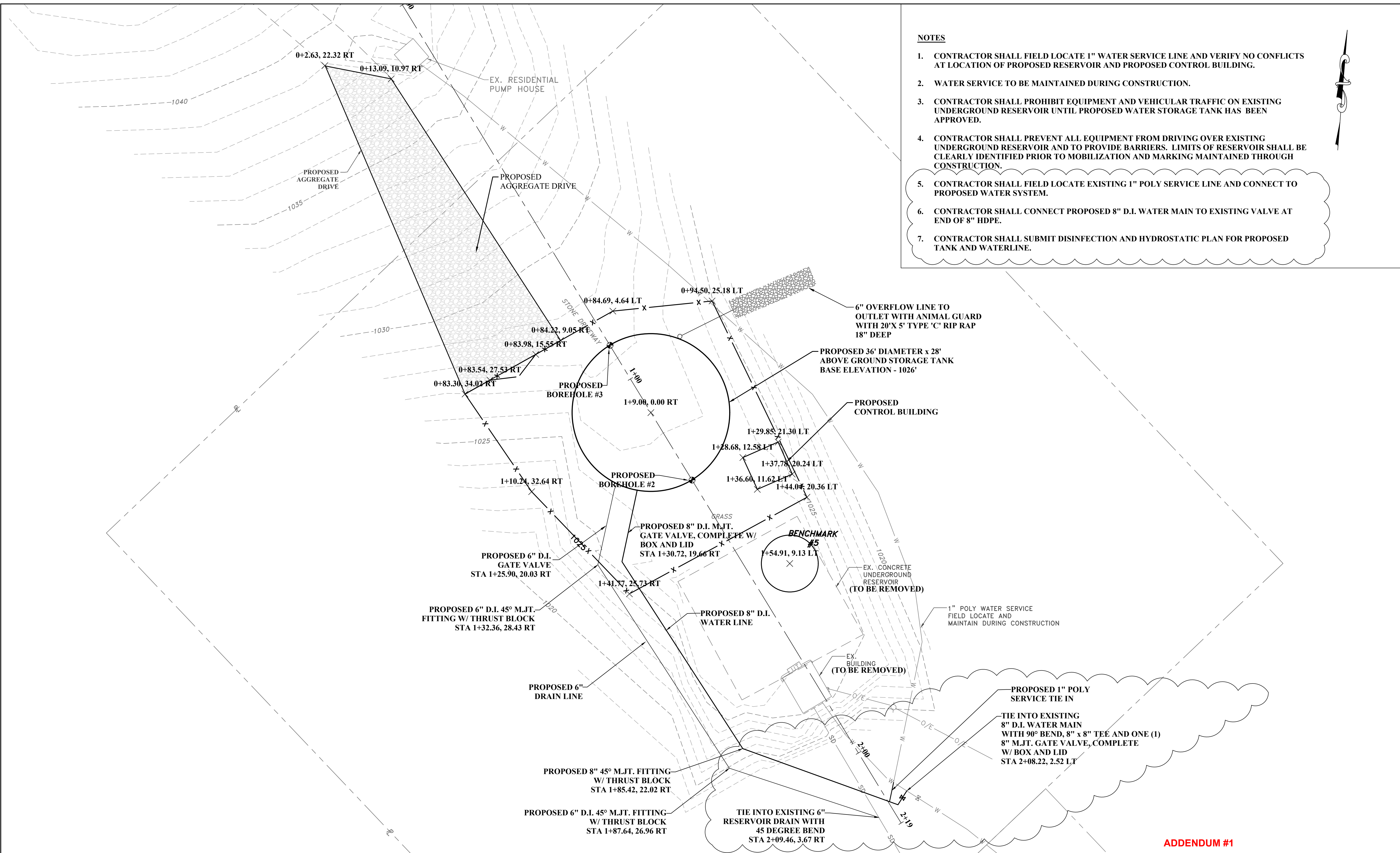
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CONTRACT No.	
PROJECT No.	101-010-10001

