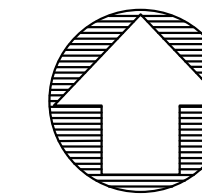
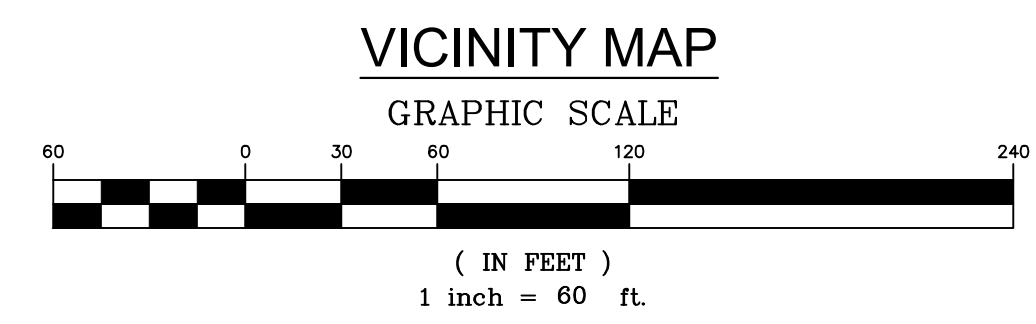


LOCATION MAP
1" = 200'



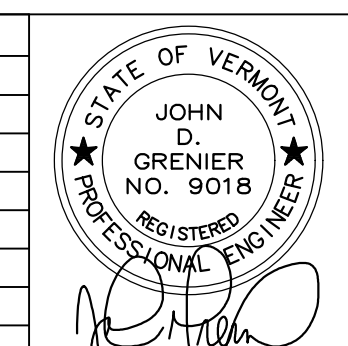
| SHEET INDEX | |
|--------------|----------------------|
| SHEET NUMBER | SHEET TITLE |
| T-1 | COVER SHEET |
| C-1 | PROPOSED SITE PLAN |
| C-2 | SITE DETAILS |
| C-3 | SEWER DETAILS |
| C-4 | PUMP STATION DETAILS |
| C-5 | WATER DETAILS |
| SW-1 | STORMWATER PLAN |
| SW-2 | STORMWATER DETAILS |
| SW-3 | STORMWATER DETAILS |



NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

| No. | Date | Revision | By |
|-----|------|----------|----|
| | | | |
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**4/17/2023
PERMIT SET**



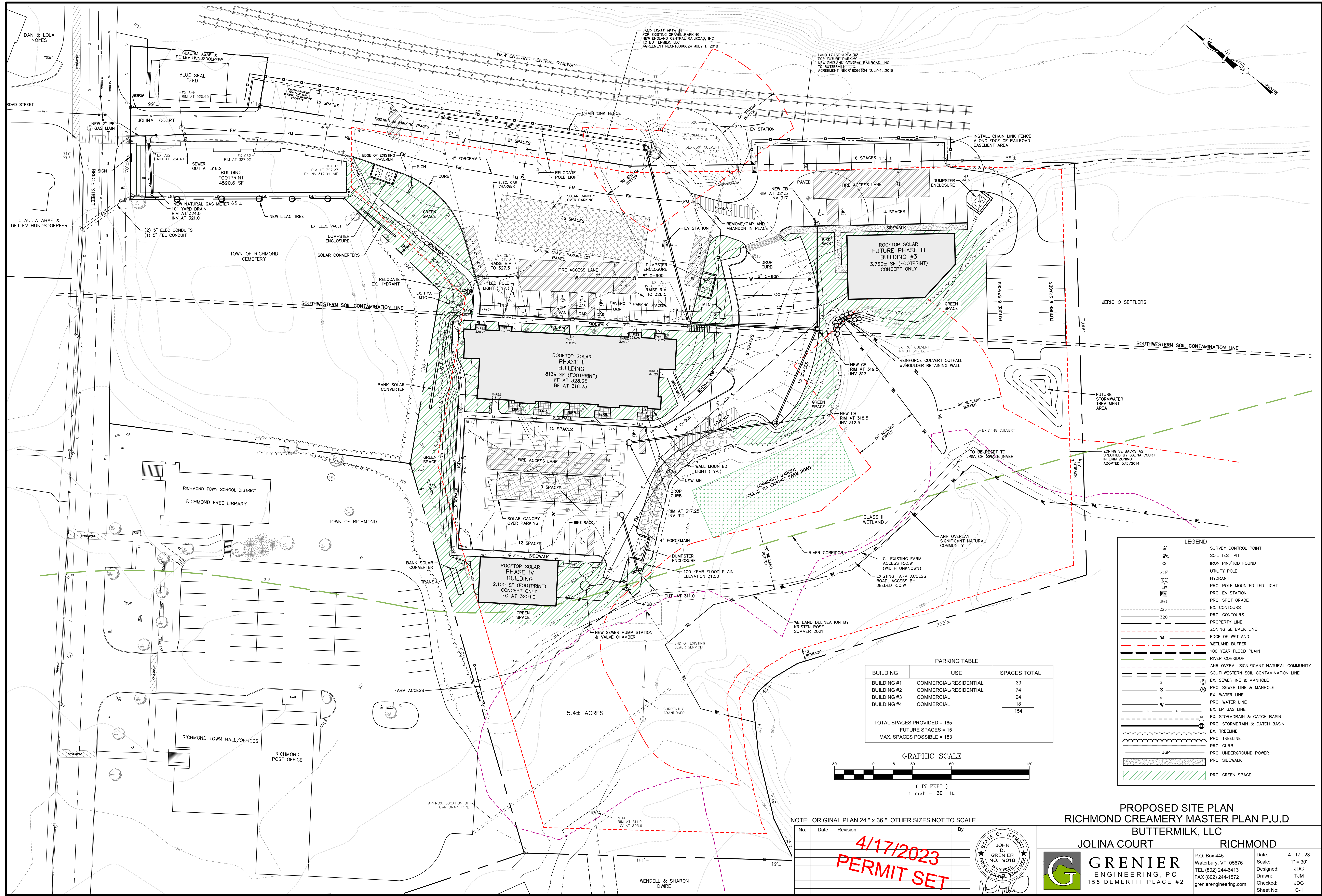
COVER SHEET
RICHMOND CREAMERY MASTER PLAN P.U.D
BUTTERMILK, LLC

JOLINA COURT RICHMOND

GRENIER
ENGINEERING, PC
155 DEMERITT PLACE #2

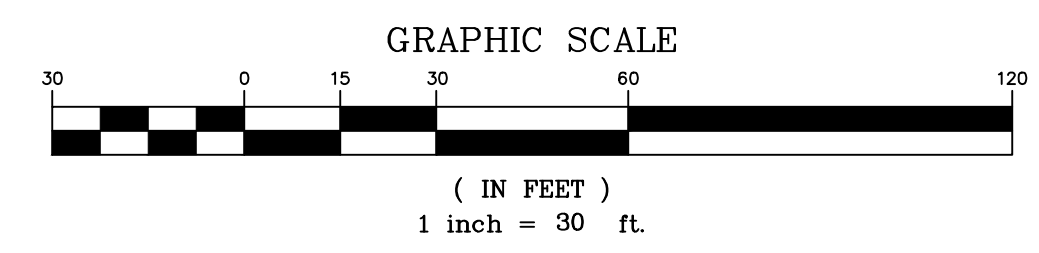
P.O. Box 445
Waterbury, VT 05676
TEL (802) 244-6413
FAX (802) 244-1572
grenierengineering.com

Date: 4 - 17 - 23
Scale: 1" = 200'
Designed: JDG
Drawn: TJM
Checked: JDG
Sheet No: T-1



PARKING TABLE

| BUILDING | USE | SPACES TOTAL |
|-------------------------|------------------------|--------------|
| BUILDING #1 | COMMERCIAL/RESIDENTIAL | 39 |
| BUILDING #2 | COMMERCIAL/RESIDENTIAL | 74 |
| BUILDING #3 | COMMERCIAL | 24 |
| BUILDING #4 | COMMERCIAL | 18 |
| TOTAL SPACES PROVIDED = | | 154 |
| FUTURE SPACES = | | 15 |
| MAX. SPACES POSSIBLE = | | 183 |



LEGEND

- SURVEY CONTROL POINT
- SOIL TEST PIT
- IRON PIN/ROD FOUND
- UTILITY POLE
- HYDRANT
- PRO. POLE MOUNTED LED LIGHT
- PRO. EV STATION
- PRO. SPOT GRADE
- EX. CONTOURS
- PRO. CONTOURS
- PROPERTY LINE
- ZONING SETBACK LINE
- EDGE OF WETLAND
- WETLAND BUFFER
- 100 YEAR FLOOD PLAIN
- RIVER CORRIDOR
- ANR OVERLAY SIGNIFICANT NATURAL COMMUNITY
- SOUTHWESTERN SOIL CONTAMINATION LINE
- EX. SEWER INE & MANHOLE
- PRO. SEWER LINE & MANHOLE
- EX. WATER LINE
- PRO. WATER LINE
- EX. LP GAS LINE
- EX. STORMDRAIN & CATCH BASIN
- PRO. STORMDRAIN & CATCH BASIN
- EX. TREELINE
- PRO. TREELINE
- PRO. CURB
- PRO. UNDERGROUND POWER
- PRO. SIDEWALK
- PRO. GREEN SPACE

NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

| No. | Date | Revision | By |
|-----|------|----------|----|
| | | | |

**4/17/2023
PERMIT SET**



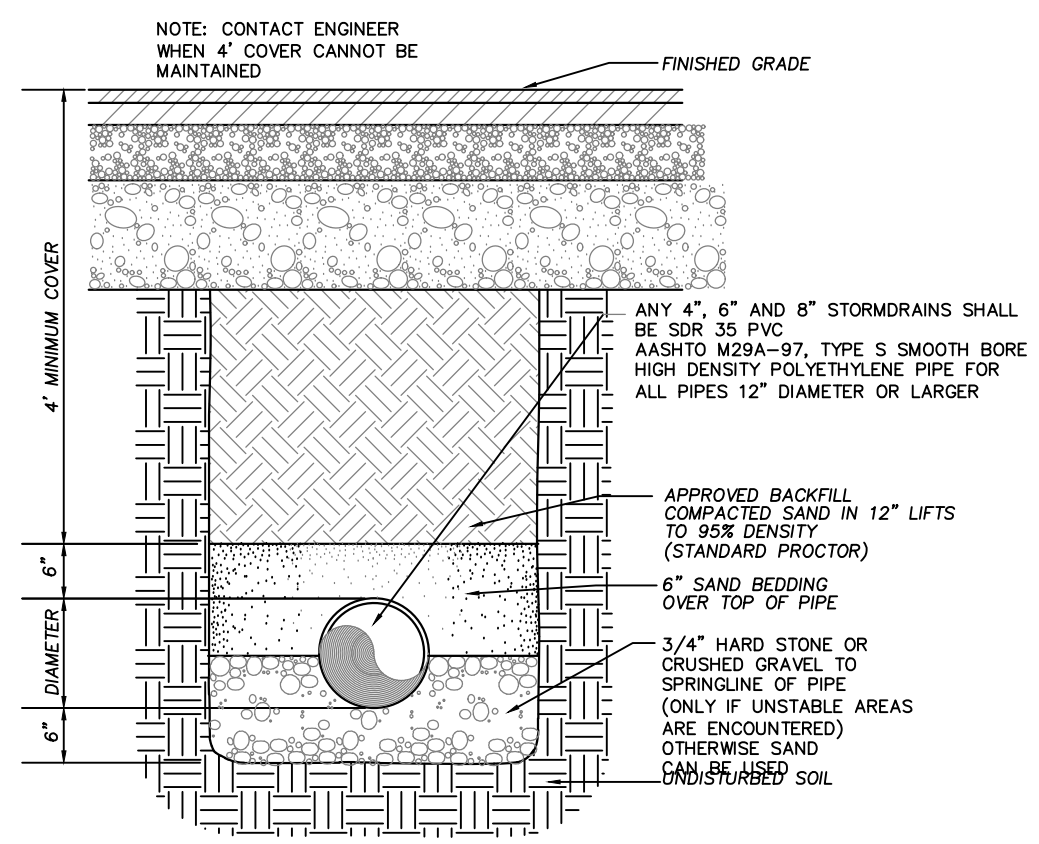
**PROPOSED SITE PLAN
RICHMOND CREAMERY MASTER PLAN P.U.D
BUTTERMILK, LLC**

JOLINA COURT RICHMOND

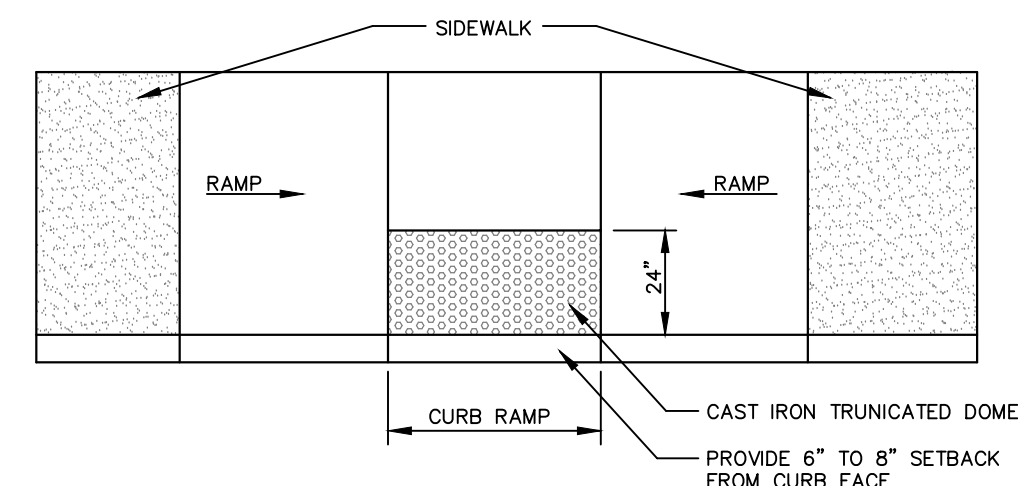
GRENIER ENGINEERING, PC
155 DEMERITT PLACE #2

P.O. Box 445
Waterbury, VT 05676
TEL (802) 244-6413
FAX (802) 244-1572
grenierengineering.com

Date: 4.17.23
Scale: 1" = 30'
Designed: JDG
Drawn: TJM
Checked: JDG
Sheet No: C-1

