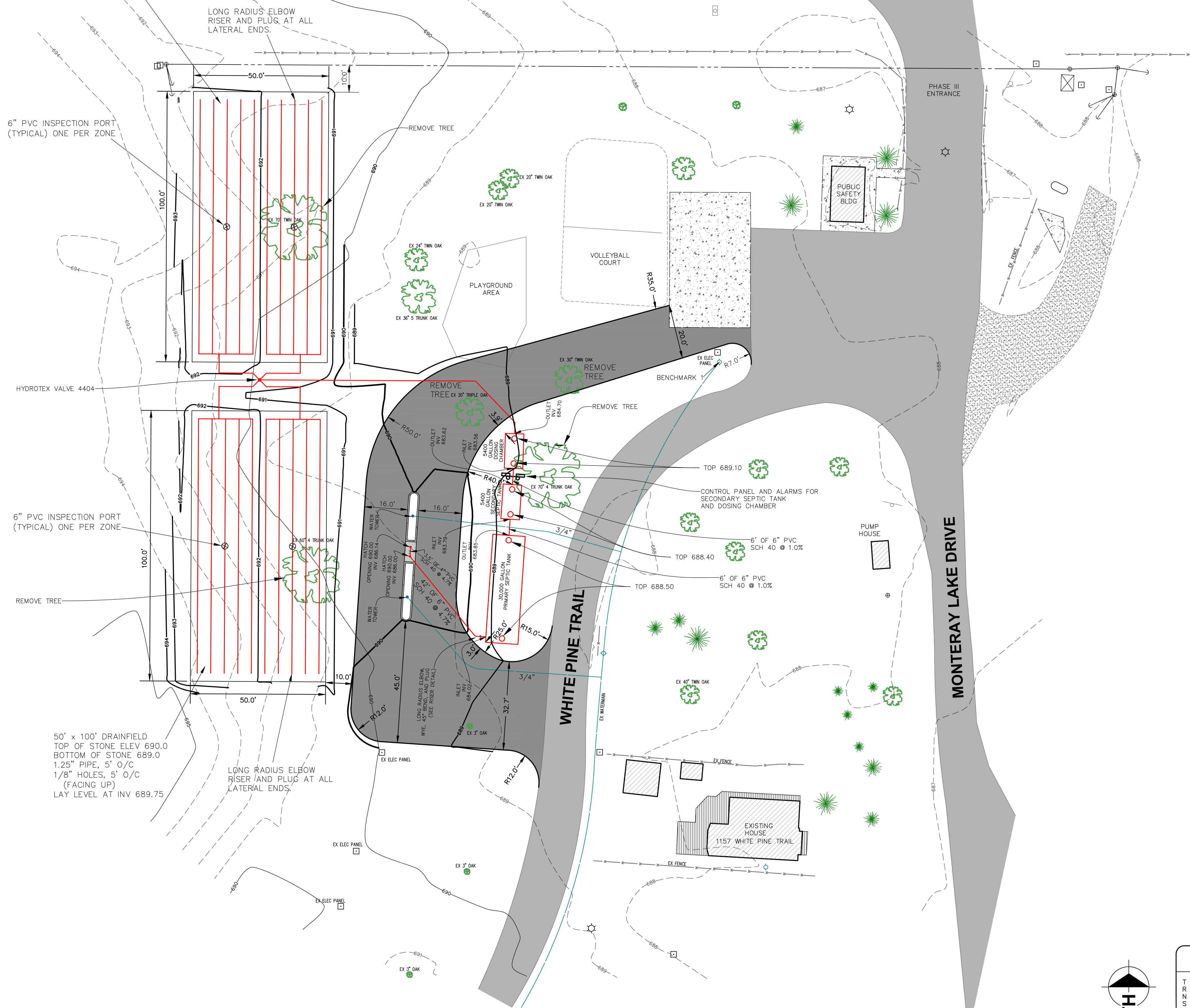


**BENCHMARK 1:**  
 ELEVATION 688.60  
 TOP OF WATER VALVE BOX 11 FT NORTH OF  
 PROPOSED NORTH ENTRANCE TO DUMP  
 STATION

50' x 100' DRAINFIELD  
 TOP OF STONE ELEV 690.0  
 BOTTOM OF STONE 689.0  
 1.25" PIPE, 5' O/C  
 1/8" HOLES, 5' O/C  
 (FACING UP)  
 LAY LEVEL AT INV 689.75

