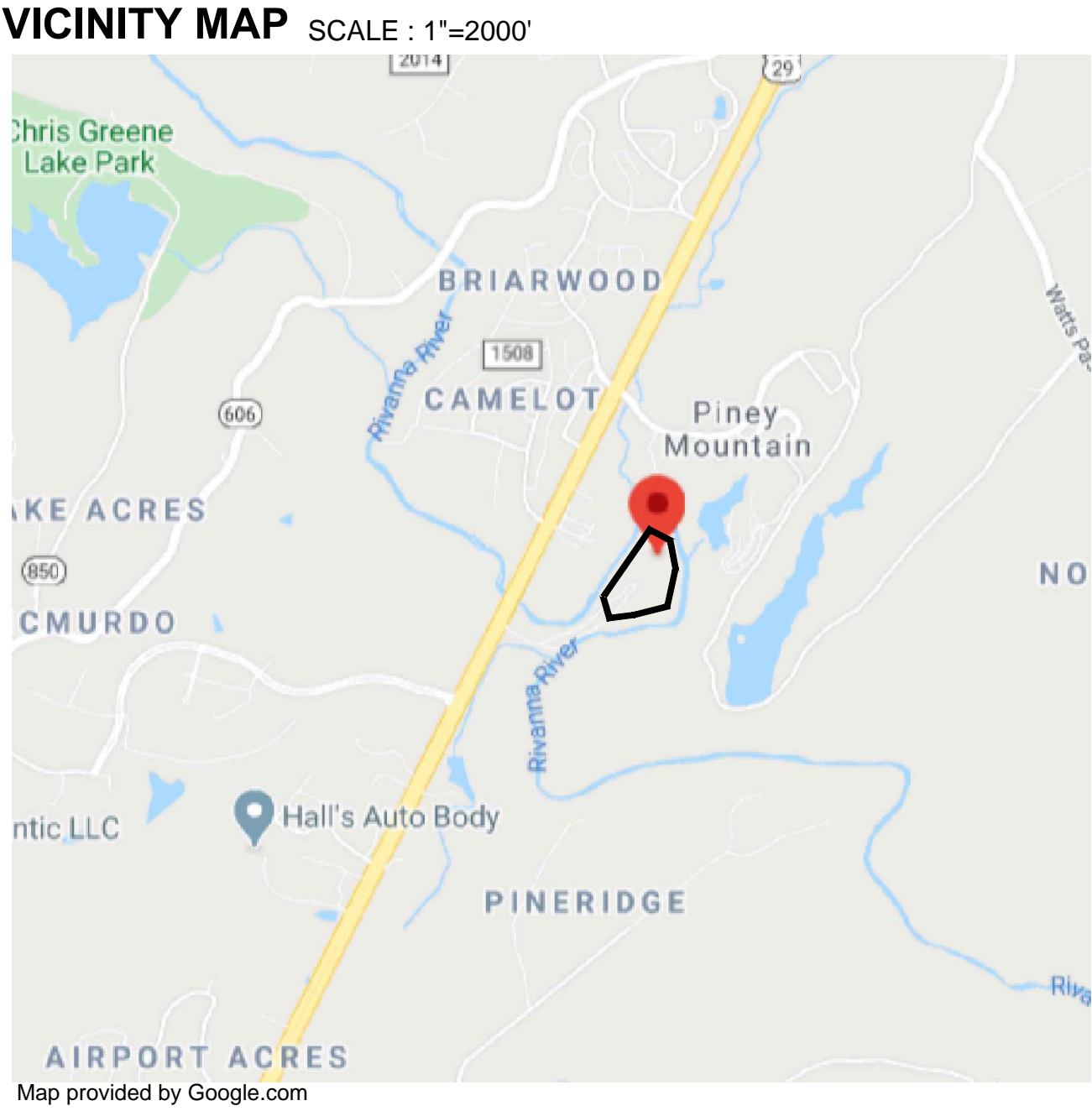


Preliminary Central Sewage System Plan For:

RIVER'S EDGE

TMP 32-5A1 & TMP 32-5A0

ALBEMARLE COUNTY, VIRGINIA



SHEET INDEX

- C1 COVER SHEET.
- C2 SITE OVERVIEW
- C3 PRELIMINARY CENTRAL SEWAGE SYSTEM PLAN
- C4 PRELIMINARY CENTRAL SEWAGE SYSTEM PLAN
- C5 PRELIMINARY CENTRAL SEWAGE SYSTEM CALCULATIONS & DETAILS