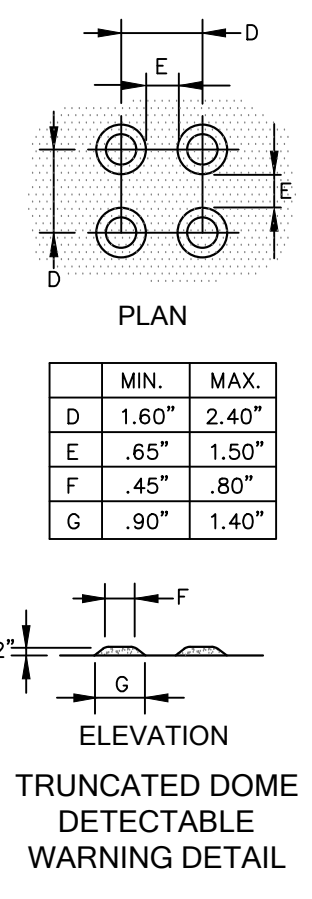


TYPICAL STORMDRAIN TRENCH
NTS

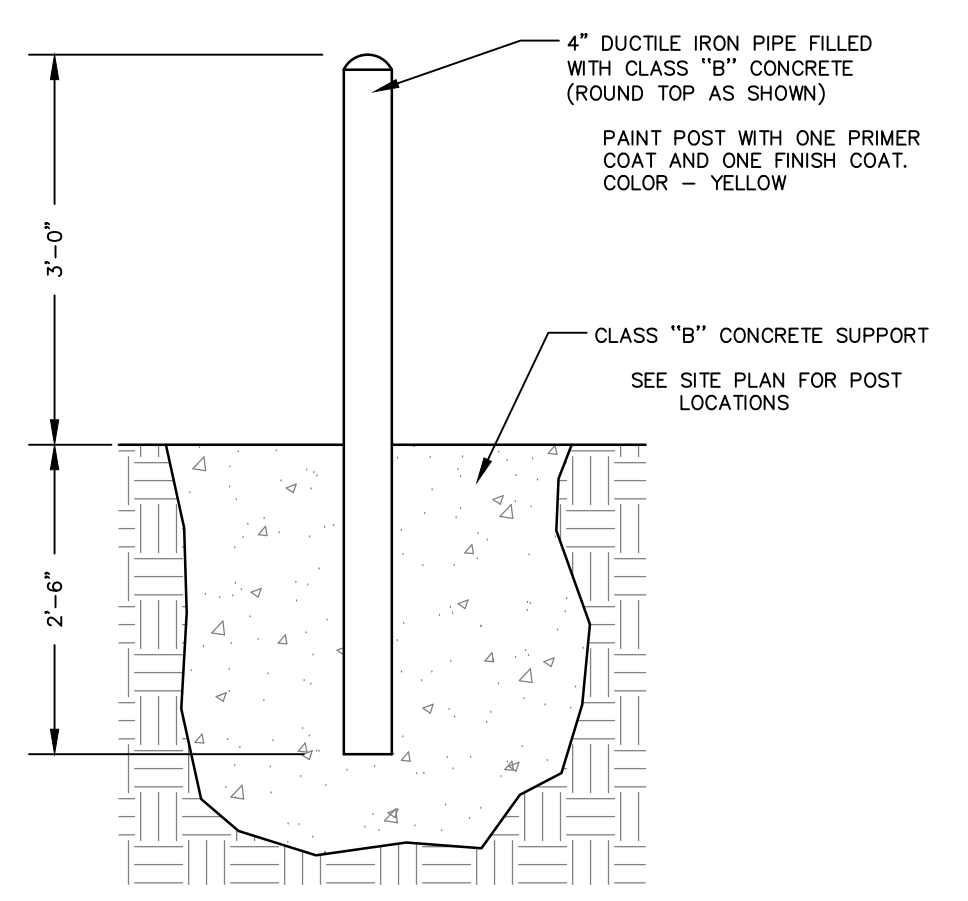


NOTES:
ASPHALT
ASPHALT SURFACES SHALL BE COMPOSED OF OIL BASED BITUMEN, COAL TAR ASPHALT IS NOT ACCEPTABLE, NOR WARRANTED. ASPHALT MUST CURE MINIMUM 20 DAYS PRIOR TO INSTALLATION TO INSURE PROPER BONDING OF ALL SURFACES. THIS ALLOWS TENSILE STRENGTH PROPERTIES OF BOTH MATERIALS TO MORE CLOSELY APPROXIMATE EACH OTHER. ANY ASPHALT AREAS REQUIRING DETECTABLE WARNING INSTALLATIONS SHALL BE COMPACTED WITH VIBRATORY ROLLERS OR APPROVED COMPACTION EQUIPMENT IN ADDITION TO STANDARD LOCAL CONDITIONS TO PROVIDE MAXIMUM COMPACTION OF ASPHALT ALLOWING THE GREATEST ADHESION.
SEAL COAT
SEAL COAT SHALL NOT BE PLACED ON ASPHALT OR COAL TAR SEALERS. IF SURFACE HAS BEEN SEALED, GRIND ENTIRE AREA TO BE INSTALLED TO REMOVE ALL SEALERS.
CONCRETE
MINIMUM COMPRESSIVE STRENGTH 3000 PSI. CONCRETE MUST CURE FOR 15 DAYS PRIOR TO INSTALLATION TO INSURE PROPER BONDING. ALL CONCRETE COLORING/ADDITIVES SHALL BE INTEGRAL, NOT SURFACE APPLIED. ALL "SURFACE CURING" COMPOUNDS OR SEALERS SHALL BE REMOVED BY METHOD OF GRINDING ON ANY CONCRETE THAT IS LESS THAN 6 MONTHS OLD BEFORE PRODUCTS ARE INSTALLED. SURFACE FINISH SHOULD BE MEDIUM BROOM FINISH FOR MAXIMUM ADHESION.
SURFACES
ALL SURFACES TO BE CLEAN AND DRY. TRUNCATED DOMES AND ALL RELATED INSTALLED SURFACES TO BE INSTALLED ACCORDING TO MANUFACTURERS SPECIFICATIONS. ALL DETECTABLE WARNING SURFACE INSTALLATIONS SHALL BE A MINIMUM, AT LEAST AS NON SKID AS THE SURROUNDING PEDESTRIAN SURFACES.

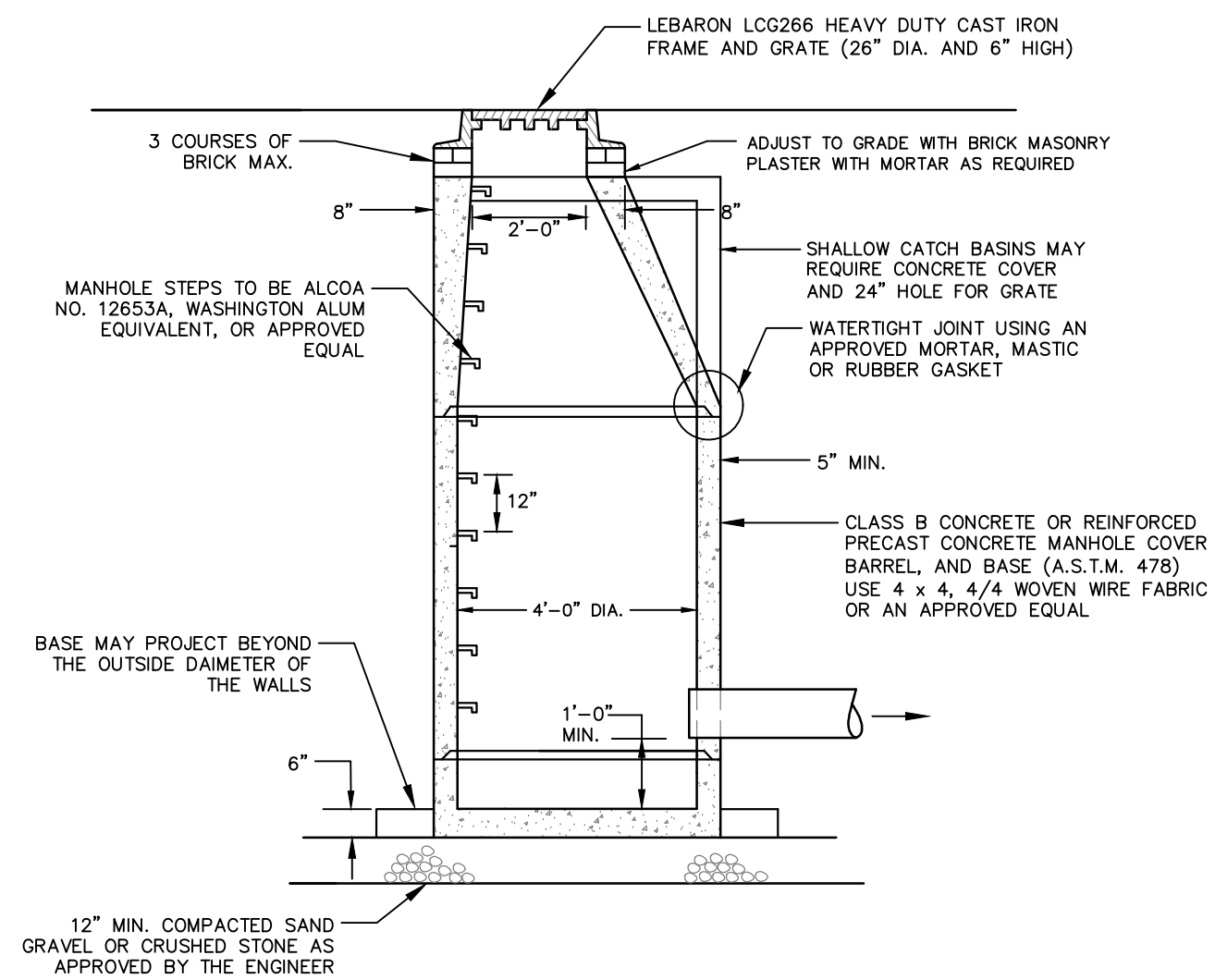
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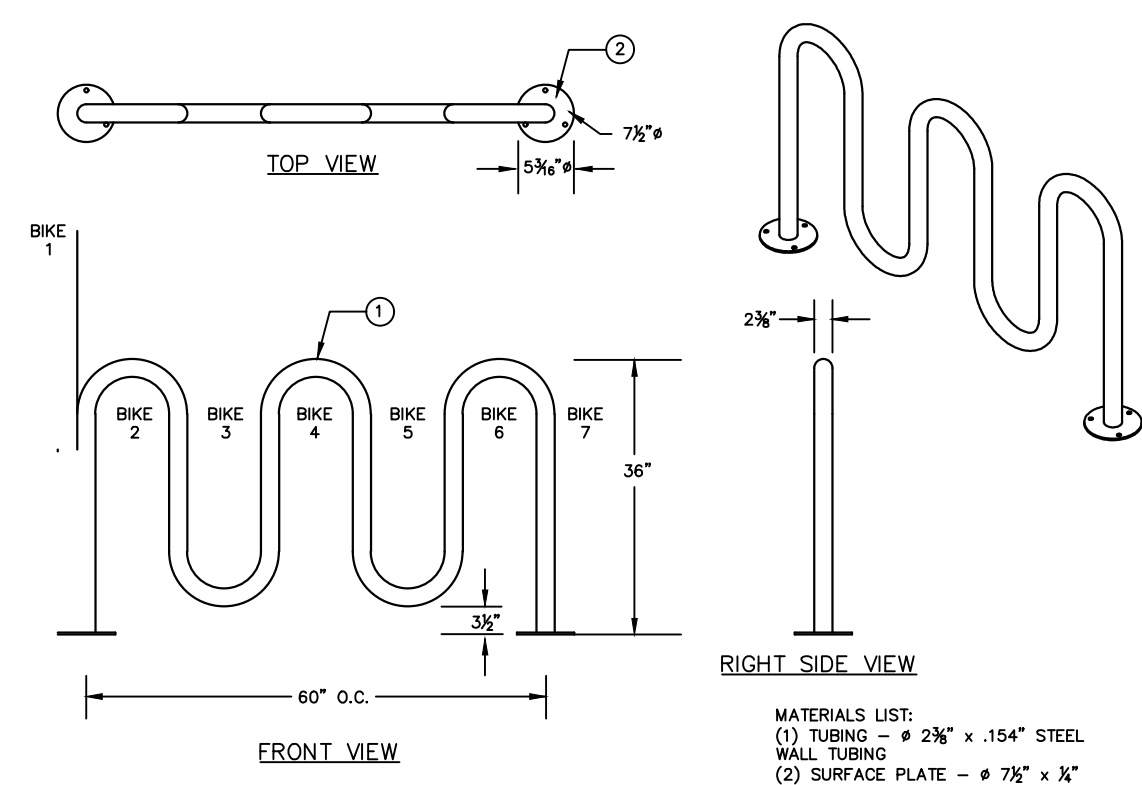
TRUNCATED DOME
DETECTABLE
WARNING DETAIL



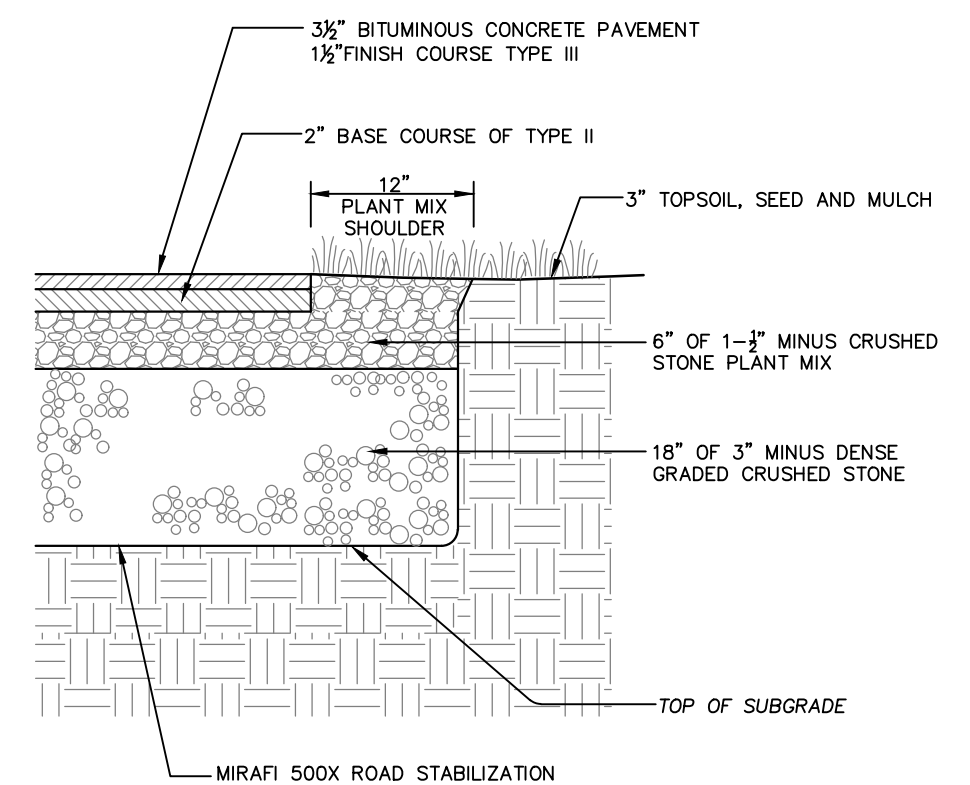
BOLLARD DETAIL
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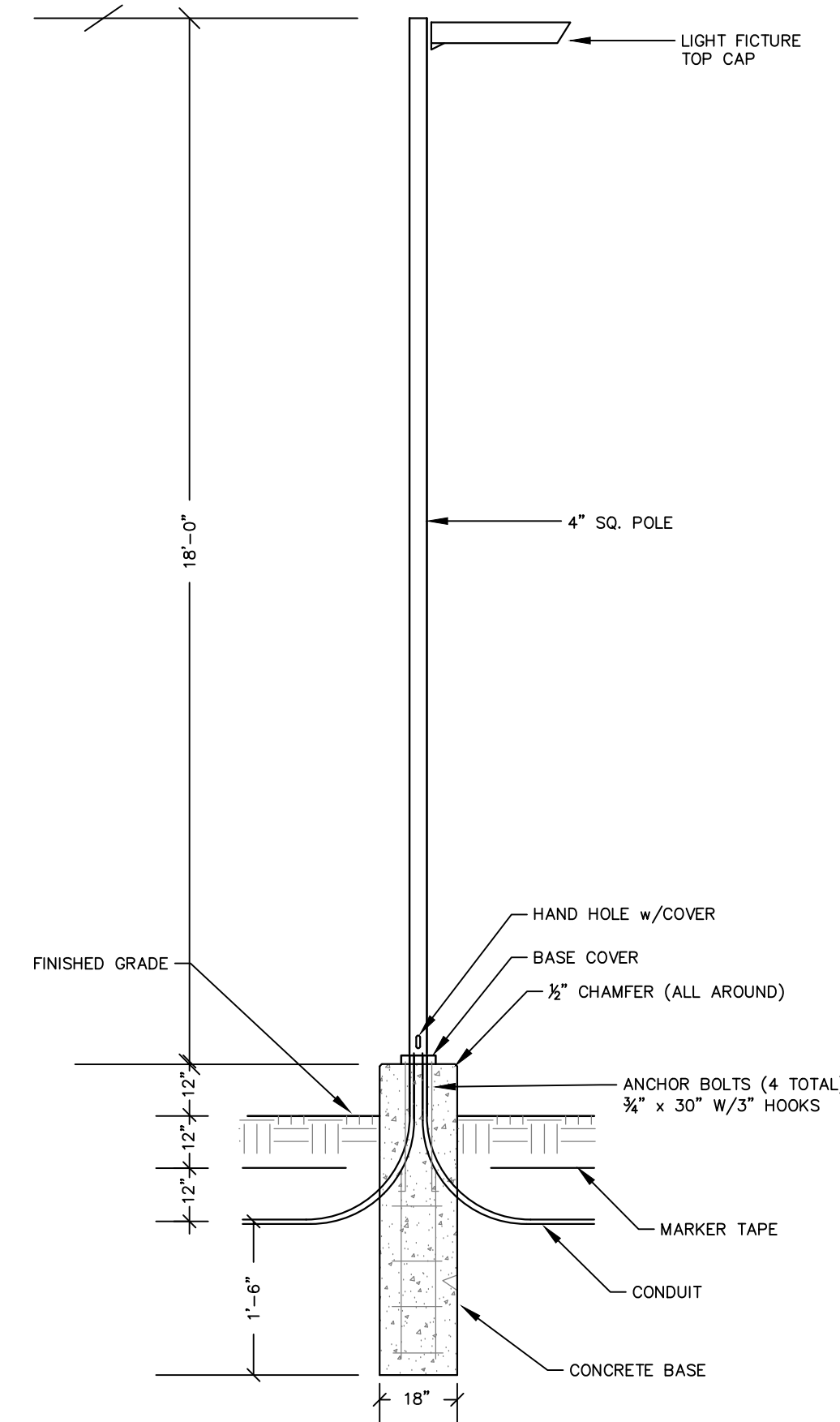
TYPICAL CATCH BASIN DETAIL
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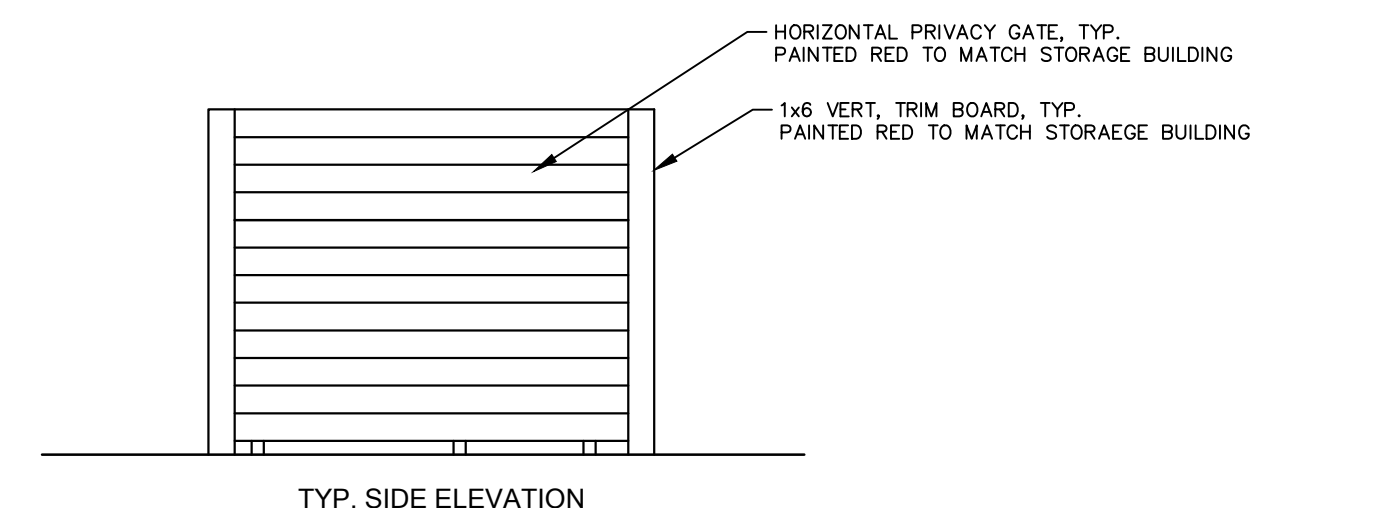
BIKE RACK DETAIL
NTS



