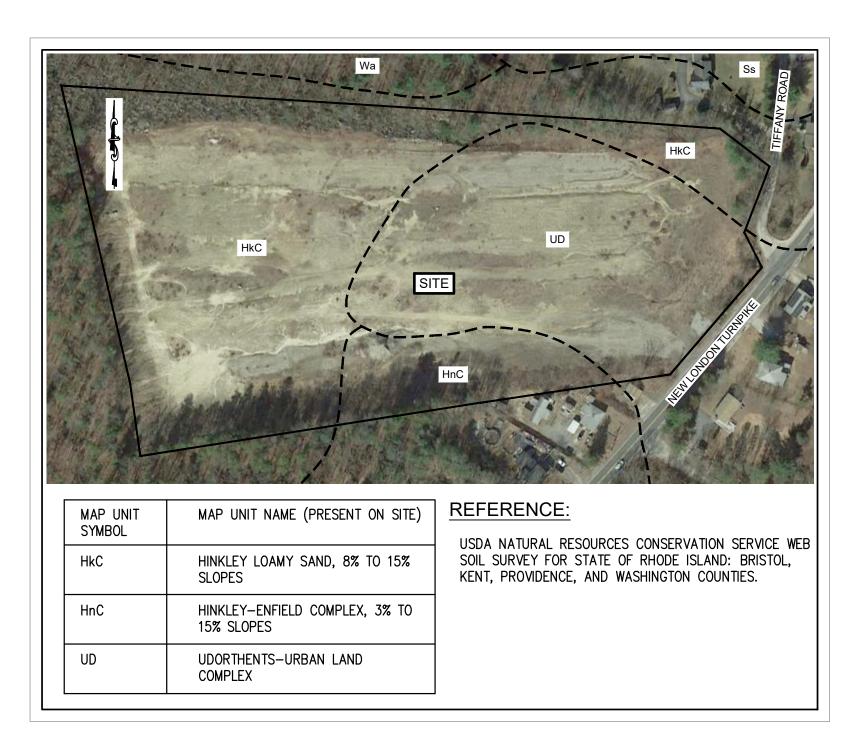
# PRELIMINARY SUBMISSION

FOR:

# WILLOW LAKES INDEPENDENT LIVING

A.P. 16 LOT 3 NEW LONDON TURNPIKE COVENTRY, RHODE ISLAND



NO. DATE

12/27/21 TOWN COMMENTS

2 01/07/22 RIDEM COMMENTS

3 | 01/25/22 | KCWA COMMENTS

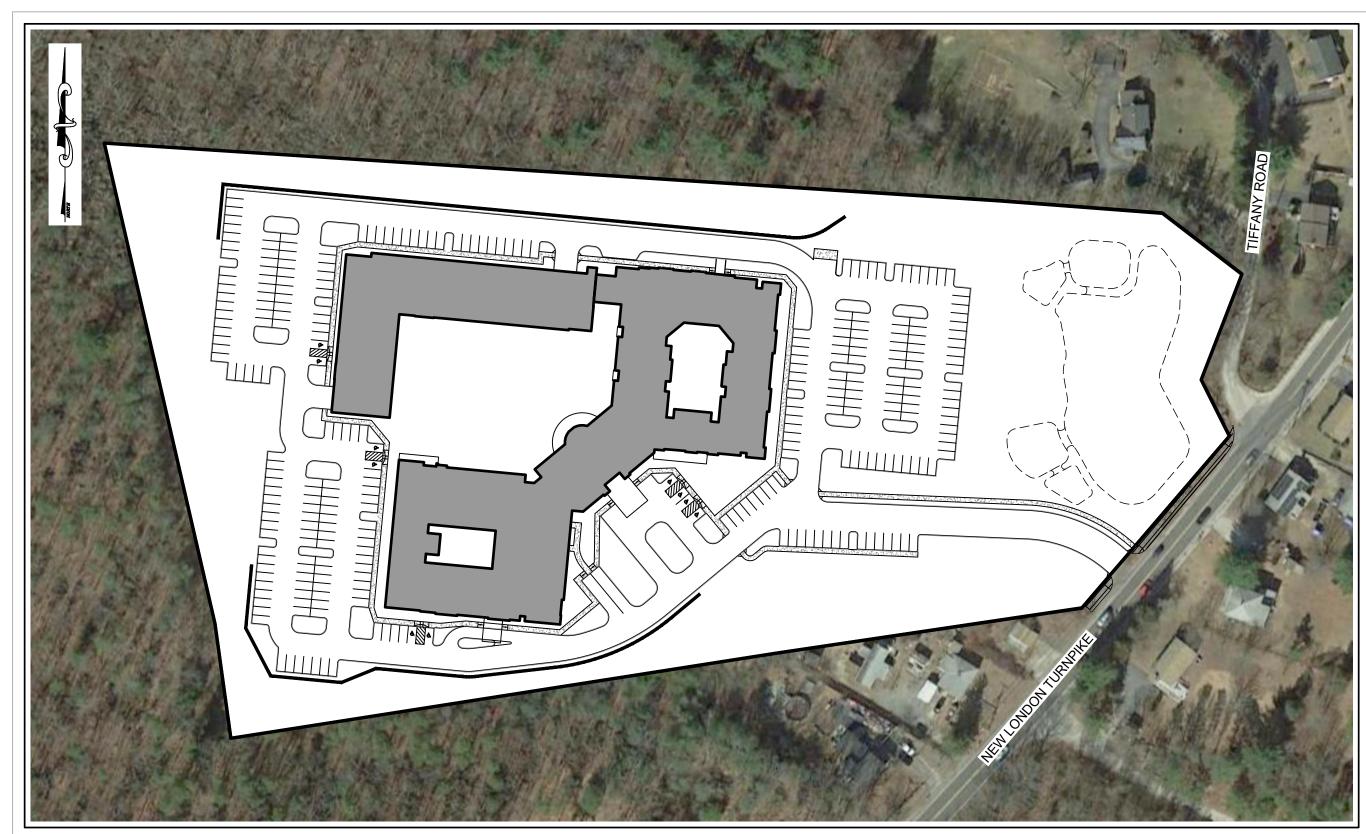
4 | 03/24/22 | KCWA COMMENTS

5 | 06/09/22 | KCWA COMMENTS

REVISION

PRELIMINARY PLAN REINSTATEMENT

**SOILS MAP** NOT TO SCALE'



**AERIAL IMAGE** SCALE: 1"=100'

KCWA STATEMENT:

THE ATTACHED DRAWINGS NUMBERED 1 - 12 HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION

AND HAVE BEEN THOROUGHLY CHECKED.

JEFFREY C. HANSON, P.E. (RI P.E. # 5238)

## PREPARED BY:



FEBRUARY 2021

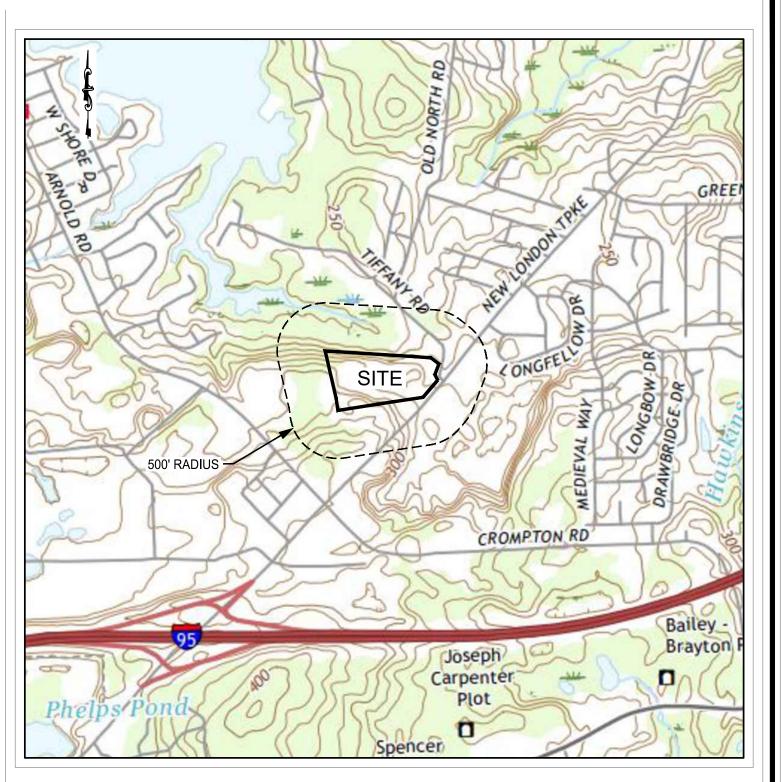
OWNER/APPLICANT: LRT NEW LONDON AVE DEVELOPMENT, LLC 400 LINCOLN AVENUE WARWICK, RI 02888 (401) 935-9263 PRINCIPAL: CHARLES ANDERSON

250 CENTERVILLE ROAD, BLDG. E-12 WARWICK, RI 02866 (401) 921-3344

**ENGINEER / SURVEYOR:** 

MILLSTONE LLC

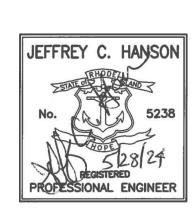
ATTORNEY: MICHAEL D. RESNICK 128 DORRANCE STREET, SUITE 300 PROVIDENCE, RI 02903 (401) 490-7334

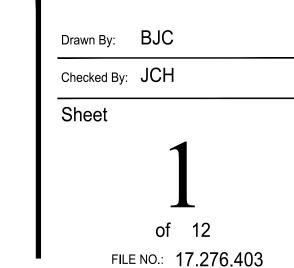


### TABLE OF CONTENTS:

<u>SHEET</u>	DESCRIPTION	REVISE
1	COVER SHEET	5/28/24
2	EXISTING CONDITIONS PLAN	5/28/24
3	SITE LAYOUT PLAN	5/28/24
4	GRADING AND DRAINAGE PLAN	5/28/24
5	UTILITY PLAN	5/28/24
6	SOIL EROSION AND SEDIMENT CONTROL PLAN	5/28/24
7	SOIL EROSION AND SEDIMENT CONTROL PLAN - 2	5/28/24
8	NOTES AND DETAILS	5/28/24
9	DETAILS - 1	5/28/24
10	DETAILS - 2	5/28/24
11	DETAILS - 3	5/28/24
12	DETAILS - 4	5/28/24

WILLOW LAKES INDEPENDENT LIVING A.P. 16, LOT 3 NEW LONDON TURNPIKE COVENTRY, RI







p. (401) 921-3344 f. (401) 921-3303

1. AERIAL PHOTOGRAPH TAKEN FROM GOOGLE EARTH.

FEBRUARY 2021; SHEETS 1-12 OF 12 REVISED THROUGH 6/9/2022.

3. PLANS ENTITLED "PRELIMINARY SUBMISSION FOR WILLOW LAKES INDEPENDENT LIVING;

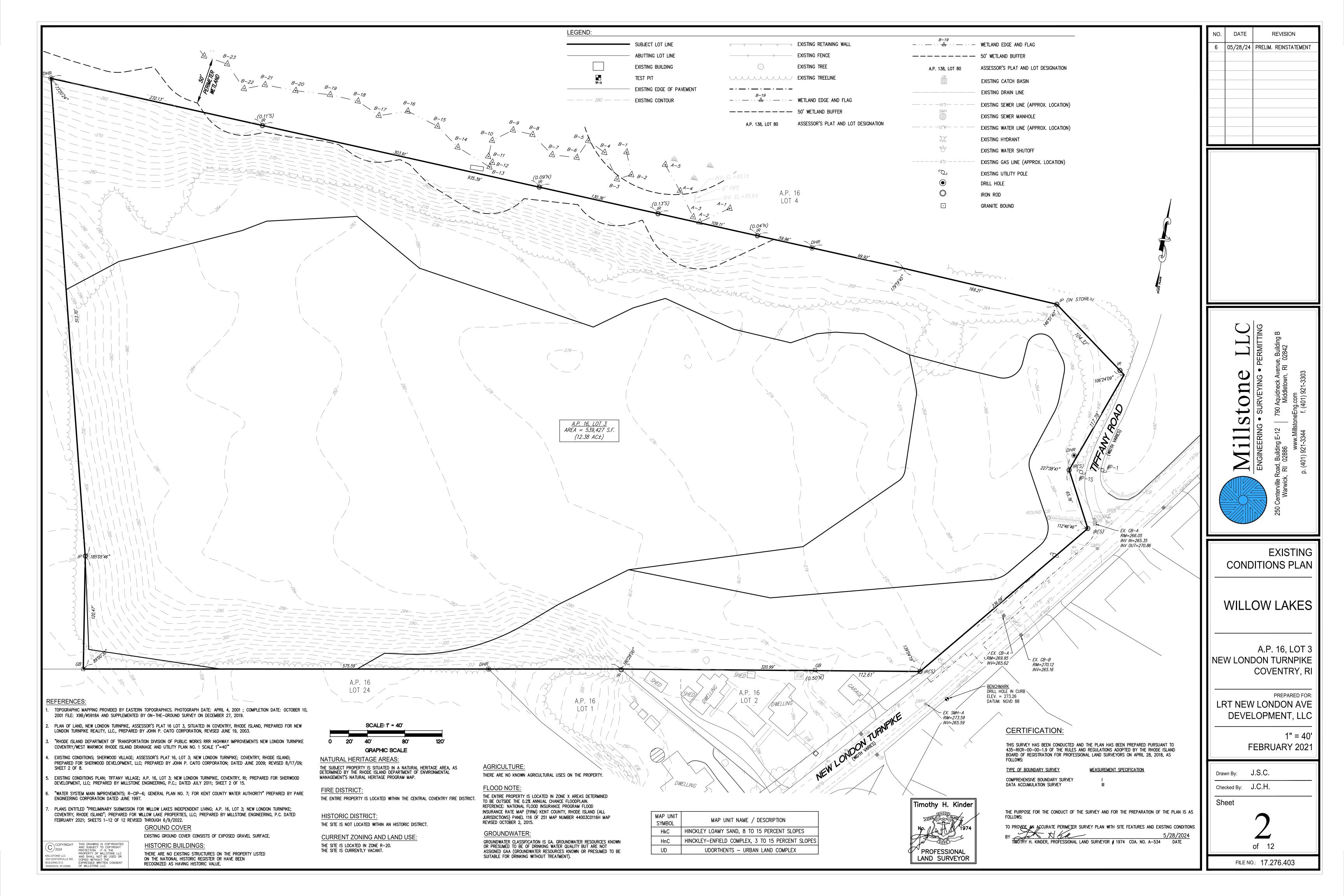
A.P. 16, LOT 3; NEW LONDON TURNPIKE; COVENTRY, RHODE ISLAND"; PREPARED FOR

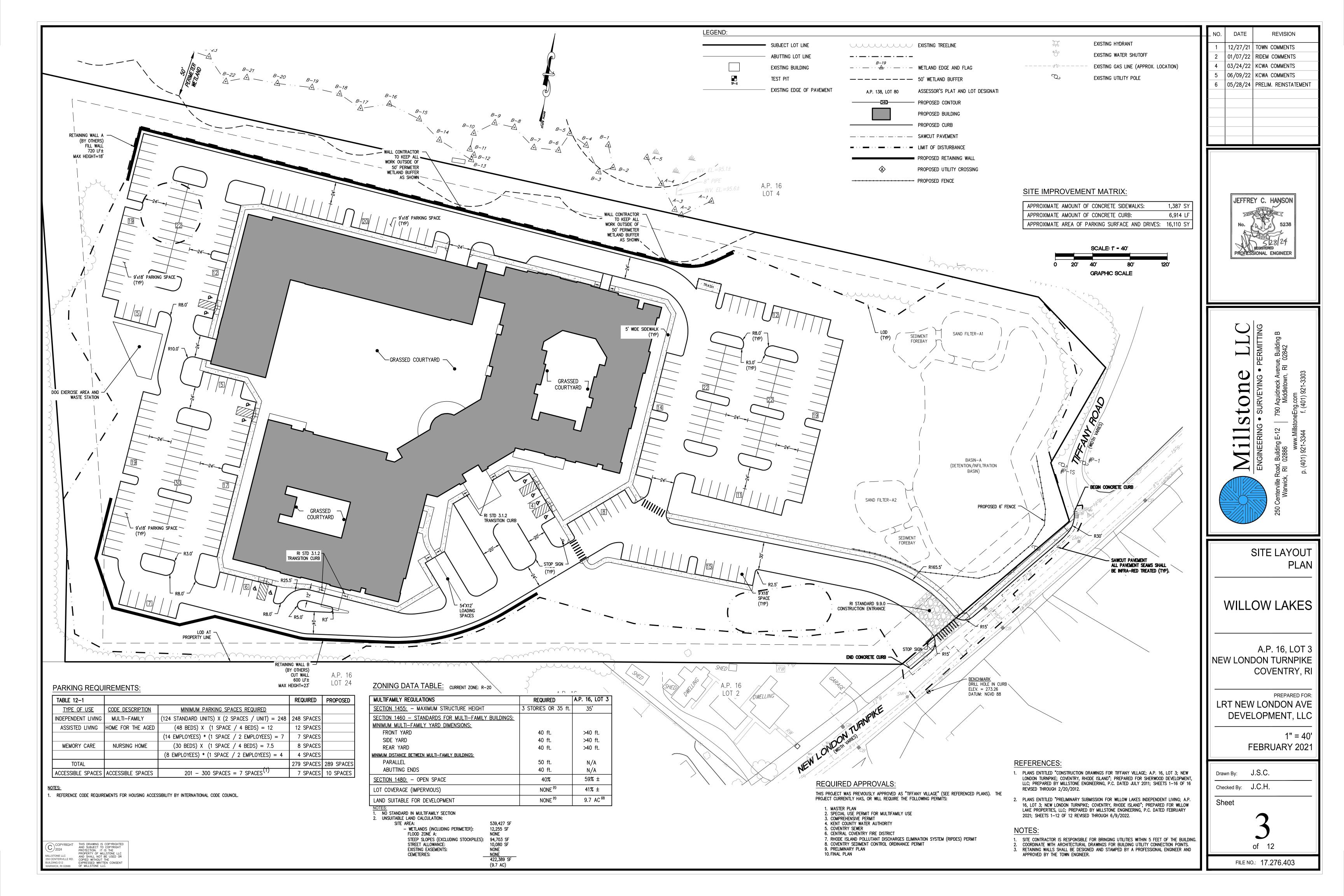
WILLOW LAKE PROPERTIES, LLC; PREPARED BY MILLSTONE ENGINEERING, P.C. DATED

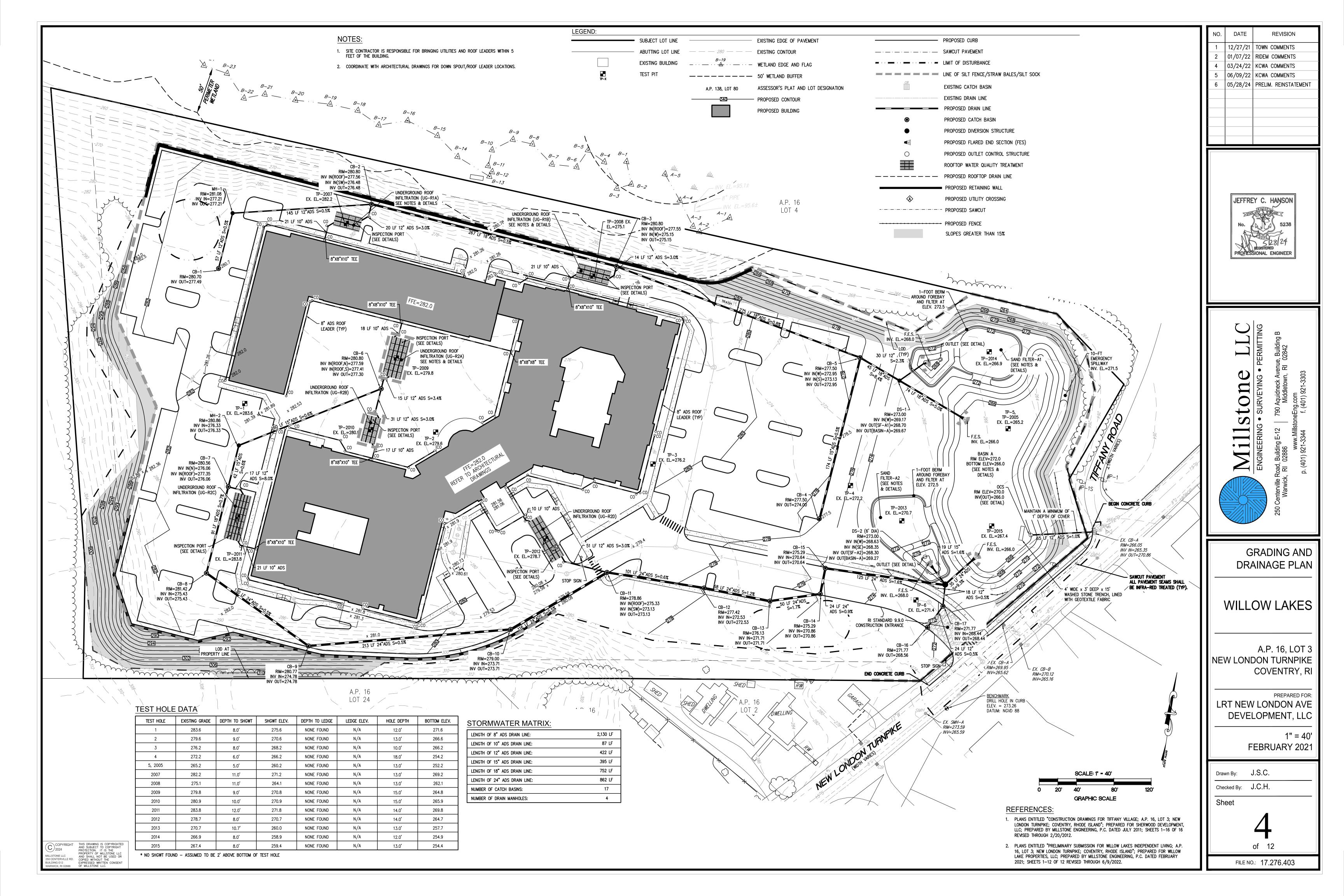
2. LOCUS MAP USGS, CROMPTON QUADRANGLE.

