

## SEWAGE TREATMENT SYSTEM DESIGN

### FOR:

Robert and Shirley English  
5354 Belclare Rd  
Cincinnati, OH 45247  
Hamilton  
0550-0221-0050  
0.475 acres

### BY:

Cindaco Design  
P.O. Box 19684  
Cincinnati, OH 45219  
513-909-4768  
mmorris@cindaco.com  
Site Visit Date: 7/12/22

### PERMITTING:

Hamilton County Public Health

### DESIGN DETAILS:

Jet J-500PLT-RAD with UV and wifi telemetry to NPDES permitted discharge

### DESIGN RATIONALE:

This sewage treatment system is a replacement sts for a 3 bedroom existing home. For this design, a bedroom is defined as a room with at least 70 sf, multiple means of egress which is not through another room, a closet or area that can be easily finished as a closet, a door or opening that can be easily finished with a door. Each room that meets all four criteria is counted as a bedroom. For every two rooms that meet three of four criteria an additional bedroom will be added to the total count, because these rooms have a high likelihood to be used as a bedroom in the future. 120 gallons per day (gpd) per bedroom is used to calculate the Daily Design Flow per OAC 3701-29-11 (B)(1).

Daily Design Peak Flow: 360 gpd. Peak flow should not be reached on a routine basis.

Average Flow: 216 gpd can be accommodated routinely with typical residential wastewater strength as specified in OAC 3701-29 for households.

Soil Conditions: Insufficient area and/or length of suitable soil for an on-site STS is available at the property, therefore necessitating a NPDES permitted discharge.

### SYSTEM COST INFORMATION:

The property owner has been informed of system options and associated costs. Cindaco Design estimates the system costs as follows

Installation Cost: \$22,000-28,000

Annual Operation Cost: \$500-1,000

\*This is a general estimate of system cost based on prior experience and is not a bid for installation

### CHANGES AND USE OF THIS DESIGN:

This plan is the sole ownership of the designer and may not be altered, changed, used, or manipulated without approval of designer and the permitting health department. Cindaco Design is available to answer questions about design and make adjustments as needed.

### SYSTEM INSTALLATION, OPERATION, AND MAINTENANCE:

All system components must be installed, operated, and maintained in accordance with manufacturer specifications, Ohio Department of Health (ODH) product approval, and permitting health department permit terms and conditions. If conflicts exist, consult Cindaco Design.

Installation, operation and maintenance manuals:

Health Department Installation Manual: [www.cindaco.com/design/resources](http://www.cindaco.com/design/resources)

Pretreatment Unit: [www.cindaco.com/design/resources](http://www.cindaco.com/design/resources)

Control Panel(s): [www.cindaco.com/design/resources](http://www.cindaco.com/design/resources)

General operation/maintenance: <https://www.epa.gov/septic/how-care-your-septic-system>

**It is the installation contractor's responsibility to verify that the system can be installed as designed based on the preliminary layout by designer. It is the installation contractor's and property owner's responsibility to inform designer of any changes in site conditions that could effect the installation, operation, or maintenance of the STS. Soil disturbances may affect the performance of soil absorption components(if applicable), cause the system to fail, or necessitate relocation. If changes are required to the design, redesign fees will apply.** It is the owner and installation contractor's responsibility to locate underground utilities. If utilities interfere with the designed system, construction shall not proceed without approval from designer and the permitting authority. No clearwater connections (downspouts, pool/spa water, foundation drains, cisterns, etc.) shall be connected to the STS. All system components must meet horizontal isolation distances in OAC 3701-29-06 (G)(3)

### SYSTEM PROTECTION

Excavation shall conform to the permitting health department's installation manual. Keep wheeled vehicles off of soil absorption areas at all times. After installation, no paint, chemicals, bleach, etc. shall enter system. See <https://www.epa.gov/septic/how-care-your-septic-system> for general system care instructions.