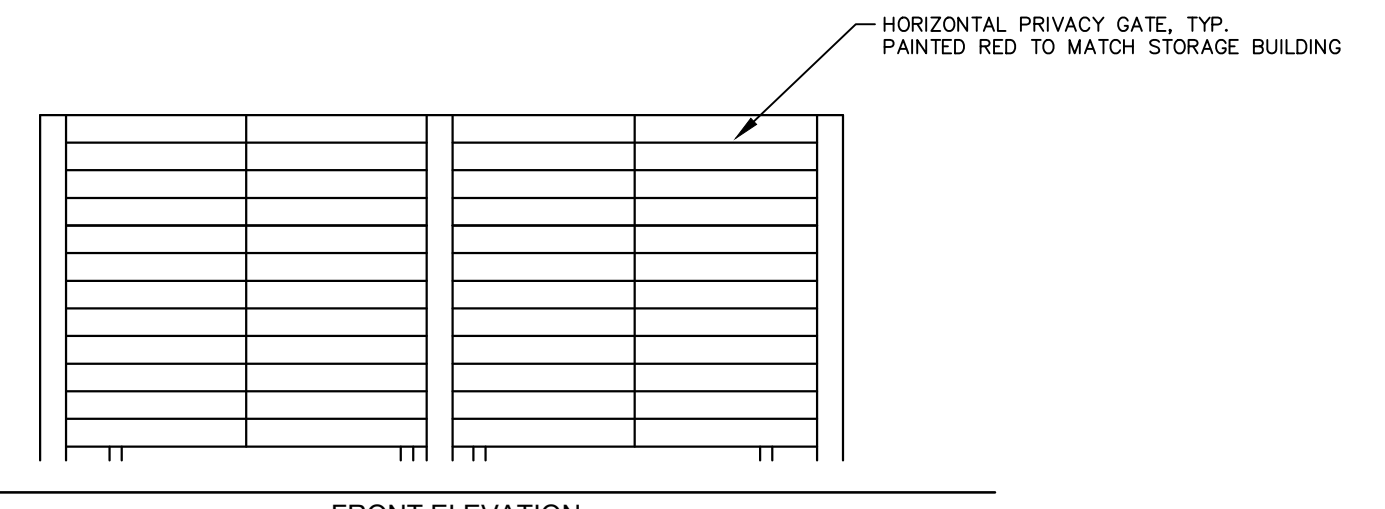
TYPICAL PARKING LOT DETAIL
NTS



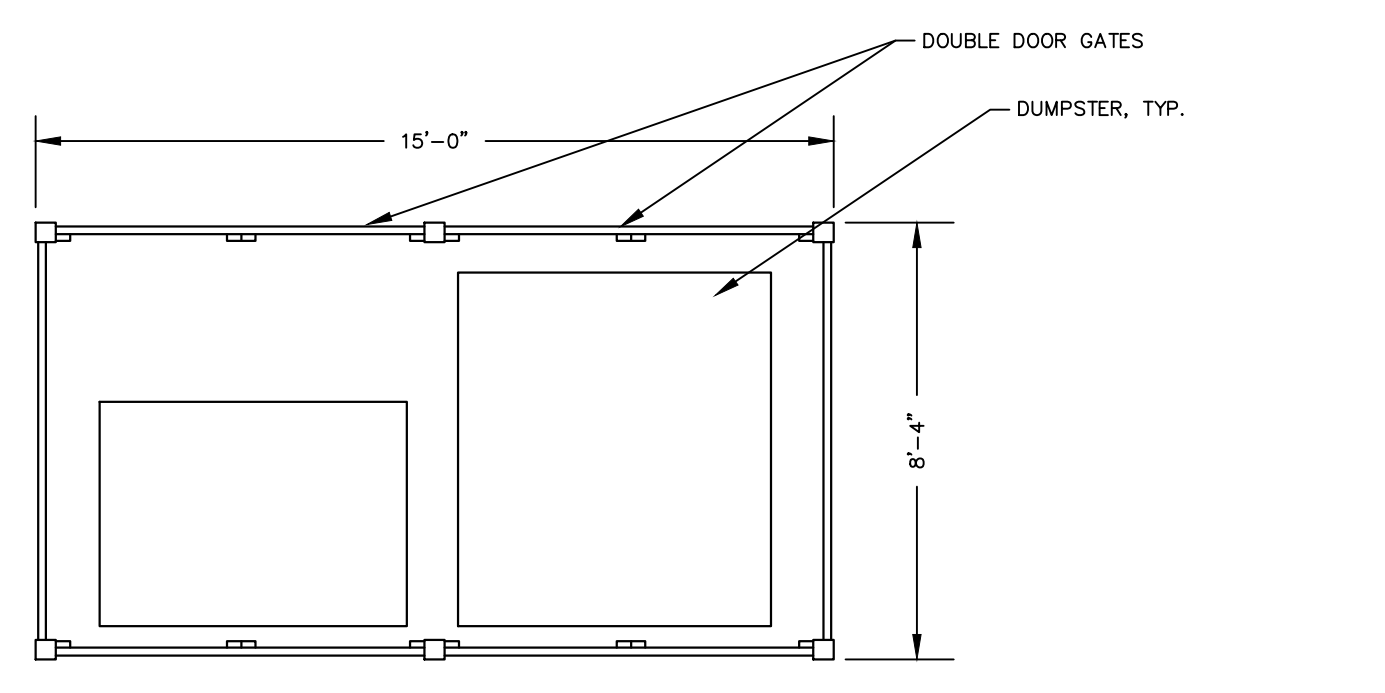
PARKING LOT LIGHTING POLE TYPE FIXTURE A
WITH CONCRETE LIGHT POLE BASE
NTS



TYP. SIDE ELEVATION

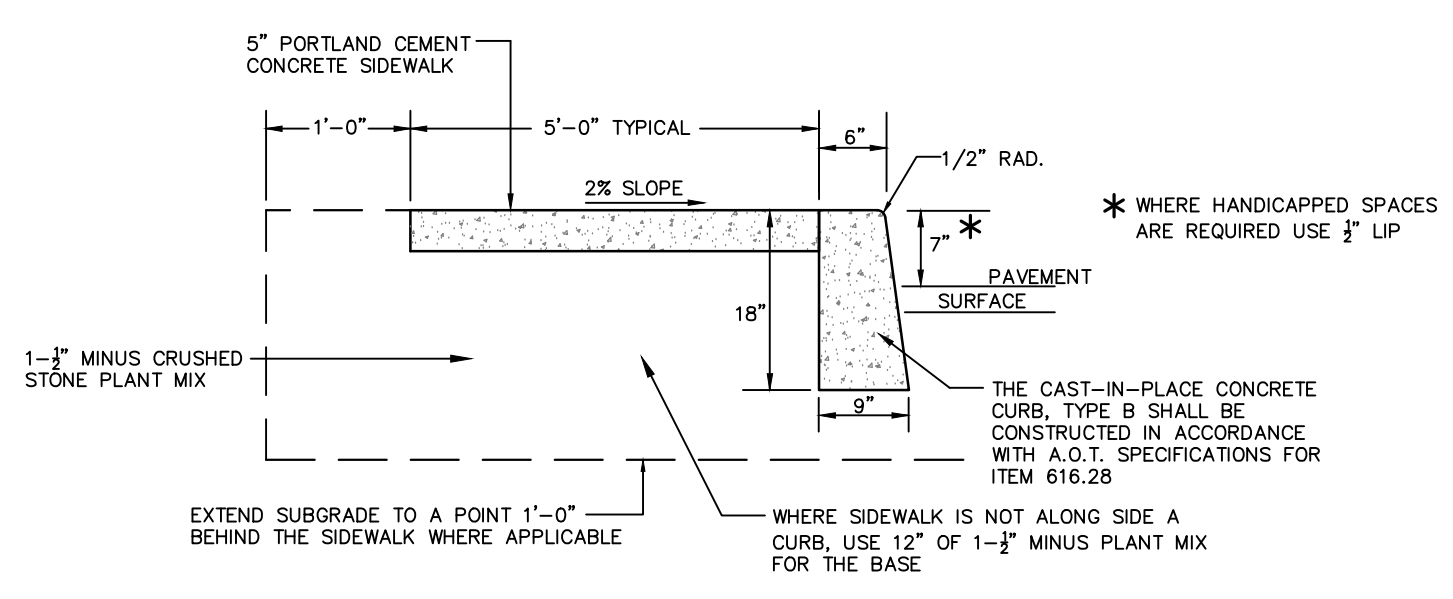


FRONT ELEVATION

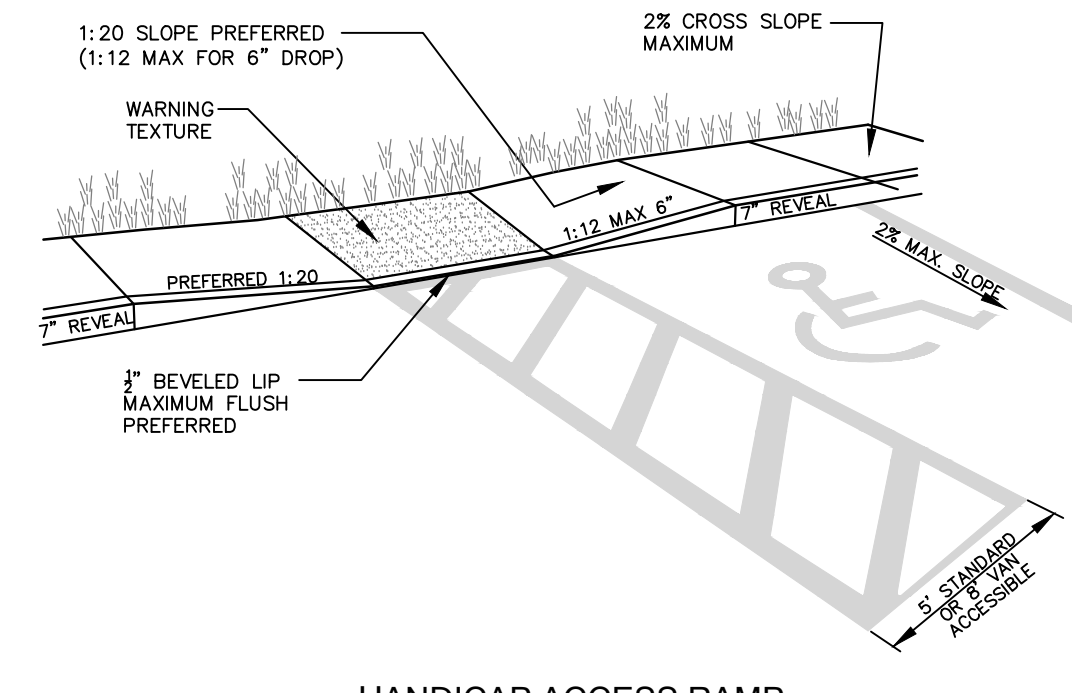


PLAN VIEW

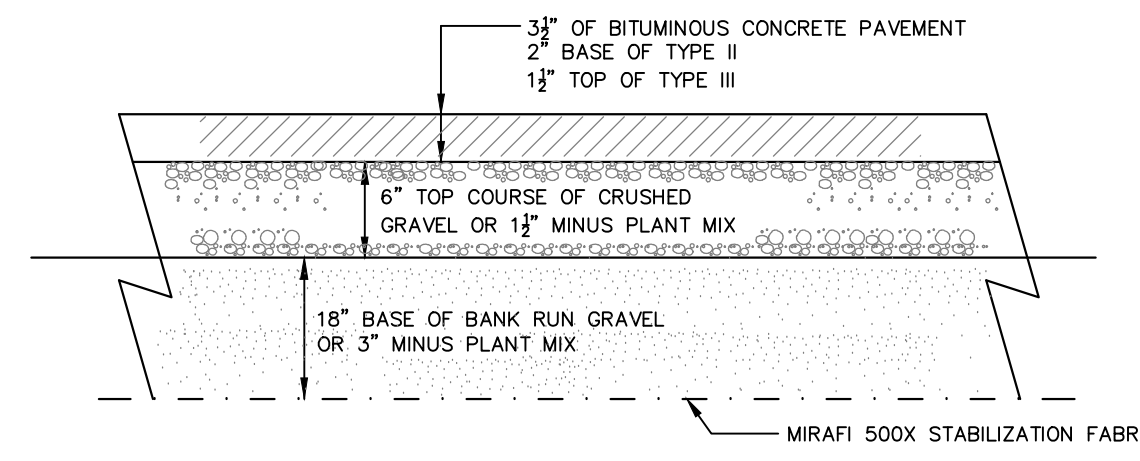
TRASH ENCLOSURE DETAIL
NTS



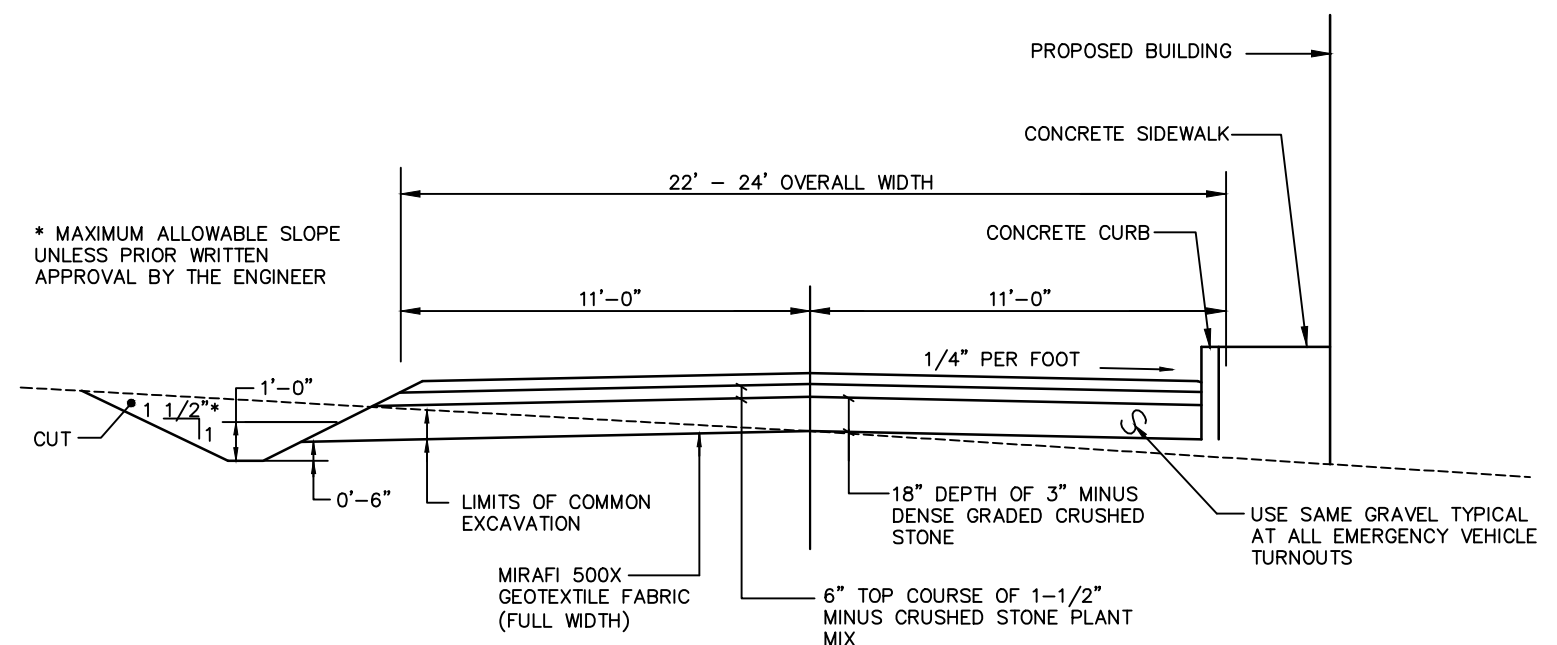
SIDEWALK & CAST-IN-PLACE CONCRETE CURB, TYPE B
NTS