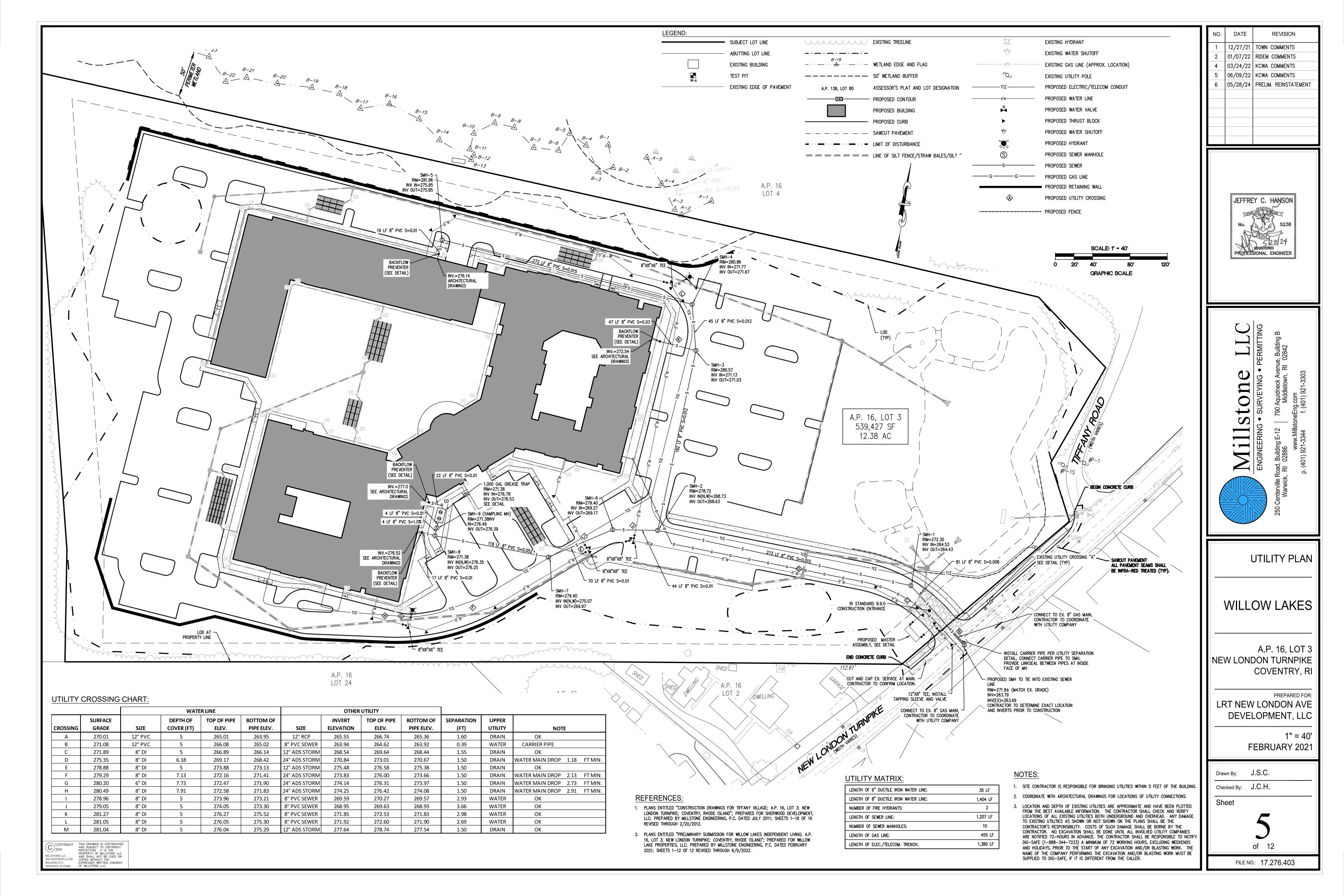
**REFERENCES:** 

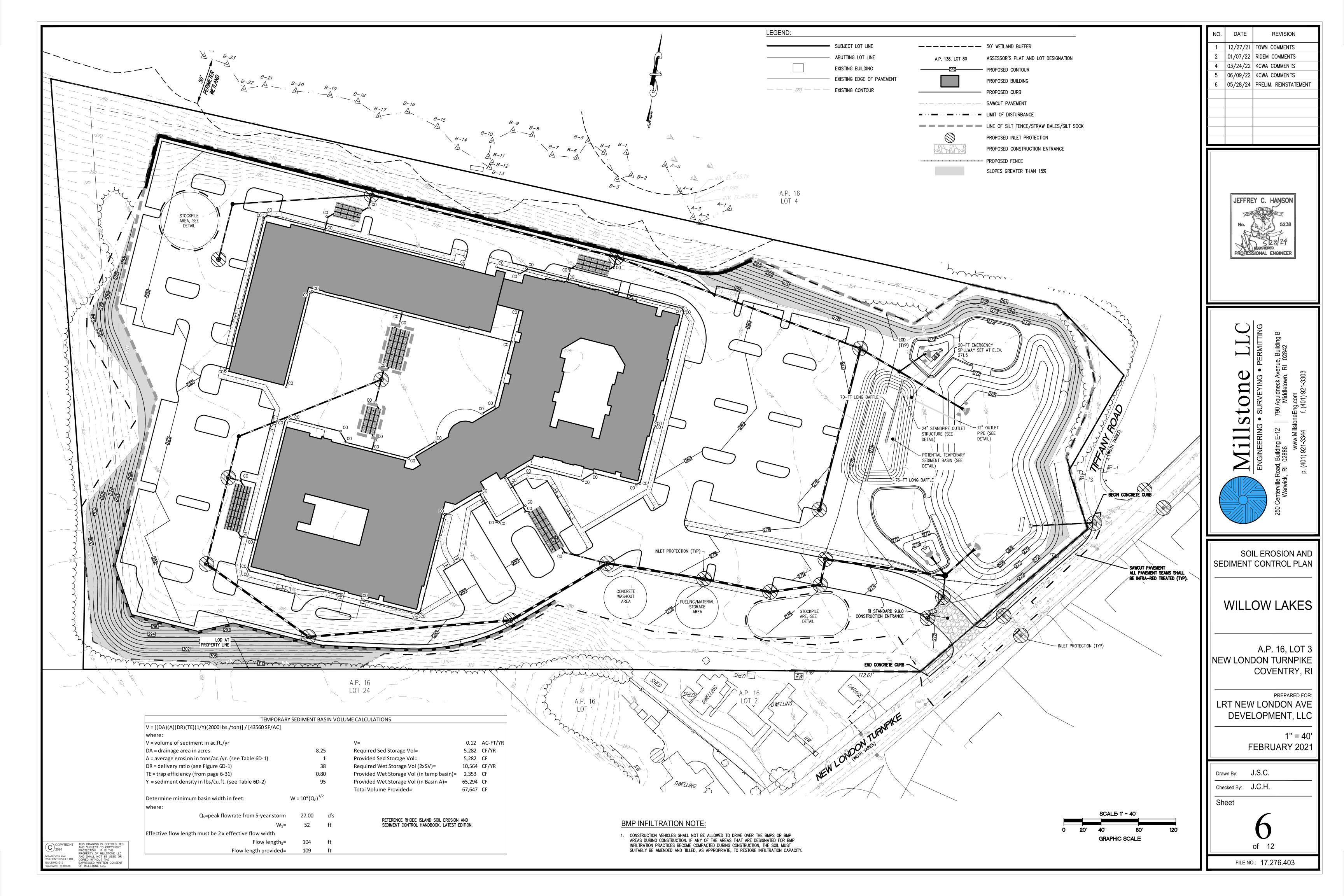
L:\PROJECTS\17\17.276.403 - ASSISTED LIVING - LABONTE - COVENTRY\17.276.403 - DRAWINGS\PRELIMINARY\MILLSTONE LLC\17.276.403 PRELIMINARY COVER R6.DWG

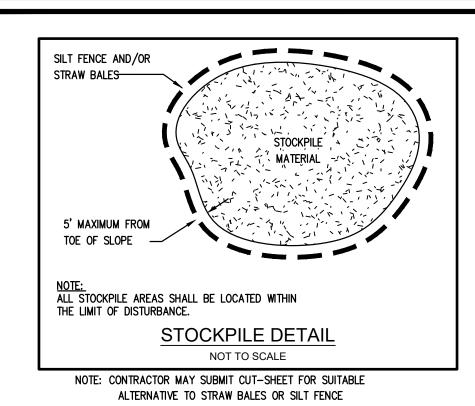


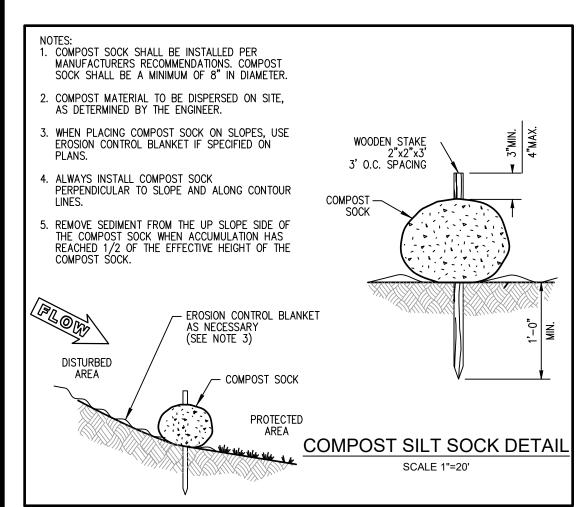


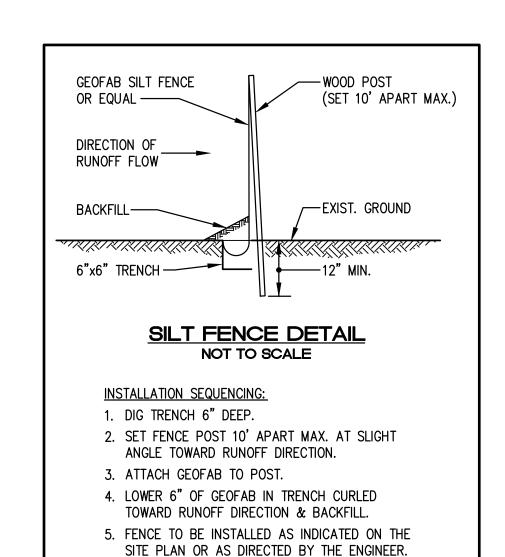












COPYRIGHT
2024
THIS DRAWING IS COPYRIGHTE
AND SUBJECT TO COPYRIGHT
PROTECTION. IT IS THE
PROPERTY OF MILLSTONE LLC

AND SHALL NOT BE USED OR

COPIED WITHOUT THE
EXPRESSED WRITTEN CONSENT
OF MILLSTONE LLC.

### SEDIMENTATION CONTROL PROGRAM:

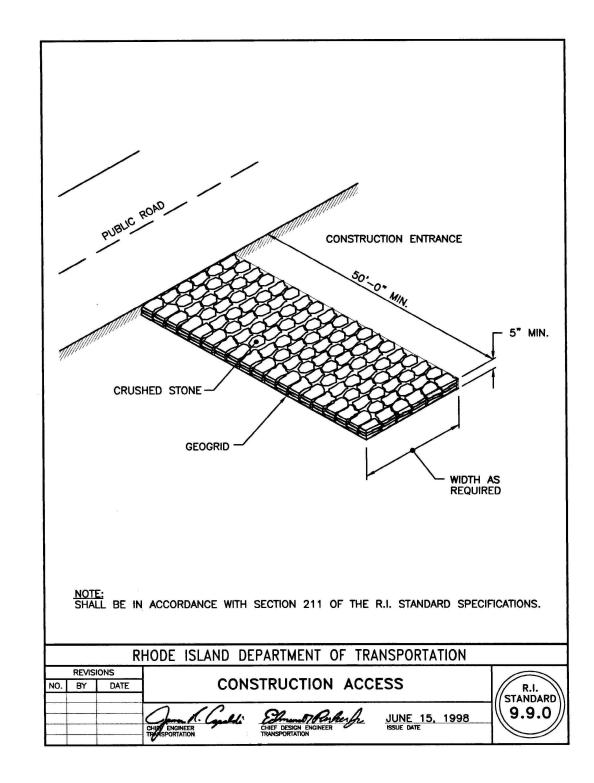
- 1. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING DOWNSTREAM WATERCOURSES AND STORMWATER DRAINAGE SYSTEMS.
- 2. DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUN-OFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
- 3. SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY
- 4. CARE SHALL BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF
- THOSE AREAS SUBJECTED TO STORMWATER FLOWAGE. 5. SEDIMENTATION TRAPS SHALL BE PROVIDED AT ALL DRAINAGE STRUCTURES DURING CONSTRUCTION.

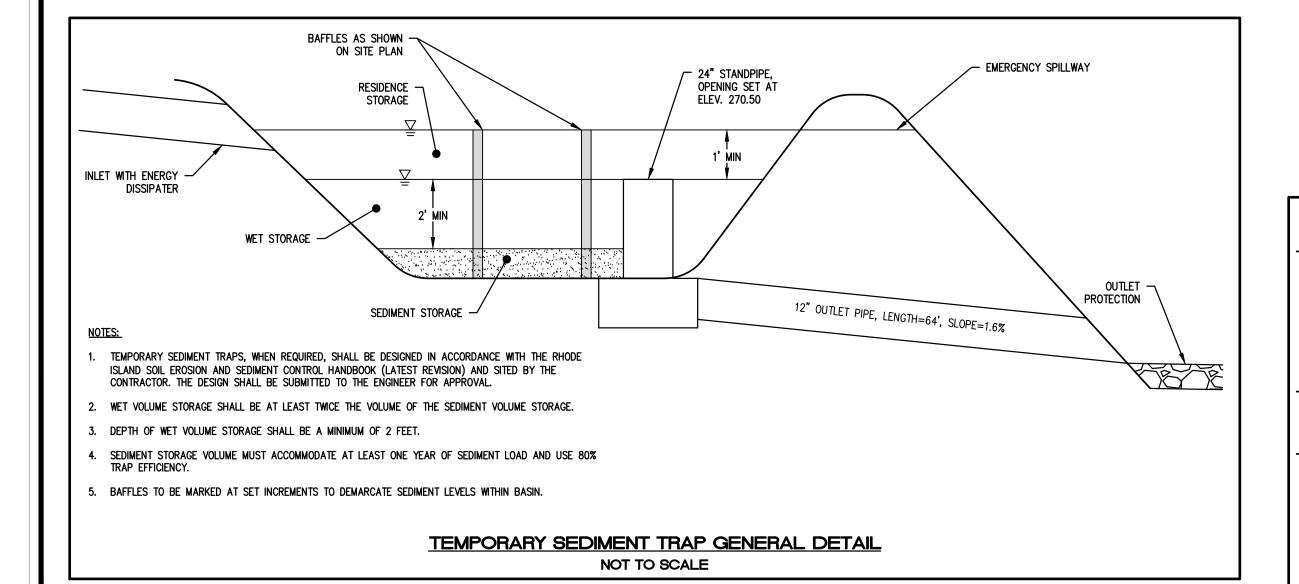
EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR

- 6. EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THE SITE PRIOR TO THE START OF CONSTRUCTION AND BE PROPERLY MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED
- A. THE INSTALLATION OF A CONTINUOUS LINE OF STAKED STRAWBALES, SILT FENCE, OR SIMILAR IN ALL LOCATIONS SHOWN ON THE APPROVED SITE PLANS AND WHERE OTHERWISE NECESSARY TO PREVENT SEDIMENTS FROM ENTERING DOWNSTREAM WATERCOURSES AND STORMWATER DRAINAGE
- B. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED WITH APPROVED GROUND COVER PRIOR TO THE COMPLETION OF THE PROJECT. AREAS EXPOSED FOR EXTENDED PERIODS ARE TO BE COMPLETELY COVERED WITH SPREAD HAY MULCH.
- C. CATCH BASINS SHALL BE PROTECTED WITH STRAWBALE OR SILT SACK FILTERS THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED. SUMPS ARE TO BE CLEANED IMMEDIATELY FOLLOWING INSTALLATION OF PERMANENT PAVEMENT.
- D. OUTFALLS SHALL BE PROTECTED BY STRAWBALE FILTERS UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED WITH APPROVED GROUND COVER.
- E. ALL CONTROL MEASURES SHALL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE
- 7. THE LIMITS OF ALL CLEARING, GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE

SHALL REMAIN TOTALLY UNDISTURBED.