### DISCLAIMER:

This plan set is not a site plan to be used for constructing anything other than the STS. If an accurate legal site plan is required, contact a professional surveyor. This plan offers no guarantee as to the accuracy of the information provided. This plan offers no guarantee for site stability. If site stability may be an issue, consult a geotechnical engineer. This plan is only as accurate as the information provided by the property owner to the designer. If no survey is provided, local GIS is used for the basis of the plan. Easements, right-of-ways, hidden objects, or information not communicated to the designer invalidates the design. It is the property owner's responsibility to review this plan and information provided to verify all site conditions and design assumptions are correct. If conflicts are found or additional information must be supplied, the owner shall not proceed until the approval is granted. This design shall in no way be taken as a guarantee that the system will function in a satisfactory manor for any given period of time, or that Cindaco Design or any of its agents or employees assume any liability for damages, consequential or direct, which are caused, or which may be caused by a malfunction of the STS.



5354 BELCLARE STS - REPLACEMENT - ENGLISH  
COVER SHEET  
5354 Belclare Rd, Cincinnati, OH 45247

513-909-4768  
P.O. BOX 19684  
CINCINNATI, OH 45219

CINDACO  
design



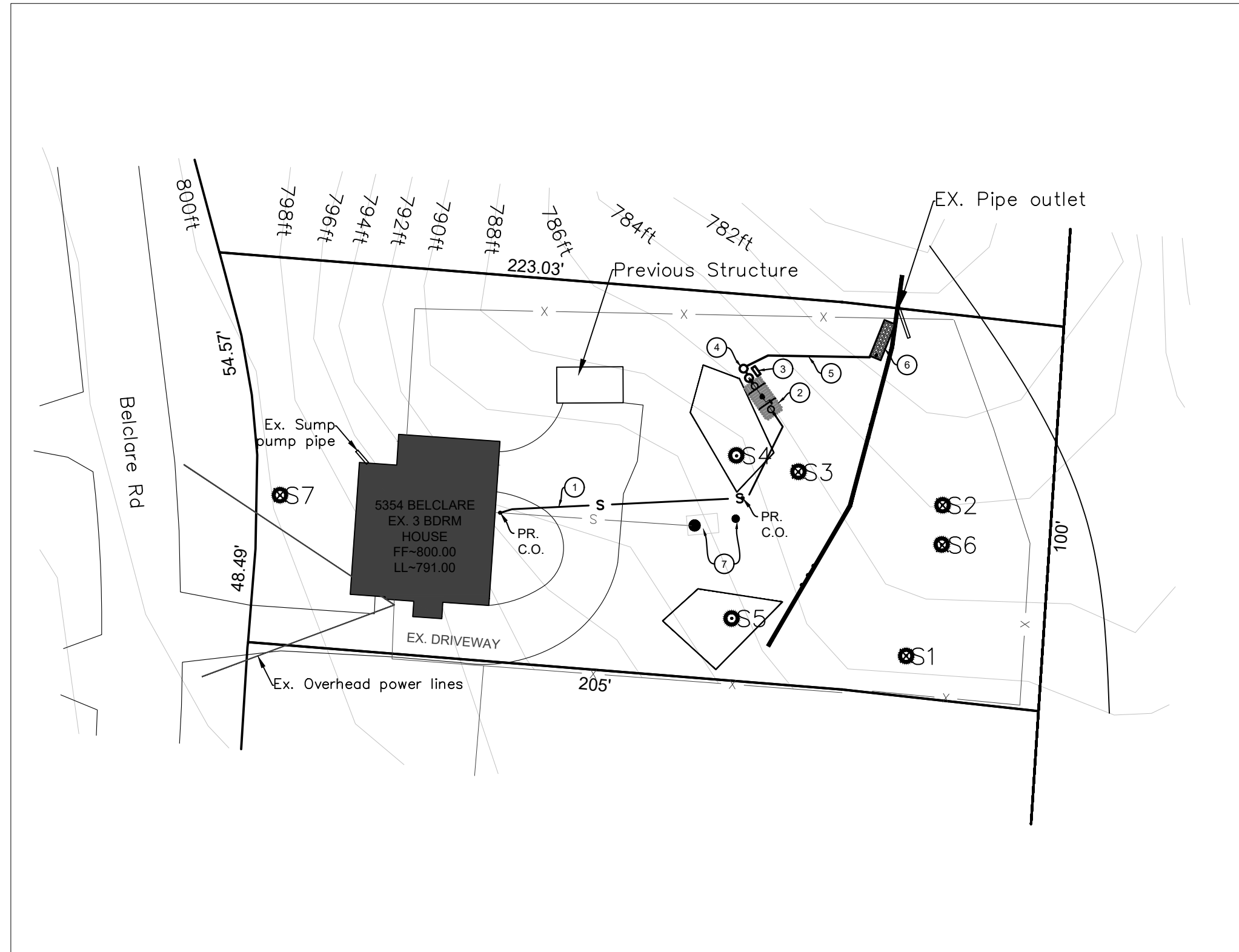
DRN BY:	MAM
JOB #	D22-029
DATE:	Sep. 21, 2022
SHEET:	COVER