HANDICAP ACCESS RAMP
NTS



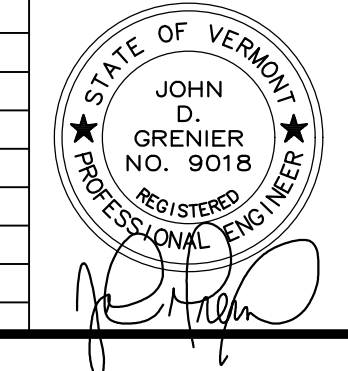
TYPICAL NEW PARKING LOT CROSS SECTION
NTS



PRIVATE LOCAL ROADWAY SECTION
NTS

NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

| No. | Date | Revision | By |
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GRENIER
ENGINEERING, PC
155 DEMERITT PLACE #2

Date: 4.17.23
Scale: A/N
Designed: JDG
Drawn: TJM
Checked: JDG
Sheet No: C-2

SITE DETAILS
RICHMOND CREAMERY MASTER PLAN P.U.D
BUTTERMILK, LLC

JOLINA COURT RICHMOND

CONSTRUCTION NOTES

1. PRIOR TO CONSTRUCTION OF THE PUMP STATION AND VALVE PIT, MEET WITH THE ENGINEER TO DISCUSS THE PLANS.
2. CONTACT DISSAFE (1-800-344-7233) AND THE OWNER PRIOR TO ANY EXCAVATION ACTIVITIES.
3. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR ALL MATERIALS AND EQUIPMENT, PRIOR TO ORDERING.
4. THE CONTRACTOR SHALL COMPLY WITH THE LATEST RULES OF THE VERMONT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (VOSHA).
5. CONSTRUCTION INSTALLATION OF THE PUMP STATION AND RELATED SHALL BE OBSERVED BY THE ENGINEER. THE MEANS, METHOD AND SAFETY OF THE INSTALLATION ARE THE RESPONSIBILITY OF THE CONTRACTOR(S).
6. THE PUMP STATION SHALL BE LEAKAGE TESTED PRIOR TO BACKFILLING. THE LEAKAGE TEST SHALL CONSIST OF FILLING THE PUMP STATION WITH WATER, ALLOWING FOR STABILIZATION AND THEN MEASURING THE DROP OVER A 24 HOUR PERIOD. THE ALLOWABLE LEAKAGE SHALL BE 0.5% OF THE TOTAL VOLUME MEASURED OVER A 24 HOUR PERIOD. THE CONTRACTOR WILL MAKE ANY NECESSARY REPAIRS AND RETEST IF SATISFACTORY RESULTS ARE NOT OBTAINED.
7. AFTER INSTALLATION OF ALL PUMPING EQUIPMENT, APPURTENANCES AND ELECTRICAL CONTROLS THE CONTRACTOR, MANUFACTURER, ENGINEER AND OWNER SHALL MEET FOR START-UP AND TESTING OF THE PUMP STATION. EACH PUMP WILL BE OPERATIONALLY TESTED ALONG WITH ALL CONTROLS.
8. THE MANUFACTURER WILL RECORD THE PUMPING RATES OF EACH PUMP TO VERIFY COMPLIANCE WITH OPERATING REQUIREMENTS.
9. THE MANUFACTURER SHALL PROVIDE ASSISTANCE TO THE OWNER FOR INSTALLATION, START-UP, AND ADVISING OPERATING PERSONNEL IN THE OPERATION AND MAINTENANCE OF THE EQUIPMENT. THE MANUFACTURER SHALL SUPPLY FIVE OPERATION AND MAINTENANCE MANUALS AFTER APPROVAL OF THE SHOP DRAWINGS. THE MANUFACTURER SHALL PROVIDE WRITTEN CERTIFICATION THAT THE EQUIPMENT WAS INSTALLED AND IS OPERATING CORRECTLY.
10. A ONE YEAR GUARANTEE SHALL BE PROVIDED ON ALL EQUIPMENT. THE GUARANTEE WILL COVER THE REPAIR OR REPLACEMENT OF A FAULTY CONDITION CAUSED BY NORMAL OPERATION OF THE EQUIPMENT. THE ONE YEAR GUARANTEE BEGINS UPON THE ENGINEER'S ACCEPTANCE (THE WRITTEN CERTIFICATION). IN THE EVENT OF FAULTY EQUIPMENT, THE PERIOD IS EXTENDED ONE YEAR BEYOND ANY REPAIRS.
11. THE CONTRACTOR/SUPPLIER SHALL COORDINATE AND CONFIRM WITH THE POWER COMPANY ON ELECTRICAL REQUIREMENTS PRIOR TO ORDERING ANY EQUIPMENT.
12. PRIOR TO CASTING ACCESS HATCHES, THE CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF OPENINGS ARE ADEQUATE FOR PUMP REMOVAL AND SLIDE RAIL SYSTEM.

EQUIPMENT SPECIFICATIONS SUMMARY

1. PRECAST CONCRETE PUMP STATION (10' DIA), VALVE PIT (5' INSIDE DIA)
2. PUMPS - BARNES AKSHVASONA EXPLOSION PROOF VORTEX SOLIDS HANDLING PUMP, 5 HP, 460/60/3, 1750 RPM PUMPS WITH 4" DISCHARGE TO PROVIDE 150 GPM @ 20' TOTAL HEAD LOSS AND CAPABLE OF HANDLING 3" SOLIDS PUMPS SUPPLIED WITH DOUBLE MECH SEAL AND SEAL LEAK SENSOR. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
3. SLIDE RAIL SYSTEM - INCLUDES BASE, ELBOW, BARNES BAF-4 CAST IRON SLIDE RAIL, DISCONNECT AND UPPER RAIL SUPPORT BRACKET (OR EQUAL).
4. US FILTER CONTROL SYSTEMS FP-2, NEMA 3R (OUTDOOR) DUPLEX CONTROL PANEL FOR OPERATION OF ABOVE PUMPS. TO INCLUDE 152 "VIEW AT A GLANCE" PUMP CONTROLLER AND A1000 SUBMERSIBLE LEVEL TRANSDUCER. THE UNIT WILL BE COMPLETE WITH CIRCUIT BREAKERS, MAGNETIC CONTACTORS, OVERLOADS, H-O-A SWITCHES, LEAK SENSOR LIGHTS, ELAPSED TIME METERS, AND RUN LIGHTS FOR EACH PUMP. PROVIDE FLASHING RED LIGHT AND ALARM (OR EQUAL).
5. LEVEL TRANSDUCER/TRANSMITTER: SIEMENS INTRALINK CL150 PUMP CONTROL UNIT WITH US FILTER A1000 LOOP POWERED 14-20 MA SUBMERSIBLE LEVEL TRANSMITTER. REFER TO SPECIFICATION FOR ADDITIONAL INFO.
6. STAINLESS STEEL EYE HOOK TRANSDUCER HANGER.
7. SUMP PUMP IN VALVE PIT WITH JUNCTION BOX AND ON/OFF/ALARM FLOAT WRED TO CONTROL PANEL. USE BARNES 1/3 HP BP314 OR EQUAL, 115 VOLT AND SINGLE PHASE, OR EQUAL.

ELECTRICAL NOTES

1. CONDUIT SEALING FITTINGS SHALL BE FILLED WITH A LISTED COMPOUND PRIOR TO COMMISSIONING AS PER NEC 501.
2. ALL CONDUIT TO BE GRC UNLESS NOTED OTHERWISE.
3. CONDUIT SIZES TO BE FIELD VERIFIED BY EC PRIOR TO INSTALLATION.

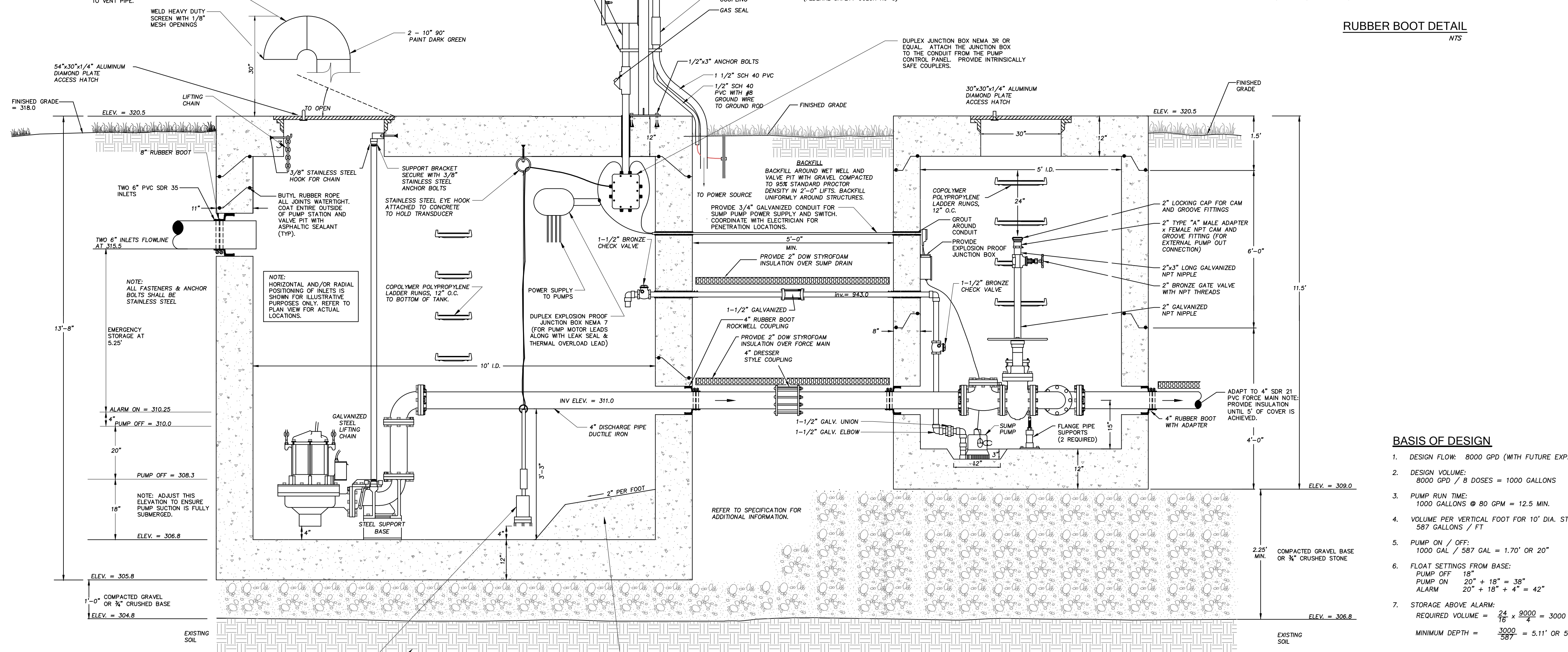
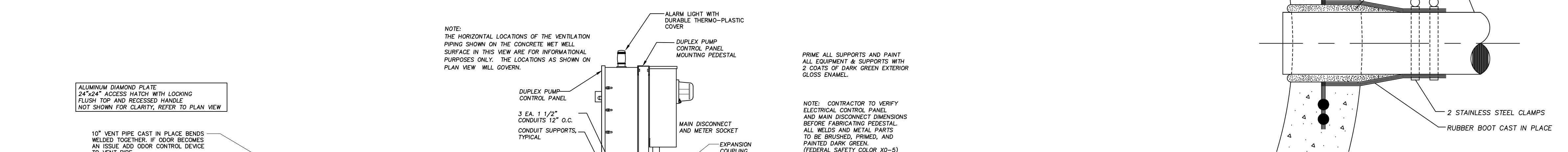
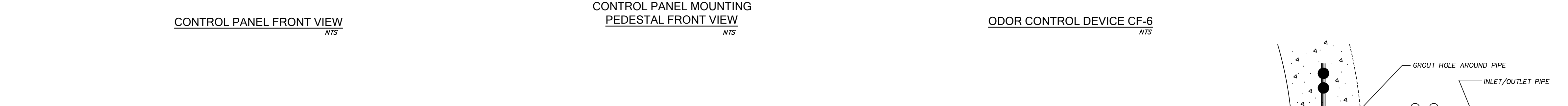
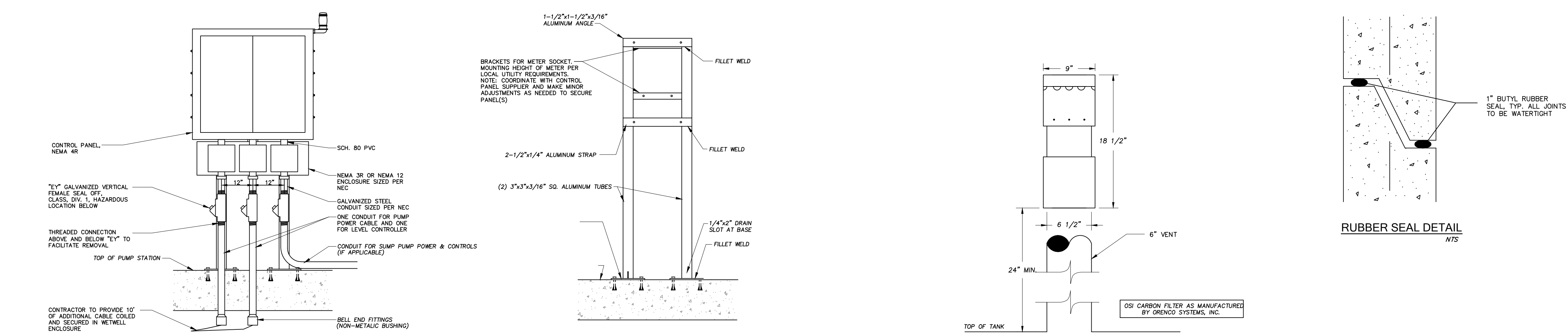
PRIME ALL SUPPORTS AND PAINT ALL EQUIPMENT & SUPPORTS WITH 2 COATS OF DARK GREEN EXTERIOR GLOSS ENAMEL.

NOTE: CONTRACTOR TO VERIFY ELECTRICAL CONTROL PANEL AND MAIN DISCONNECT DIMENSIONS BEFORE FABRICATING PEDESTAL. ALL WELDS AND METAL PARTS TO BE BRUSHED, PRIMED, AND PAINTED DARK GREEN (FEDERAL SAFETY COLOR X0-5).

BACKFILL AROUND WET WELL AND VALVE PIT WITH 3/4" STONE COMPACTED TO 95% STANDARD PROCTOR DENSITY IN 2'-0" LIFTS. BACKFILL UNIFORMLY AROUND STRUCTURES.

HORIZONTAL AND/OR NOTE: RADIAL POSITIONING OF INLETS IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. REFER TO PLAN VIEW FOR ACTUAL LOCATIONS.

FOR BOTH INTERIOR AND EXTERIOR SUMP PUMPS PROVIDE 3/4" GALV. CONDUIT FOR SUMP PUMP POWER SUPPLY AND SWITCH



NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

NOTE: IF EXCAVATION OF METWELL UNDERMINES VALVE PIT SUBGRADE USE COMPACTED GRAVEL BACKFILL AS NEEDED TO STABILIZE SUBBASE

| No. | Date | Revision | By |
|-----|------|----------|----|
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| | | | |

PUMP STATION DETAILS
RICHMOND CREAMERY MASTER PLAN P.U.D
BUTTERMILK, LLC

JOLINA COURT RICHMOND

GRENIER ENGINEERING, P.C
 155 DEMERITT PLACE #2

P.O. Box 445
 Waterbury, VT 05676
 TEL (802) 244-6413
 FAX (802) 244-1572
 grenierengineering.com

Date: 4.17.23
 Scale: A/N
 Designed: JDG
 Drawn: TJM
 Checked: JDG
 Sheet No: C-4

NOTE: ADJUST THIS ELEVATION TO ENSURE PUMP SECTION IS FULLY SUBMERGED.

NOTE: HORIZONTAL AND/OR RADIAL POSITIONING OF INLETS IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. REFER TO PLAN VIEW FOR ACTUAL LOCATIONS.

NOTE: CONTRACTOR TO VERIFY ELECTRICAL CONTROL PANEL AND MAIN DISCONNECT DIMENSIONS BEFORE FABRICATING PEDESTAL. ALL WELDS AND METAL PARTS TO BE BRUSHED, PRIMED, AND PAINTED DARK GREEN (FEDERAL SAFETY COLOR X0-5).

NOTE: CONTRACTOR TO VERIFY THE HORIZONTAL LOCATIONS OF THE VENTILATION PIPING SHOWN ON THE CONCRETE WET WELL SURFACE IN THIS VIEW ARE FOR INFORMATIONAL PURPOSES ONLY. THE LOCATIONS AS SHOWN ON PLAN VIEW WILL GOVERN.