8. IF AREAS OF 1-5 ACRES ARE TO BE DISTURBED AT ONE TIME, A TEMPORARY SEDIMENT TRAP SHALL BE DESIGNED AND SITED IN ACCORDANCE WITH THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, SECTION 6 AND SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO LAND DISTURBANCE.



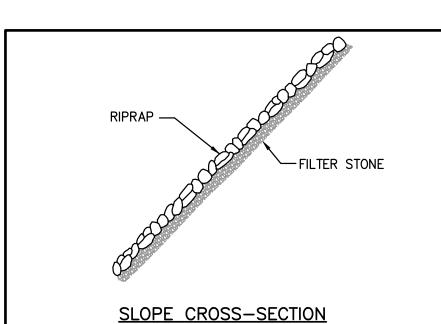


EROSION CONTROL AND SOIL STABILIZATION PROGRAM:

- 1. DENUDED SLOPES SHALL NOT BE LEFT EXPOSED FOR EXCESSIVE PERIODS OF TIME, SUCH AS THE INACTIVE WINTER SEASONS.
- 2. TEMPORARY TREATMENTS SHALL CONSIST OF STRAW, FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
- 3. STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 2000 LBS/ACRE.
- 4. ALL STRAWBALES OR TEMPORARY PROTECTION SHALL REMAIN IN-PLACE UNTIL AN ACCEPTABLE STAND OF GRASS, RIP-RAP OR APPROVED GROUND COVER IS ESTABLISHED.
- 5. THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES. ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH RHODE ISLAND STANDARD SPECIFICATION M.18.02.
- 6. THE DESIGN MIX UTILIZED IN ALL DISTURBED AREAS TO BE SEEDED SHALL BE COMPRISED OF THE FOLLOWING:

<u>TYPE</u>	% BY WEIGHT
CREEPING RED FESCUE	70
ASTORIA BENTGRASS	5
BIRDFOOT TREEFOIL	15
PERENNIAL RYEGRASS	10
APPLICATION RATE	100 LBS/ACRE

- 7. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR, AND SHALL DO SO AT NO ADDITIONAL EXPENSE.
- 8. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.
- 9. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.
- 10. STOCKPILES OF TOPSOIL AND EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN THIRTY PERCENT (30%), SHALL ALSO BE SEEDED AND/OR STABILIZED AND SHALL BE COMPLETELY ENCIRCLED WITH STAKED HAY BALES AND/OR
- 11. ON BOTH STEEP AND LONG SLOPES, CONSIDERATION SHOULD BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
- 12. TREES TO BE RETAINED SHALL BE FENCED OR ROPED OFF TO PROTECT THEM FROM CONSTRUCTION EQUIPMENT.
- 13. ALL PROPOSED PLANTINGS AND PLACEMENT OF RIP-RAP MUST BE ACCOMPLISHED AS EARLY AS POSSIBLE UPON COMPLETION OF GRADING AND CONSTRUCTION, AND AT LEAST PRIOR TO ANY
- 14. ALL DISTURBED AREAS MUST BE SEEDED, PLANTED OR RIP—RAPPED WITHIN THE CONSTRUCTION
- 15. TEMPORARY SEEDING MUST BE COMPLETED WITHIN ONE (1) MONTH AFTER DISTURBANCE.
- 16. ALL DISTURBED AREAS MUST BE PERMANENTLY SEEDED, PLANTED OR RIP-RAPPED BEFORE OCTOBER 1ST, IF NOT THEY MUST BE TEMPORARILY SEEDED.

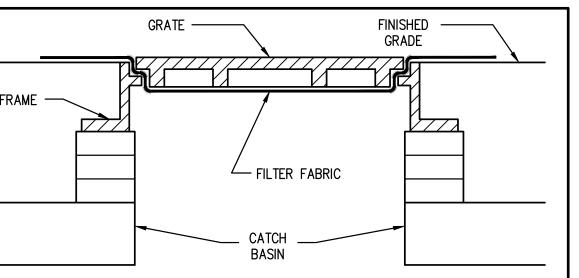


- 1. SEE SITE PLAN FOR CLASS OF RIP-RAP TO BE USED 2. SEE FILTER STONE CHART FOR APPROPRIATE FILTER STONE TYPE AND DEPTH
- 3. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
- 4. UNLESS OTHERWISE SPECIFIED, DUMPED RIP-RAP SHALL BE USED.

### ROCKFILL RIP-RAP NOT TO SCALE

RIPRAP	FILTER STONE	DEPTH
R-1	FS-1	6"
R-2	FS-2	6"
R-3	FS-2	6"
R-4	FS-3	7.5"
R-5	FS-3	7.5"
R-6	FS-2 and R-2	6"/6"
R-7	FS-3 and R-4	7.5"/21"
R-8	FS-3 and R-4	7.5"/21"

### FILTER STONE CHART



## **MAINTENANCE NOTE:**

CATCH BASIN FILTER FABRIC SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT AND REPLACED AS NECESSARY. AT THE SAME TIME THE CATCH BASIN SUMP SHALL BE CLEANED OF ACCUMULATED DEBRIS, IF NECESSARY. UNDER NO CIRCUMSTANCES SHALL THE FILTER FABRIC BE PUNCTURED.

### TEMPORARY CATCH BASIN SEDIMENT CONTROL

NOT TO SCALE

**BMP CONSTRUCTION SEQUENCES** 

GREAT CARE SHALL BE GIVEN TO THE AREAS WHERE STRUCTURES WHICH REQUIRE INFILTRATION AS A MECHANISM FOR STORMWATER TREATMENT AND/OR DISPOSAL ARE PROPOSED PRIOR TO THEIR CONSTRUCTION. NO INFILTRATION STRUCTURE SHALL BE CONSTRUCTED NOR ACCEPT RUNOFF UNTIL ALL UP-GRADIENT AREAS OF THE WATERSHED HAVE BEEN BUILT AND FULLY STABILIZED SO AS TO HAVE NO POTENTIAL FOR SEDIMENT OR SILT DEPOSITION. ALSO, ONCE THE ENTIRE SITE IS STABILIZED ALL SESC MEASURES SHALL BE REMOVED.

THE DESIGN SEED MIX FOR ALL PERMANENT STORMWATER BASINS SHALL BE COMPRISED OF THE FOLLOWING AND PLANTED IN A MINIMUM OF A 6" DEPTH OF SANDY LOAM FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS:



APPLICATION RATE 100 LBS/ACRE LIMING AND FERTILIZING AS REQUIRED TO COMPLIMENT OR UPGRADE EXISTING CONDITIONS.

### SAND FILTERS:

- 1. EXCAVATE TO THE LINES AND GRADES OF THE DESIGN 2. INSTALL 6" OF SAND AND ROTO-TILL TO MIX INTO THE SUBSOIL INTERFACE 3. SAND FILTER SAND SHALL BE ASTM C33 CONCRETE SAND
- 4. INSTALL REMAINDER OF SAND 5. INSTALL NON-WOVEN GEOTEXTILE
- 6. INSTALL 6"WASHED CRUSHED STONE & PERFORATED DISBURSAL PIPING 7. INSTALL NON-WOVEN GEOTEXTILE 8. LOAM AND SEED PER DETAILS WITH PERMANENT SEED MIXTURE & DRAINS

### DETENTION / INFILTRATION BASIN:

1. EXCAVATE TO THE LINES AND GRADES OF THE DESIGN 2. INSTALL OUTLET CONTROL STRUCTURE & LEVEL SPREADER 3. LOAM AND SEED ACCORDINGLY WITH PERMANENT SEED MIXTURE

### LEVEL SPREADER:

1. EXCAVATE TO THE LINES AND GRADES OF THE DESIGN 2. INSTALL CURBING SET LEVEL 3. LOAM AND SEED PER DETAILS WITH PERMANENT SEED MIXTURE

### ROOFTOP UNDERGROUND INFILTRATION:

- 1. EXCAVATE TO THE LINES AND GRADES OF THE DESIGN AND PREPARE SUBGRADE PER PLANS. 2. PLACE NON-WOVEN GEOTEXTILE OVER PREPARED SOILS AND UP EXCAVATION WALLS.
- 3. PLACE CLEAN. CRUSHED, ANGULAR STONE FOUNDATION. COMPACT TO ACHIEVE A FLAT SURFACE
- 5. INSTALL MANIFOLDS AND LAY OUT WOVEN SCOUR GEOTEXTILE AT INLET ROWS. 5. ALIGN THE FIRST CHAMBER AND END CAP OF EACH ROW WITH INLET PIPE.
- . Construct chamber bed by overlapping chambers lengthwise in rows. Attach chambers BY OVERLAPPING END OF CORRUGATION OF ONE CHAMBER ON TO THE END OF CORRUGATION OF THE LAST CHAMBER IN THE ROW.
- 8. LIFT THE END OF THE CHMABER A FEW INCHES OFF GROUND AND ATTACH END CAP. 9. DRAPE A STRIP OF ADS NON-WOVEN GEOTEXTILE OVER THE ROW OF CHAMBERS.
- 10. BACKILL CHAMBERS EVENLY UNTIL STONE REACHES TOP OF CHAMBERS. 11. INSTALL NON-WOVEN GEOTEXTILE OVER STONE. COMPACT EACH LIFT OF BACKFILL AS SPECIFIED IN

### **CONSTRUCTION MAINTENANCE:**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION, MAINTENANCE AND REPAIR TO ALL DRAINAGE STRUCTURES AND RELATED APPURTENANCES ON THE SITE DURING CONSTRUCTION AND FOR A MAXIMUM OF ONE (1) YEAR FOLLOWING COMPLETION OF CONSTRUCTION, AT WHICH TIME THE DRAINAGE STRUCTURES AND APPURTENANCES ARE TO BE ACCEPTED BY THE ENGINEER AND THE OWNER, AS FOLLOWS:

- ALL CATCH BASINS AND STORM DRAIN PIPES SHALL BE CLEANED OF SEDIMENT. STORMWATER BASINS SHALL BE CLEANED OF SEDIMENT TO THE DESIGN GRADES INDICATED ON THE CONSTRUCTION DRAWINGS.
- 2. INSPECTION OF THE BASINS AND ALL INLET AND OUTLET STRUCTURES SHALL BE PERFORMED ON A WEEKLY BASIS, PREFERABLY DURING A STORM EVENT TO INSPECT FOR PROPER FUNCTIONALITY OF THE FACILITY.
- 3. GRASSES MUST BE PLANTED AROUND AND WITHIN THE STORMWATER BASIN IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE THE SLOPES AND PREVENT EROSION.
- 4. SEDIMENTS SHALL BE REMOVED FROM DRAINAGE STRUCTURES AND THE STORMWATER BASINS IMMEDIATELY FOLLOWING SITE STABILIZATION AND DURING THE FIRST (INITIAL) YEAR OF
- 5. ALL COSTS INCURRED FOR MAINTENANCE, CLEANING, AND INSPECTION ARE THE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION AND THE PROPERTY OWNER UPON ACCEPTANCE.
- 6. ANY INADVERTENT OR DELIBERATE DISCHARGE OF WASTE OIL OR ANY OTHER POLLUTANT TO THE STORMWATER DISPOSAL SYSTEM REQUIRES IMMEDIATE NOTIFICATION OF THE RIDEM.
- 7. ALL TRASH AND LITTER AND OTHER DEBRIS SHALL BE REMOVED FROM ANY STORMWATER
- FACILITY DAILY, INCLUDING INLET AND OUTLET STRUCTURES. 8. REPAIRS OR REPLACEMENT OF INLET/OUTLET STRUCTURES, RIP-RAP CHANNELS, FENCES, OR
- OTHER ELEMENTS OF THE FACILITY DURING CONSTRUCTION SHALL BE DONE WITHIN 30 DAYS OF DEFICIENCY REPORTS.
- 9. PAVEMENT SWEEPING SHALL BE PERFORMED UPON COMPLETION OF THE PROJECT.
- 10. WATER SHALL BE USED TO MOISTEN EXPOSED SOIL SURFACES PERIODICALLY. AN ADEQUATE AMOUNT SHOULD BE USED TO CONTROL DUST.

### POLLUTION PREVENTION PLAN:

## LONG-TERM MANAGEMENT OF THE POLLUTION PREVENTION PLAN SHALL BE THE RESPONSIBILITY OF

THE OWNER / OPERATOR. LRT NEW LONDON AVE DEVELOPMENT, LLC

400 LINCOLN AVENUE WARWICK, RI 02888

THE CONTRACTOR SHALL MANAGE THE POLLUTION PREVENTION PLAN DURING THE CONSTRUCTION

### CONTRACTOR: TBD

**SOLID WASTE CONTAINMENT:** 

- TRASH RACKS WHERE PRACTICAL SHALL BE INSTALLED AND MAINTAINED ON ALL INLET STRUCTURES WITHIN THE DRAINAGE SYSTEM. INSPECTIONS FOR TRASH SHOULD BE ON A WEEKLY BASIS.
- TRASH RECEPTACLES SHALL BE PROVIDED WHERE APPROPRIATE.

• STREET SWEEPING SHALL BE PREFORMED ON AN ANNUAL BASIS.

• NO SAND AND DEICING MATERIALS SHALL BE STORED ON THE SITE

- PET WASTE DISPOSAL STATIONS SHALL BE PROVIDED WHERE APPLICABLE.
- SNOW DISPOSAL AND DEICING:
- SNOW REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH RIDEM'S SNOW DISPOSAL POLICY.
- ON STANDARD ASPHALT AREAS, ONLY ASPHALT BASED SEALANTS ARE ALLOWED, NO COAL-TAR BASED SEALANTS SHALL BE USED ON THIS SITE.
- **HAZARDOUS MATERIALS CONTAINMENT:**

DRIVEWAY AND PARKING LOT SEALANTS:

- NO HAZARDOUS MATERIALS SHALL BE STORED OUTSIDE TO AVOID EXPOSURE TO STORMWATER. LANDSCAPE MANAGEMENT:
- GRASS CLIPPINGS FROM LAWN CARE PROCEDURES IN AND AROUND THE STORMWATER FACILITY MUST BE COLLECTED AND DISPOSED OF OFF SITE.
- LAWN HEIGHTS WITHIN THE BMP'S SHALL BE KEPT AT A 4-6" HEIGHT.
- FERTILIZER AND WATERING DEMANDS SHOULD BE HAVE PROFESSIONAL OVERSIGHT AND BOTH USES MINIMIZED TO THE MAXIMUM EXTENT PRACTICAL.

LONG-TERM MAINTENANCE SCHEDULE (O&M):

LONG-TERM MAINTENANCE OF THE DRAINAGE SYSTEM SHALL BE COMPLETED BY THE APPLICANT/OPERATOR UNDER A LEGALLY BINDING AND ENFORCEABLE MAINTENANCE AGREEMENT. THE TOWNS OF COVENTRY AND EAST GREENWICH ARE <u>NOT</u> RESPONSIBLE FOR MAINTENANCE OF THE BMPS.

OWNER: LRT NEW LONDON AVE DEVELOPMENT, LLC 400 LINCOLN AVENUE WARWICK, RI 02888

THE CONTRACTOR / OPERATOR SHALL MAINTAIN ALL DRAINAGE COMPONENTS DURING AND DIRECTLY AFTER CONSTRUCTION. ALL OPERATIONAL MAINTENANCE REQUIREMENTS WILL BE RECORDED ON THE TITLE.

OPERATOR / CONTRACTOR: DEFAULTS TO OWNER UNTIL HOMEOWNERS' ASSOCIATION HAS BEEN CREATED THE ENTIRE STORMWATER SYSTEM SHALL BE INSPECTED THROUGHOUT THE CONSTRUCTION PROCESS AND REPORTED ON THE ATTACHED CONSTRUCTION INSPECTION REPORTING FORMS.

THE ENTIRE STORMWATER MANAGEMENT SYSTEM SHALL BE INSPECTED ON A BI-ANNUAL BASIS FOR GENERAL PROBLEMS AND TO ENSURE PROPER FUNCTION AND AFTER STORM EVENTS GREATER THAN OR EQUAL TO THE 1-YR, 24-HR TYPE III PRECIPITATION EVENT (2.7"). THESE INSPECTIONS SHALL BE REPORTED ON THE ATTACHED O&M INSPECTION REPORTING FORMS.

ALL INSPECTIONS REPORTS SHALL BE KEPT ON FILE WITH THE STORMWATER MANAGEMENT OPERATION AND MAINTENANCE PLAN **SEDIMENT FOREBAY:** 

### THE SLOPES SHOULD BE INSPECTED FOR EROSION AND GULLYING

- RIPRAP SHOULD BE REINFORCED IF EROSION IS PRESENT AT OUTFALLS OR IF IT HAS BEEN
- INSPECT ALL STRUCTURAL COMPONENTS SUCH AS TRASH RACKS, ACCESS GATES, VALVES, PIPES, WEIRS, WALLS, ORIFICE STRUCTURES AND SPILLWAY STRUCTURES FOR DEFECTS AND ANY MUST BE
- INSPECT FOR SEDIMENT ACCUMULATION AND IT SHOULD BE REMOVED IF IT REACHES 9" OR 25% OF
- THE STORAGE VOLUME
- MOW GRASSES TO MAINTAIN A 4-6" STRONG STAND OF TURF AND MOW IMMEDIATELY SHOULD IT REACH 10". ALL CLIPPINGS SHALL BE COLLECTED AND DISPOSED OF PROPERLY
- NO WOODY GROWTH SHOULD EVER BE ALLOWED TO REMAIN IN AND AROUND THE FOREBAY
- AREAS OF EROSION OR DISTURBANCE SHALL BE RE-ESTABLISHED IMMEDIATELY INLETS AND OUTLETS SHALL BE CLEARED OF DEBRIS AS NEEDED

## THE FACILITY SHOULD BE INSPECTED ANNUALLY TO ENSURE INFILTRATION RATES ARE BEING MET.

- STANDING WATER IS OBSERVED FOR MORE THAN 48 HRS AFTER A RAIN EVENT, THE TOP 6" SHOULD BE ROTOTILLED AND ANY COMPACTED REMOVED. IF THIS DOESN'T SOLVE THE PROBLEM, THE TOP 6" OF THE SAND FILTER SHALL BE REMOVED AND REPLACED.
- RIPRAP SHOULD BE REINFORCED IF EROSION IS PRESENT AT OUTFALLS OR IF IT HAS BEEN
- $\bullet$  MOW GRASSES TO MAINTAIN A 4-6" STRONG STAND OF TURF, ALL CLIPPINGS SHALL BE COLLECTED AND DISPOSED OF PROPERLY
- NO WOODY GROWTH SHOULD EVER BE ALLOWED TO REMAIN IN AND AROUND THE FOREBAYS
- AREAS OF EROSION OR DISTURBANCE SHALL BE RE-ESTABLISHED IMMEDIATELY

INLETS AND OUTLETS SHALL BE CLEARED OF DEBRIS AS NEEDED

### ROOFTOP UNDERGROUND INFILTRATION:

- THE SYSTEM SHOULD BE INSPECTED AT A MINIMUM OF ONE TIME A YEAR OR AFTER MAJOR RAIN EVENTS IF NECESSARY.
- LOCATE THE RISER SECTION OF THE SYSTEM AND REMOVE THE LID FROM THE RISER.

PERFORMED BY EITHER MANUAL METHODS OR BY A VACUUM TRUCK.