VILLAGE OF TUSCARAWAS
TUSCARAWAS COUNTY, OHIO
WATER SYSTEM IMPROVEMENTS
EXISTING RESERVOIR
EXISTING CONDITIONS SITE PLAN

SHEET No.
C4

USER: chris.l.shuster
 LAYOUT: C6
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- NOTES**
- CONTRACTOR SHALL FIELD LOCATE 1" WATER SERVICE LINE AND VERIFY NO CONFLICTS AT LOCATION OF PROPOSED RESERVOIR AND PROPOSED CONTROL BUILDING.
 - WATER SERVICE TO BE MAINTAINED DURING CONSTRUCTION.
 - CONTRACTOR SHALL PROHIBIT EQUIPMENT AND VEHICULAR TRAFFIC ON EXISTING UNDERGROUND RESERVOIR UNTIL PROPOSED WATER STORAGE TANK HAS BEEN APPROVED.
 - CONTRACTOR SHALL PREVENT ALL EQUIPMENT FROM DRIVING OVER EXISTING UNDERGROUND RESERVOIR AND TO PROVIDE BARRIERS. LIMITS OF RESERVOIR SHALL BE CLEARLY IDENTIFIED PRIOR TO MOBILIZATION AND MARKING MAINTAINED THROUGH CONSTRUCTION.
 - CONTRACTOR SHALL FIELD LOCATE EXISTING 1" POLY SERVICE LINE AND CONNECT TO PROPOSED WATER SYSTEM.
 - CONTRACTOR SHALL CONNECT PROPOSED 8" D.I. WATER MAIN TO EXISTING VALVE AT END OF 8" HDPE.
 - CONTRACTOR SHALL SUBMIT DISINFECTION AND HYDROSTATIC PLAN FOR PROPOSED TANK AND WATERLINE.