TESTING WATERMAINS & HYDRANTS

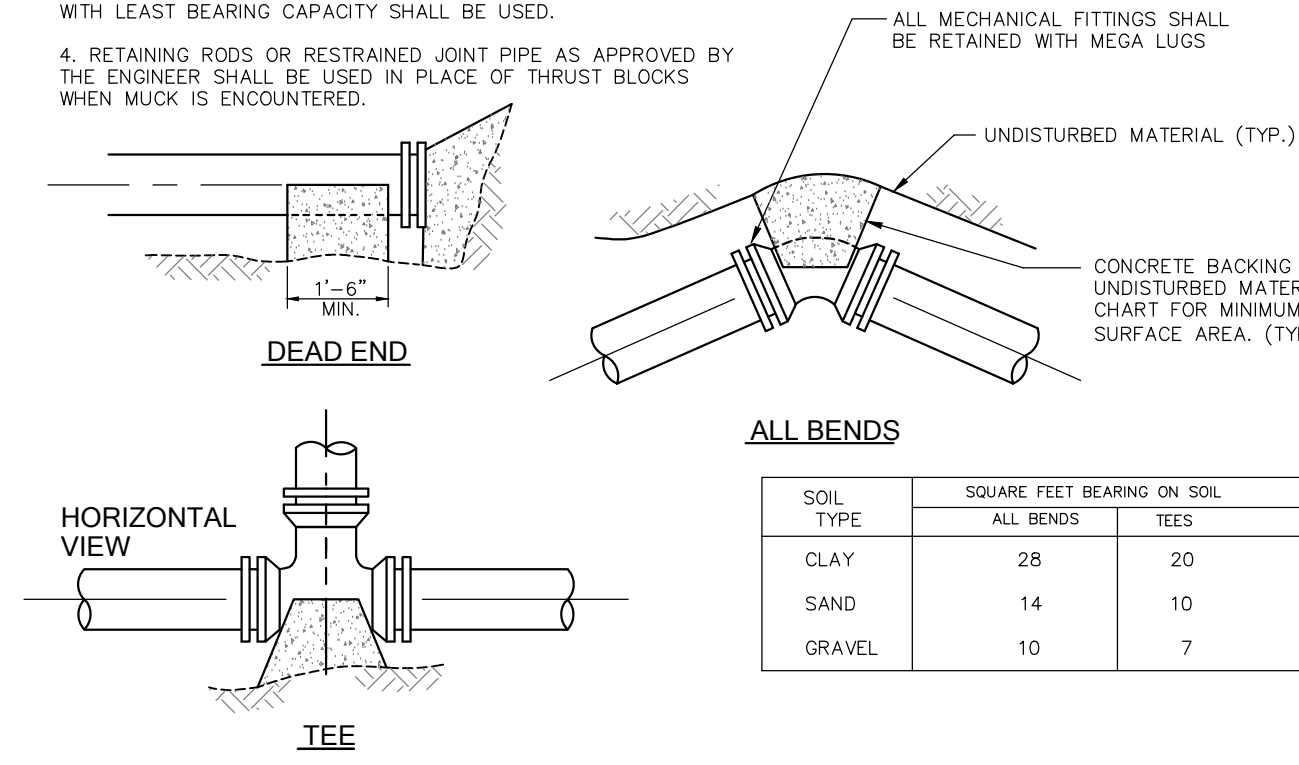
- A. AFTER THE PIPE HAS BEEN LAID AND 7 DAYS AFTER THE CONCRETE THRUST BLOCKS AND ANCHORS HAVE BEEN PLACED, THE WATER MAIN SHALL BE HYDROSTATICALLY TESTED ACCORDING TO THE LATEST EDITION OF THE AWWA SPECIFICATION C-600.
- B. CONTRACTOR SHALL SUPPLY ALL NECESSARY APPARATUS TO PERFORM THE HYDROSTATIC TEST.
- C. TEST PRESSURE SHALL BE 200 POUNDS PER SQUARE INCH OR 1.5 TIMES THE WORKING PRESSURE MEASURED AT OR NEAR THE HIGH POINT IN THE SYSTEM, WHICHEVER IS GREATER. TEST SHALL BE A MINIMUM OF 2 HOURS IN DURATION. TESTING ALLOWANCE SHALL BE DEFINE AS THE QUANTITY OF MAKEUP WATER THAT MUST BE SUPPLIED INTO THE NEWLY LAID PIPE OR ANY VALVED SECTION THEREOF TO MAINTAIN PRESSURE WITHIN 5 PSI (34.5 kPa) OF THE SPECIFIED TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR HAS BEEN EXPELLED. TESTING ALLOWANCE SHALL NOT BE MEASURED BY A DROP IN PRESSURE IN A TEST SECTION OVER A PERIOD OF TIME. THE PROJECT ENGINEER AND THE MUNICIPALITY SHALL BE CONTACTED 48 HOURS PRIOR TO TESTING.
- D. ALL VALVES SHOULD BE VERIFIED AS BEING OPEN OR CLOSED AS APPROPRIATE FOR THE PORTION E. OF THE WATER MAIN BEING TESTED.
- F. ALLOWABLE LEAKAGE SHALL BE COMPUTED BY THE FORMULA: $L = (S \times D \times P) / 133,200$ WHERE L IS LEAKAGE IN GALLONS PER HOUR, S IS THE LENGTH OF PIPE TESTED IN FEET, D IS THE NOMINAL DIAMETER OF THE PIPE IN INCHES AND P IS THE AVERAGE TEST PRESSURE IN POUNDS PER SQUARE INCH DURING THE TEST. LEAKAGE CALCULATION IS $1100' \times 10" \times 200 \div 133,200$ OR 1.17 GALLONS PER HOUR
- G. REPLACE AND RETEST ANY WORK FOUND TO BE DEFECTIVE AT NO EXPENSE TO OWNER.

DISINFECTION OF WATER SYSTEM

- A. PRIOR TO BEING PUT INTO SERVICE, WATERMAINS SHALL BE DISINFECTED ACCORDING TO THE LATEST EDITION OF AWWA SPECIFICATIONS C-651. THE TABLET METHOD IN AWWA STANDARD 651 IS NOT ACCEPTABLE.
- B. THE NEW LINE SHALL BE FLUSHED AT A VELOCITY OF NOT LESS THAN 2.5 PER SECOND (OPEN 2-1/2 INCH HYDRANT CONNECTION) FLUSH FOR A PERIOD DETERMINED BY THE ENGINEER FOR THE LENGTH OF MAIN TO BE DISINFECTED.
- C. CHLORINATION SHALL BE ACCOMPLISHED BY INTRODUCING A HYPOCHLORITE SOLUTION WITH A CONCENTRATION OF GREATER THAN 25 PARTS PER MILLION OF FREE CHLORINE.
- D. USING A NOZZLE AT EACH END HYDRANT, CONTROL THE RATE OF FLOW INTO THE NEW MAIN AND PROPORTIONALLY FEED HYPOCHLORITE SOLUTION INTO THE MAIN. AFTER THE CHLORINE HAS REACHED ALL POINTS IN THE SYSTEM, CLOSE THE VALVE SUPPLYING WATER FROM THE EXISTING MAIN AND THE END HYDRANTS. MAINTAIN THE HEAVILY CHLORINATED WATER IN THE MAIN FOR 24 HOURS DURING WHICH TIME ALL MAIN LINE VALVES SHOULD BE OPERATED. AFTER 24 HOURS THE MINIMUM CHLORINE RESIDUAL MUST BE AT LEAST 10 PARTS PER MILLION.
- E. FLUSH HEAVILY CHLORINATED WATER FROM THE LINE AND REFILL THE LINE FOR SERVICE (USE CHLORINE DIFFUSER). TAKE AND SUBMIT TWO BACTERIOLOGICAL SAMPLES OF THE WATER TO THE STATE OF VERMONT OR A STATE APPROVED TESTING LABORATORY. IF THE RESULTS ARE UNSATISFACTORY, THE DISINFECTION PROCEDURE WILL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

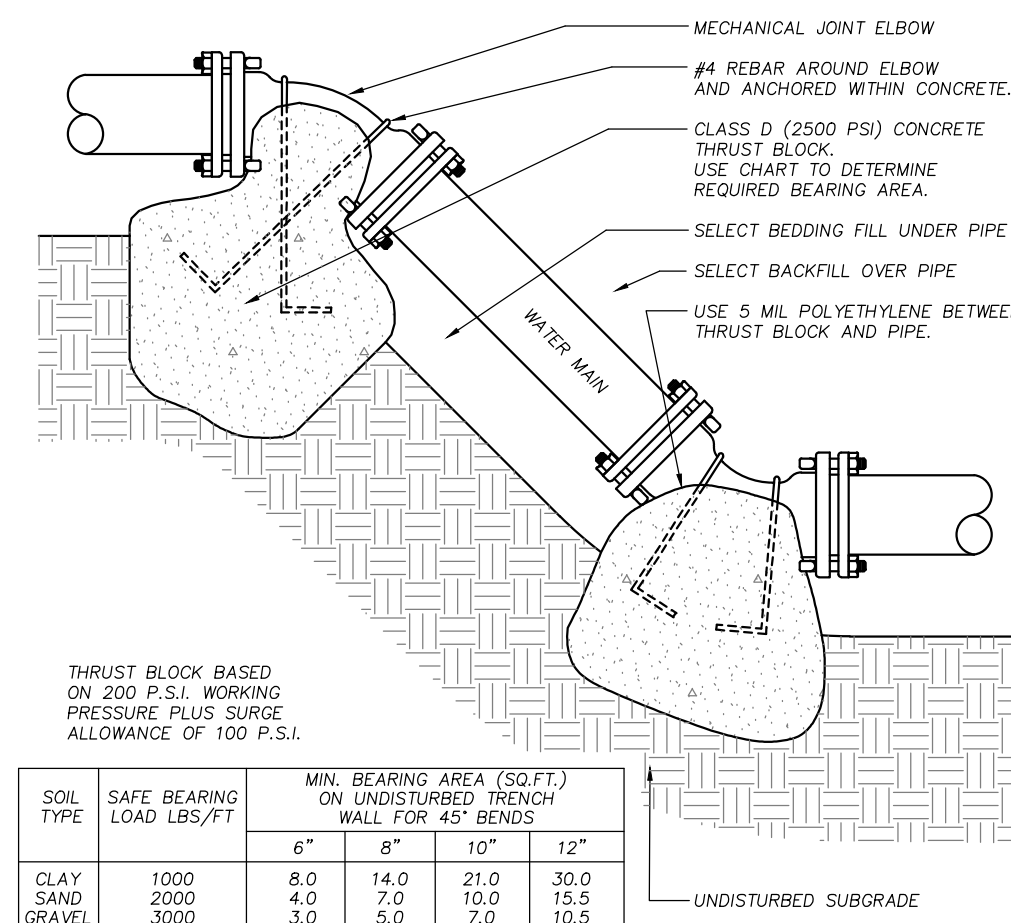
NOTES

- 1. FIGURES BASED ON 300 P.S.I.
- 2. CONCRETE FOR THRUST BLOCKS SHALL BE 1500 P.S.I. MINIMUM. THRUST BLOCKS TO BE PLACED AGAINST UNDISTURBED EARTH.
- 3. WHEN MORE THAN ONE SOIL TYPE IS ENCOUNTERED, THE ONE WITH LEAST BEARING CAPACITY SHALL BE USED.
- 4. RETAINING RODS OR RESTRAINED JOINT PIPE AS APPROVED BY THE ENGINEER SHALL BE USED IN PLACE OF THRUST BLOCKS WHEN MUCK IS ENCOUNTERED.



| SOIL TYPE | SQUARE FEET BEARING ON SOIL | |
|-----------|-----------------------------|------|
| | ALL BENDS | TEES |
| CLAY | 28 | 20 |
| SAND | 14 | 10 |
| GRAVEL | 10 | 7 |

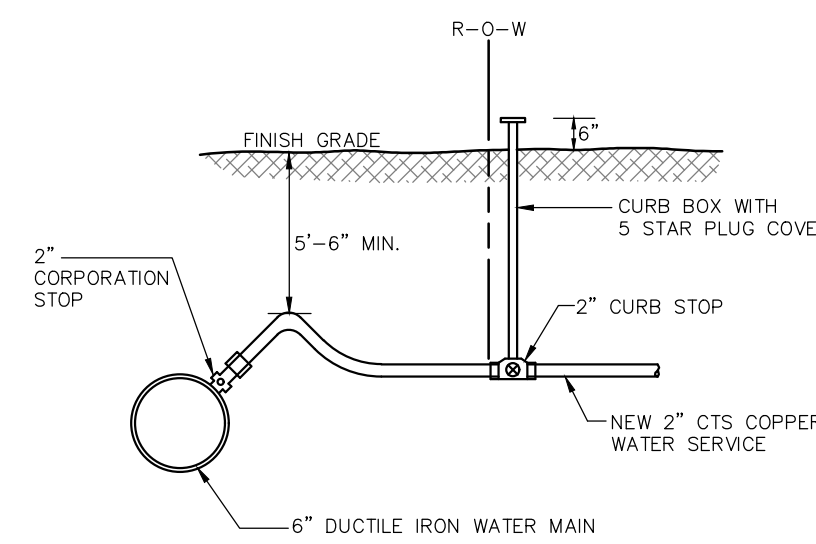
CONCRETE THRUST BLOCK DETAIL
NTS



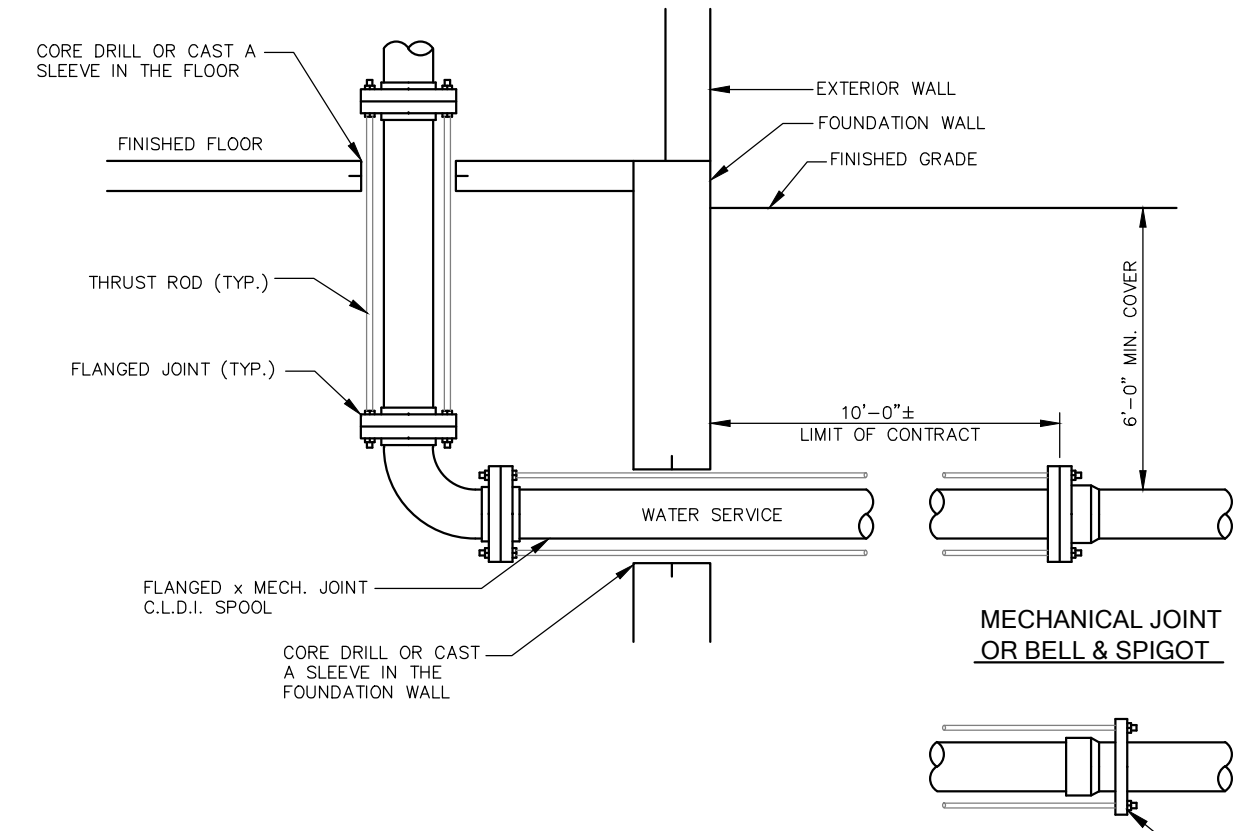
THRUST BLOCK BASED ON 200 P.S.I. WORKING PRESSURE PLUS SURGE ALLOWANCE OF 100 P.S.I.

| SOIL TYPE | SAFE BEARING LOAD LBS/FT ² | MIN. BEARING AREA (SQ.FT.) ON UNDISTURBED TRENCH WALL FOR 45° BENDS | | | |
|-----------|---------------------------------------|---|------|------|------|
| | | 6" | 8" | 10" | 12" |
| CLAY | 1000 | 8.0 | 14.0 | 21.0 | 30.0 |
| SAND | 2000 | 4.0 | 7.0 | 10.0 | 15.0 |
| GRAVEL | 3000 | 3.0 | 5.0 | 7.0 | 10.0 |
| TLS | 4000 | 2.0 | 3.5 | 5.0 | 7.5 |
| SHALE | 10000 | 1.0 | 1.5 | 2.0 | 3.0 |