- MEASURE THE SEDIMENT BUILDUP AT EACH RISER AND CLEANOUT LOCATION. ONLY CERTIFIED CONFINED SPACE ENTRY PERSONNEL HAVING APPROPRIATE EQUIPMENT SHOULD BE PERMITTED TO ENTER THE
- INSPECT EACH MANIFOLD, ALL LATERALS, AND OUTLET PIPES FOR SEDIMENT BUILD UP, OBSTRUCTIONS OR OTHER PROBLEMS.
- IF MEASURED SEDIMENT BUILD UP IS BETWEEN 5%-20% OF THE PIPE DIAMETER, CLEANING SHOULD BE CONSIDERED: IF SEDIMENT BUILD UP EXCEEDS 20%, CLEANING SHOULD BE PERFORMED AT THE EARLIEST OPPORTUNITY. A THOROUGH CLEANING OF THE SYSTEM (MANIFOLDS AND LATERALS) SHALL BE

### **DETENTION / INFILTRATION BASIN:**

- THE FACILITY SHOULD BE INSPECTED ANNUALLY TO ENSURE INFILTRATION RATES ARE BEING MET. STANDING WATER IS OBSERVED FOR MORE THAN 48 HRS AFTER A RAIN EVENT. THE TOP 6" SHOULD BE ROTOTILLED AND ANY COMPACTED REMOVED. IF THIS DOESN'T SOLVE THE PROBLEM, THE TOP 6" OF THE BASIN SHALL BE REMOVED AND REPLACED.
- THE FACILITY SHOULD BE INSPECTED ANNUALLY FOR EROSION, GULLYING OR DAMAGE AND CLEANED OF DEBRIS AND TRASH
- RIPRAP SHOULD BE REINFORCED IF EROSION IS PRESENT AT OUTFALLS OR IF IT HAS BEEN COMPROMISED
- MOW GRASSES TO MAINTAIN A 4-6" STRONG STAND OF TURF, ALL CLIPPINGS SHALL BE COLLECTED AND DISPOSED OF PROPERLY
- NO WOODY GROWTH SHOULD EVER BE ALLOWED TO REMAIN IN AND AROUND THE FOREBAYS AREAS OF EROSION OR DISTURBANCE SHALL BE RE-ESTABLISHED IMMEDIATELY
- INLETS AND OUTLETS SHALL BE CLEARED OF DEBRIS AS NEEDED

### CATCH BASINS AND DRAINAGE SYSTEM:

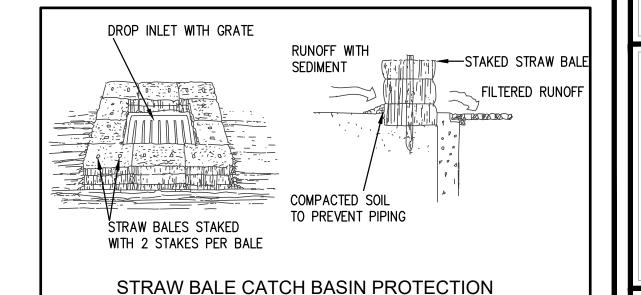
- ALL CATCH BASINS AND STORM DRAIN PIPES SHALL BE ANNUALLY CHECKED FOR SEDIMENT AND DEBRIS AND CLEANED / JETTED AS NECESSARY.
- ALL COSTS INCURRED FOR MAINTENANCE, CLEANING, AND INSPECTION ARE THE RESPONSIBILITY
- OF THE PROPERTY OWNER UPON ACCEPTANCE. PAVEMENT SWEEPING SHALL BE PERFORMED ANNUALLY, PREFERABLY IN THE SPRING, AFTER

### ROADWAY SANDING IS COMPLETED FOR THE SEASON. ESTIMATED O&M BUDGET & FUNDING SOURCE:

• THE PROJECT OPERATOR WILL BE THE OWNER, WHO SHALL BE RESPONSIBLE FOR FUNDING THE O&M

### ESTIMATE OF O&M BUDGET:

BI-ANNUAL INSPECTIONS:	\$1000 EA x 2	<b>\$2,000</b>
BI-WEEKLY MOWING:	\$200 EA x 13	<b>\$2,600</b>
MISC. REPAIRS:	<b>\$1,000</b>	<b>\$1,000</b>
PAVEMENT SWEEPING	<b>\$1,000</b>	<b>\$1,000</b>
ADDITIONAL INSPECTIONS:	\$1,000 EA x 2	<b>\$2,000</b>
TOTAL ESTIMATE:		\$8,600 / YR

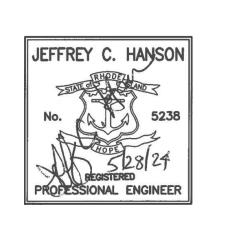


NOT TO SCALE

| 01/07/22 | RIDEM COMMENTS | 05/28/24 | PRELIM. REINSTATEMENT

REVISION

DATE



**SOIL EROSION AND** SEDIMENT CONTROL

PLAN - 2

**WILLOW LAKES** 

A.P. 16, LOT 3 NEW LONDON TURNPIKE COVENTRY, RI

> PREPARED FOR LRT NEW LONDON AVE DEVELOPMENT, LLC

> > SCALE AS NOTED FEBRUARY 2021

Drawn By: J.S.C. Checked By: J.C.H. Sheet

of 12

FILE NO.: 17.276.403

### **GENERAL NOTES:**

- 1. THE MOST CURRENT EDITION OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO. THE CURRENT VERSION OF THE STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS. IN ADDITION, THE TOWN OF COVENTRY STANDARD SPECIFICATIONS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO.
- 2. ALL REQUIRED SITE IMPROVEMENTS SHALL BE INSPECTED BY THE TOWN ENGINEER TO ENSURE SATISFACTORY COMPLETION. IN NO CASE SHALL THE INSTALLATION OF ANY IMPROVEMENTS BE STARTED UNTIL PRIOR NOTIFICATION IS GIVEN TO THE TOWN ENGINEER. AT LEAST A 48-HOUR NOTICE SHALL BE GIVEN TO THE TOWN ENGINEER PRIOR TO ANY SUCH START OF CONSTRUCTION. A FINAL INSPECTION OF ALL SITE IMPROVEMENTS. UTILITIES AND GRADING WILL BE MADE TO DETERMINE WHETHER THE WORK IS SATISFACTORY AND IN SUBSTANTIAL AGREEMENT WITH THE APPROVED FINAL CONSTRUCTION DRAWINGS AND THE TOWN SPECIFICATIONS.
- 3. LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL CHECK AND VERIFY LOCATIONS OF ALL EXISTING UTILITIES BOTH UNDERGROUND AND OVERHEAD. ANY DAMAGE TO EXISTING UTILITIES AS SHOWN OR NOT SHOWN ON THE PLANS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. COSTS OF SUCH DAMAGE SHALL BE BORNE BY THE CONTRACTOR. NO EXCAVATION SHALL BE DONE UNTIL ALL INVOLVED UTILITY COMPANIES ARE NOTIFIED 72-HOURS IN ADVANCE. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY DIG-SAFE (1-888-344-7233) A MINIMUM OF 72-WORKING HOURS, EXCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO THE START OF ANY EXCAVATION AND/OR BLASTING WORK. THE NAME OF THE COMPANY PERFORMING THE EXCAVATION AND/OR BLASTING WORK MUST BE SUPPLIED TO DIG-SAFE, IF IT IS DIFFERENT FROM THE
- 4. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY THE STATE OF RHODE ISLAND, FEDERAL GOVERNMENT, AND THE TOWN OF COVENTRY PRIOR TO COMMENCING ANY WORK.
- 5. CONTRACTOR TO EXCAVATE TEST PITS TO CONFIRM LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. ANY DISCREPANCY SHALL BE REPORTED TO
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENTATION AND EROSION CONTROLS.
- STOCKPILES OF EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS, WETLANDS, OR ADJACENT TO DRAINAGE STRUCTURES.
- 8. ALL MATERIAL FOR FILL SHALL BE CLEAN AND FREE OF MATTER WHICH COULD POLLUTE
- ANY DOWNSTREAM WATERCOURSE. 9. FILL MATERIAL SHALL BE COMPACTED IN ONE FOOT (MAXIMUM) LIFTS TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-1557
- 10. THERE ARE NO SPECIAL FLOOD HAZARD AREAS LOCATED ON THE SITE. THIS SITE LIES ENTIRELY WITHIN ZONE "X" - AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS AS SHOWN ON THE NATIONAL FLOOD INSURANCE RATE MAPS (FIRM), KENT COUNTY, RHODE ISLAND, ALL JURISDICTIONS, PANEL 116 OF 251, MAP NUMBER 44003C0116H, MAP REVISED OCTOBER 2, 2015.
- 11. VERTICAL DATUM: NGVD 1988.

(MODIFIED PROCTOR TEST).

- 12. WORK SHOWN ON THE PLANS FOR WHICH THERE ARE NO PARTICULAR DETAILS OR SPECIFICATIONS DOES NOT RELIEVE THE CONTRACTOR FROM FINISHING AND INSTALLING THE WORK. THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE CONTRACT DOCUMENTS AND PLANS AND INSPECT THE SITE, AND THE BID PRICE SHALL INCLUDE ALL SERVICES AND MATERIALS AS NECESSARY TO COMPLETE THE PROJECT. ANY CHANGES TO THE PROJECT OR THE INSTALLATION OF AN ITEM FOR WHICH NO PARTICULAR DETAIL OR SPECIFICATION WAS PROVIDED MUST BE REVIEWED BY AND ACCEPTABLE TO THE
- 13. CONTRACTOR SHALL RECORD AND PROVIDE AS-BUILT DRAWINGS IN ACCORDANCE WITH LOCAL UTILITY REQUIREMENTS FOR ALL NEW INFRASTRUCTURE AND PROVIDE THE TOWN OF COVENTRY WITH AS-BUILTS OF THE STORMWATER MANAGEMENT SYSTEM, SEWER SYSTEM, AND WATER SYSTEM.
- 14. FOR UTILITY CUTS INTO EXISTING ROADWAY (NEW LONDON TURNPIKE), ALL SEAMS OF PAVEMENT PATCHES SHALL BE INFRA-RED TREATED.

### CONSTRUCTION SEQUENCE / NARRATIVE

- 1. OBTAIN APPLICABLE PERMITS.
- APPROPRIATE STATE, REGIONAL AND TOWN DEPARTMENTS PRIOR TO THE START OF CONSTRUCTION.
- BEGIN CONSTRUCTION.
- 4. CONSTRUCT RI STD 9.9.0 CONSTRUCTION ACCESS (ES).
- 5. INSTALL SILT FENCE / SILT SOCK / STAKED STRAWBALE LINE.
- 6. CLEAN, GRUB, AND STOCKPILE TOPSOIL (IF REQUIRED).
- 7. EXCAVATE / PLACE COMPACTED FILL IN ACCORDANCE WITH THE GRADING PLAN.
- 8. INSTALL PROPOSED STORM DRAINAGE SYSTEM, WORK DOWNSTREAM TO UPSTREAM.
- PLACE INLET PROTECTION WHERE REQUIRED. BEGIN ROADWAY CONSTRUCTION.
- 10. INSTALL UTILITIES IN ACCORDANCE WITH THE UTILITY PLAN.
- 11. INSTALL CURBING AND PAVEMENT.
- 12. FINE GRADE, SPREAD TOPSOIL, SEED AND STABILIZE EXPOSED EARTH.
- 13. CLEAN / FLUSH STORM DRAINAGE SYSTEM.
- 14. ONCE SEEDS GERMINATE AND EARTH IS STABILIZED, REMOVE SILT FENCE/ STRAW BALE LINE AND INLET PROTECTION.
- 15. END CONSTRUCTION.

### **SEWER NOTES:**

- 1. ALL SANITARY SEWER CONSTRUCTION SHALL BE IN COMPLETE CONFORMANCE WITH THE STANDARD SANITARY SEWER REQUIREMENTS OF THE TOWN OF COVENTRY AND THE STANDARD SANITARY SEWER REQUIREMENTS OF THE WEST WARWICK SEWER COMMISSION
- 2. ALL GRAVITY SEWER PIPE AND FITTINGS SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATION D3034, SDR 35.
- 3. LOW PRESSURE PIPES. IF APPLICABLE, AND FITTINGS SHALL BE CLASS 2200 PVC AND SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATIONS D3139 AND F477.
- 4. SCHEDULE 80 PVC PIPE AND FITTINGS SHALL MEET ASTM SPECIFICATION D1784.
- 5. WATER OR LOW PRESSURE AIR TESTING SHALL BE CONDUCTED TO ASSURE LEAKAGE DOES NOT EXCEED 10 GALLONS/DAY/INCH DIAMETER/MILE OF PIPE. (GRAVITY).

6. ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS, SUCH AS VALVES, PIPES, PUMPS.

GUIDE RAILS, VAULTS, HATCHES AND CONTROLS SHALL BE SUBMITTED TO THE WEST

- WARWICK REGIONAL WASTEWATER TREATMENT FACILITY AND THE ENGINEER FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. THIS SUBMISSION SHALL INCLUDE MANUFACTURER'S LITERATURE, SHOP DRAWINGS, PROPOSED CONSTRUCTION METHODS, ETC.
- CONTRACTOR SHALL PROVIDE OWNER WITH AS-BUILT PLANS AND ELECTRONIC DATA OF SEWER SYSTEM IN ACCORDANCE WITH THE TOWN OF COVENTRY AND WEST WARWICK REGIONAL WASTEWATER FACILITY REQUIREMENTS.
- 8. DOGHOUSE MANHOLES ARE NOT ALLOWED.

### **WATER NOTES:**

1. THE KENT COUNTY WATER AUTHORITY REQUIREMENTS FOR SERVICE AND MAIN INSTALLATION

ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO.

- 2. ALL DISTRIBUTION SYSTEM PIPING SHALL BE CLASS 52 DUCTILE IRON, DOUBLE CEMENT MORTAR LINES, PUSH ON STYLE JOINTS EXCEPT AS REQUIRED BY THE KENT COUNTY WATER AUTHORITY. PIPE SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C151/A21.51. JOINTS SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C111/A21.11.
- 3. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT CLASS 350 CEMENT MORTAR LINED COMPACT STYLE AMERICAN MANUFACTURED ONLY. FITTINGS SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C153/A21.53. MECHANICAL JOINTS SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C111/A21.11.
- 4. COATINGS USED FOR BOTH PIPES AND FITTINGS SHALL BE APPROVED FOR WATER SERVICE BY THE AMERICAN WATER WORKS ASSOCIATION AND THE ENVIRONMENTAL PROTECTION AGENCY. COATINGS SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C104/A21.4.
- ANY INSTALLATION, JOINTS, CONSTRUCTION METHODS AND MATERIALS SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, KENT COUNTY WATER AUTHORITY RECOMMENDATIONS, AWWA STANDARDS AND GOVERNMENTAL REQUIREMENTS.
- CONSTRUCTION SHALL INCLUDE ALL PIPE, JOINTS, BENDS, TEES, FITTINGS, THRUST BLOCKS, GATE VALVES, GATE BOXES AND ALL MISCELLANEOUS ITEMS REQUIRED TO CONSTRUCT THE PROPOSED
- CONCRETE THRUST, ANCHOR OR BEARING BLOCKS SHALL BE INSTALLED IN LOCATIONS INDICATED AND AT ALL BENDS. FITTINGS, PLUGS, ETC. WHEN A THRUST BLOCK CANNOT BE PLACED AGAINST UNDISTURBED EARTH, A REACTION BLOCK SUBSTITUTE SHALL BE DESIGNED AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
- 8. LEAKAGE TESTS AND THE CHLORINATION OF THE WATER DISTRIBUTION SYSTEM SHALL BE PERFORMED BY THE CONTRACTOR IN CONFORMANCE TO AMERICAN WATER WORKS ASSOCIATION (AWWA) RECOMMENDATIONS. KENT COUNTRY WATER AUTHORITY REQUIREMENTS AND GOVERNMENTAL AGENCIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FEES ASSOCIATED WITH SAID TESTING.
- ALL GATE VALVES, FITTINGS, PIPE, JOINTS, ETC., SHALL BE DESIGNED FOR A CONSTANT WORKING PRESSURE OF NO LESS THAN 150 PSI.
- 10. WATER PIPE SHALL TYPICALLY BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM SEWER PIPE AND AT A DEPTH OF COVER EQUAL TO 5'-0" AND SHALL MAINTAIN A MINIMUM 1.5' SEPARATION VERTICALLY (UNLESS A CARRIER PIPE IS APPROVED BY THE ENGINEER AND KCWA).
- 11. ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS, SUCH AS GATE VALVES, PIPE, THRUST BLOCKS, FITTINGS, AIR RELEASE ASSEMBLIES, CASTINGS, ETC., SHALL BE SUBMITTED TO THE KENT COUNTY WATER AUTHORITY AND THE ENGINEER FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. THIS SUBMISSION SHALL INCLUDE MANUFACTURER'S LITERATURE, SHOP DRAWINGS, PROPOSED CONSTRUCTION METHODS, ETC.
- 12. BEDDING FOR WATER UTILITY SHALL BE TYPE V AWWA BEDDING.
- 13. THE CONTRACTOR SHALL NOTIFY THE KENT COUNTY WATER AUTHORITY TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF ANY WORK ASSOCIATED WITH THE WATER DISTRIBUTION SYSTEM.
- 14. A WATER METER SHALL BE INSTALLED IN EACH INDIVIDUAL RESIDENCE FOR USE BY THE HOMEOWNERS ASSOCIATION. THE KENT COUNTY WATER AUTHORITY READS THE MASTER METER
- 15. WASTE CHLORINATION WATER USED TO DISINFECT THE POTABLE WATER SYSTEM SHALL BE DE-CHLORINATED PRIOR TO BEING DISCHARGED OVER LAND, AWAY FROM ANY STATE REGULATED FRESHWATER WETLANDS. POTENTIAL EROSION FROM SAID DISCHARGE SHALL BE CONTROLLED WITH A STRAWBALE CHECK.
- WATER LINE SHALL BE SEALED AT THE END OF EVERY WORK DAY WITH A SUITABLE CAP OR PLUG CONFIGURATION TO PREVENT DIRT AND/OR GROUNDWATER FROM ENTERING THE MAIN.
- 17. SERVICE CONNECTIONS SHALL BE PER SECTION 3.18 OF THE KENT COUNTY WATER AUTHORITY'S REQUIREMENTS FOR SERVICE AND MAIN INSTALLATION. WATER SERVICE SHALL BE COPPER FROM THE MAIN TO THE CURB STOP. IF HDPE IS USED FROM THE CURB STOP TO THE RESIDENCE A 12-FOOT COPPER WHIP MUST BE USED TO ENTER THE BUILDING.
- CONTRACTOR SHALL PROVIDE OWNER WITH AS-BUILT PLANS AND ELECTRONIC DATA OF WATER SYSTEM IN ACCORDANCE WITH KENT COUNTY WATER AUTHORITY REQUIREMENTS.
- 19. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF MASTER METER ENCLOSURE TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
- 20. KCWA RULES AND REGULATIONS DO NOT ALLOW CONCRETE ENCASEMENT OF WATER LINES.

## DEM

Department of Environmental Management

### Division of Water Resources (OWR) SEWER LINE/WATER LINE SEPARATION POLICY

DEM

#### A. Lateral placement of sewers and water lines

Sewers shall be laid at least 10 feet horizontally from any existing or proposed water line. The distance shall be measured edge—to—edge. There is no minimum vertical separation required provided the 10 foot horizontal separation is maintained. Structures, other than pipelines or conduits, through which sanitary wastewater flows such as, but not limited to, manholes, valve vaults, meter pits and pump station wet wells shall also be constructed at least 10 feet horizontally from any existing or proposed water line, measured edge-to-edge.