ADDENDUM #1

NO.	BY	DATE	DESCRIPTION
1	CLS	3/30/21	ADDED NOTES, REVISED TIE-INS IN RECENT WATER CHANGES

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PROJECT No.	101-010-10001

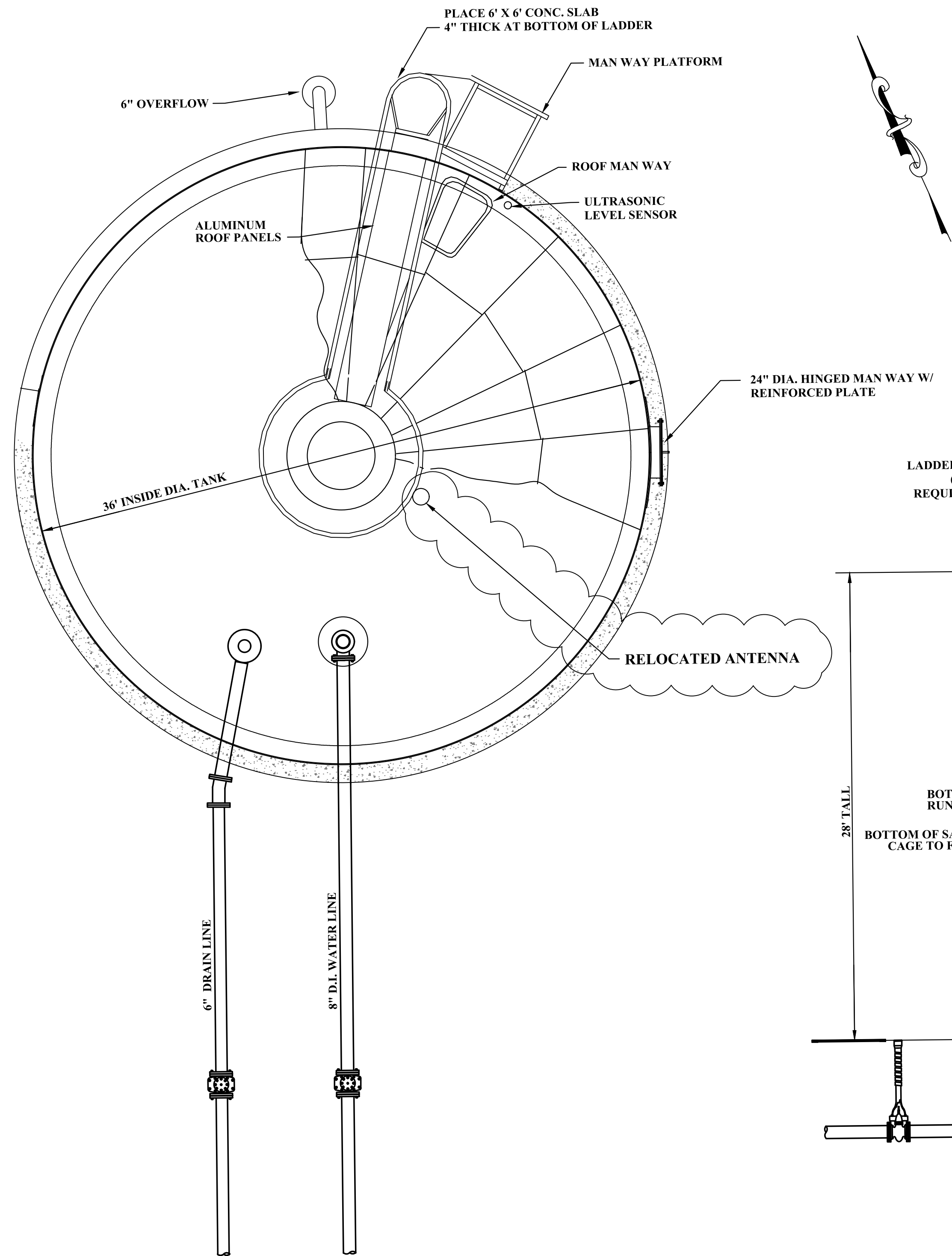
VILLAGE OF TUSCARAWAS
TUSCARAWAS COUNTY, OHIO
WATER SYSTEM IMPROVEMENTS
PROPOSED WATER STORAGE TANK
SITE PLAN

SHEET No.