THRUST BLOCK FOR VERTICAL BENDS
NTS



TYPICAL WATER SERVICE CONNECTION
NTS



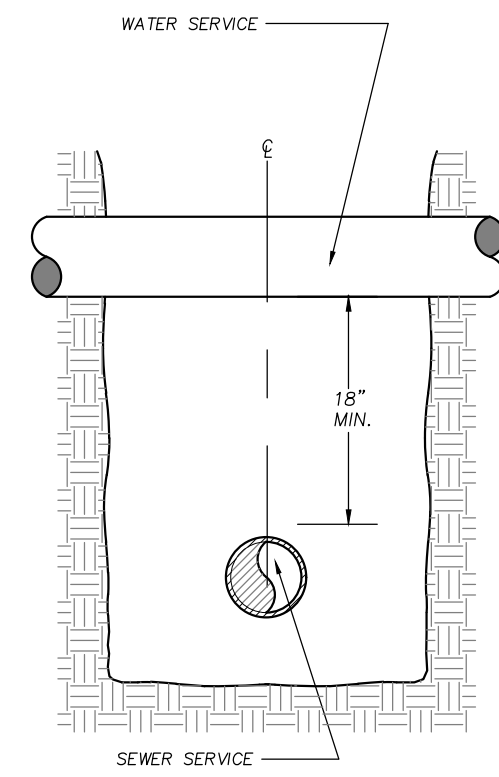
RAW WATER SPRINKLER ENTRANCE DETAIL
NTS

- NOTES:**
- 1. ALL INSTALLATIONS SHALL BE IN COMPLIANCE WITH NFPA 24, 13, (AND 20 WHERE THE SERVICE SUPPLIES A FIRE PUMP).
 - 2. ALTERNATE METHODS OF RESTRAINT ARE ACCEPTABLE, PENDING THEIR COMPLIANCE WITH THE ABOVE REFERENCED STANDARDS.
 - 3. SOCKET CLAMP ASSEMBLIES SHALL INCLUDE WASHERS, GRINNELL FPG'S 595 AND 594 OR APPROVED EQUAL.
 - 4. AFTER INSTALLATION, ALL BURIED RESTRAINT DEVICES SHALL BE CLEANED AND COATED WITH A BITUMINOUS OR OTHER CORROSION RETARDING MATERIAL.

| NOMINAL PIPE SIZE (IN) | NUMBER & SIZE OF THRUST RODS | SOCKET CLAMP SIZE (IN) | SLEEVE/CORE SIZE (IN) |
|------------------------|------------------------------|------------------------|-----------------------|
| 4 | (2) 1/2" | 1/2" x 2" | 8 |
| 6 | (2) 3/4" | 3/4" x 2" | 10 |
| 8 | (2) 1" | 1" x 2-1/2" | 12 |
| 10 | (4) 1 1/4" | N/A | 14 |
| 10 @ | (2) 1 1/2" | 1 1/2" x 2-1/2" | 14 |

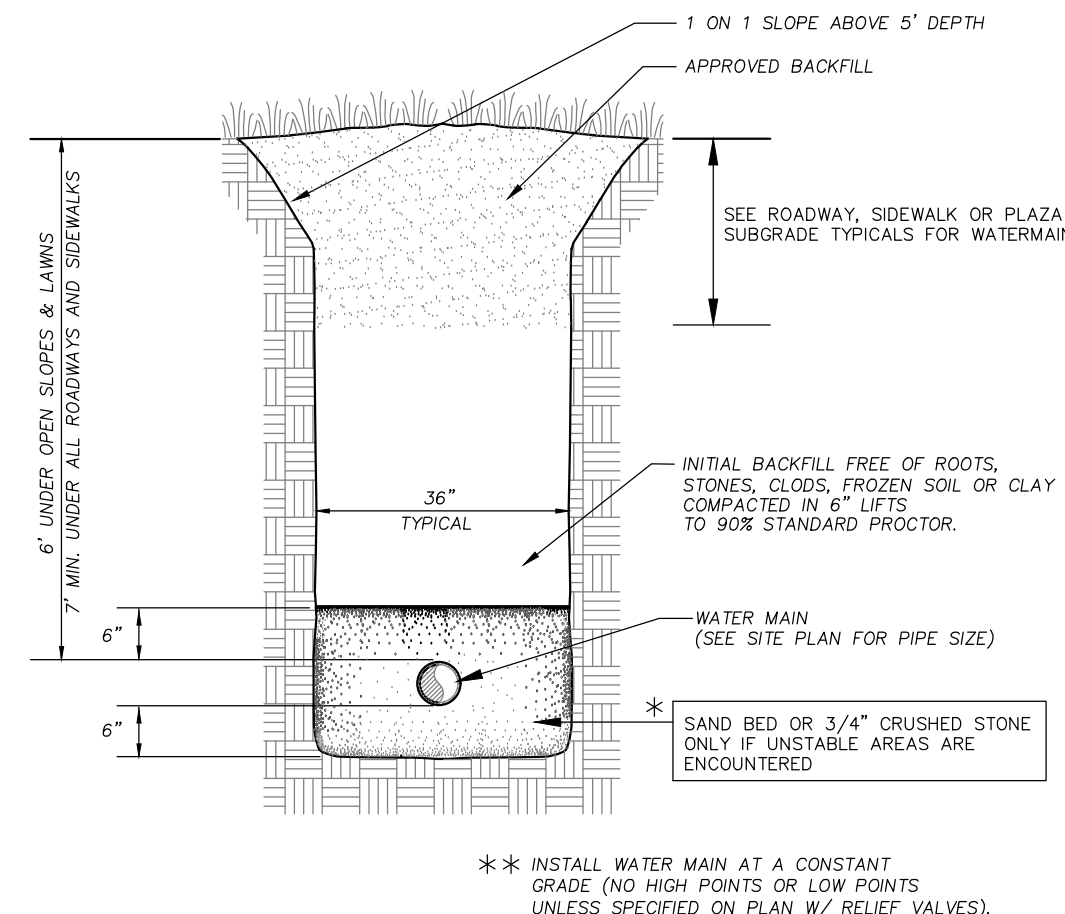
- NOTES:**
- 1. MECHANICAL JOINT APPLICATION
 - 2. BELL & SPIGOT APPLICATION
 - 3. CLAMPS REQUIRED FOR BELL & SPIGOT APPLICATION ONLY

MECHANICAL JOINT OR BELL & SPIGOT
NTS

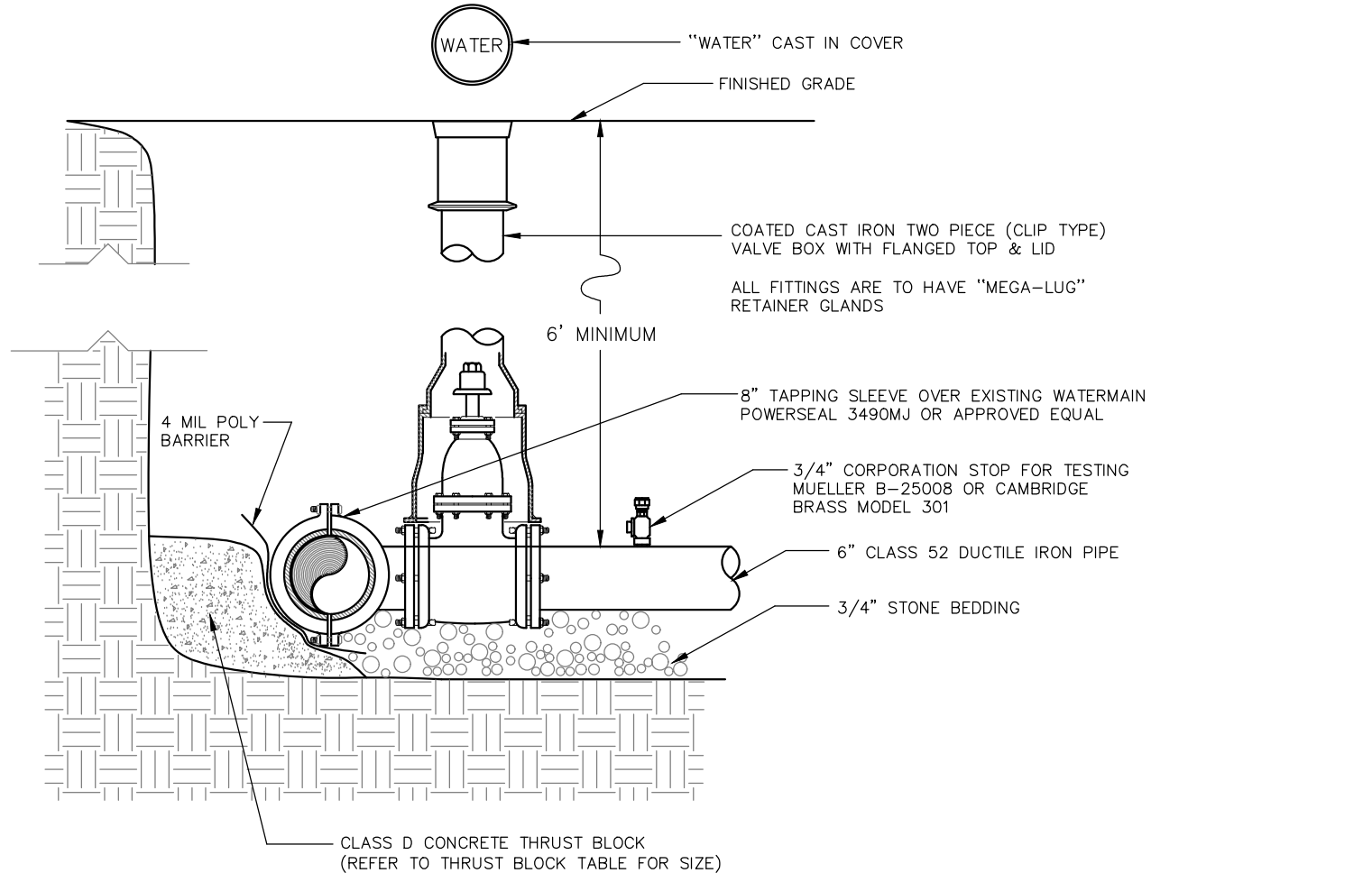


WATER / SEWER CROSSING
NTS

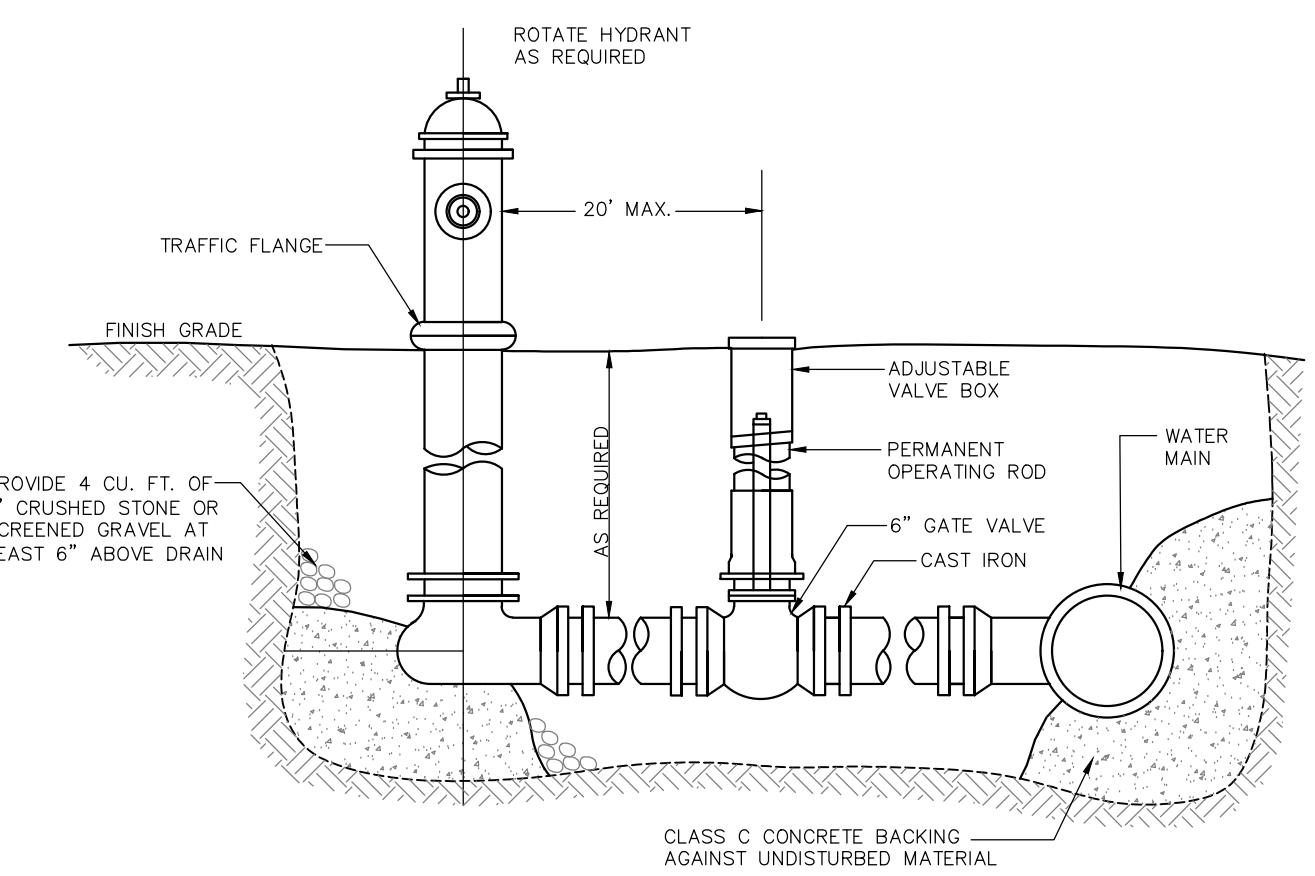
- CROSSINGS: SEWERS CROSSING WATER MAINS SHALL BE LAID BENEATH THE WATER MAIN WITH AT LEAST 18 INCHES VERTICAL CLEARANCE BETWEEN THE OUTSIDE OF THE SEWER AND THE OUTSIDE OF THE WATER MAIN, WHEN IT IS IMPOSSIBLE TO MAINTAIN THE 18" VERTICAL SEPARATION OR WHERE THE SEWER MUST BE LAID ABOVE THE WATER MAIN:**
- 1) THE CROSSING SHALL BE ARRANGED SO THAT ONE FULL LENGTH OF SEWER IS CENTERED ABOVE OR BELOW THE WATER LINE WITH SEWER JOINTS AS FAR AS POSSIBLE FROM WATER JOINTS.
 - 2) THE SEWER PIPE MUST BE CONSTRUCTED TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 20 FEET EITHER SIDE OF THE CROSSING OR A TOTAL OF THREE PIPE LENGTHS, WHICHEVER IS GREATER.
 - 3) THE SECTION CONSTRUCTED TO WATER MAIN STANDARDS MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS.
 - 4) WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.