LEGEND

| EXISTING | NEW | DESCRIPTION |
|----------|-----|------------------------------------|
| | | BOUNDARIES BENCHMARK |
| | | SITE PROPERTY LINE |
| | | ADJACENT PROPERTY LINE |
| | | BUILDING SETBACK |
| | | PARKING SETBACK |
| | | SITE TEXT PARKING COUNT |
| | | TOPOGRAPHY INDEX CONTOUR |
| | | INTERVAL CONTOUR |
| | | SPOT ELEVATION |
| | | TOP OF CURB ELEVATION |
| | | TOP OF WALL ELEVATION |
| | | BOTTOM OF WALL ELEVATION |
| | | STREAM |
| | | STREAM BUFFER |
| | | 100 YEAR FLOODPLAIN |
| | | BUILDING BUILDING |
| | | RETAINING WALL |
| | | STAIRS |
| | | EDGE OF PAVEMENT |
| | | ROAD CENTERLINE |
| | | FRONT OF CURB |
| | | BACK OF CURB |
| | | CG-12 TRUNCATED DOME |
| | | SIDEWALK |
| | | BIKE PARKING |
| | | HANDICAP ACCESSIBLE AISLE |
| | | HANDICAP PARKING |
| | | MATERIAL CONCRETE |
| | | RIPRAP |
| | | ASPHALT |
| | | EC-2 MATTING |
| | | EC-3 MATTING |
| | | WETLAND |
| | | TREELINE |
| | | FENCE |
| | | UTILITY UTILITY POLE |
| | | GUY WIRE |
| | | OVERHEAD UTILITY |
| | | UNDERGROUND UTILITY |
| | | STORM |
| | | STORM MANHOLE |
| | | DROP INLET |
| | | STORM SEWER |
| | | ROOF DRAIN |
| | | SANITARY |
| | | SANITARY MANHOLE |
| | | SANITARY SEWER MAIN |
| | | SANITARY SEWER LATERAL |
| | | WATER |
| | | WATER LINE |
| | | WATER METER |
| | | WATER METER VAULT |
| | | FIRE HYDRANT |
| | | FIRE DEPARTMENT CONNECTION |
| | | EASEMENTS GAS |
| | | GAS LINE |
| | | CONSTRUCTION |
| | | GRADING |
| | | ACCESS |
| | | SIGHT DISTANCE |
| | | UTILITY |
| | | STORMWATER FACILITY MAINTENANCE |
| | | STORMWATER ACCESS |
| | | DRAINAGE |
| | | SANITARY |
| | | WATERLINE |
| | | GASLINE |



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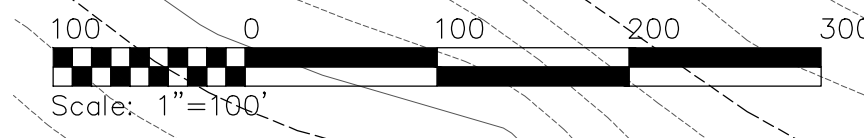
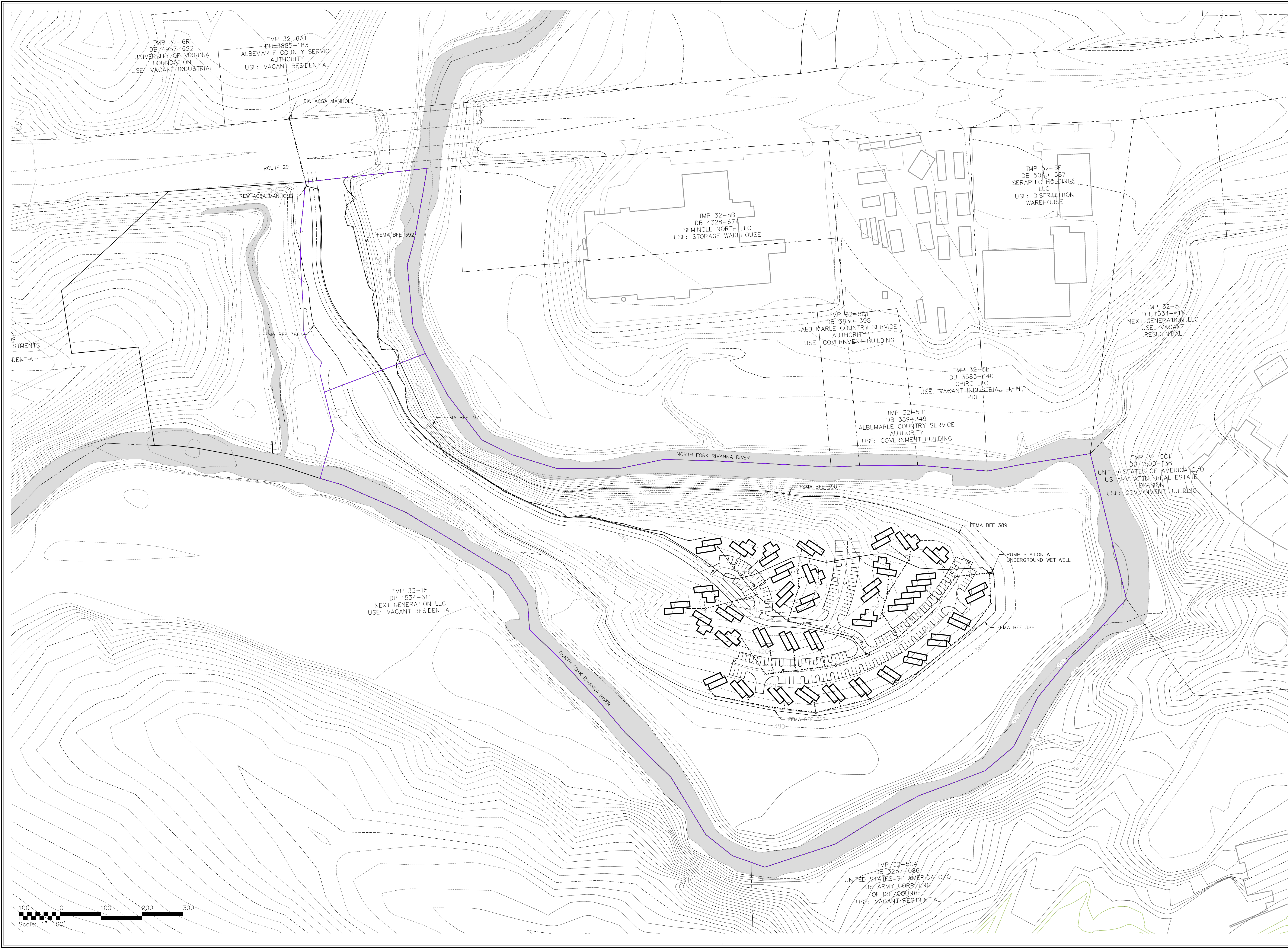
PRELIMINARY CENTRAL
SEWAGE SYSTEM PLAN
RIVER'S EDGE