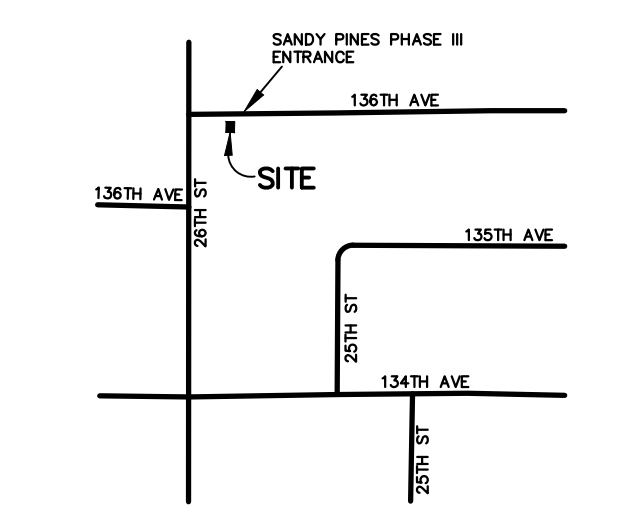
**136TH AVENUE**



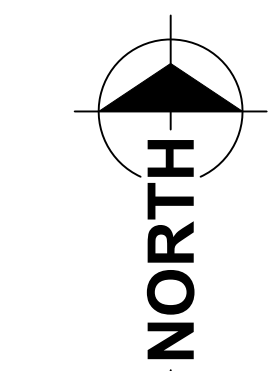
**GENERAL NOTES:**

1. All utilities shown are approximate locations derived from actual measurements and available records. They should not be interpreted to be the exact locations nor should it be assumed that they are the only utilities in the area.
2. All work shall comply with applicable requirements or the local code, ordinances and accident/fire prevention regulations.
3. Remove all demolition materials and debris from the site and dispose of properly offsite.
4. Do not bury any debris, roots, topsoil or other materials.
5. Adequately protect the site, adjoining property, and utility services.
6. Contractor shall field verify all utilities prior to commencing work on new utility connections.
7. Install all utilities in accordance with local specifications and requirements.
8. Contractor shall be responsible for obtaining necessary permits for work in any right-of-way and on any utility connections or abandonments.
9. Damage to existing utilities by the contractor shall be repaired at the contractor's expense.

50' x 100' DRAINFIELD  
 TOP OF STONE ELEV 690.0  
 BOTTOM OF STONE 689.0  
 1.25" PIPE, 5' O/C  
 1/8" HOLES, 5' O/C  
 (FACING UP)  
 LAY LEVEL AT INV 689.75



**LOCATION MAP**  
 NOT TO SCALE



SCALE: 1" = 20'

| LEGEND |                    |   |                        |
|--------|--------------------|---|------------------------|
| T      | TOWN               | □ | SECTION CORNER         |
| R      | RANGE              | ⊕ | SET CAPPED IRON        |
| N      | NORTH              | ⊕ | FOUND IRON OR NAIL     |
| S      | SOUTH              | ○ | STORM SEWER MANHOLE    |
| E      | EAST               | ○ | SANITARY SEWER MANHOLE |
| W      | WEST               | ⊕ | CATCH BASIN            |
| SEC.   | SECTION            | ⊕ | HYDRANT                |
| POB    | POINT OF BEGINNING | ⊕ | VALVE                  |
| ■      | PROPOSED BLACKTOP  | ⊕ | UTILITY POLE           |
| ■      | PROPOSED CONCRETE  | ⊕ | GUY WIRE               |
| ■      | EXISTING BLACKTOP  | ⊕ | LIGHT POLE             |
| ■      | EXISTING CONCRETE  | ⊕ | WALL MOUNTED LIGHT     |
| ■      | BUILDING           | ⊕ | PEDESTAL               |
|        |                    | ⊕ | TRANSFORMER            |
|        |                    | ⊕ | SIGN                   |

| REVISIONS |                       |
|-----------|-----------------------|
| 3/8/2023  |                       |
| 9/5/2024  | REV LAYOUT            |
| 9/13/2024 | MOVED DRAINFIELD      |
|           | ADDED HATCH AND RISER |

**SITE PLAN**  
**SANDY PINES PHASE III DUMP STATION**

FOR: Sandy Pines  
 2745 136th Ave.  
 Hopkins, MI 49438  
 (616) 896-8315

PART OF THE NW 1/4, SECTION 1, T3N, R13W,  
 MONTEREY TOWNSHIP, ALLEGAN COUNTY, MICHIGAN

**feenstra**  
 & Associates, Inc.  
 CIVIL ENGINEERS & SURVEYORS  
 3145 Prairie St SW Phone: 616.457.7050  
 Grandville, MI 49418 www.feenstrains.com

**C1**  
 9/5/2024



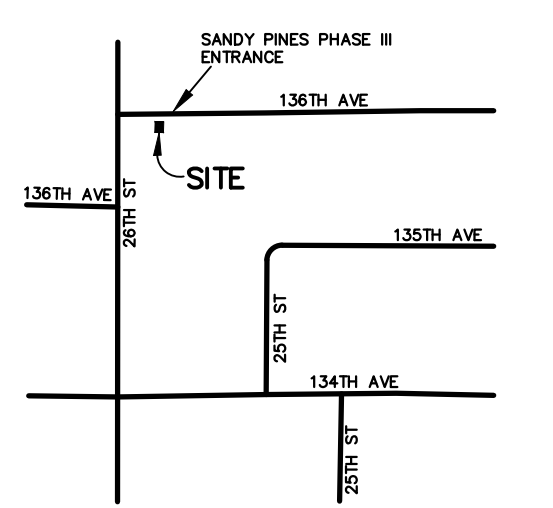
**BENCHMARK 1:**  
 ELEVATION 688.60  
 TOP OF WATER VALVE BOX 11 FT NORTH OF  
 PROPOSED NORTH ENTRANCE TO DUMP  
 STATION

136TH AVENUE

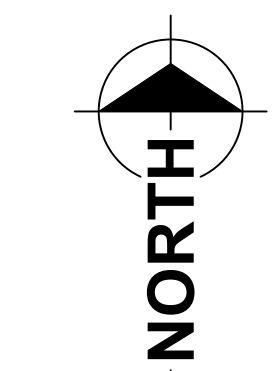


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**LOCATION MAP**  
 NOT TO SCALE