WATERMAIN TYPICAL TRENCH DETAIL
NTS



TYPICAL TAPPING VALVE
NTS

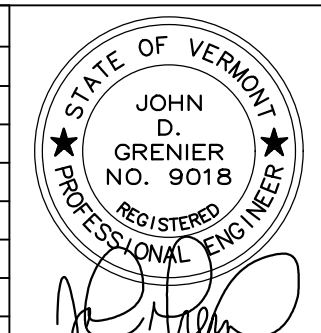


WATER HYDRANT & VALVE DETAIL
NTS

NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

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| | | | |

4/17/2023
PERMIT SET



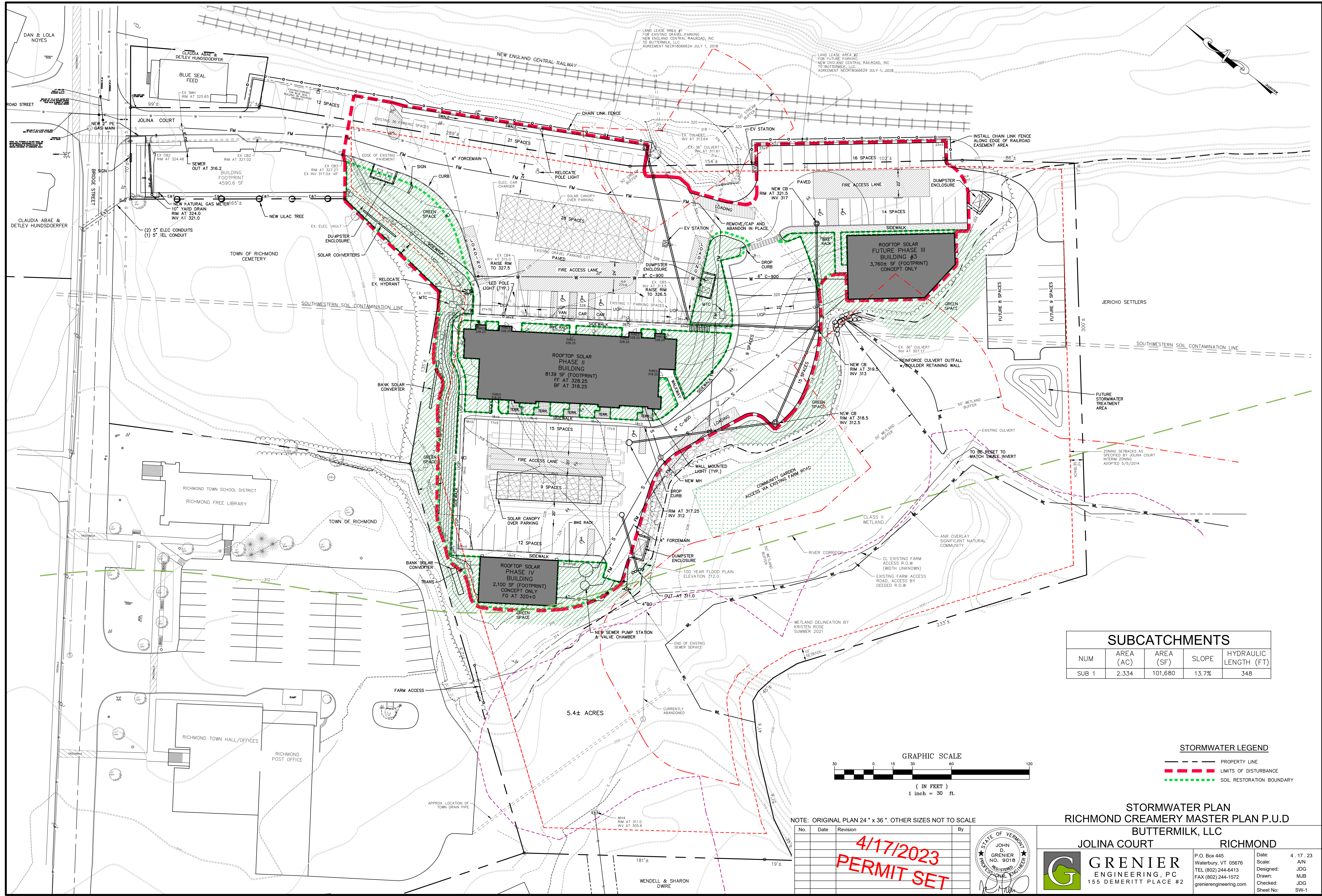
WATER DETAILS
RICHMOND CREAMERY MASTER PLAN P.U.D
BUTTERMILK, LLC

JOLINA COURT RICHMOND

GRENIER ENGINEERING, PC
155 DEMERITT PLACE #2
grenerengineering.com

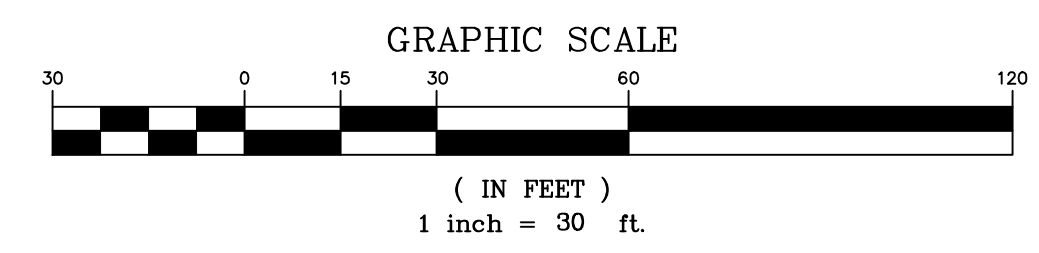
P.O. Box 445
Waterbury, VT 05676
TEL (802) 244-6413
FAX (802) 244-1572

Date: 4.17.23
Scale: A/N
Designed: JDG
Drawn: TJM
Checked: JDG
Sheet No: C-5



SUBCATCHMENTS

| NUM | AREA (AC) | AREA (SF) | SLOPE | HYDRAULIC LENGTH (FT) |
|-------|-----------|-----------|-------|-----------------------|
| SUB 1 | 2.334 | 101,680 | 13.7% | 348 |



STORMWATER LEGEND

| | |
|--|---------------------------|
| | PROPERTY LINE |
| | LIMITS OF DISTURBANCE |
| | SOIL RESTORATION BOUNDARY |

**STORMWATER PLAN
RICHMOND CREAMERY MASTER PLAN P.U.D
BUTTERMILK, LLC**

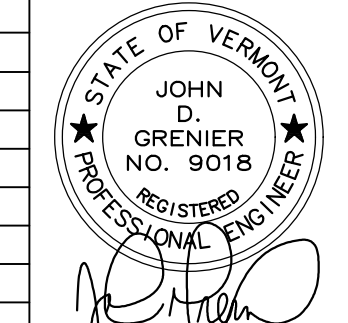
JOLINA COURT RICHMOND



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ENGINEERING, PC**
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Waterbury, VT 05676
TEL (802) 244-6413
FAX (802) 244-1572
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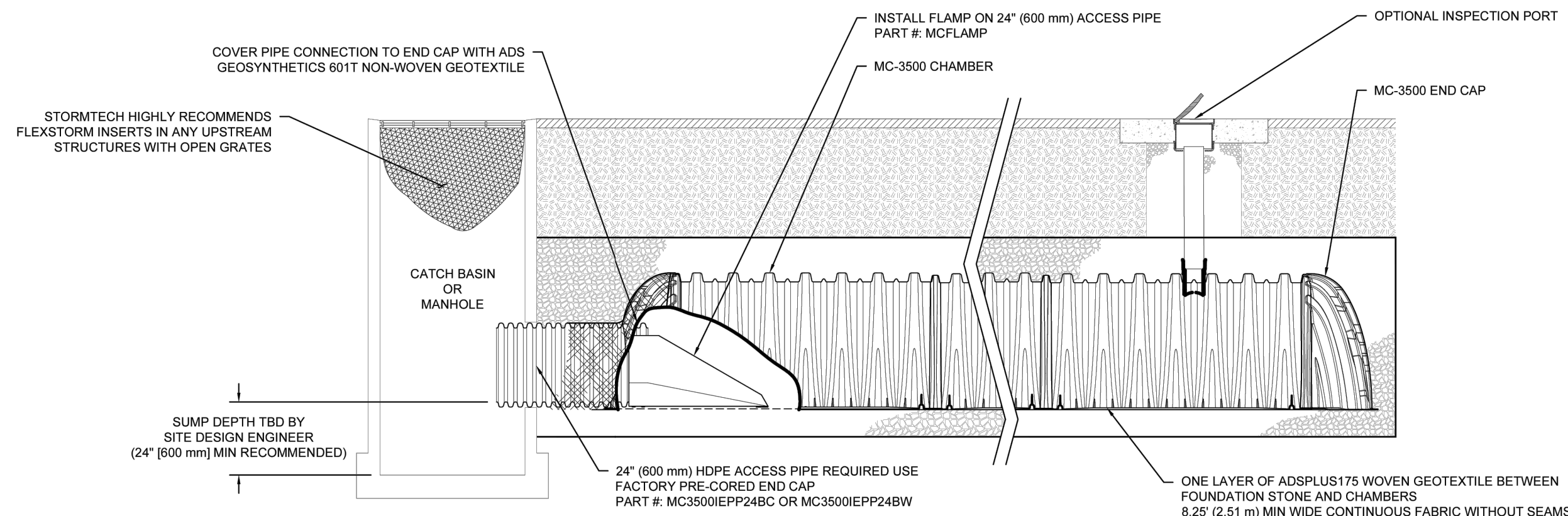
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Drawn: MJB
Checked: JDG
Sheet No: SW-1



NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

| No. | Date | Revision | By |
|-----|------|----------|----|
| | | | |

**4/17/2023
PERMIT SET**



MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
 - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
 - B. ALL ISOLATOR PLUS ROWS
 - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
 - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
 - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
 - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

RICHMOND CREAMERY

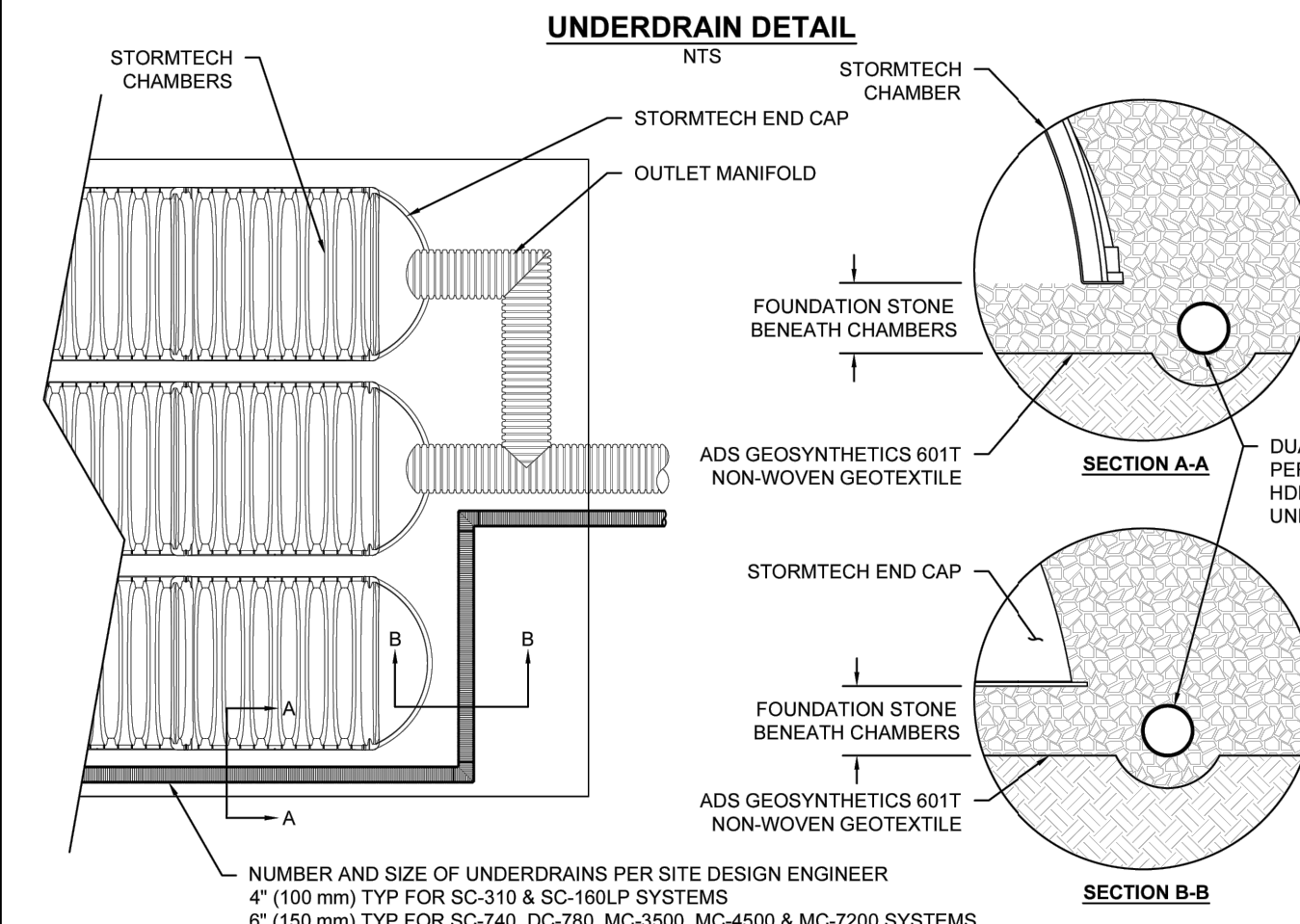
RICHMOND, VT, USA

DATE: _____ DRAWN: MB
PROJECT #: _____ CHECKED: N/A
DESCRIPTION: _____

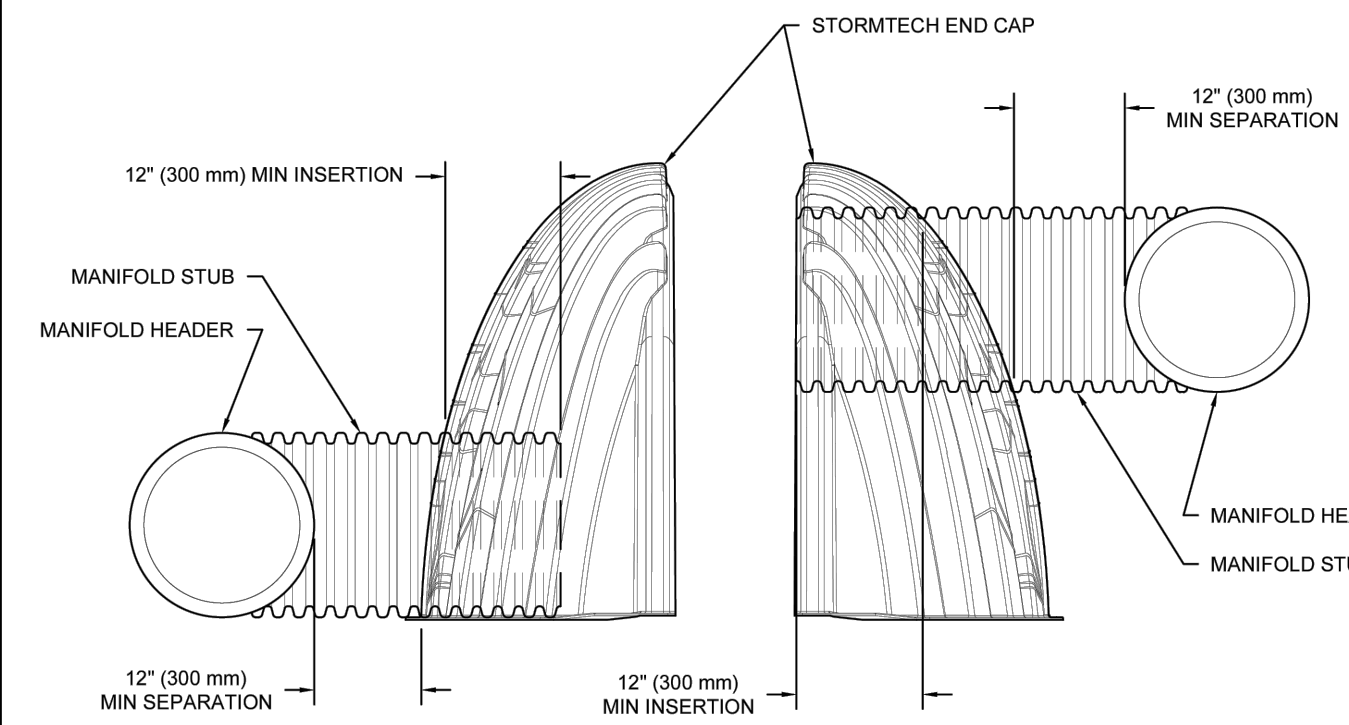
StormTech®
Chamber System

4640 TRUBMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

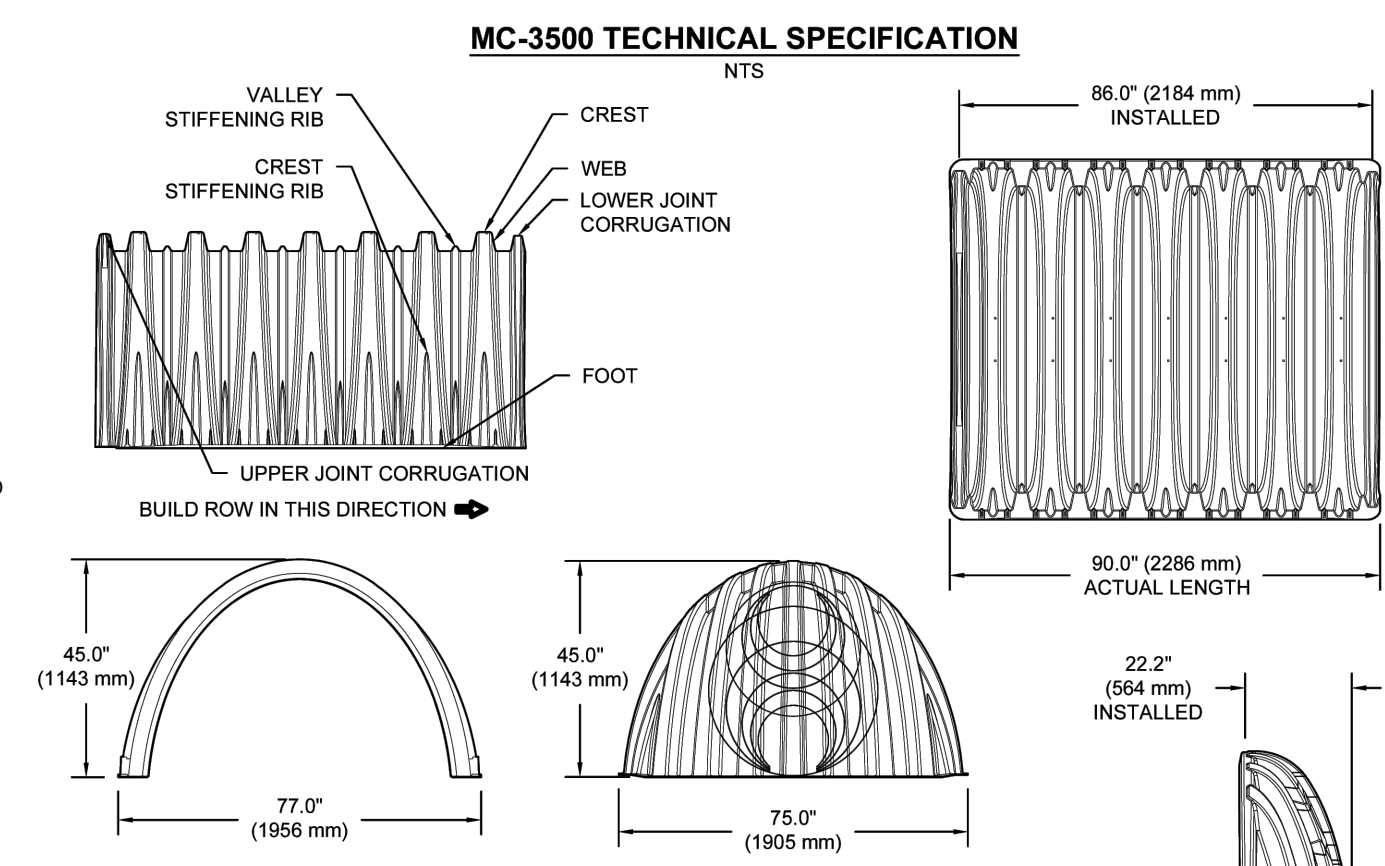
SHEET
4 OF 5



MC-SERIES END CAP INSERTION DETAIL
NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.