# 5354 BELCLARE STS - REPLACEMENT - ENGLISH

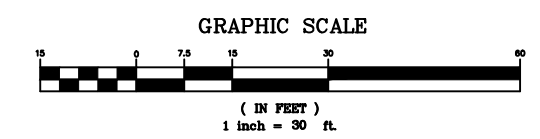
5354 Belclare Rd, Cincinnati, OH 45247

### GENERAL NOTES:

1. Unless notes otherwise, all piping is pressure rated schedule 40 PVC (ASTM D2665/D1785), all stainless steel is Grade 304, all sand is ODOT C-33 concrete sand. Refer to plans for other aggregate specs.
2. All piping shall be bed in gravel or firm in-situ soil, well supported, and backfilled with gravel or native soil in a manor to minimize settling. Maintain 12" min cover.
3. Installer must verify system can be installed per design prior to commencement of installation.
4. Any modifications proposed by the installer must be approved by the designer and permitting body, and must be noted on the final as-built.
5. Wheeled vehicles and heavy equipment are prohibited from traveling over the soil absorption and reserve area(s).
6. All STS components must maintain a minimum of 10' from property lines, easements, right of way, buildings, hardscapes, driveways, geothermal horizontal closed loop systems, properly sealed wells, intermittent streams, swales, irrigation lines, gray water recycling systems, and utilities.
7. All STS Components must maintain 50' from surface water, cut banks, perennial streams/rivers, wetlands, and vertical open and closed loop geothermal heating/cooling systems.
8. Building sewer shall be a minimum of 10' from water service lines, except when within 5' of the foundation where they enter the building and where lines must cross. Where water service lines and sewer lines cross, provide 12" minimum vertical separation with preference of sewer below water service. Keep water service line joints at least 10' from crossing, and sleeve sewer with 20' of larger diameter Sch 40 pipe with sealed ends.
9. Clearwater connections to STS are prohibited (downspouts, foundation drains, drain tiles, cistern overflows, stormwater drains, garage floor drains, exterior floor drains, etc.). Clearwater discharges must be routed away from STS components. Existing connections on replacement systems must be disconnected and rerouted.
10. Soil Investigation performed by Clearcreek Environmental.
11. FF and LL elevations are for reference only.