SCALE: 1" = 20'

| LEGEND |                    |   |                        |
|--------|--------------------|---|------------------------|
| T      | TOWN               | □ | SECTION CORNER         |
| R      | RANGE              | ⬮ | SET CAPPED IRON        |
| N      | NORTH              | ⬮ | FOUND IRON OR NAIL     |
| S      | SOUTH              | ○ | STORM SEWER MANHOLE    |
| E      | EAST               | ○ | SANITARY SEWER MANHOLE |
| W      | WEST               | ⊞ | CATCH BASIN            |
| SEC.   | SECTION            | ⊞ | HYDRANT                |
| POB    | POINT OF BEGINNING | ⊞ | VALVE                  |
| ■      | PROPOSED BLACKTOP  | ⊞ | UTILITY POLE           |
| ■      | PROPOSED CONCRETE  | ⊞ | GUY WIRE               |
| ■      | EXISTING BLACKTOP  | ⊞ | LIGHT POLE             |
| ■      | EXISTING CONCRETE  | ⊞ | WALL MOUNTED LIGHT     |
| ■      | BUILDING           | ⊞ | PEDESTAL               |
|        |                    | ⊞ | TRANSFORMER            |
|        |                    | ⊞ | SIGN                   |

| REVISIONS                  |
|----------------------------|
| 3/8/2023                   |
| 9/5/2024 REV LAYOUT        |
| 9/13/2024 MOVED DRAINFIELD |
| ADDED HATCH AND RISER      |

**GRADING PLAN FOR STAKING**  
**SANDY PINES PHASE III DUMP STATION**

FOR: Sandy Pines  
 2745 136th Ave.  
 Hopkins, MI 49438  
 (616) 896-8315

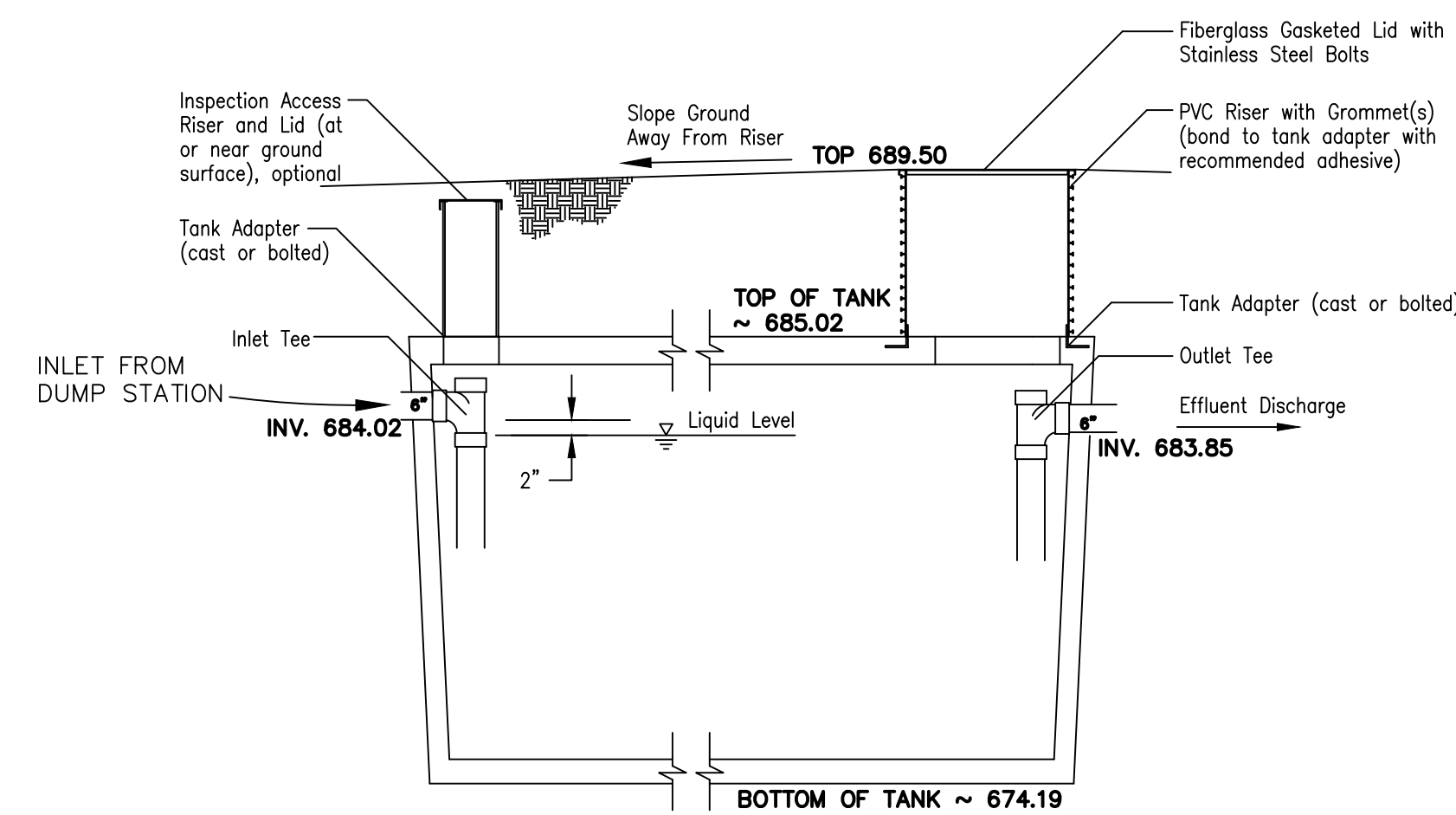
PART OF THE NW 1/4, SECTION 1, T3N, R13W,  
 MONTEREY TOWNSHIP, ALLEGAN COUNTY, MICHIGAN