ALBEMARLE COUNTY, VIRGINIA
SUBMISSION:
2020.06.29
REVISION:
1. 7-24-2020

FILE NO. 15.064

COVER

SHEET C1 of 5



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SITE PLAN
SHEET C2 of 5



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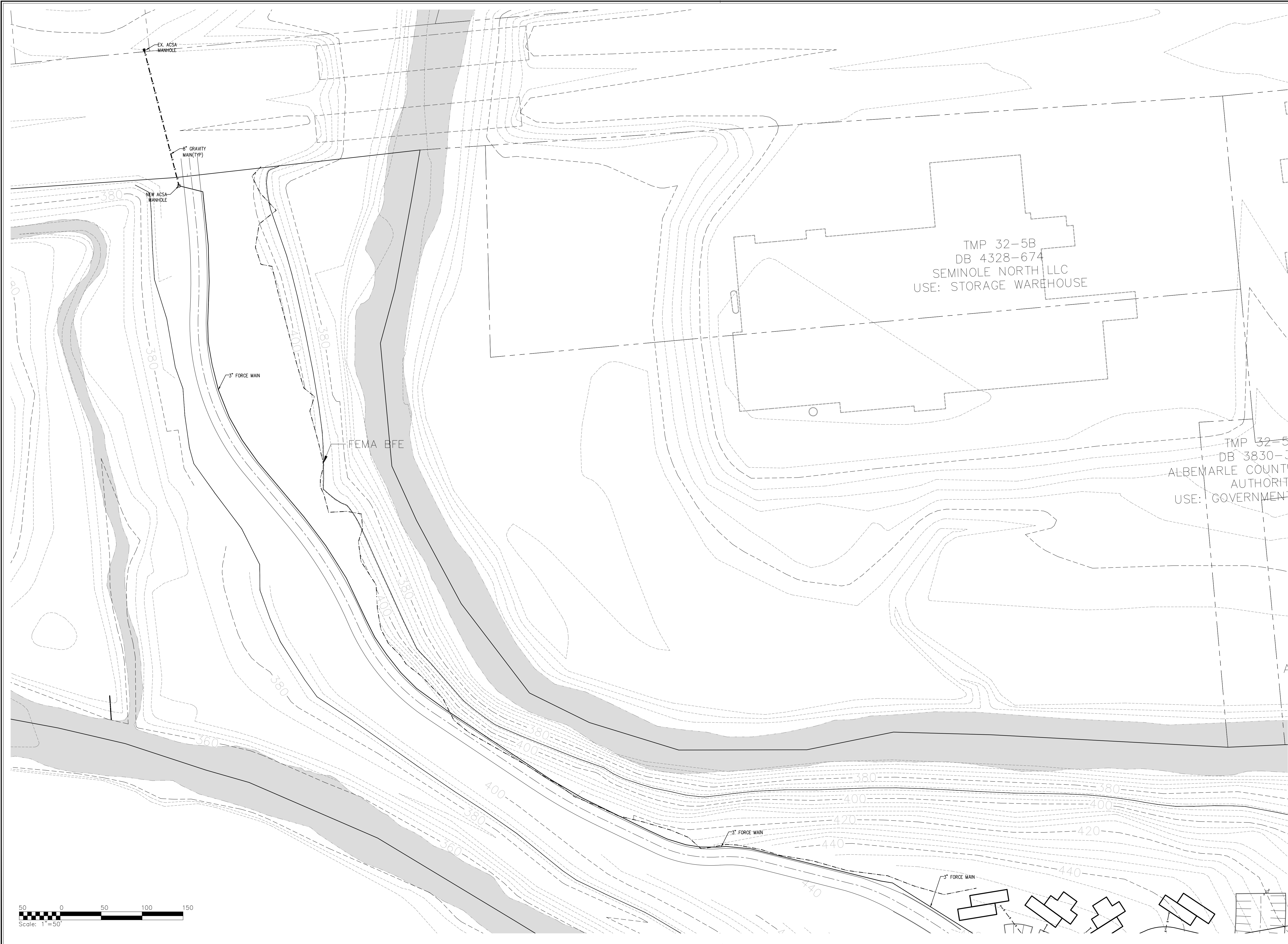