LEGEND	
	Soil boring location
	Steep slope
	Fence
	Electric service
	Water service
	Gas service
	Sanitary sewer lateral
	Silt fence
PR.	Proposed
EX.	Existing
FF	First floor
LL	Lower level
BM	Benchmark
R/W	Right of way
CB	Catch basin
YD	Yard drain
O.C.	On center
T/W	Top of wall
B/W	Bottom of wall
E/	Edge of
C/L	Centerline
EG	Existing grade
FG	Finished grade
TYP	Typical for all
ADF	Average daily flow
DDF	Daily design flow
GPD	Gallons per day

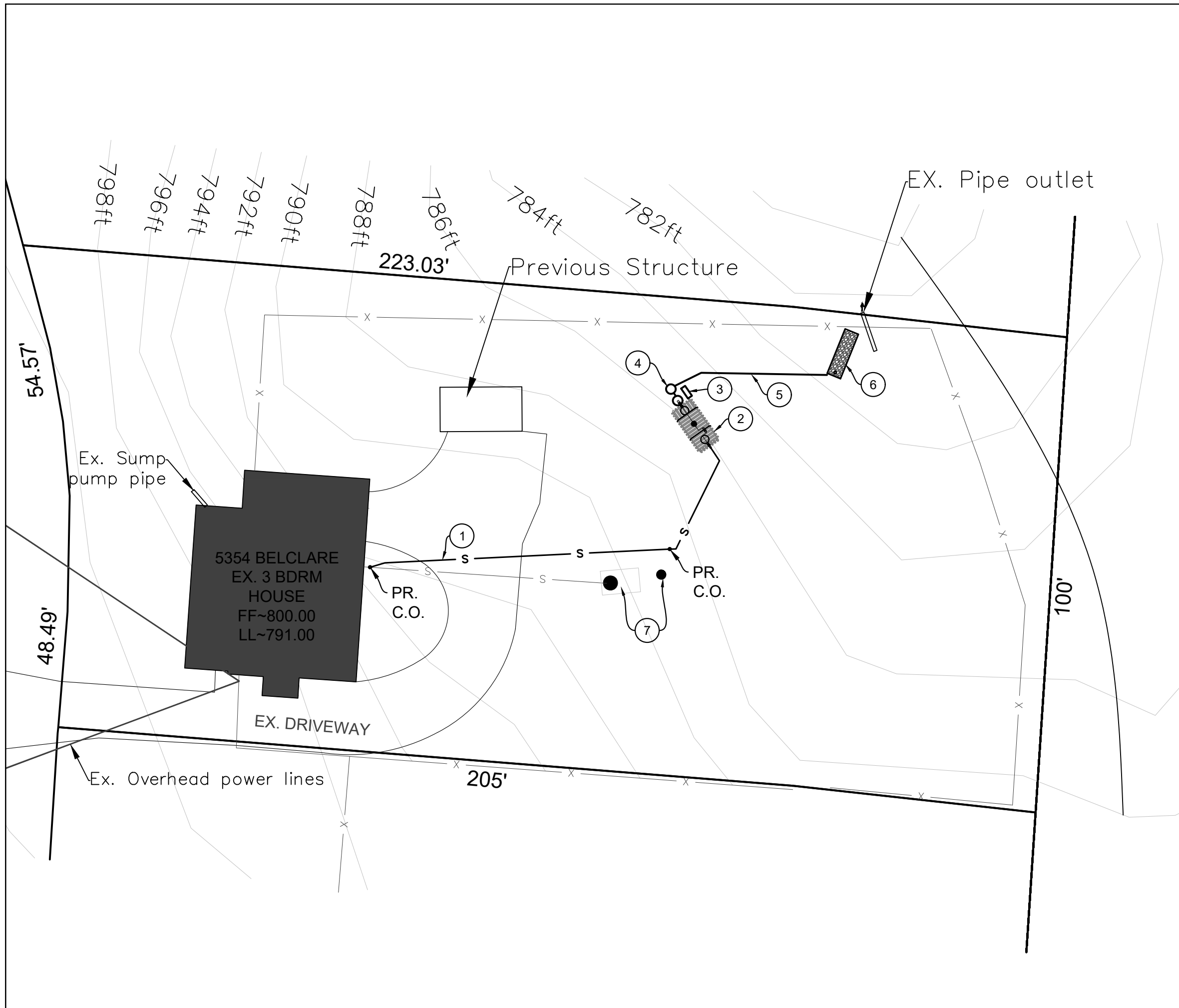


5354 BELCLARE STS - REPLACEMENT - ENGLISH  
STS SITE PLAN  
5354 Belclare Rd, Cincinnati, OH 45247

513-909-4768  
P.O. BOX 19684  
CINCINNATI, OH 45219

**CINDACO**  
design

DRN BY:	MAM
JOB #	D22-029
DATE:	Sep. 21, 2022