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**C2**  
 9/5/2024



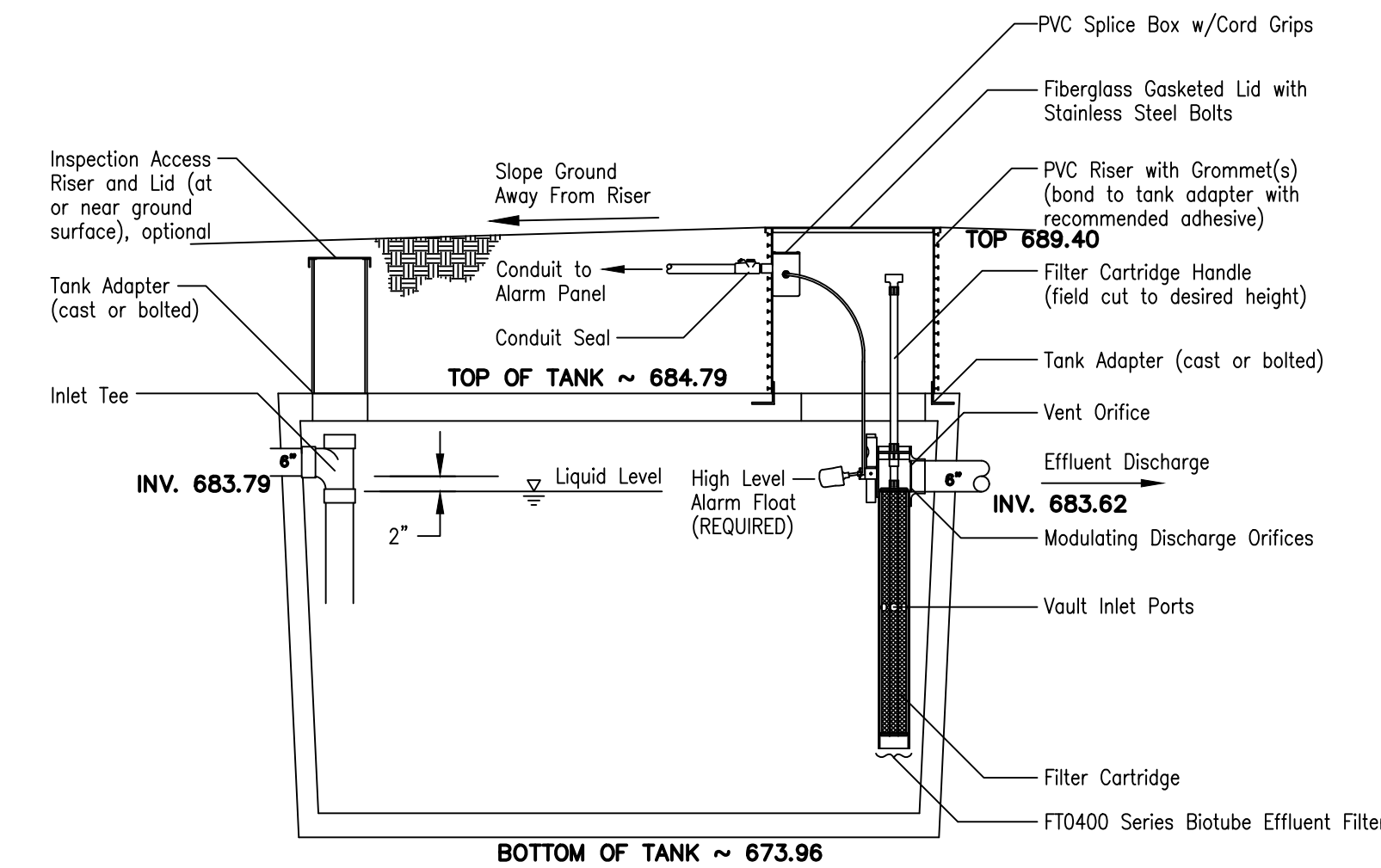
# PRIMARY SEPTIC TANK



Note: Top 1/2 of tank shall be lined with non-corrosive material.