**PRELIMINARY CENTRAL
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RIVER'S EDGE**

ALBEMARLE COUNTY, VIRGINIA
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SITE PLAN
SHEET C3 of 5



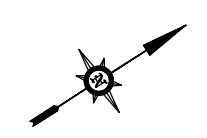
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SITE PLAN
SHEET C4 of 5

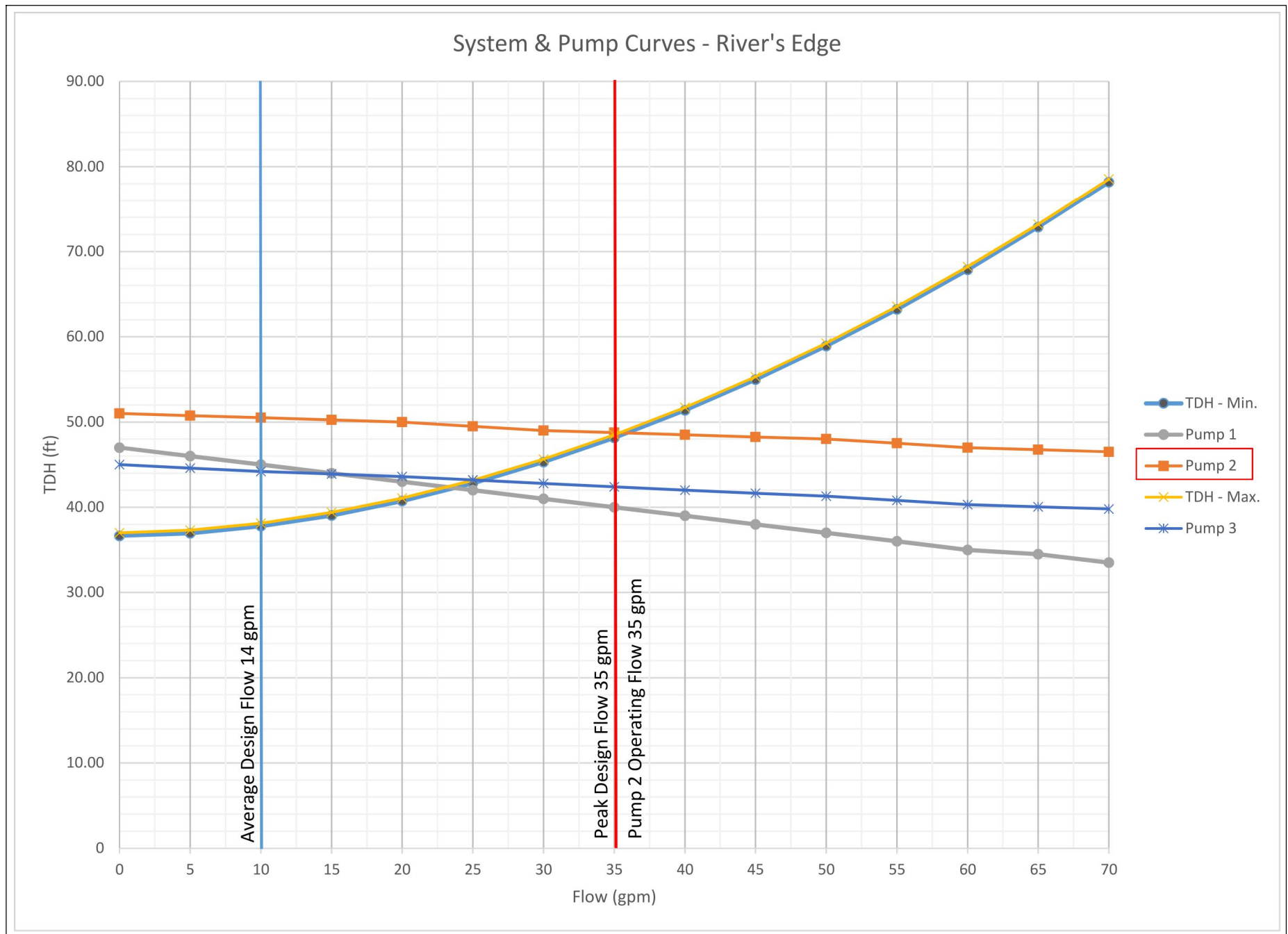
C4

| Daily Average Flowrates | | | | |
|-------------------------|-------|------------------|----------|-------------|
| Type: | Unit: | Number of Units: | gpd/unit | Total (gpd) |
| 2-Person Townhomes | Each | 100 | 200 | 20,000 |

| Daily Peak Flowrates | | |
|----------------------|-------|------------------|
| Type: | Unit: | Number of Units: |
| Daily Average Flow | gpd | 20,000 |
| | gpm | 14 |
| | MGD | 0.02 |
| Peaking factor | n/a | 2.5 |
| | gpd | 50,000 |
| | gpm | 35 |
| Peak Daily Flow | MGD | 0.05 |

| Wet Well Sizing | | |
|-------------------|---------|------------------|
| Type: | Unit: | Number of Units: |
| Diameter | ft | 5 |
| Volume per foot | gallons | 100 |
| Wet Working Depth | ft | 4.35 |
| Total Storage | gallons | 1,422 |
| Pumping Rate | gpm | 35 |
| Time to Empty | minutes | 41 |