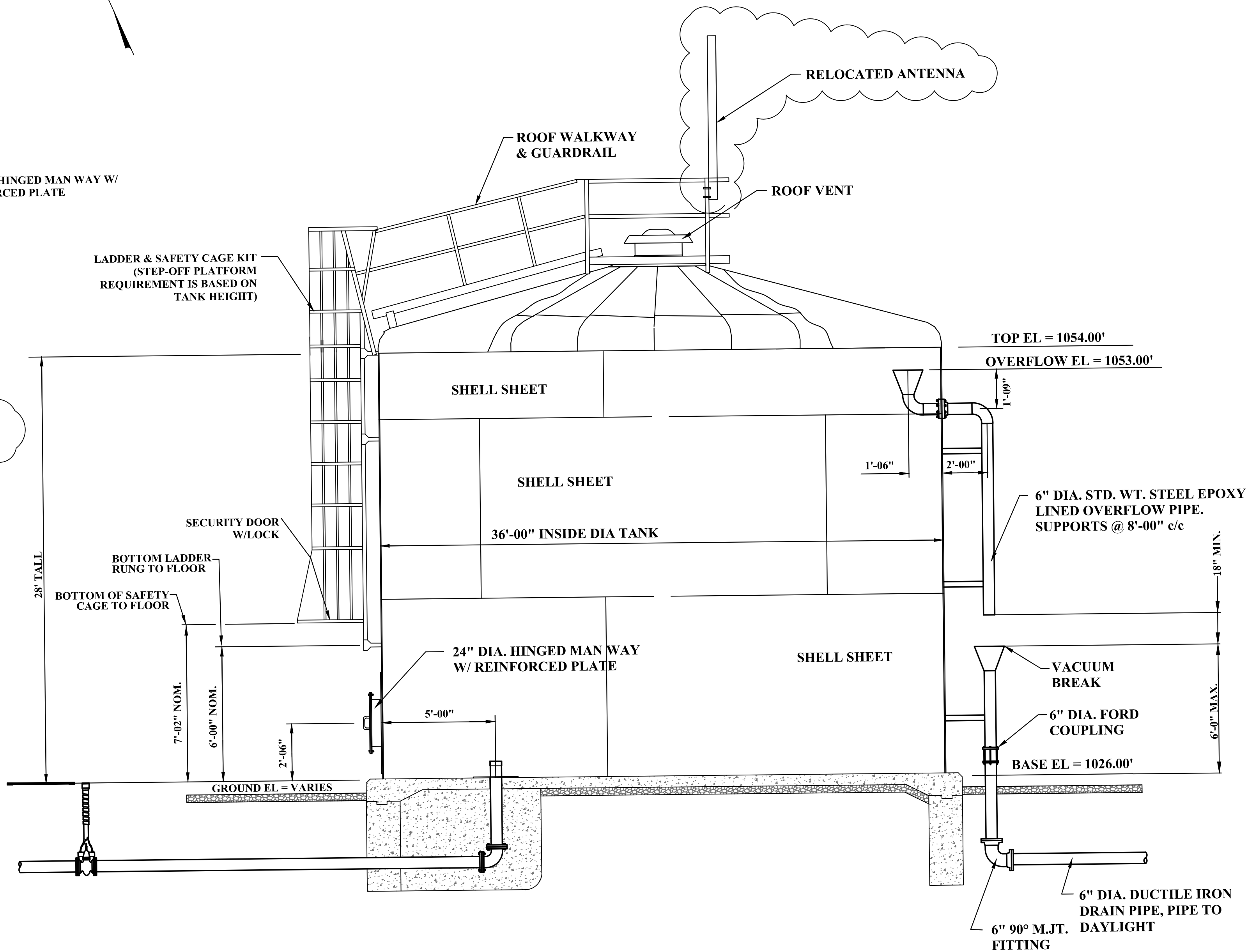
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 LAYOUT: P1
 USER: chris l. shuster



PLAN VIEW
PROPOSED 200,000 GALLON GLASS LINED
BOLTED STEEL RESERVOIR
 NOT TO SCALE



ELEVATION VIEW
PROPOSED 200,000 GALLON GLASS LINED
BOLTED STEEL RESERVOIR
 NOT TO SCALE

GENERAL CONSTRUCTION NOTES

- ALL WATER LINES ARE TO BE PLUGGED AT THE END OF EACH WORKING DAY BY MEANS OF A MECHANICAL JOINT CAP OR PLUG IN ORDER TO AVOID ROCKS, ANIMALS OR OTHER OBJECTS FROM ENTERING.
- THE TANK FOUNDATION SHALL BE CONSTRUCTED IN ACCORDANCE WITH AWWA STD. D-103 SEISMIC ZONE O, AND 100 MPH WIND VELOCITY.
- CONTRACTOR SHALL ASSUME A 2000 PSF SOIL BEARING CAPACITY.
- LOCATIONS OF ITEMS IN PROFILE VIEW EXAGGERATED TO SHOW DETAIL. REFER TO PLAN DETAIL FOR PROCESS ORIENTATION.
- CONTRACTOR SHALL RELOCATE EXISTING ANTENNA FROM CONTROL BUILDING TO TOP OF STORAGE TANK. CONTRACTOR SHALL ATTACH TO PROPOSED HANDRAIL BY ROOF VENT

ADDENDUM #1

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VILLAGE OF TUSCARAWAS
 TUSCARAWAS COUNTY, OHIO
 WATER SYSTEM IMPROVEMENTS
 PROPOSED WATER STORAGE TANK
 DETAILS

SHEET No.	P1
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