FOR DESIGN OF SANITARY SEWERS

In cases where it is not possible to maintain a 10 foot horizontal separation, the OWR may allow deviation on a case—by—case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer pipelines and/or structures closer to a water line, provided that:

- 1. The sewer pipeline and/or structures and water line are laid in separate trenches, or
- 2. The sewer pipeline and/or structures and water line may be installed in the same trench with the water line placed on a bench of undisturbed earth, and
- 3. In either case, the crown of the sewer pipeline shall be at least 18 inches below the invert of the water line.

In situations where it is impossible to obtain proper horizontal and vertical separation as stipulated above, the following protection shall be

- \*1. Encasement of the sewer pipeline in concrete (min. 6 inch thickness) or a carrier pipe for at least 10 feet either side of the area not complying with the minimum horizontal and vertical separation, or
- 2. The design and construction of the sewer pipeline must meet the requirements applicable to water lines (any AWWA-approved material for potable water conveyance), and pressure tested in accordance with AWWA specifications, or
- 3. In instances of conflict with sanitary wastewater structures mentioned above, relocate the water line to achieve either a 10 foot horizontal or 18 inch vertical separation.

#### B. Sewers crossing water lines

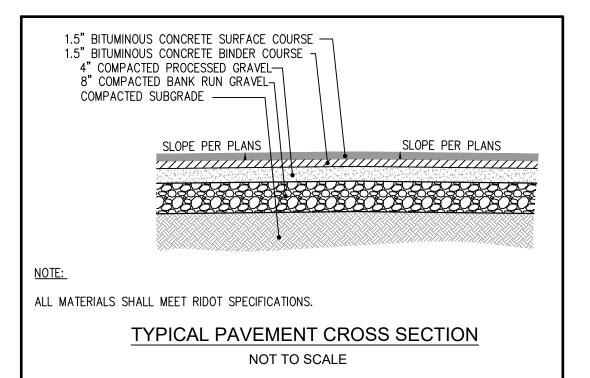
Sewers crossing over water lines should be avoided, but if conditions warrant this situation, then adequate structural support shall be provided for the sewer to maintain line and grade. Sewers crossing under water lines shall be laid to provide a minimum vertical separation of 18 inches between the invert of the water line and the crown of the sewer. Relocation of an existing water line may be necessary to achieve this vertical separation. Relocated water lines shall be constructed of an AWWA-approved material for potable water conveyance and designed for the required water service pressure for a distance of 10 feet on each side of the crossing, measured perpendicular to the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water line joints.

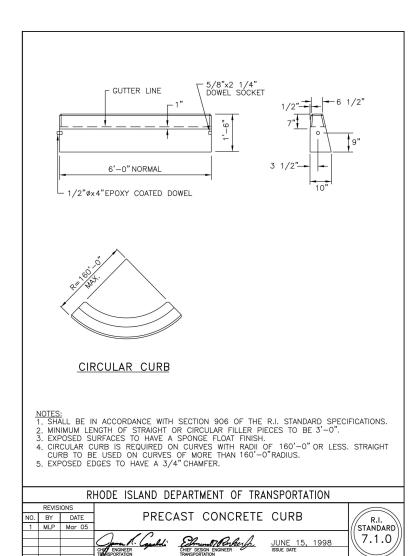
#### Where conditions prevent an 18 inch vertical separation from being maintained, the following methods shall be specified:

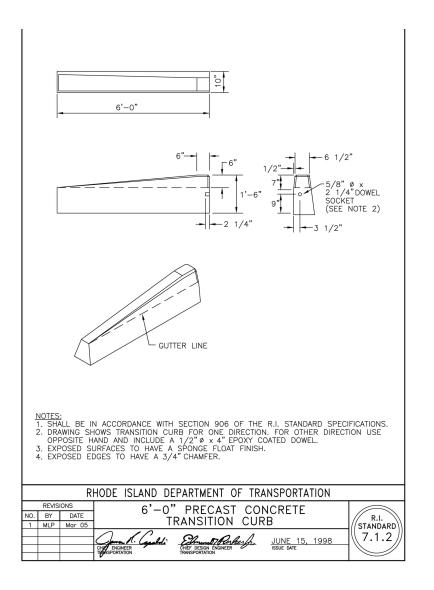
- 1. The design and construction of the sewer must meet the requirements applicable to water lines (any AWWA—approved material for potable water conveyance) for a distance of 10 feet on each side of the crossing, measured perpendicular to the water line and pressure tested in accordance with AWWA specifications, or
- \*2. Either the water line or the sewer may be encased in concrete (min. 6 inch thickness) or a carrier pipe for a distance of 10 feet on each side of the crossing, measured perpendicular to the water line. The carrier pipe shall be designed and constructed of materials which are satisfactory to the OWR, or
- 3. Any other methods, if supported by data from the design engineer, which ensure adequate watertightness and are satisfactory to
- <sup>1</sup> Water lines shall be defined as any conduits or pipelines that convey potable water.

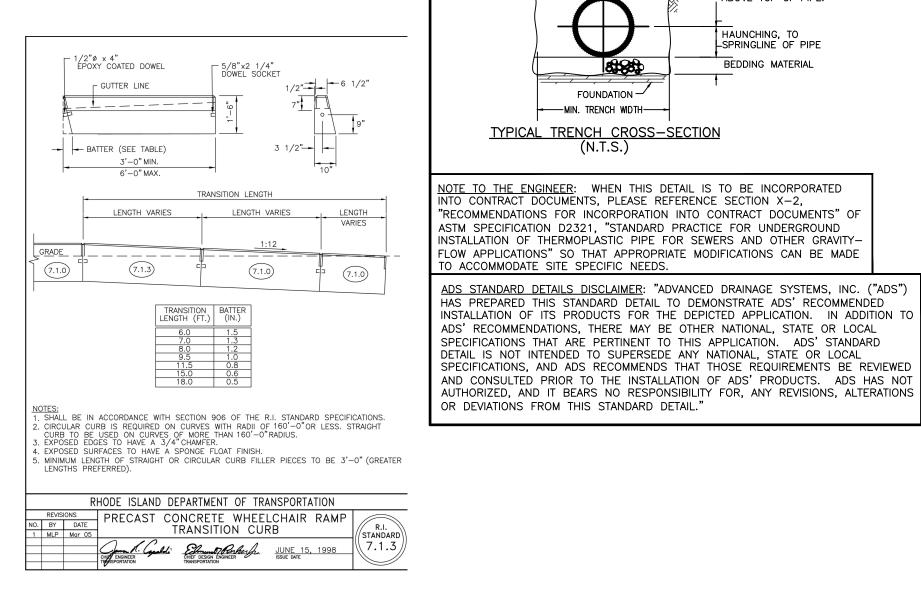
#### 10/96 (rev. 5/01)

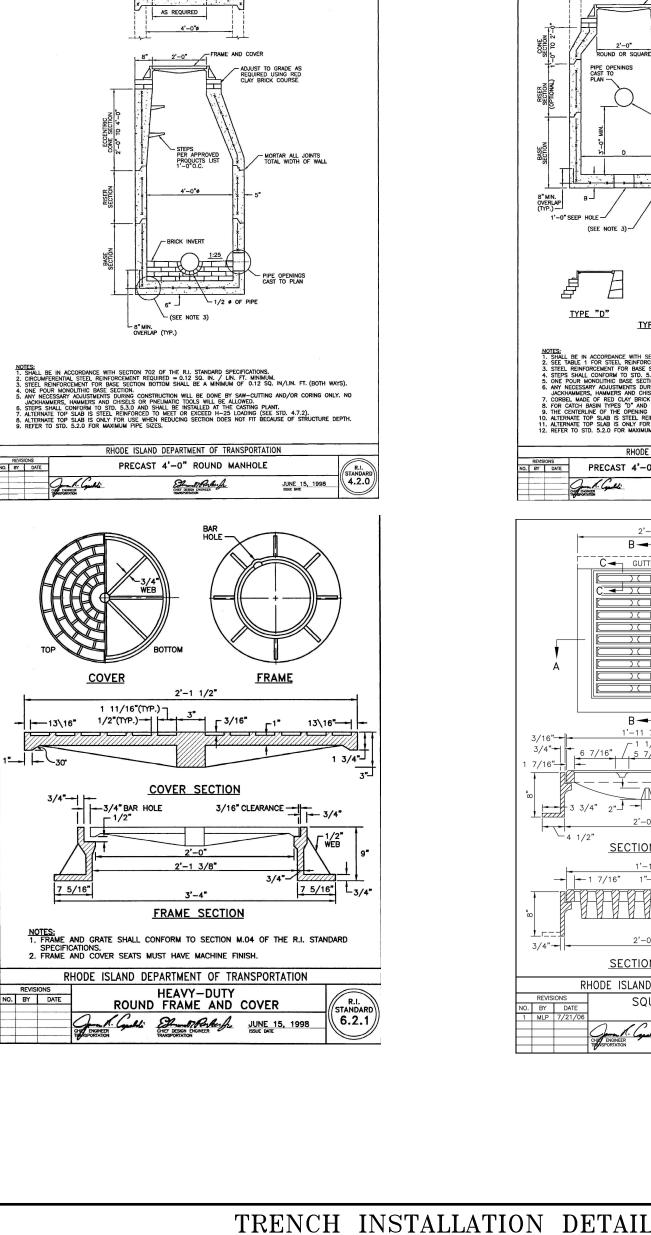
\* Kent County Water Authority and West Warwick Standard Sanitary Sewer Requirements do not allow for concrete encasement.











FINAL BACKFILL

INITIAL BACKFILL,
'6"-12" (150-300mm)
ABOVE TOP OF PIPE.

HAUNCHING, TO SPRINGLINE OF PIPE

BEDDING MATERIAL

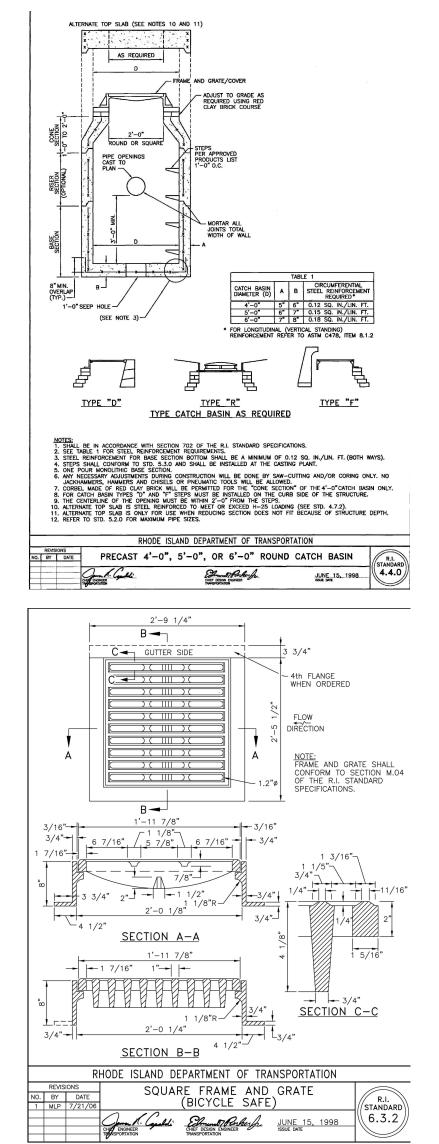
GROUND SURFACE -

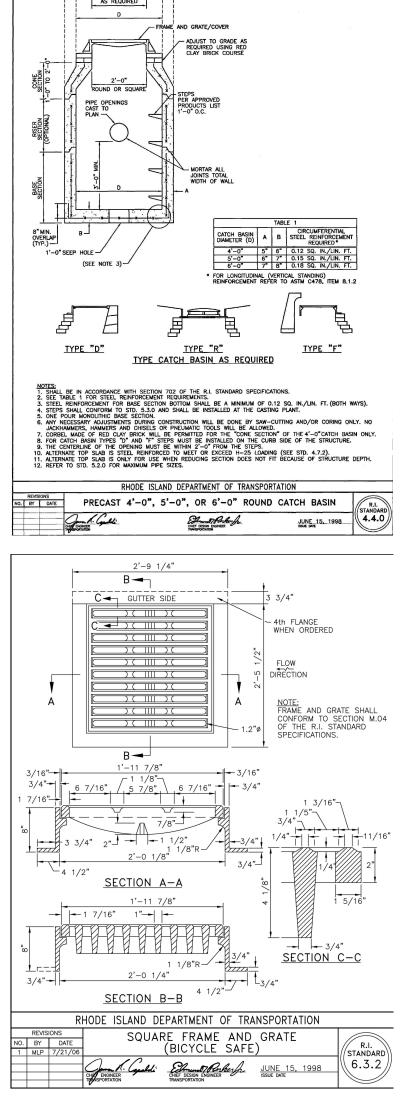
FOUNDATION —

---MIN. TRENCH WIDTH----

TYPICAL TRENCH CROSS-SECTION

UNDISTURBED --EARTH





<u>NOTES:</u> 1. <u>FOUNDATION:</u> WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO

A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II

THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS," LATEST EDITION;

AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE

2. <u>BEDDING:</u> SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER,

CORRUGATED POLYETHYLENE PIPE (CPEP); 6" (150mm) FOR 30"-60" (750-1500mm) CPEP.

3. <u>HAUNCHING AND INITIAL BACKFILL:</u> SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND

4. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS

MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF

MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100-600mm)

STABILIZED USING A WOVEN GEOTEXTILE FABRIC.

<u>in (mm)</u>

6 (150)

8 (200)

10 (250)

12 (300)

15 (375)

24 (600)

30 (750)

42 (1050)

48 (1200)

60 (1500)

SURFACE LIVE LOADING CONDITION

H25 (FLEXIBLE PAVEMENT)

H25 (RIGID PAVEMENT)

HEAVY CONSTRUCTION

THE TOP OF PIPE TO THE GROUND SURFACE.

36 (900)

18 (450)

INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

NOMINAL Ø MIN. RECOMMENDED TRENCH

<u>WIDTH, in (mm)</u>

21 (530)

23 (580)

25 (630)

28 (710)

31 (790)

34 (860)

39 (990)

48 (1220)

66 (1680)

78 (1980)

83 (2110)

89 (2260)

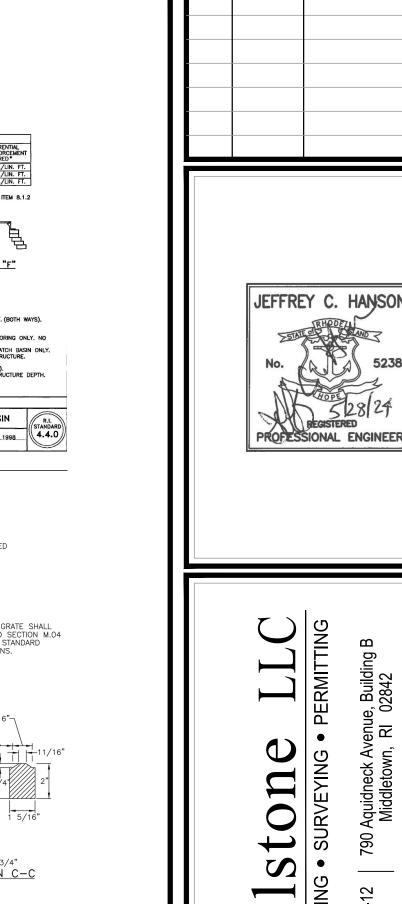
102 (2590)

\*TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT SECTION

5. <u>MINIMUM COVER:</u> MINIMUM RECOMMENDED DEPTHS OF COVER FOR

VARIOUS LIVE LOADING CONDITIONS ARE SUMMARIZED IN THE FOLLOWING

TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM



DATE

| 12/27/21 | TOWN COMMENTS

05/28/24 PRELIM. REINSTATEMENT

REVISION

5238



E-12

### **WILLOW LAKES**

A.P. 16, LOT 3 NEW LONDON TURNPIKE COVENTRY, RI

PREPARED FOR: LRT NEW LONDON AVE DEVELOPMENT, LLC

> SCALE AS NOTED FEBRUARY 2021

Drawn By: J.S.C. Checked By: J.C.H. Sheet

of 12

FILE NO.: 17.276.403

IF A SEWER PIPE HAS LESS THAN 4 FEET OF COVER THE SEWER PIPE SHALL BE INSULATED WITH 2-INCHES OF FOAM GLASS INSULATION. REFERENCE WEST WARWICK SEWER APPROVAL.

MINIMUM RECOMMENDED COVER, in (mm) \*

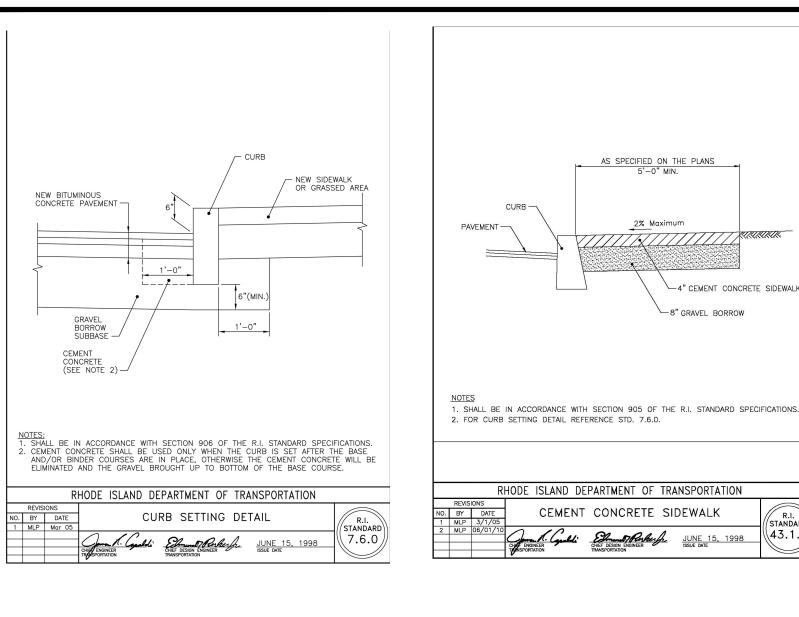
12 (300), 24 (600) FOR 60" (1500) PIPE

12 (300), 24 (600) FOR 60" (1500) PIPE

24 (600)

COPYRIGHT
7 2024
THIS DRAWING IS COPYRIGHTED AND SUBJECT TO COPYRIGHT PROTECTION. IT IS THE PROPERTY OF MILLSTONE LLC AND SHALL NOT BE USED OR COPIED WITHOUT THE DING E12
WICK, RI 02886

THIS DRAWING IS COPYRIGHTED AND SUBJECT TO COPYRIG



ROOF LEADER

INLET

COORDINATE WITH ARCHITECTURAL DRAWINGS.

REFER TO ARCHITECTURAL DRAWINGS FOR MATERIAL AND

ROOF LEADER CONNECTION DETAIL

FOUNDATION

COPYRIGHT

2024

STONE LLC
CENTERVILLE RD.