NOMINAL CHAMBER SPECIFICATIONS

| SIZE (W X H X INSTALLED LENGTH) | CHAMBER STORAGE | MINIMUM INSTALLED STORAGE* | WEIGHT |
|---|----------------------------|----------------------------|-------------------|
| 77.0" X 45.0" X 86.0" (1956 mm X 1143 mm X 2184 mm) | 109.9 CUBIC FEET (3.11 m³) | 175.0 CUBIC FEET (4.96 m³) | 134 lbs (60.8 kg) |

NOMINAL END CAP SPECIFICATIONS

| SIZE (W X H X INSTALLED LENGTH) | END CAP STORAGE | MINIMUM INSTALLED STORAGE* | WEIGHT |
|--|---------------------------|----------------------------|------------------|
| 75.0" X 45.0" X 22.2" (1905 mm X 1143 mm X 564 mm) | 14.9 CUBIC FEET (0.42 m³) | 45.1 CUBIC FEET (1.28 m³) | 49 lbs (22.2 kg) |

*ASSUMES 12" (305 mm) STONE ABOVE, 6" (228 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED GROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

| PART # | STUB | B | C |
|---------------|--------------|-----------------|---------------|
| MC3500EPP06T | 6" (150 mm) | 33.21" (844 mm) | --- |
| MC3500EPP06B | --- | --- | 0.66" (17 mm) |
| MC3500EPP08T | 8" (200 mm) | 31.16" (791 mm) | --- |
| MC3500EPP08B | --- | --- | 0.81" (21 mm) |
| MC3500EPP10T | 10" (250 mm) | 29.04" (738 mm) | --- |
| MC3500EPP10B | --- | --- | 0.93" (24 mm) |
| MC3500EPP12T | 12" (300 mm) | 26.36" (670 mm) | --- |
| MC3500EPP12B | --- | --- | 1.35" (34 mm) |
| MC3500EPP15T | 15" (375 mm) | 23.39" (594 mm) | --- |
| MC3500EPP15B | --- | --- | 1.50" (38 mm) |
| MC3500EPP18TC | --- | --- | --- |
| MC3500EPP18TW | 18" (450 mm) | 20.03" (509 mm) | --- |
| MC3500EPP18BC | --- | --- | 1.77" (45 mm) |
| MC3500EPP18BW | --- | --- | --- |
| MC3500EPP24TC | 24" (600 mm) | 14.48" (368 mm) | --- |
| MC3500EPP24TW | --- | --- | 2.06" (52 mm) |
| MC3500EPP24BW | --- | --- | 2.75" (70 mm) |
| MC3500EPP30BC | 30" (750 mm) | --- | --- |

CUSTOM PRECURED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

RICHMOND CREAMERY

RICHMOND, VT, USA

DATE: _____ DRAWN: MB
PROJECT #: _____ CHECKED: N/A
DESCRIPTION: _____

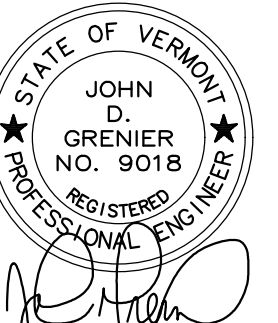
StormTech®
Chamber System

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HILLIARD, OH 43026
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SHEET
5 OF 5

NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

| No. | Date | Revision | By |
|-----|-----------|------------|----|
| | 4/17/2023 | PERMIT SET | |



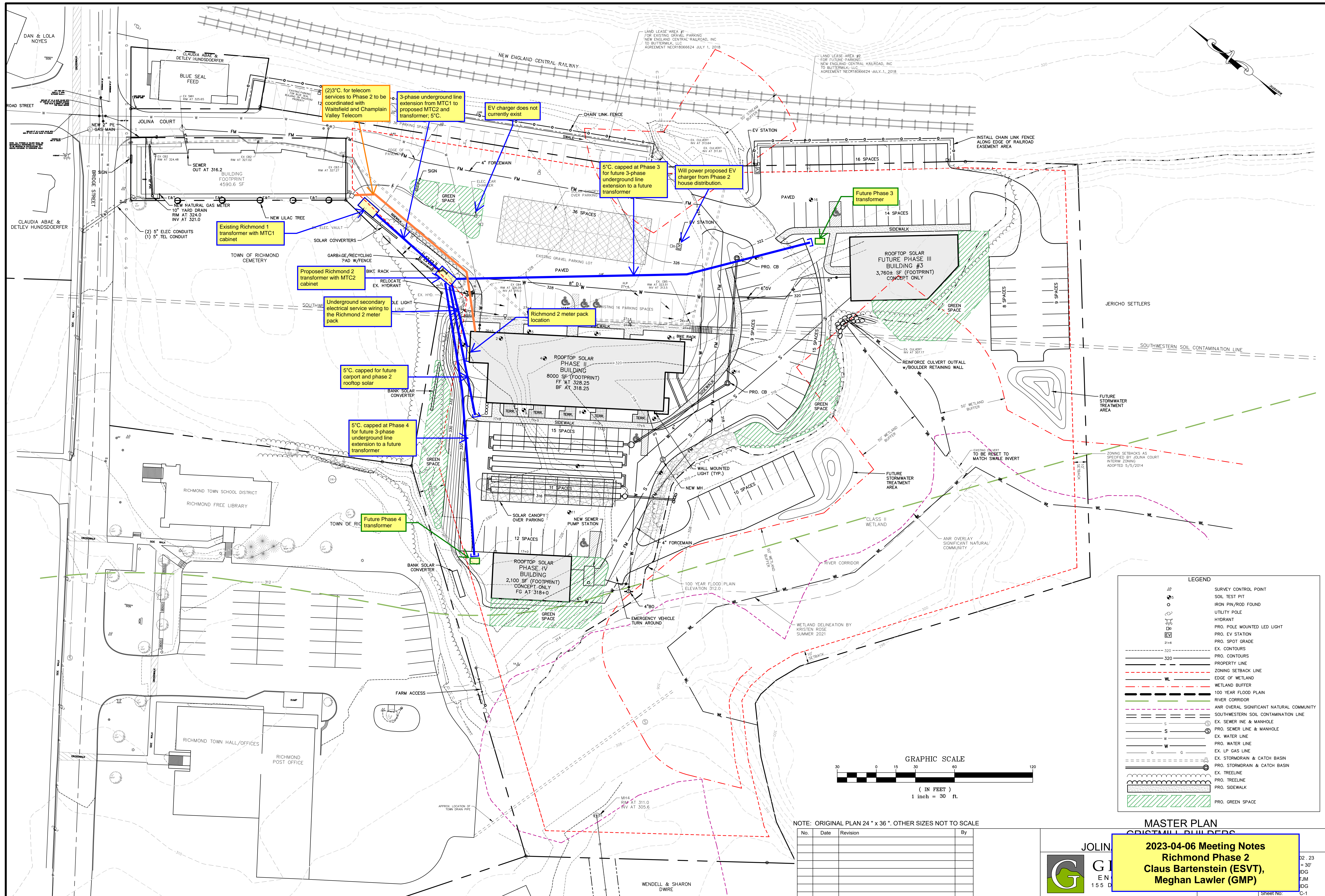
STORMWATER DETAILS
RICHMOND CREAMERY MASTER PLAN P.U.D
BUTTERMILK, LLC

JOLINA COURT RICHMOND

GRENIER ENGINEERING, PC
155 DEMERITT PLACE #2

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Waterbury, VT 05676
TEL (802) 244-6413
FAX (802) 244-1572
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Date: 4.17.23
Scale: A/N
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Checked: JDG
Sheet No: SW-3



(2) 3" C. for telecom services to Phase 2 to be coordinated with Waitfield and Champlain Valley Telecom

3-phase underground line extension from MTC1 to proposed MTC2 and transformer. 5" C.

EV charger does not currently exist

5" C. capped at Phase 3 for future 3-phase underground line extension to a future transformer

Will power proposed EV charger from Phase 2 house distribution.

Future Phase 3 transformer

Existing Richmond 1 transformer with MTC1 cabinet

Proposed Richmond 2 transformer with MTC2 cabinet

Underground secondary electrical service wiring to the Richmond 2 meter pack

Richmond 2 meter pack location

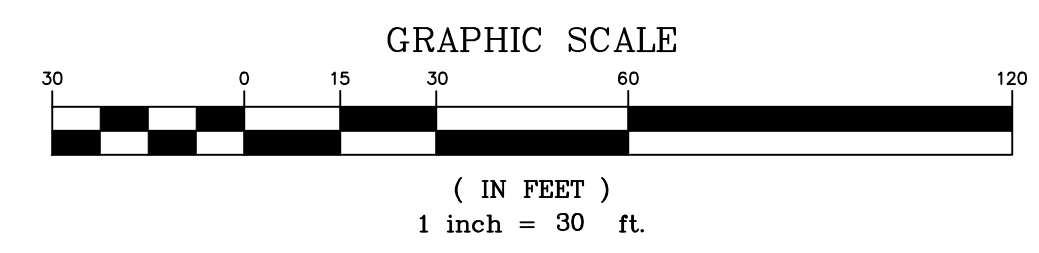
5" C. capped for future carport and phase 2 rooftop solar

5" C. capped at Phase 4 for future 3-phase underground line extension to a future transformer

Future Phase 4 transformer

LEGEND

- SURVEY CONTROL POINT
- SOIL TEST PIT
- IRON PIN/ROD FOUND
- UTILITY POLE
- HYDRANT
- PRO. POLE MOUNTED LED LIGHT
- PRO. EV STATION
- PRO. SPOT GRADE
- EX. CONTOURS
- PRO. CONTOURS
- PROPERTY LINE
- ZONING SETBACK LINE
- EDGE OF WETLAND
- WETLAND BUFFER
- 100 YEAR FLOOD PLAIN
- RIVER CORRIDOR
- ANR OVERLAY SIGNIFICANT NATURAL COMMUNITY
- SOUTHWESTERN SOIL CONTAMINATION LINE
- EX. SEWER INE & MANHOLE
- PRO. SEWER LINE & MANHOLE
- EX. WATER LINE
- PRO. WATER LINE
- EX. LP GAS LINE
- EX. STORMDRAIN & CATCH BASIN
- PRO. STORMDRAIN & CATCH BASIN
- EX. TREETLINE
- PRO. TREETLINE
- PRO. SIDEWALK
- PRO. GREEN SPACE



NOTE: ORIGINAL PLAN 24" x 36". OTHER SIZES NOT TO SCALE

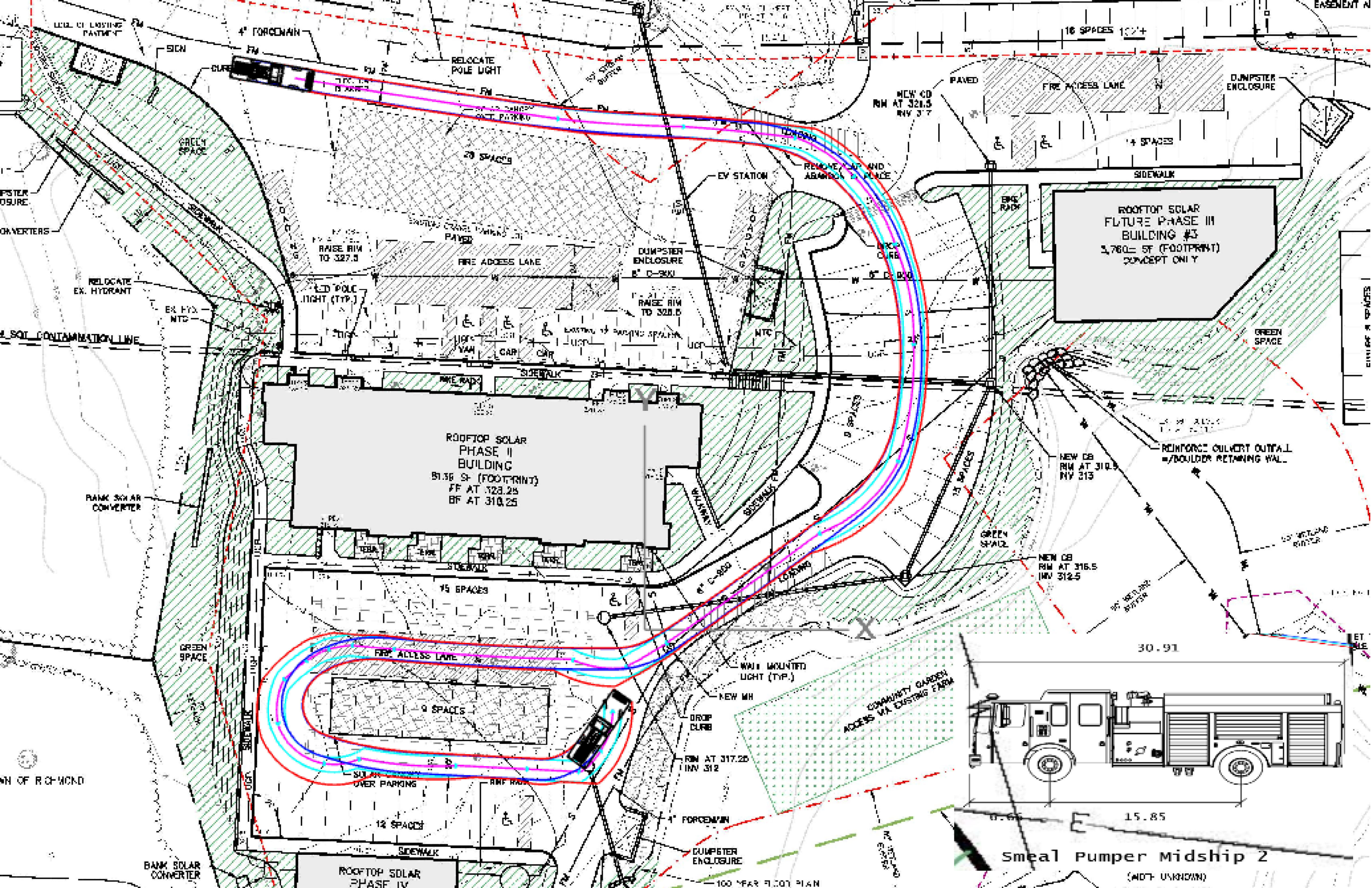
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MASTER PLAN
CRISTMILL BUILDERS

2023-04-06 Meeting Notes
Richmond Phase 2
Claus Bartenstein (ESVT),
Meghan Lawler (GMP)

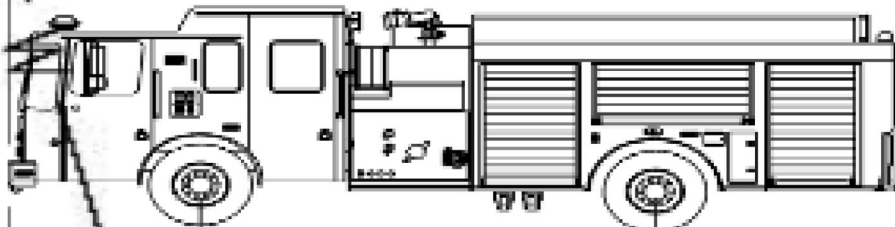
JOLIN G... EN... 155 D

Sheet No. C-1



ROOFTOP SOLAR
FUTURE PHASE III
BUILDING #3
3,780 SF (FOOTPRINT)
CONCEPT ONLY

ROOFTOP SOLAR
PHASE II
BUILDING #1
51.36 SF (FOOTPRINT)
FF AT 328.25
BF AT 310.25



Smeal Pumper Midship 2
(NOT UNKNOWN)