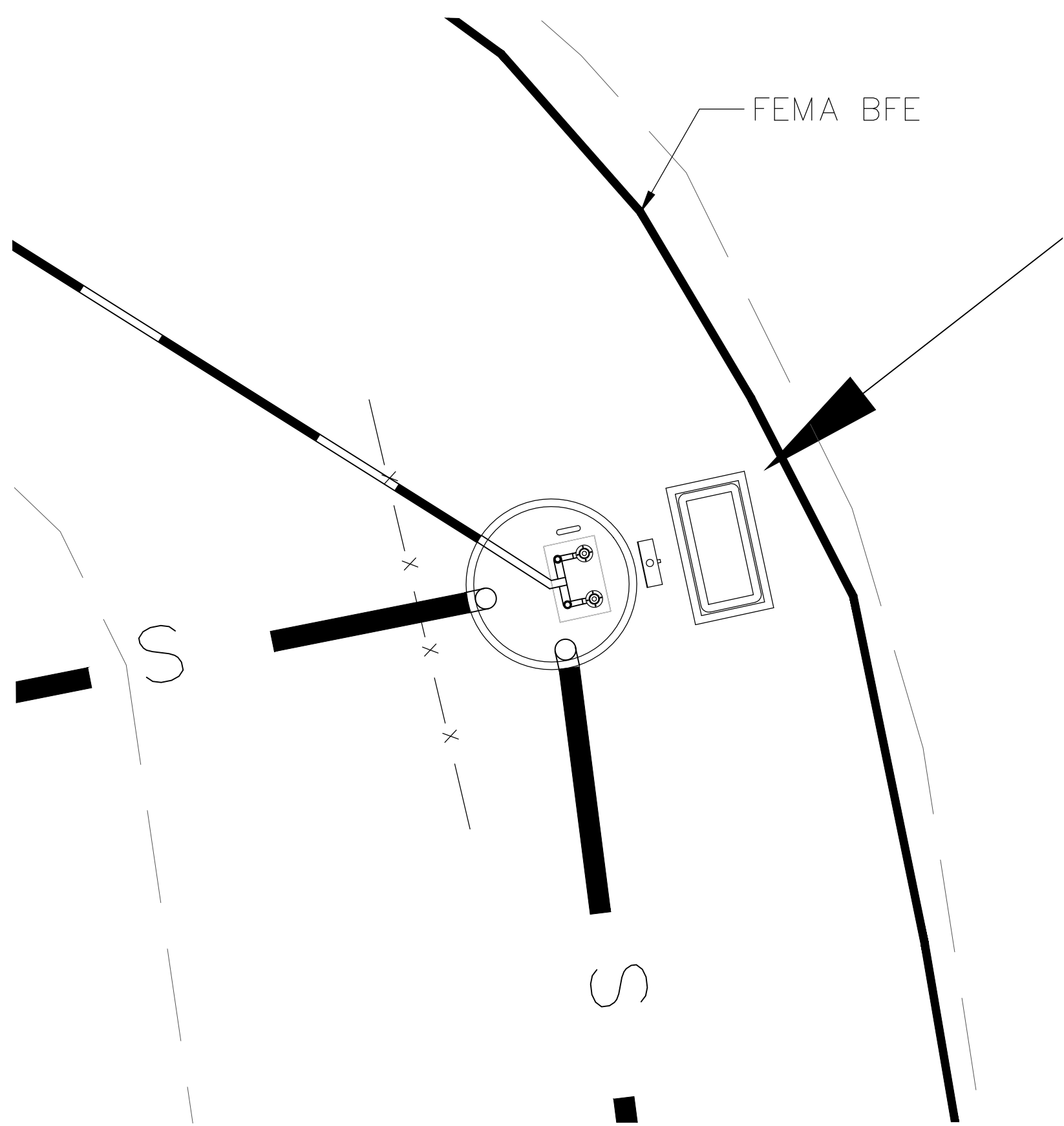
1 SEWER FLOW CALCULATIONS
C5 NOT TO SCALE