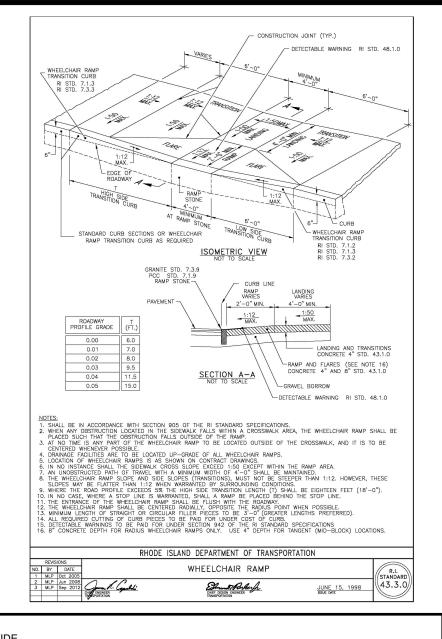
LDING E12

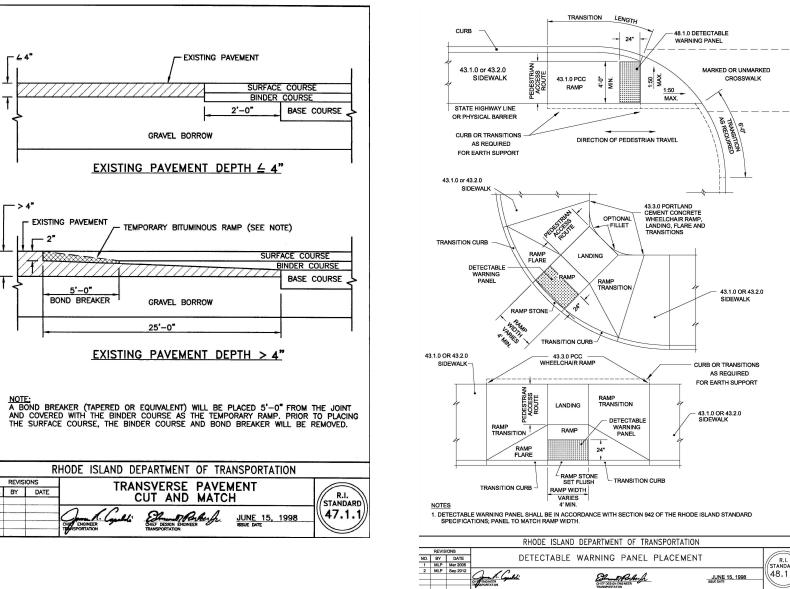
RWICK, RI 02886

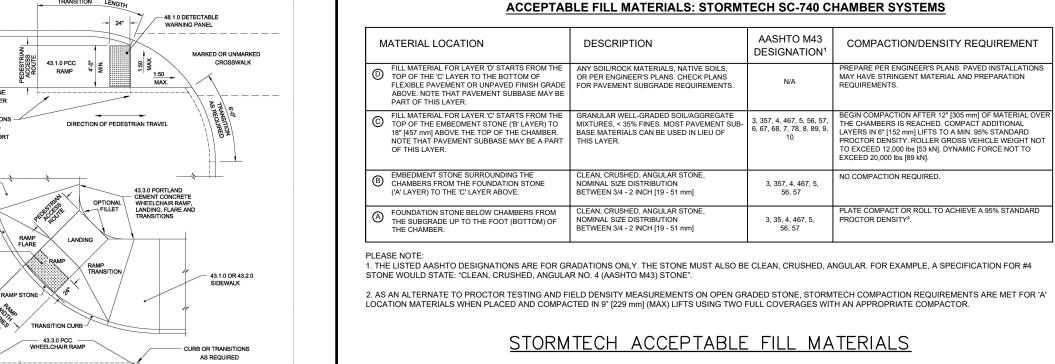
THIS DRAWING IS COPYRIGHTED AND SUBJECT TO COPYRIGHT PROTECTION. IT IS THE PROPERTY OF MILLSTONE LLC
AND SHALL NOT BE USED OR COPIED WITHOUT THE EXPRESSED WRITTEN CONSENT OF MILLSTONE LLC.

┌ SPLASH BLOCK

TO CHAMBERS

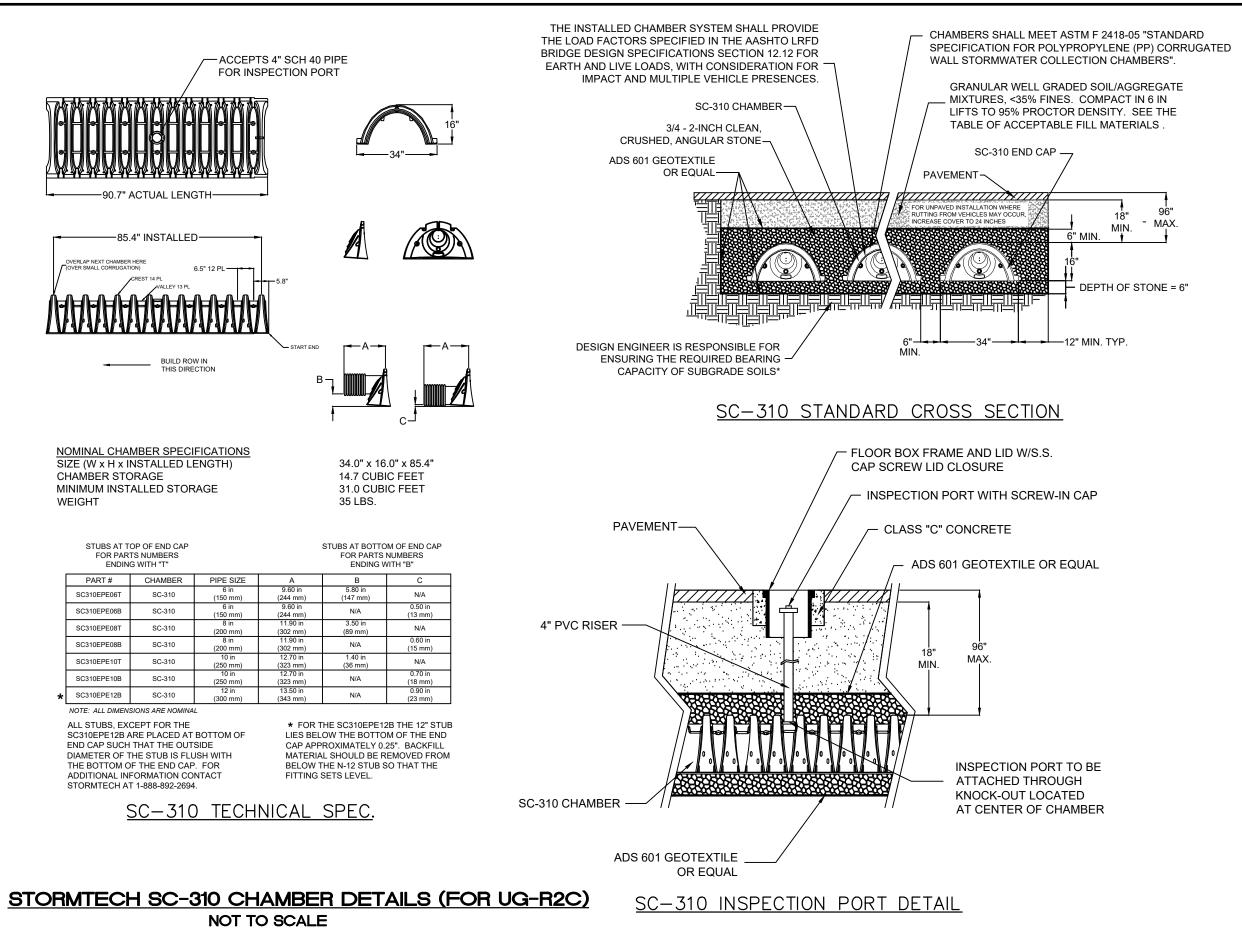


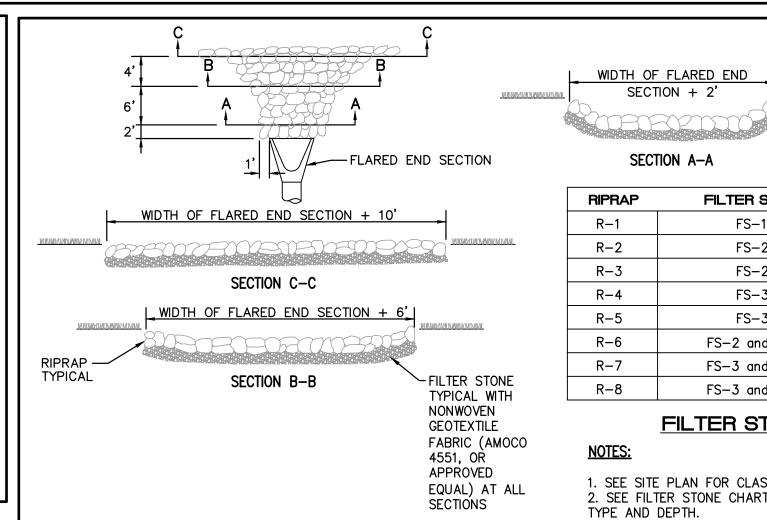




- 1. ALL DESIGN SPECIFICATIONS FOR STORMTECH CHAMBERS SHALL BE IN ACCORDANCE WITH THE STORMTECH DESIGN MANUAL
- 2. THE INSTALLATION OF STORMTECH CHAMBERS SHALL BE IN ACCORDANCE WITH THE LATEST STORMTECH INSTALLATION INSTRUCTIONS
- 3. THE CONTRACTOR IS ADVISED TO REVIEW AND UNDERSTAND THE INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION. CALL 1-888-892-2694 OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF THE LATEST STORMTECH INSTALLATION INSTRUCTIONS
- 4. CHAMBERS SHALL MEET THE DESIGN REQUIREMENTS AND LOAD FACTORS SPECIFIED IN SECTION 12.12 OF THE LATEST EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

STORMTECH CHAMBER NOTES





ROCKFILL RIP-RAP AT FLARED END SECTION

NOT TO SCALE

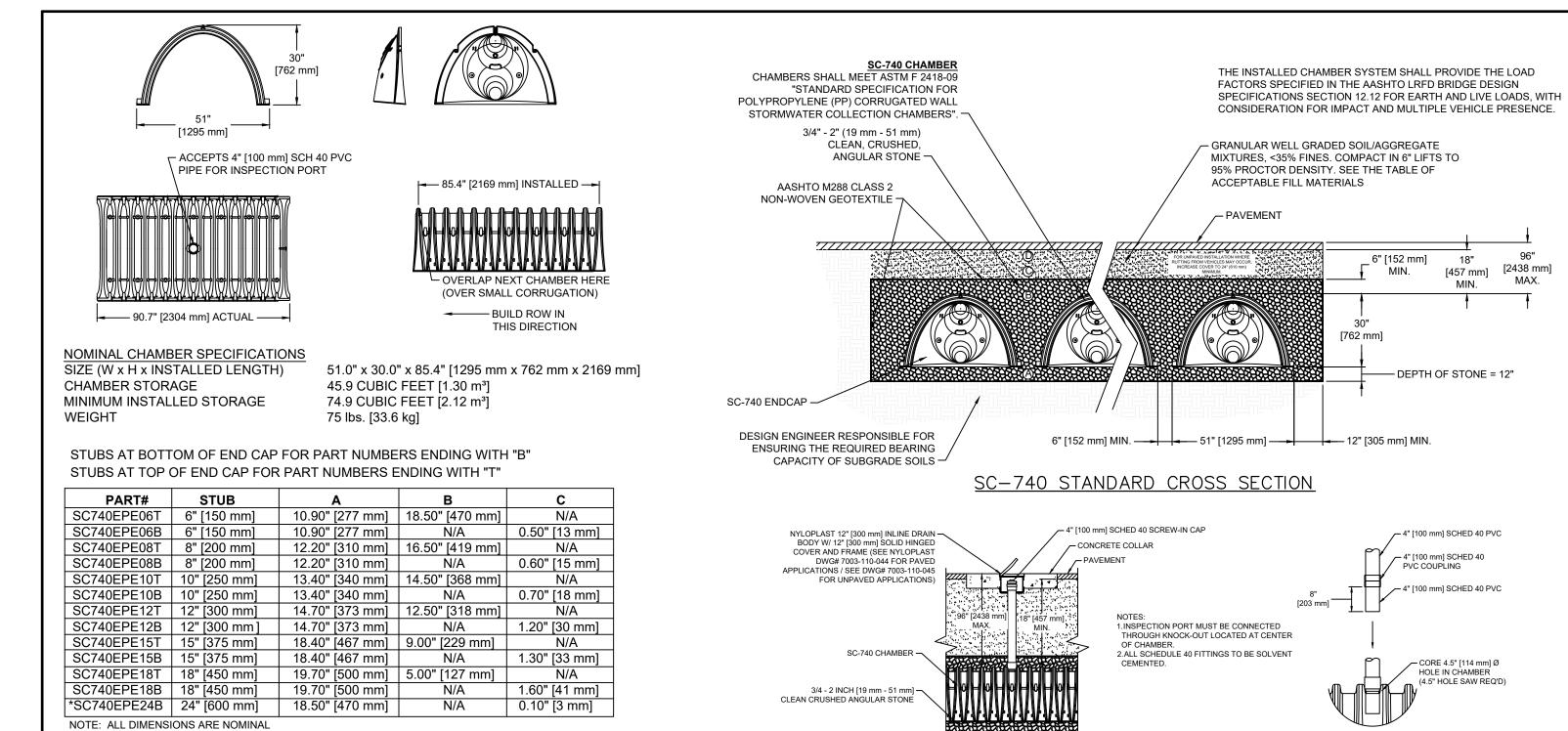
SECTIO	N A-A	
RIPRAP	FILTER STONE	DEPTH
R-1	FS-1	6"
R-2	FS-2	6"
R-3	FS-2	6"
R-4	FS-3	7.5"
R-5	FS-3	7.5"
R-6	FS-2 and R-2	6"/6"
R-7	FS-3 and $R-4$	7.5"/21"
R-8	FS-3 and R-4	7.5"/21"

### FILTER STONE CHART

NOTES:

SECTION + 2'

1. SEE SITE PLAN FOR CLASS OF RIP-RAP TO BE USED 2. SEE FILTER STONE CHART FOR APPROPRIATE FILTER STONE TYPE AND DEPTH. 3. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS. 4. UNLESS OTHERWISE SPECIFIED, DUMPED RIP-RAP SHALL BE USED.



SC-740 INSPECTION PORT DETAIL

CONNECTION DETAIL

SC-740 TECHNICAL SPEC

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM

OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS

\*FOR THE SC740EPE24B THE 24" [600 mm] STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" [44 mm]. BACKFILL

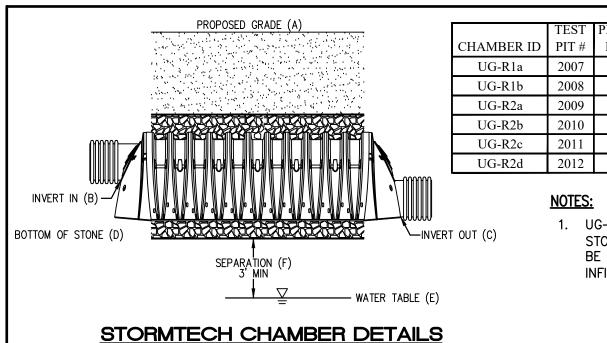
MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO

FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

THAT THE FITTING SITS LEVEL.

STORMTECH SC-740 CHAMBER DETAILS (FOR UG-RIA, UG-RIB, UG-R2A, UG-R2B, UG-R2D) NOT TO SCALE

AASHTO M288 CLASS 2 NON-WOVEN



NOT TO SCALE

	TEST	PROPOSED GRADE @	INVERT IN ELEV	INVERT OUT	BOTTOM OF	SHGWT ELEV	SEPARATION FROM
CHAMBER ID	PIT#	LOWEST POINT (A)	(B)	ELEV (C)	STONE ELEV (D)	(E)	GROUNDWATER (F)
UG-R1a	2007	281.12	278.33	278.16	276.12	271.20	4.92
UG-R1b	2008	280.93	278.14	277.97	275.93	264.10	11.83
UG-R2a	2009	281.06	278.27	278.10	276.06	270.80	5.26
UG-R2b	2010	281.30	278.51	278.34	276.30	270.90	5.40
UG-R2c	2011	280.50	278.88	278.71	277.17	271.80	5.37
LIC D24	2012	270.92	277.02	276.86	274.92	270.70	4.12

1. UG-R2A: CONTRACTOR TO REMOVE AND REPLACE THE MATERIAL WITHIN THE LIMITS OF THE UNDERGROUND STORAGE AREA FROM ELEVATION 276.06 (BOTTOM OF STONE) TO ELEVATION 272.38. EXISTING MATERIAL TO BE REPLACED WITH SAND, MEETING USDA SOIL TEXTURE SPECIFICATIONS AND HAVING A DESIGN INFILTRATION RATE OF 8.27 IN/HR.