# SECONDARY SEPTIC TANK

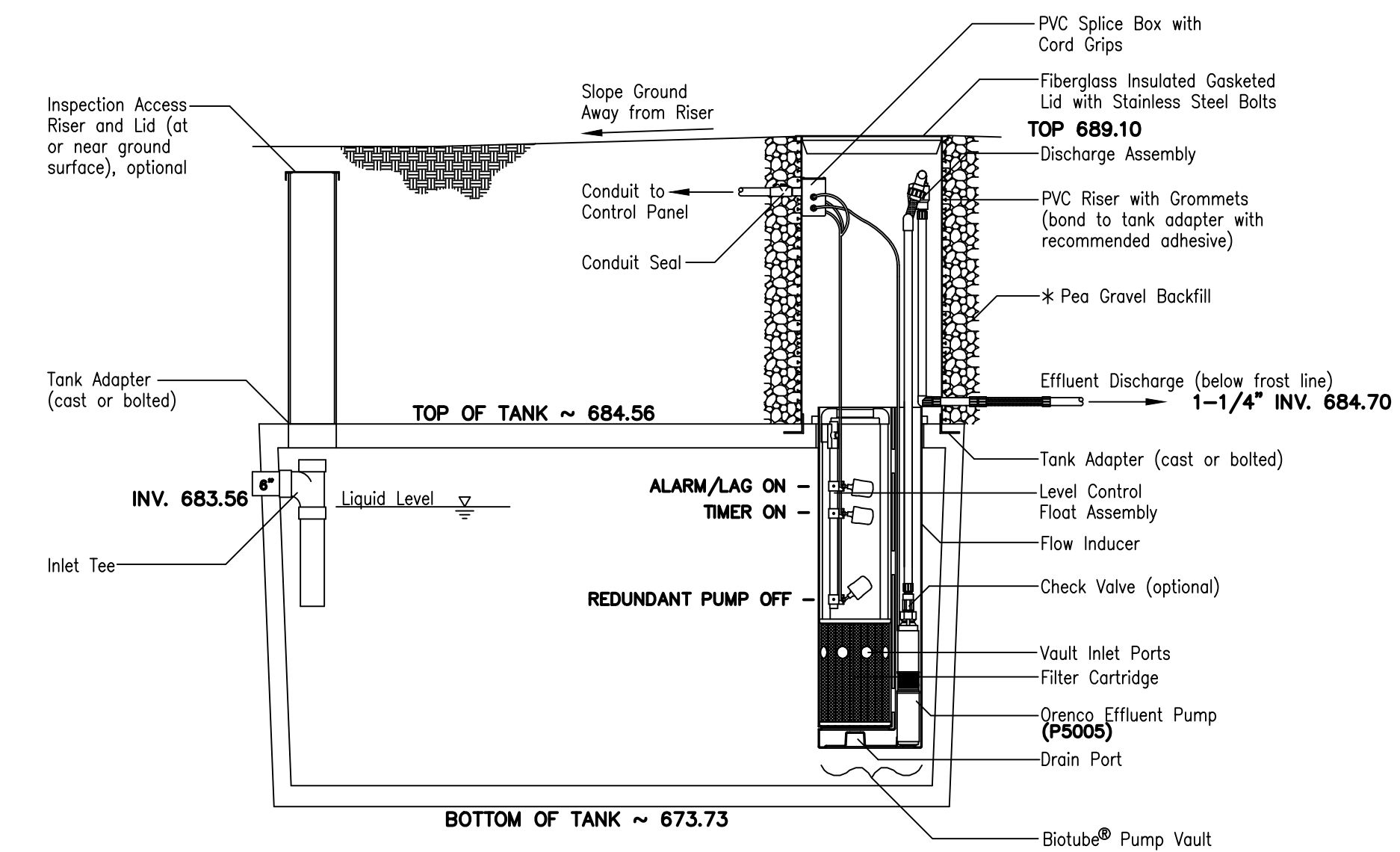
Septic Tank with 4" Dia. Biotube Effluent Filter



Note: Top 1/2 of tank shall be lined with non-corrosive material.

# DOSING CHAMBER

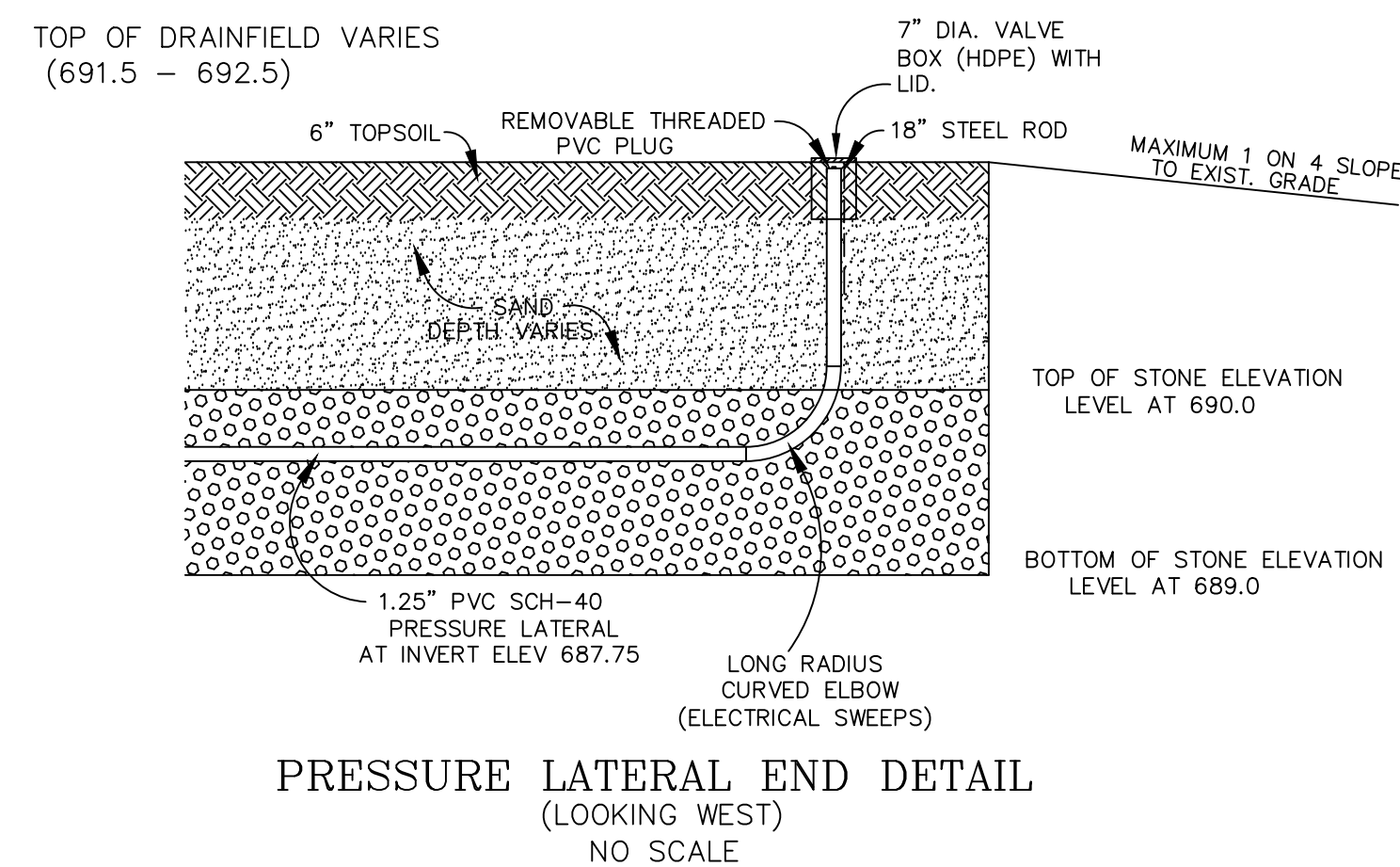
Effluent Pumping System for Cold Weather Applications (cw style)