4 SYSTEM CURVE PLOT
C5 NOT TO SCALE

| System Curve - Head Loss Calculations | | | | | | |
|---------------------------------------|------|--------------------|--------------------|---------------|----------------|----------------|
| Flowrate | | Water Velocity In: | Dynamic Losses, ft | | Total Head | |
| gpm | cfs | Velocity ft/s | Minor Losses | Pipe Friction | Min. Lift (ft) | Max. Lift (ft) |
| 0 | 0 | 0 | 0 | 0 | 36.65 | 37.00 |
| 5 | 0.01 | 0.23 | 0.01 | 0.31 | 36.96 | 37.31 |
| 10 | 0.02 | 0.45 | 0.02 | 1.11 | 37.77 | 38.13 |
| 15 | 0.03 | 0.68 | 0.05 | 2.34 | 39.04 | 39.39 |
| 20 | 0.04 | 0.91 | 0.09 | 3.99 | 40.72 | 41.07 |
| 25 | 0.06 | 1.13 | 0.14 | 6.02 | 42.81 | 43.16 |
| 30 | 0.07 | 1.36 | 0.20 | 8.44 | 45.28 | 45.64 |
| 35 | 0.08 | 1.59 | 0.27 | 11.22 | 48.14 | 48.49 |
| 40 | 0.09 | 1.82 | 0.35 | 14.37 | 51.37 | 51.72 |
| 45 | 0.10 | 2.04 | 0.45 | 17.86 | 54.96 | 55.31 |
| 50 | 0.11 | 2.27 | 0.55 | 21.71 | 58.91 | 59.26 |
| 55 | 0.12 | 2.50 | 0.67 | 25.90 | 63.21 | 63.56 |
| 60 | 0.13 | 2.72 | 0.80 | 30.42 | 67.86 | 68.21 |
| 65 | 0.14 | 2.95 | 0.93 | 35.27 | 72.85 | 73.21 |
| 70 | 0.16 | 3.18 | 1.08 | 40.46 | 78.18 | 78.54 |
| 75 | 0.17 | 3.40 | 1.24 | 45.96 | 83.85 | 84.21 |
| 80 | 0.18 | 3.63 | 1.41 | 51.79 | 89.85 | 90.21 |
| 85 | 0.19 | 3.86 | 1.60 | 57.94 | 96.16 | 96.54 |
| 90 | 0.20 | 4.08 | 1.79 | 64.40 | 102.84 | 103.19 |
| 95 | 0.21 | 4.31 | 1.99 | 71.18 | 109.82 | 110.17 |
| 100 | 0.22 | 4.54 | 2.21 | 78.26 | 117.12 | 117.47 |

5 SYSTEM CURVE TABLE
C5 NOT TO SCALE



6 PUMP STATION PLAN
C5 SCALE: 1"=4'

| Minor Losses | | |
|-----------------------|----------|------------|
| Type | K-values | # Fittings |
| Gate Valve | 0.19 | |
| Plug Valve (99% open) | 0.86 | 1 |
| Butterfly Valve | 0.4 | |
| Swing Check Valve | 2.5 | 1 |
| 90° Bend | 0.25 | 3 |
| 45° Bend | 0.2 | |
| 22.5° Bend | 0.12 | |
| 11.25° Bend | 0.06 | |
| Tee (through) | 0.6 | |
| Tee (side out) | 1.8 | 1 |
| Cross (through) | 0.6 | |
| Cross (side out) | 1.8 | |
| Reducer/increaser | 0.1 | |
| Discharge to air | 1 | 1 |

| Pump settings : | | |
|-----------------------|--------|----|
| 1) Bottom of wet well | 401.00 | ft |
| 2) Pump Inlet | 401.17 | ft |
| 2) All pumps off | 401.34 | ft |
| 3) Lead pump on | 405.35 | ft |
| 4) Lag pump on | 406.35 | ft |
| 5) High Water Alarm | 407.35 | ft |
| 6) Top of wet well | 411.00 | ft |

| Wet Well | | |
|--------------------|----|-----|
| Wet Well Diameter | 5 | ft |
| Wet Well Height | 10 | ft |
| Pump Rate (PUMP 3) | 35 | gpm |

| Min active wet well volume : | | |
|--|------|---------|
| 1) Min of 1 minute pump rate time | 35 | gallons |
| 2) 10 minutes pump cycle time (3 cycles/hr/pump) | 87.5 | gallons |

| Volume per foot of depth of wet well : | |
|--|--------------|
| Depth (ft) | Volume (gal) |
| 0 | 0 |
| 1 | 100 |
| 2 | 247 |
| 3 | 394 |
| 4 | 540 |
| 5 | 687 |
| 6 | 834 |
| 7 | 981 |
| 8 | 1128 |
| 9 | 1275 |
| 10 | 1422 |