DATE REVISION 05/28/24 PRELIM. REINSTATEMENT



**DETAILS - 1** 

WILLOW LAKES

A.P. 16, LOT 3 NEW LONDON TURNPIKE COVENTRY, RI

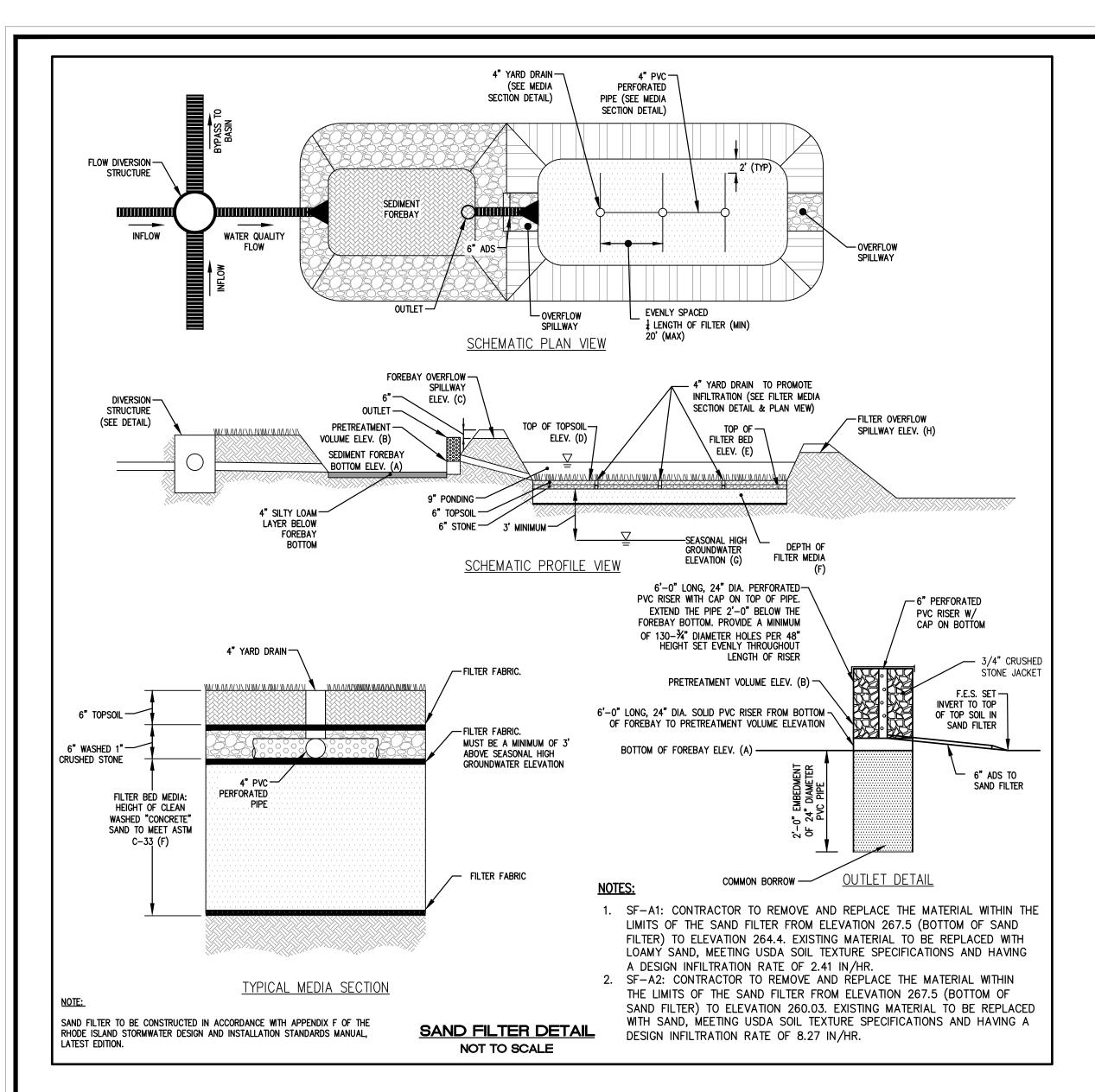
PREPARED FOR LRT NEW LONDON AVE DEVELOPMENT, LLC

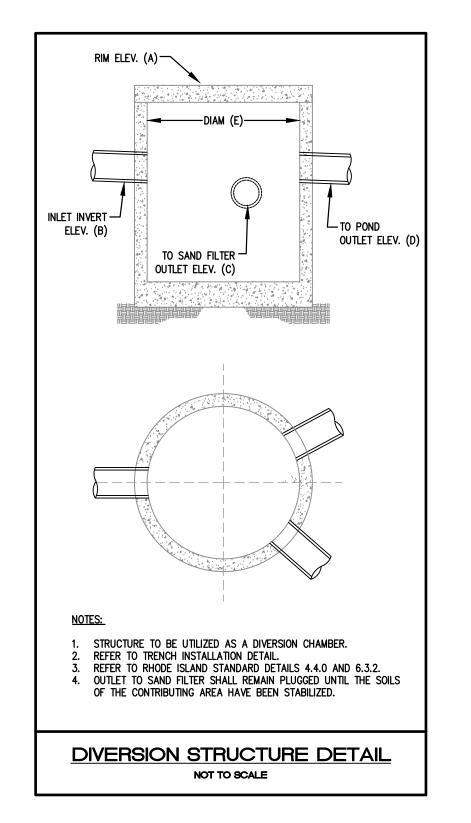
> SCALE AS NOTED FEBRUARY 2021

Drawn By: J.S.C. Checked By: J.C.H. Sheet

of 12

FILE NO.: 17.276.403





ID	RIM ELEV (A)	INLET INVERT ELEV (B)	INVERT ELEV TO SAND FILTER (C)	INVERT ELEV TO POND (D)	DIAM OF STRUCTURE (E)
DS-1	273.00	269.17	268.70	269.67	4.0'
DS-2	273.00	268.63, 268.35	268.30	269.27	6.0'

R.I. STD. 4.4.0 ——

CATCH BASIN WITH TRASH RACK

4"X4"X¼"" WIRE —

MESH TRASH RACK

EXTEND THE PIPE 2'-0" BELOW THE PVC RISER W/

BASIN BOTTOM. PROVIDE A MINIMUM CAP ON BOTTOM

LENGTH OF RISER.

BASIN BOTTOM (B)

3/4" STONE —

6" PERFORATED —

PVC PIPE

OF 65-¾" DIAMETER HOLES PER 24" HEIGHT SET EVENLY THROUGHOUT

— 4"X4"X½" WRE MESH TRASH RACK

3/4" CRUSHED

STONE JACKET

 $\Longrightarrow$ 

SIZE (P)

DISCHARGE PIPE

DISCHARGE PIPE INV. ELEV. (Q)

6" PERFORATED—

— COMPACTED

SUBGRADE

PVC PIPE

- 2" CRUSHED STONE

TOP OF STRUCTURE ELEV. (L)

# CONTROL

- CONTROL

ELEV. (N)

BOTTOM (B).

3/4" CRUSHED

STONE JACKET

ÖRIFICES & SIZE

ORIFICE INVERT

73'-0" LENGTH OF 4" DIA. PVC PIPE WITH END CAP.

SET INVERT AT BASIN

<sup>\</sup>DRILL THE LOW FLOW

ORIFICE DIA. (0) IN

THE END CAP. SET

ORIFICE INVERT (B)

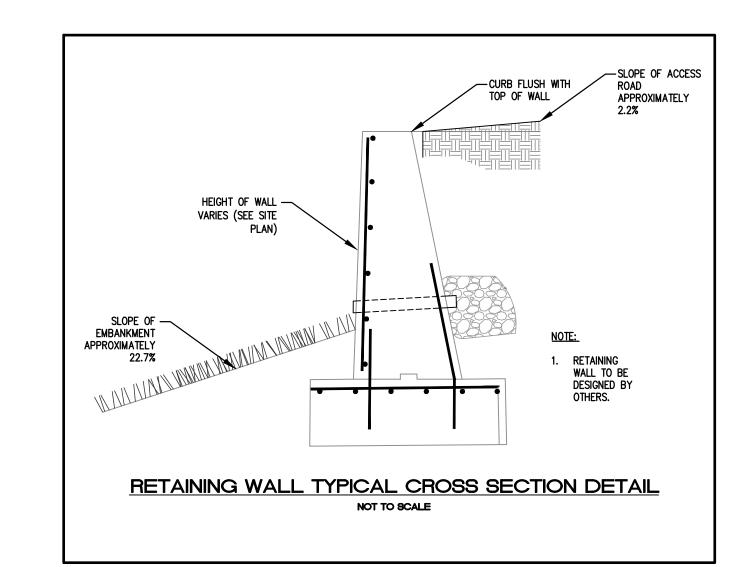
AT THE BOTTOM OF

OUTLET CONTROL STRUCTURE

NOT TO SCALE

THE 4" DIA. PVC

PROFILE SECTION



\_\_ 3'-0" LENGTH OF 4" DIA.

PVC PIPE WITH END CAP

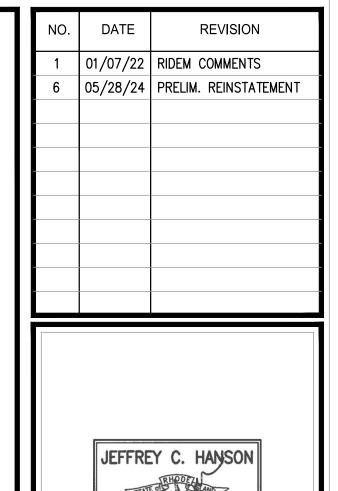
4'-0" LONG, 24" DIA. PERFORATED PVC RISER WITH CAP ON TOP OF

PIPE. EXTEND THE PIPE 2'-0"

BELOW THE BASIN BOTTOM

<u>PLAN VIEW</u>

- 4' STRUCTURE DIA.





DETAILS - 2

WILLOW LAKES

A.P. 16, LOT 3 NEW LONDON TURNPIKE COVENTRY, RI

PREPARED FOR: LRT NEW LONDON AVE DEVELOPMENT, LLC

> SCALE AS NOTED FEBRUARY 2021

Drawn By: J.S.C. Checked By: J.C.H. Sheet

of 12

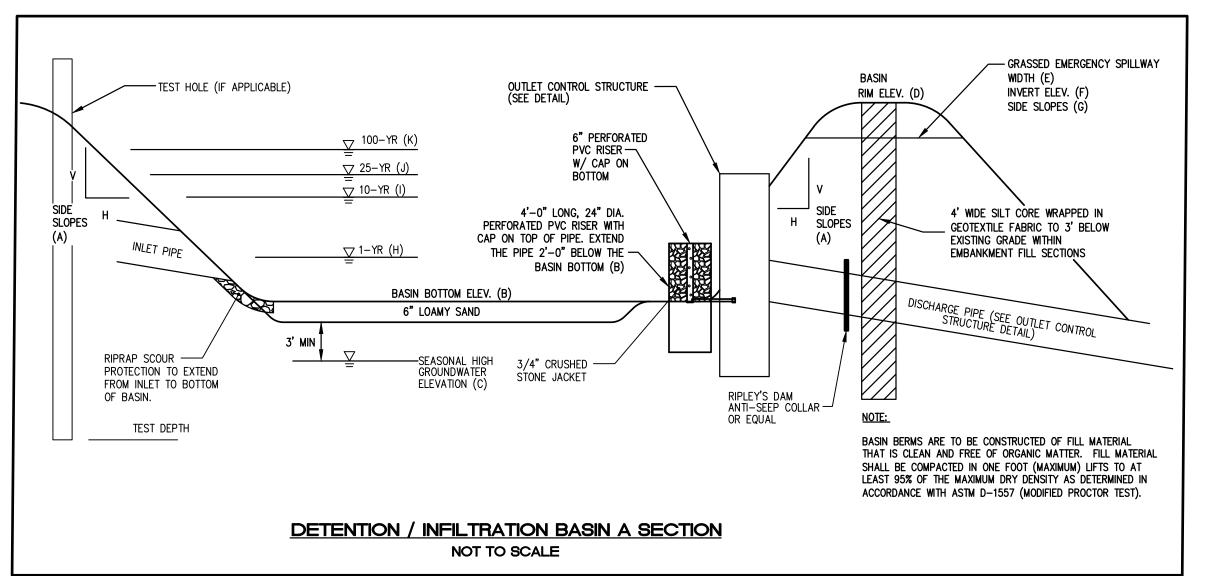
FILE NO.: 17.276.403

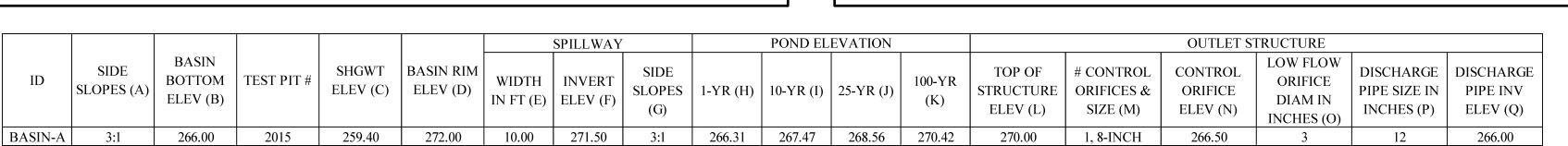
ID	FOREBAY BOTTOM ELEV (A)	FOREBAY PRETREATMENT VOLUME ELEV (B)	FOREBAY OVERFLOW SPILLWAY INV ELEV (C)	TOP OF TOPSOIL ELEV (D)	TOP OF FILTER BED ELEV (E)	FILTER BED DEPTH IN FT (F)	ELEV (G)	FILTER OVERFLOW SPILLWAY ELEV (H)
SF-A1	268.00	271.10	271.50	270.50	269.50	2.00	258.90	271.25
SF-A2	268.00	271.30	271.50	270.50	269.50	2.00	260.03	271.25

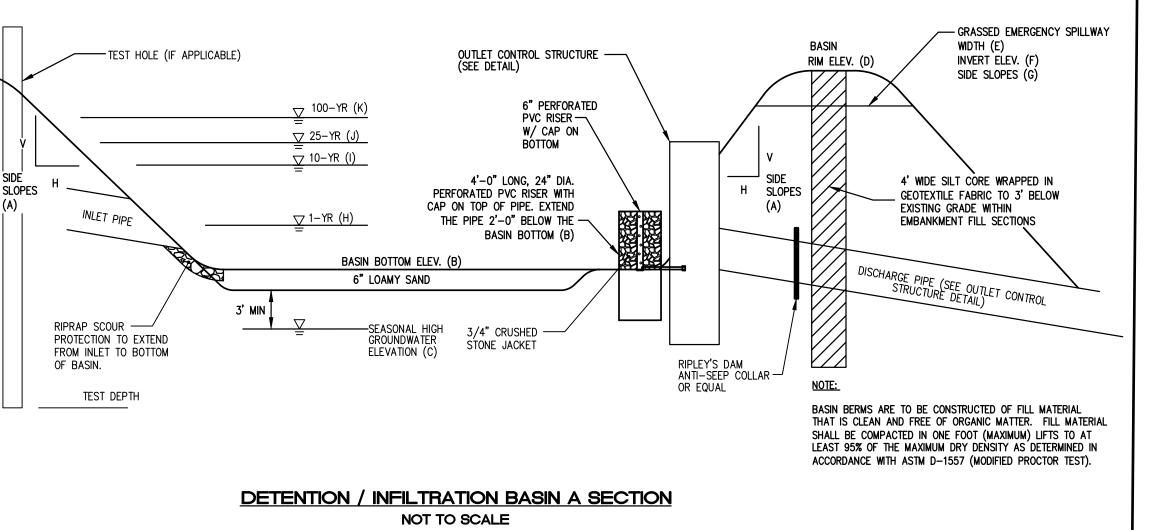
COPYRIGHT
2024

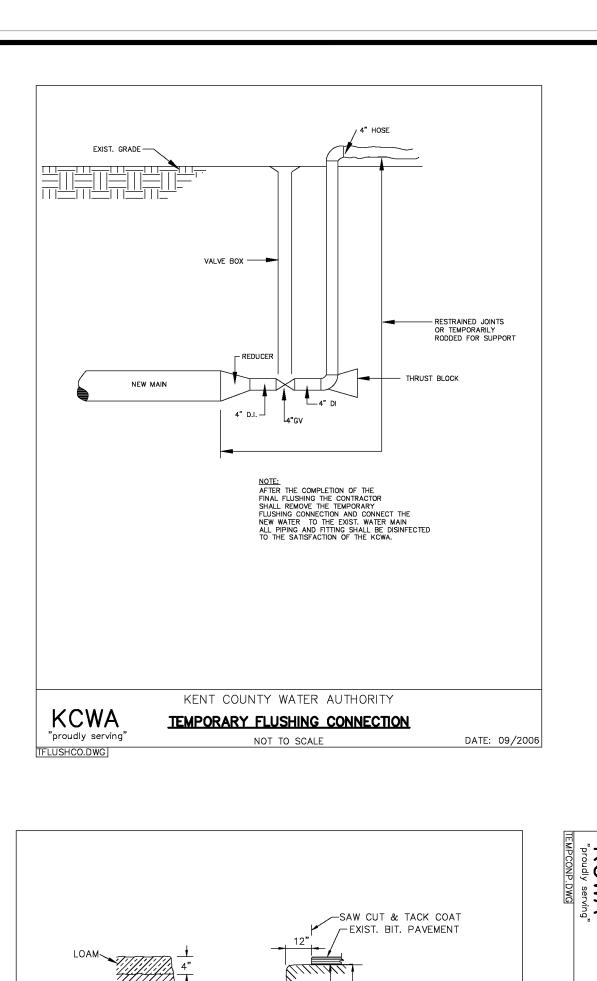
LESTONE LLC
DICENTERVILLE RD.
LILDING E12
RRWICK, RI 02886

THIS DRAWING IS COPYRIGHTED
AND SUBJECT TO COPYRIGHT
PROTECTION. IT IS THE
PROPERTY OF MILLSTONE LLC
AND SHALL NOT BE USED OR
COPIED WITHOUT THE
EXPRESSED WRITTEN CONSENT
OF MILLSTONE LLC.









2.5" WIDE (WATERLINE) -

NOTES:

TRENCHDT.DWG

1. ROADWAY RESTORATION IN ACCORDANCE WITH COMMUNITY OR

KENT COUNTY WATER AUTHORITY

NOT TO SCALE

KCWA TRENCH INSTALLATION IN ROCK AND SOIL

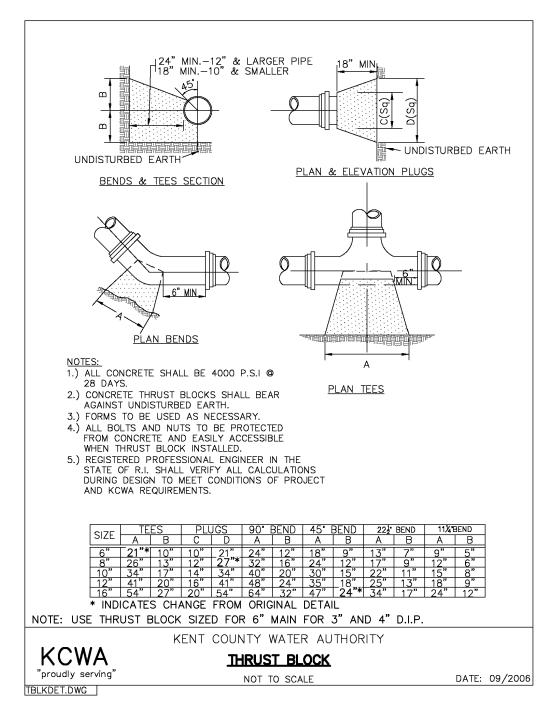
METALIZED I.D. TAPE

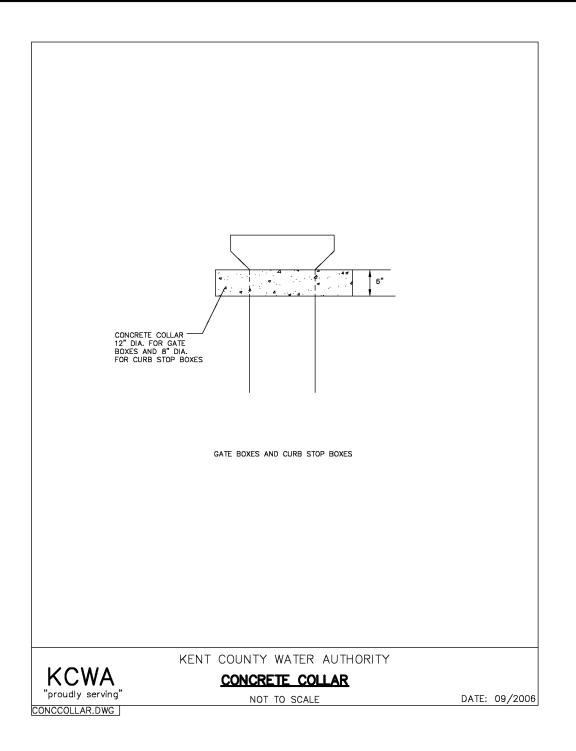
PLACED 12"BELOW

FINISHED SURFACE

SELECTED COMMON FILL

MATERIAL COMPACTED NO
ROCKS OVER 6"Ø NO LESS
THAN 95% STANDARD
PROCTOR





STOP AND WASTE-

2" ELBOW-

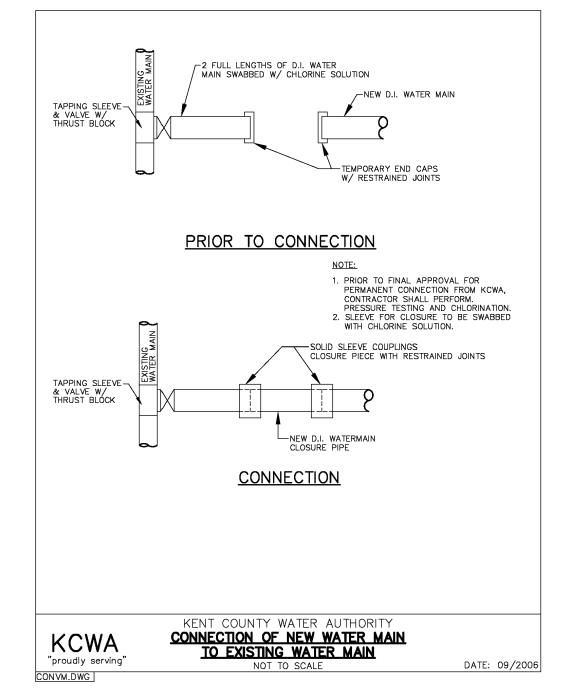
-2" BRASS PIP

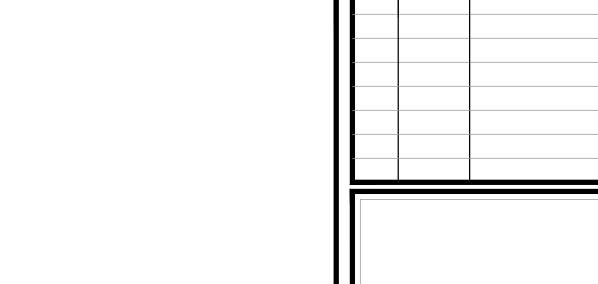
■—STD. GATE BOX(TYP.)