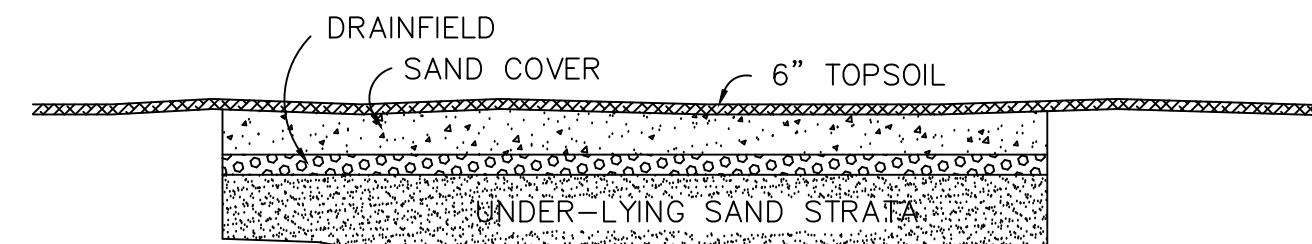
\* Pea Gravel Backfill Recommended to Help Prevent Frost Heave  
Note: Top 1/2 of tank shall be lined with non-corrosive material.

**BENCHMARK 1:**  
ELEVATION 688.60  
TOP OF WATER VALVE BOX 11 FT NORTH OF  
PROPOSED NORTH ENTRANCE TO DUMP  
STATION

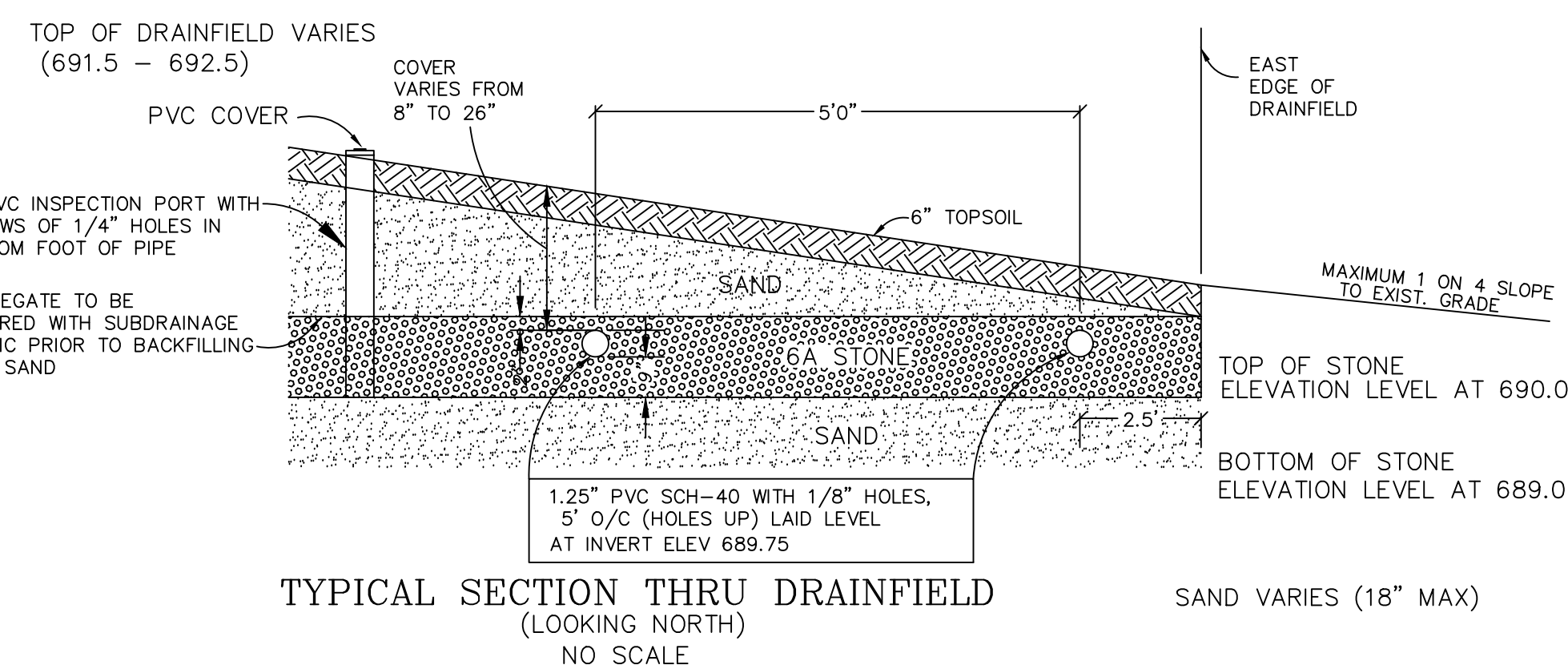
# DRAINFIELD DETAILS



PRESSURE LATERAL END DETAIL  
(LOOKING WEST)  
NO SCALE

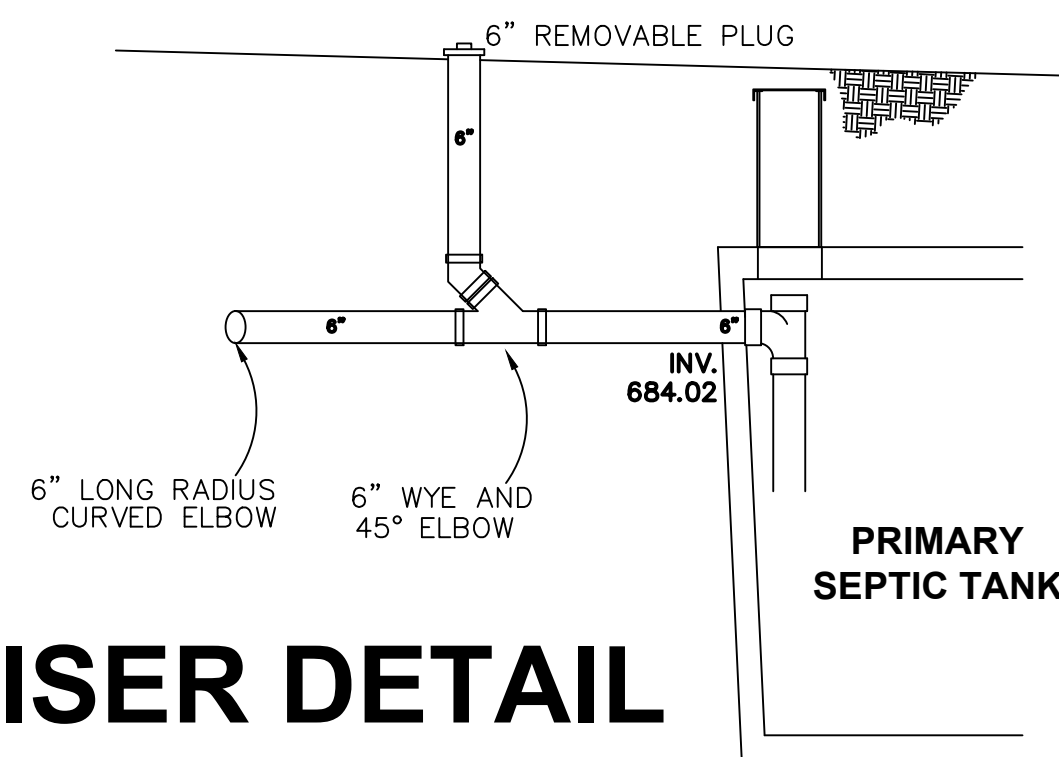


TYPICAL DRAINFIELD SHOWING CONNECTION  
TO UNDERLYING SAND STRATA



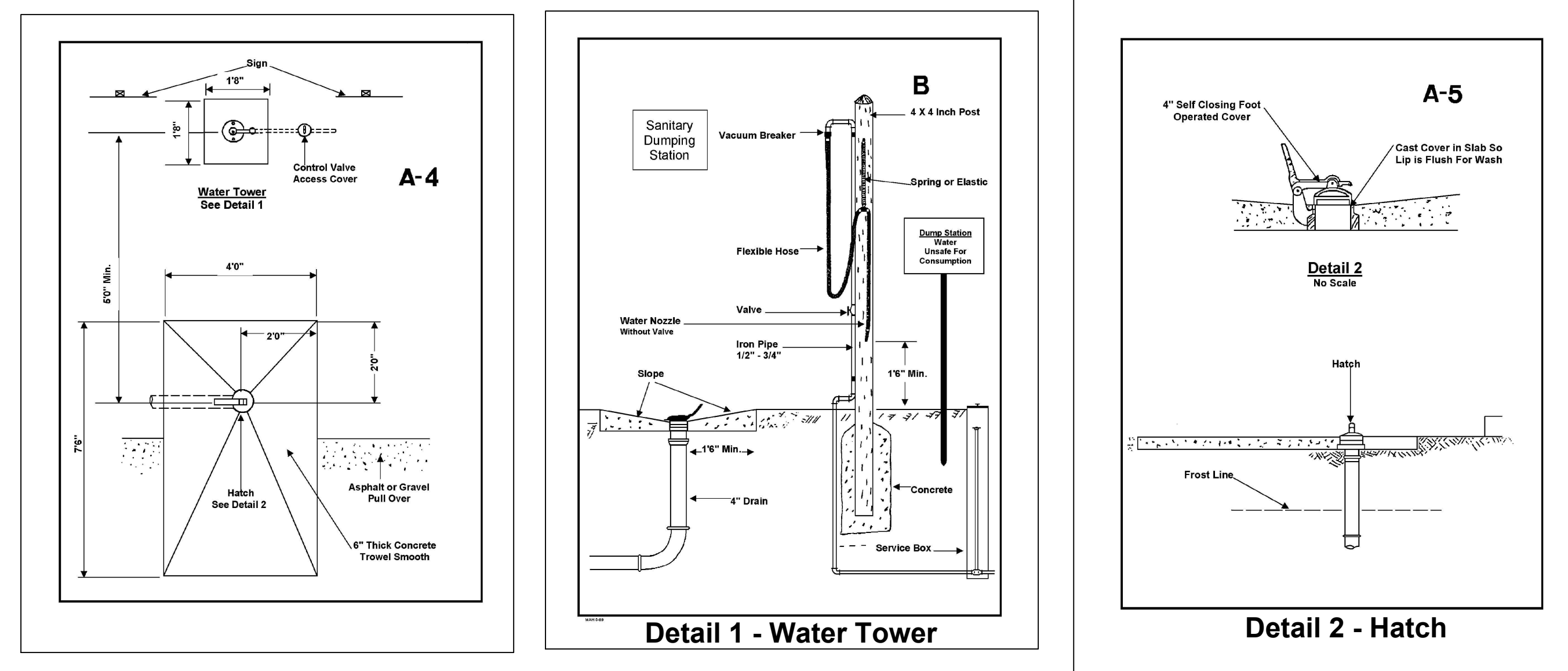
TYPICAL SECTION THRU DRAINFIELD  
(LOOKING NORTH)  
NO SCALE

# RISER DETAIL



RISER DETAIL

# DUMP STATION DETAILS



DUMP STATION DETAILS

**DESIGN CRITERIA:**  
MAX OF 5000 GAL/DAY  
ABSORPTION AREA AT 0.5 GAL/SQ.FT. = 5000 / 0.5  
=10,000 SQ.FT.  
A 1/2 HORSEPOWER P5005 ORENCO PUMP SHALL BE USED TO DOSE 1/4  
TH OF THE DRAINFIELD PER CYCLE. THE TIMER SHALL BE SET TO  
DOSE 16 TIMES PER DAY FOR APPROX. 5 MIN. (250 GAL. PER  
DOSE)

**NOTES:** 1. THE INFLUENT AMOUNT OF 4000 GPD HAS BEEN DESIGNED FOR  
PUMPING. THE DRAINFIELD HAS BEEN DESIGNED TO HANDLE 5000 GPD.  