SHEET:	C-1



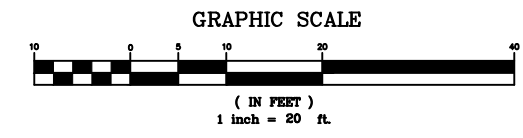
- (X) KEY NOTE LEGEND:
1. PR. SANITARY SEWER. 4" SCH 40 PVC @ 1% MIN. CONNECT TO EXISTING SEWER AT HOUSE FOUNDATION. INSTALL CLEANOUT AT CONNECTION (5' MAX FROM FOUNDATION) AND EVERY 75' MAX THEREAFTER.
  2. JET J-500PLT-RAD WITH UV AND ANTI-BUOYANCY, SEE C-3
  3. CONTROL PANEL, SEE DETAILS ON C-3
  4. PR. SAMPLE WELL, SEE DETAILS ON C-3
  5. PR. DISCHARGE PIPE. 4" SCH 40 PVC @ 1% MIN FALL. NON-CORROSIVE ANIMAL GUARD REQUIRED AT OUTLET.
  6. EROSION CONTROL. PROVIDE SPLASH BLOCK OR 2'x4' MIN RIP RAP, LARGE GRAVEL, OR EQ.
  7. EX TANK AND D-BOX/INSP PORT. ABANDON PER OAC 3701-29-21 AND HEALTH DEPARTMENT PERMITTING AND REPORTING REQUIREMENTS