2 PUMP STATION CALCULATIONS (LOSSES)
C5 NOT TO SCALE

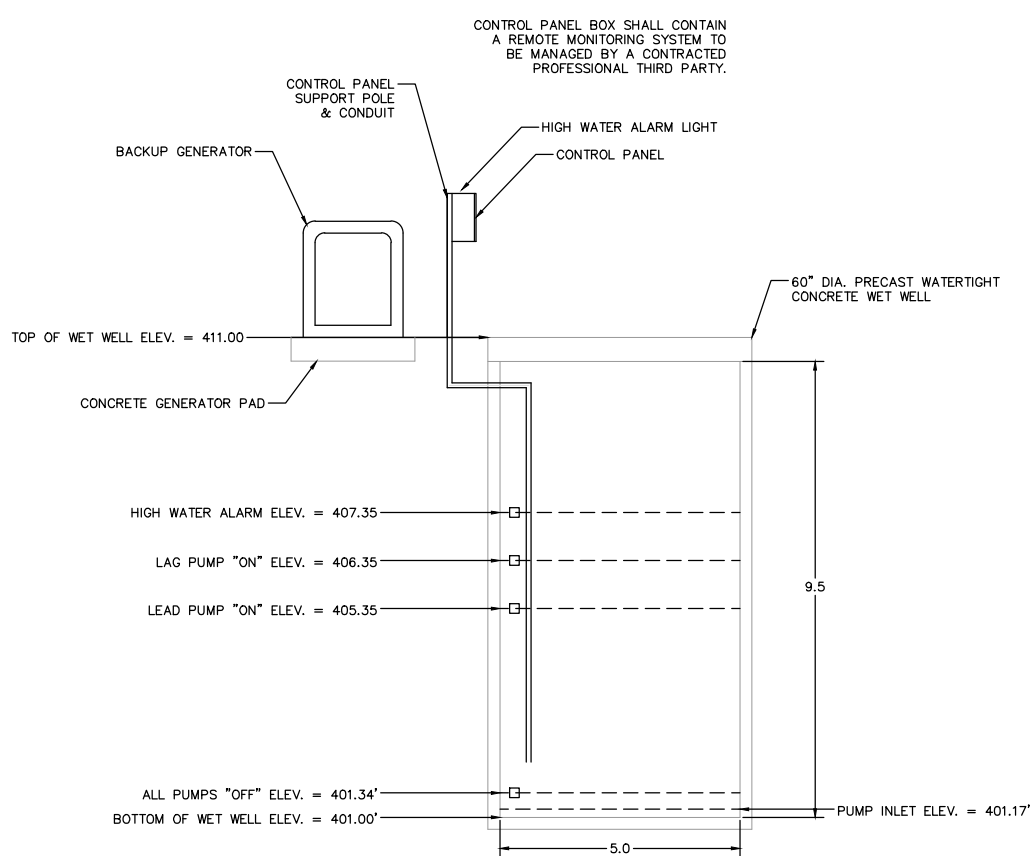
| Pump Selection | | | |
|-------------------|-------------------------------|-----------------------------|-----------------------------|
| Pump Option: | Pump 1 | Pump 2 | Pump 3 |
| Description: | Goulds, 1.5 HP, 230V, 3 Phase | Goulds, 5 hp, 230V, 3 Phase | Goulds, 2 hp, 230V, 3 Phase |
| Model #: | 2DM51F-3NA | WS50D4 | 3SD52G3CA |
| Discharge Size: | 2" Discharge (Solids) | 3" Discharge (solids) | 2.5" Discharge (solids) |
| Flow (gpm) | TDH (ft) | TDH (ft) | TDH (ft) |
| 0 | 47 | 51 | 45 |
| 5 | 46 | 51 | 45 |
| 10 | 45 | 51 | 44 |
| 15 | 44 | 50 | 44 |
| 20 | 43 | 50 | 44 |
| 25 | 42 | 50 | 43 |
| 30 | 41 | 49 | 43 |
| 35 | 40 | 49 | 42 |
| 40 | 39 | 48 | 42 |
| 45 | 38 | 48 | 42 |
| 50 | 37 | 48 | 41 |
| 55 | 36 | 48 | 41 |
| 60 | 35 | 47 | 40 |
| 65 | 34 | 47 | 40 |
| 70 | 34 | 47 | 40 |
| 75 | 33 | 46 | 39 |
| 80 | 32 | 46 | 39 |
| 85 | 31 | 46 | 39 |
| 90 | 30 | 46 | 38 |
| 95 | 29 | 45 | 38 |
| 100 | 28 | 45 | 38 |
| USE : residential | | | |

| Pump 1 Details: | | Pump 2 Details: | | Pump 3 Details: | |
|-----------------------|-------|-----------------------|-------|-----------------------|-------|
| Gould 2DM51F-3NA | | Gould WS50D4 | | Gould WS50D4 | |
| HP | 1.5 | HP | 5 | HP | 2 |
| Discharge (in) | 2 | Discharge (in) | 3 | Discharge (in) | 3 |
| Solids (in) | 2 | Solids (in) | 3 | Solids (in) | 2.5 |
| Height (in) | 18.81 | Height (in) | 28.25 | Height (in) | 28.25 |
| Discharge Height (in) | 4.38 | Discharge Height (in) | 6.75 | Discharge Height (in) | 6.75 |
| Length (in) | 7.75 | Length (in) | 15.75 | Length (in) | 15.75 |
| Weight (lb) | 32 | Weight (lb) | 13 | Weight (lb) | 13 |
| Volts | 230 | Volts | 230 | Volts | 230 |
| Phase | 3 | Phase | 3 | Phase | 3 |
| Max Amps | 3 | Max Amps | 17 | Max Amps | 10 |
| RPM | 3,450 | RPM | 1,750 | RPM | 1,750 |
| Cord Length (ft) | 20 | Cord Length (ft) | 20 | Cord Length (ft) | 20 |