2. A SPARE P5005 PUMP SHALL BE KEPT ON-SITE AT ALL TIMES.

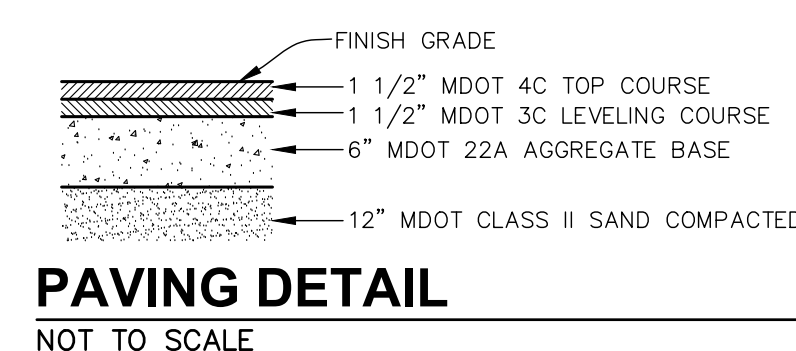
**SEWAGE SYSTEM SPECIFICATIONS**

- Septic Tank size and specifications shall conform to Allegan County Health Dept. requirements.
- Forcemain piping shall be PVC-SCH-40 with glued joints.
- Reaction backing shall be placed at all forcemain bends, wyes, and ends as shown on the plans.
- Precast dosing chambers providing the minimum characteristics shown on the plans shall be used.
- Drainfields shall conform to Allegan County Health Dept. requirements.
- Force mains shall be pressure tested at 100 to 110 PSI at the lowest elevation of the forcemain for two hours with allowable loss less than  
 $L = \frac{SD \sqrt{P}}{133,200}$  where "L" = allowable leakage in gal./hr., "D" = nominal diameter of pipe in inches, "S" = length of pipe tested in feet, "P" = average test pressure in PSI gauge
- Force mains shall maintain 4' minimum cover.
- Force main bends shall be 45° except where shown.
- A 4" perforated (1/2 section) shall be placed over drain holes (or approved equal).

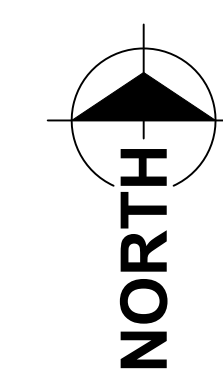
**DOSING CHAMBER AND PUMP**

- Precast dosing chambers providing the minimum characteristics shown on the plans shall be used. Pump base anchorage shall be stainless steel.
- Pump controls shall be float switches capable of adjustment to specified elevations to control pump-on, pump-off and a high water alarm. The Control panel shall be a Weatherproof Controller (Panel #MVP S 1 PT RO HT) or equal. Features shall include a NEMA 4x enclosure, Flashing Alarm Light, an Alarm Horn with On-Off switch, Control Power On-Off switch, HOA Switch, AND Contactor Terminal Strip. Float brackets and hardware shall be stainless steel.
- Pump controls shall be included on the shop drawings.

NOTE: PARTS / SUPPLIES CAN BE ORDERED FOR PUMPS, CONTROL PANEL, AND BIO TUBES FOR SEPTIC TANKS.



PAVING DETAIL  
NOT TO SCALE



SCALE: 1" = 20'

| LEGEND |                    |                        |
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|        | BUILDING           | PEDESTAL               |
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| 3/8/2023                   |
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**DETAILS**

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**C3**

9/5/2024