5354 BELCLARE STS - REPLACEMENT - ENGLISH  
STS LAYOUT  
5354 Belclare Rd, Cincinnati, OH 45247

513-909-4768  
P.O. BOX 19684  
CINCINNATI, OH 45219

**CINDACO**  
design



DRN BY:	MAM
JOB #	D22-029
DATE:	Sep. 21, 2022
SHEET:	C-2

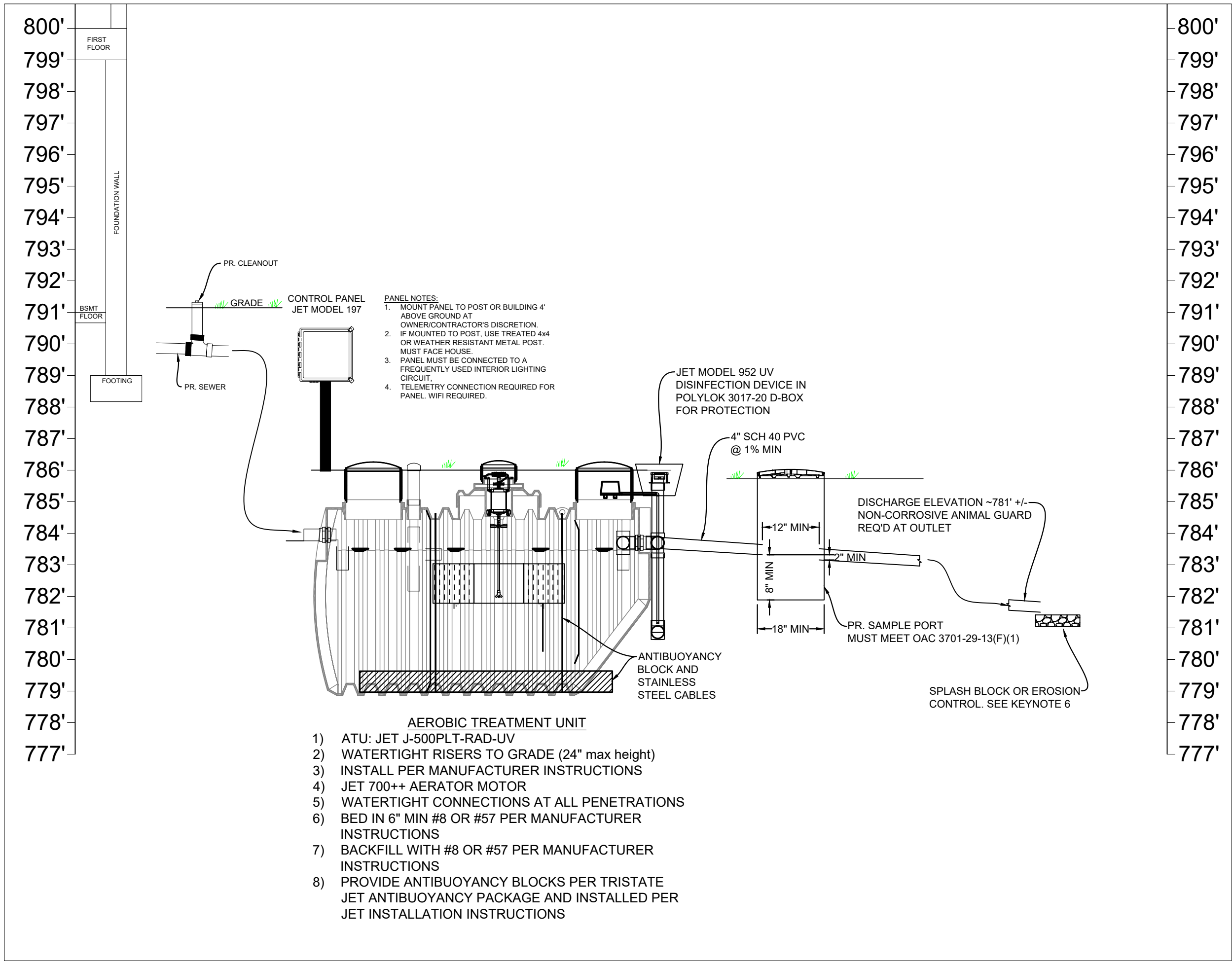


5354 BELCLARE STS - REPLACEMENT - ENGLISH  
**STS PROFILE**  
 5354 Belclare Rd, Cincinnati, OH 45247

513-909-4768  
 P.O. BOX 19684  
 CINCINNATI, OH 45219

**CINDACO**  
 design

DRN BY: MAM  
 JOB # D22-029  
 DATE: Sep. 21, 2022  
 SHEET: C-3



**PANEL NOTES:**  
 1. MOUNT PANEL TO POST OR BUILDING 4' ABOVE GROUND AT OWNER/CONTRACTOR'S DISCRETION.  
 2. IF MOUNTED TO POST, USE TREATED 4x4 OR WEATHER RESISTANT METAL POST. MUST FACE HOUSE.  
 3. PANEL MUST BE CONNECTED TO A FREQUENTLY USED INTERIOR LIGHTING CIRCUIT.  
 4. TELEMETRY CONNECTION REQUIRED FOR PANEL. WIFI REQUIRED.

- AEROBIC TREATMENT UNIT**
- 1) ATU: JET J-500PLT-RAD-UV
  - 2) WATERTIGHT RISERS TO GRADE (24" max height)
  - 3) INSTALL PER MANUFACTURER INSTRUCTIONS
  - 4) JET 700++ AERATOR MOTOR
  - 5) WATERTIGHT CONNECTIONS AT ALL PENETRATIONS
  - 6) BED IN 6" MIN #8 OR #57 PER MANUFACTURER INSTRUCTIONS
  - 7) BACKFILL WITH #8 OR #57 PER MANUFACTURER INSTRUCTIONS
  - 8) PROVIDE ANTIBUOYANCY BLOCKS PER TRISTATE JET ANTIBUOYANCY PACKAGE AND INSTALLED PER JET INSTALLATION INSTRUCTIONS