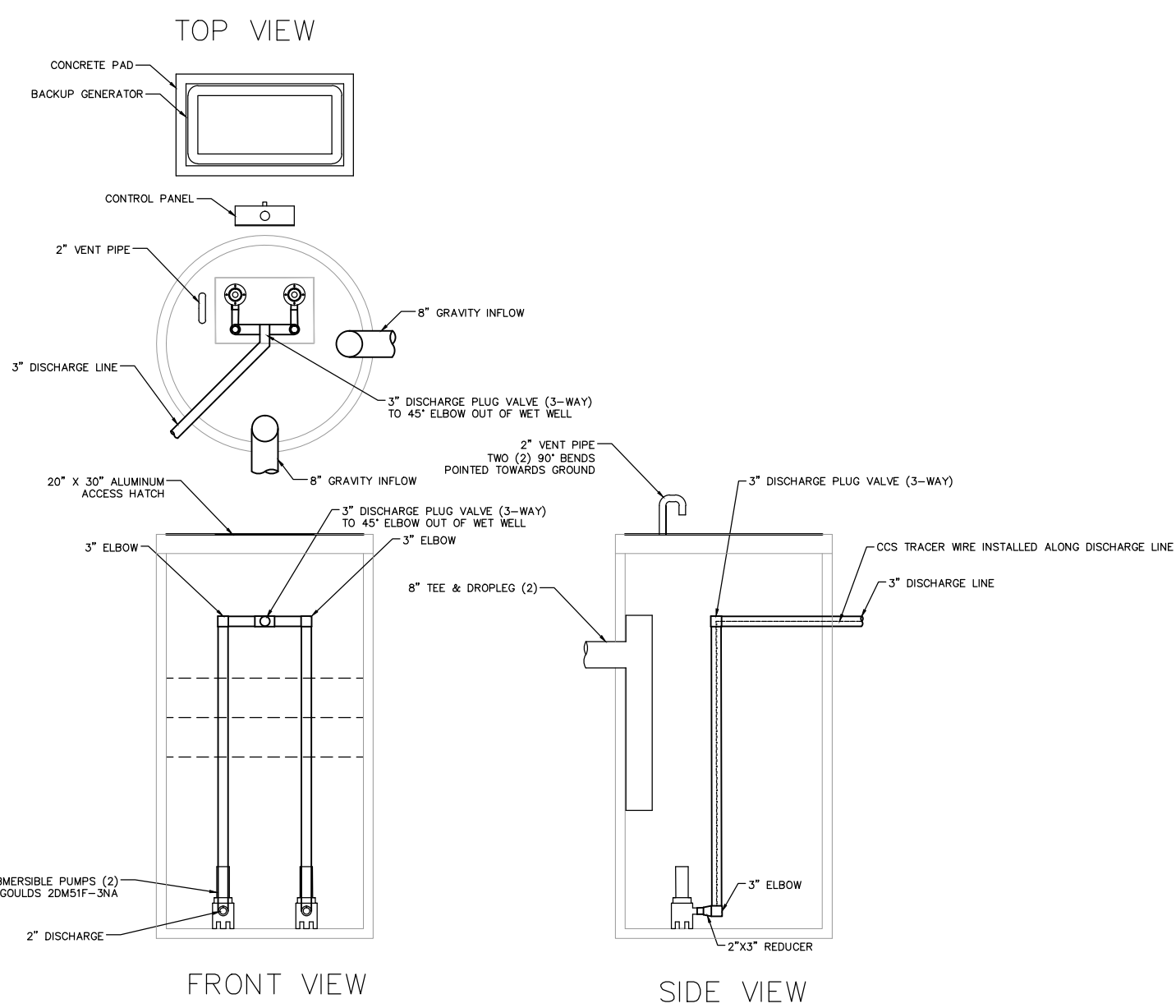
| Minimum Submergence Hx | |
|------------------------|----------|
| Fd= | 0.025 |
| Hx= | 0.177 ft |
| Hmin= | 4.011 ft |

Hx = Pump Inlet to Pumps "OFF"
Hmin = Pump "Off" to Lead Pump "ON"
Hlag = Lead Pump "On" to Lag Pump "ON"
Htee = Lag Pump "ON" to High Water Alarm

3 PUMP SELECTION DATA
C5 NOT TO SCALE



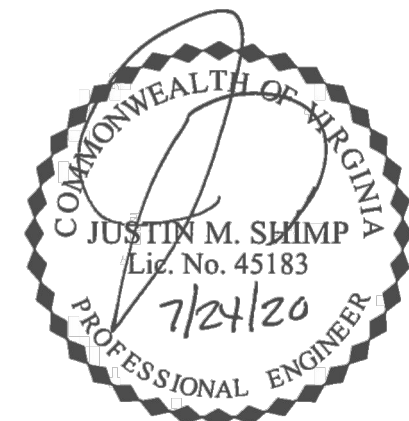
7 WET WELL WATER ELEVATIONS
C5 SCALE: 1"=4'



8 PUMP STATION CROSS-SECTION
C5 SCALE: 1"=4'

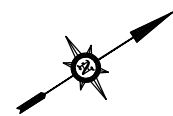


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PUMP STATION DETAILS

SHEET C5 of 5

C5