STD. GATE BOX(TYP.)
NOTCH OUT FOR 2" PIPE CONCRETE

COMPACTED SCREENED GRAVEL

4'-0" SECTION OF PIPE





MASTER WATER METER ASSEMBLY NOTES:

7. DESIGN FOR FROST AND FREEZING PROTECTION.

10. PROVIDE LOCK AND CHAIN FOR VALVE BYPASS.

2. CONTRACTOR TO PROVIDE WATER METER ENCLOSURE.

WATER AUTHORITY.

1. WATER METER AND COMPONENTS SHALL MEET THE STANDARDS OF THE KENT COUNTY

3. CONTRACTOR TO CONFIRM DIMENSIONS OF COMPONENTS PRIOR TO CONSTRUCTION.

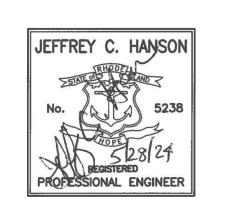
11. CONTRACTOR TO SUPPLY THE KCWA AND CENTRAL COVENTRY FIRE DEPARTMENT WITH A

4. CONTRACTOR TO VERIFY SIZE OF METER ENCLOSURE AS REQUIRED. 5. CONTRACTOR TO PROVIDE MAKE-UP SPOOL PIECES AS REQUIRED.

8. CONTRACTOR TO PROVIDE LIGHTING AND TEMPERATURE ALARM.

9. LOCATE IN AN ELEVATED AREA NOT PRONE TO FLOODING.

6. CONTRACTOR TO PROVIDE ACCESS AND BLOWOUT PANELS AS REQUIRED.



DATE

1/25/22 | KCWA COMMENTS

05/28/24 PRELIM. REINSTATEMENT

REVISION

, Building E-12 02886

DETAILS - 3

WILLOW LAKES

A.P. 16, LOT 3 NEW LONDON TURNPIKE COVENTRY, RI

PREPARED FOR: LRT NEW LONDON AVE DEVELOPMENT, LLC

> SCALE AS NOTED FEBRUARY 2021

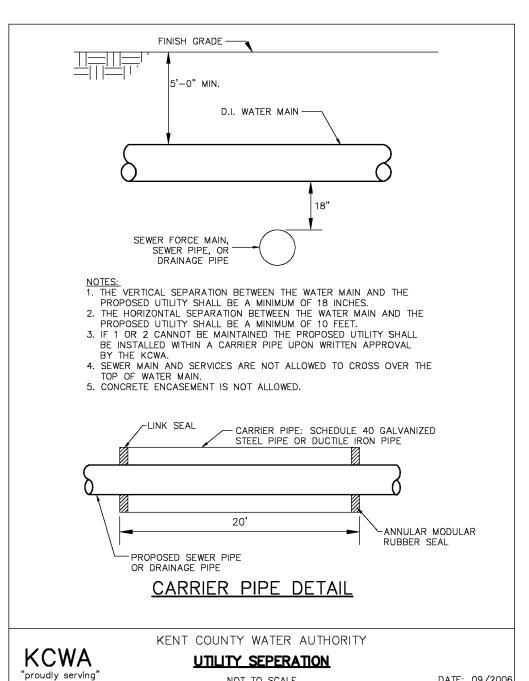
Drawn By: J.S.C. Checked By: J.C.H. Sheet

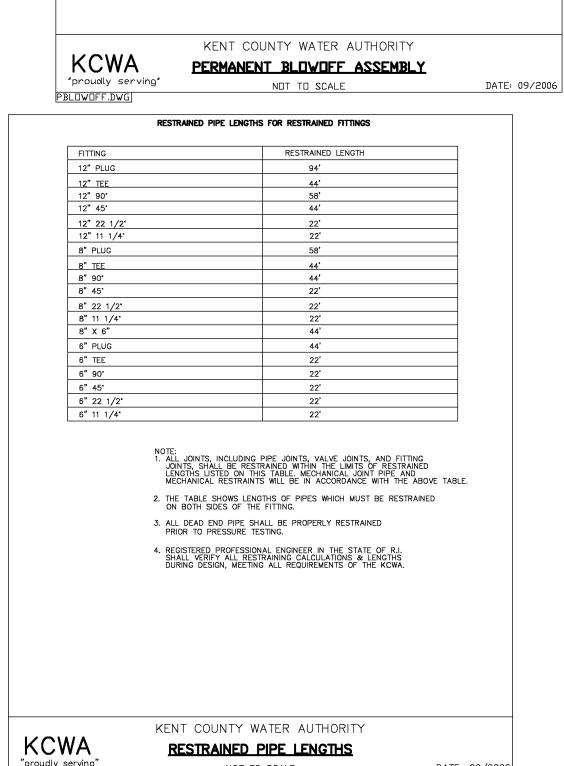
of 12 FILE NO.: 17.276.403

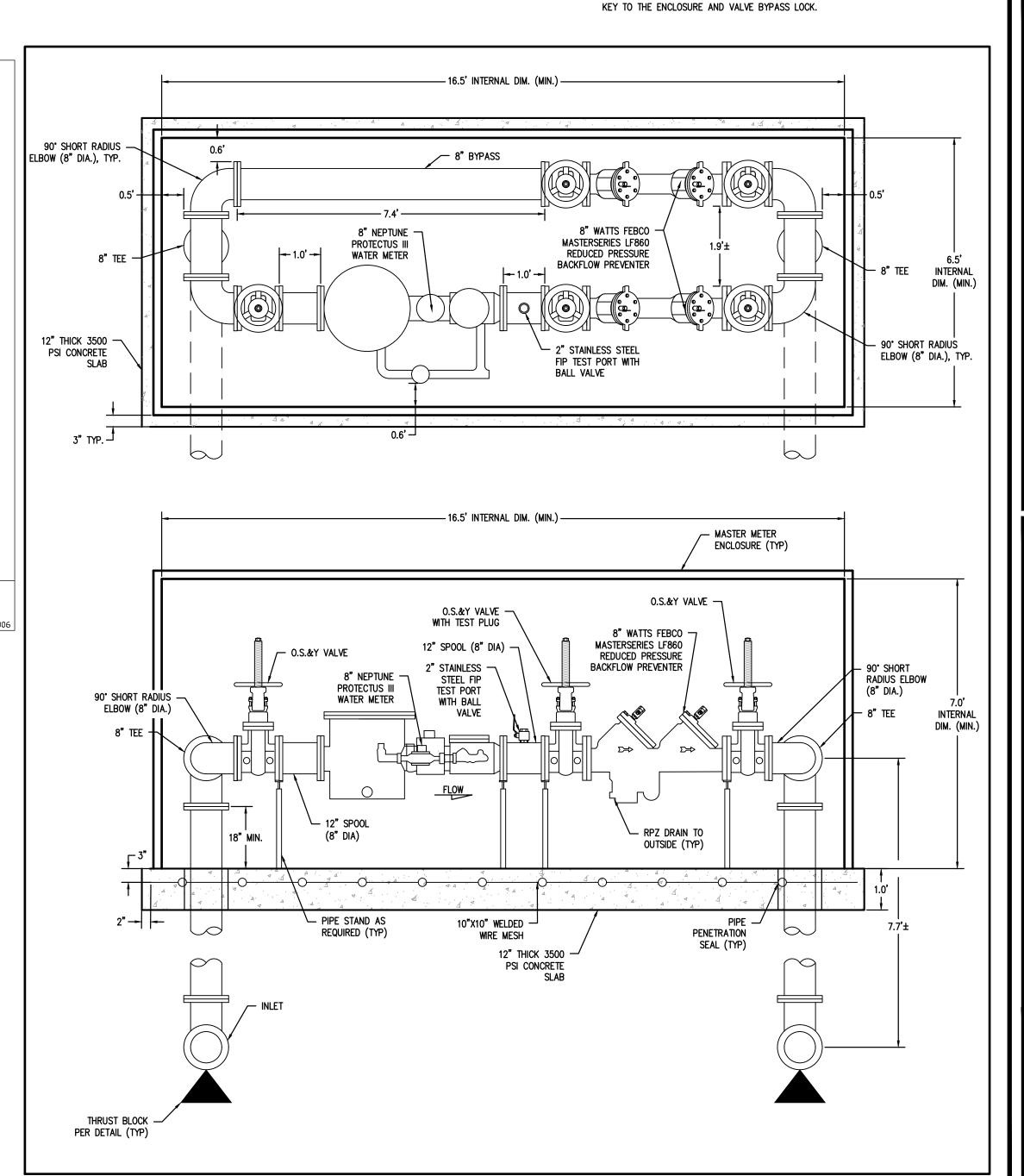
**KCWA** - WATER METER - TESTABLE BACK FLOW PREVENTER - 1"OR LARGER JUMPER ✓ VALVE ORPORATION STOP LOCK TEMPORARY
END CAP W/
RESTRAINED FITTINGS

1. UPON SUCCESSFUL TESTING AND DISINFECTION THE TEMPORARY CORPORATION STOPS SHALL BE REMOVED AND PLUGS INSTALLED.

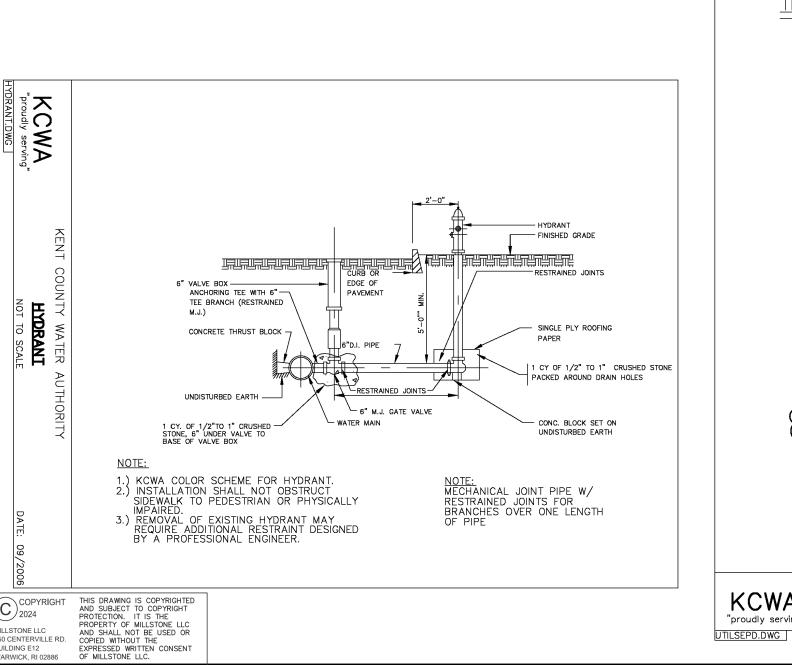
2. SLEEVE FOR CLOSURE TO BE - THRUST BLOCK MAY OF 1-FULL LENGTH OF DI WATER SWABBED WITH CHLORINE MAIN SWABBED W/ CHLORINE SOLUTION - WATER METER / TESTABLE BACK FLOW PREVENTER PRESSURE GAGE W/ RESTRAINED FITTINGS PUMP SYSTEM-VALVE -- THRUST BLOCK CORPORATION RESTRAINED
STOP FITTINGS MAX. OF 1-FULL LENGTH OF D.I. WATER MAIN SWABBED W/ CHLORINE SOLUTION

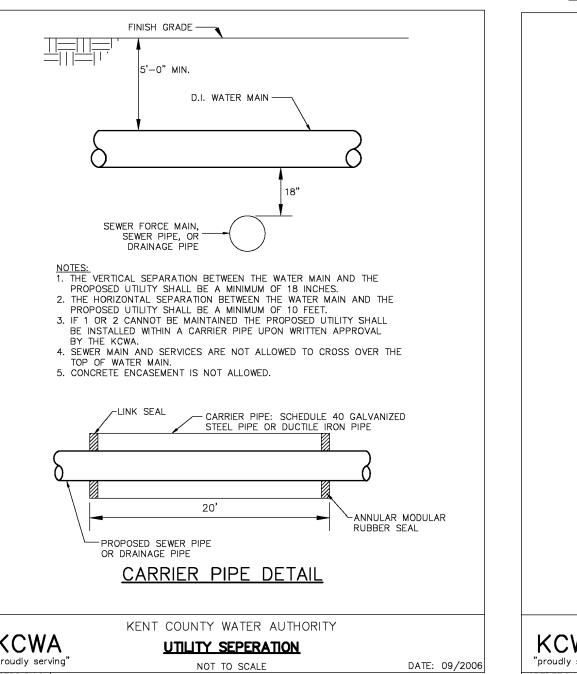


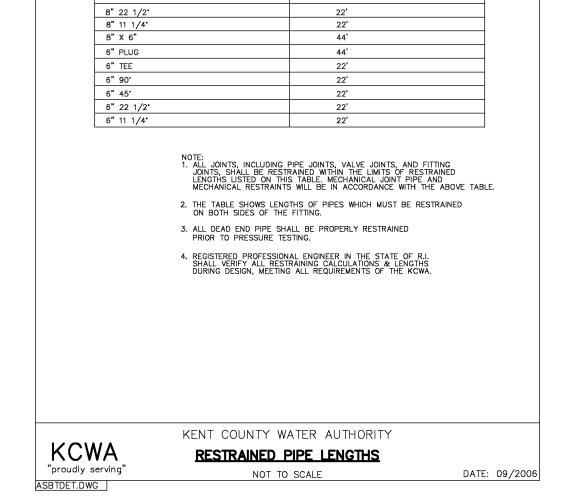


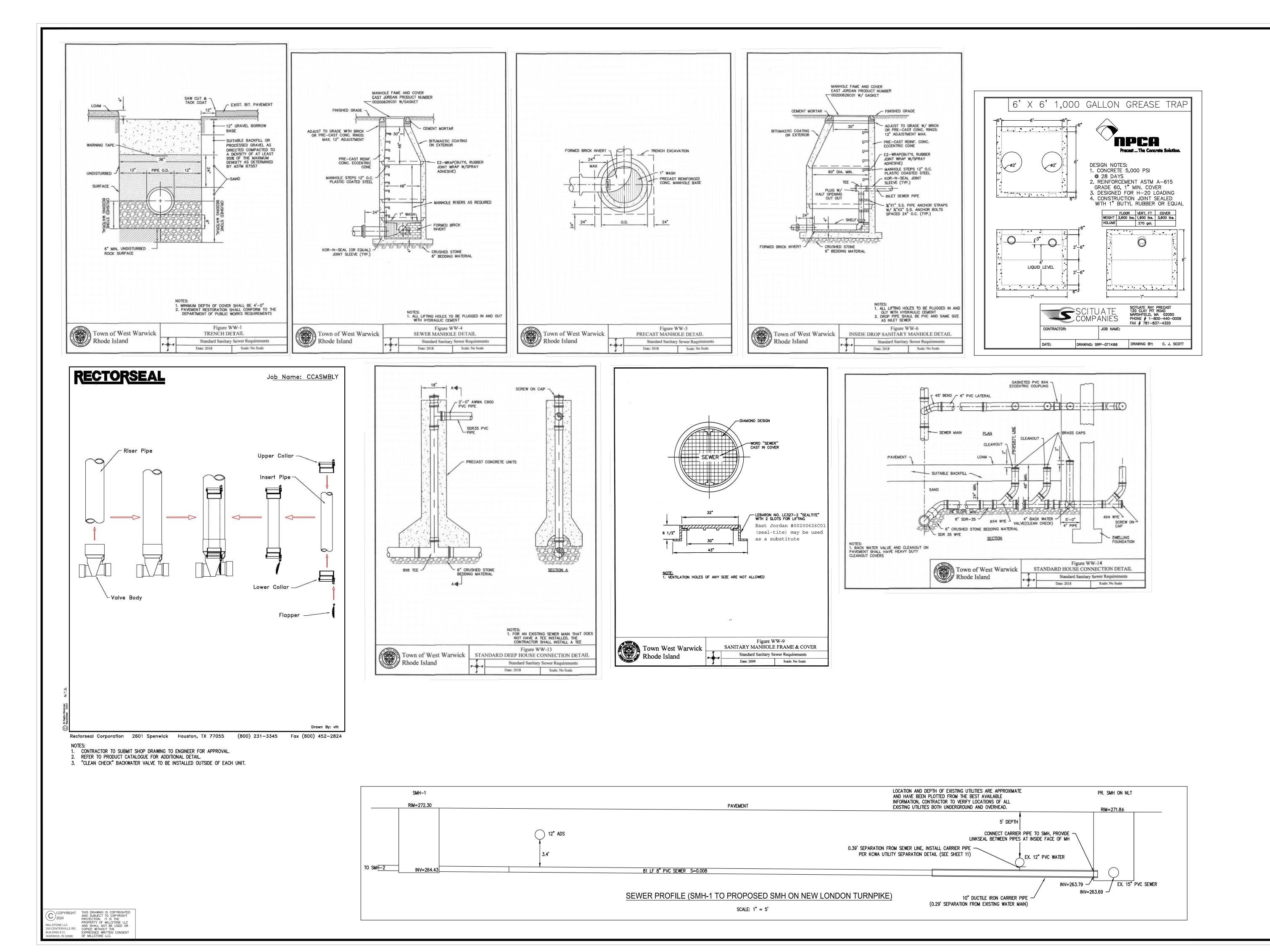


**8" MASTER WATER METER ASSEMBLY DETAIL** 







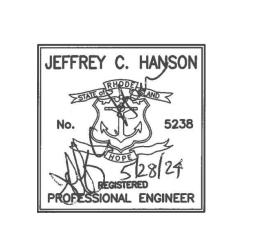


NO. DATE REVISION

4 03/24/22 KCWA COMMENTS

5 06/09/22 KCWA COMMENTS

6 05/28/24 PRELIM. REINSTATEMENT



Middletown, RI 02842

DETAILS - 4

WILLOW LAKES

A.P. 16, LOT 3 NEW LONDON TURNPIKE COVENTRY, RI

PREPARED FOR:

LRT NEW LONDON AVE

DEVELOPMENT, LLC

SCALE AS NOTED FEBRUARY 2021

Drawn By: J.S.C.
Checked By: J.C.H.

Sheet

1<sub>2</sub>

FILE NO.: 17.276.403