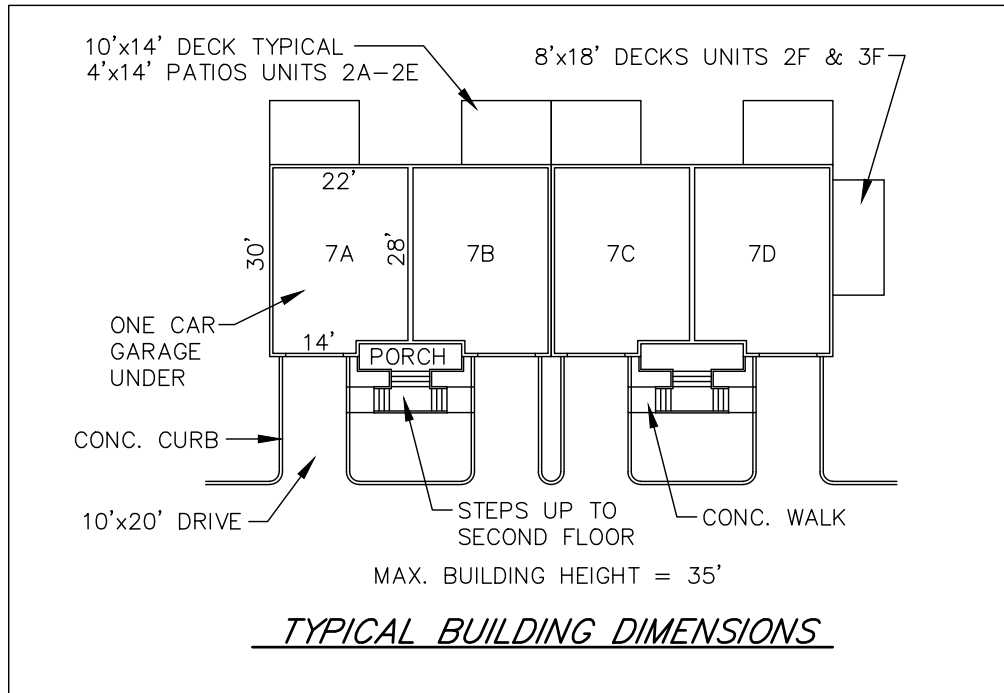


**LEGEND**

A.P.	ASSESSOR'S PLAT
N/F	NOW OR FORMERLY
U/P	UTILITY POLE
●	IRON PIPE
○	IRON ROD
●	STONE BOUND FOUND
■	RHIB
■	RHODE ISLAND HIGHWAY BOUND
⊥	WATER SHUT OFF
⊥	GAS VALVE
⊥	EXIST. LIGHT POLE & MH
⊥	EXIST. TREETRINE
⊥	EXIST. TREE
⊥	WETLAND FLAG & EDGE
⊥	200' RIVERBANK WETLAND
⊥	50' PERIMETER WETLAND
⊥	PERMANENT LIMIT OF DISTURBANCE
⊥	100 YEAR FLOOD ZONE
⊥	PROP. PARKING LOT LIGHTS
⊥	PROP. SCREEN FENCING
⊥	PROP. TIMBER GUARDRAIL
⊥	PROP. BUFFER PLANTINGS
⊥	SEE GENERAL NOTE 12
⊥	SNOW STORAGE AREA



**BUFFER PLANTING LEGEND**  
 SEE DETAILS ON SHEETS C3 & LANDSCAPE PLANS

- MOUNTAIN LAUREL (*Kalmia latifolia*) 3' TO 4' TALL PLANTED 8 FEET ON CENTER, 32 REQUIRED
- WHITE SPRUCE (*Picea glauca*) 5' TO 6' TALL PLANTED 10 FEET ON CENTER, 4 REQUIRED
- WHITE SPRUCE AND MOUNTAIN LAUREL, PLANTED 10' O.C. STAGGERED, 21 OF EACH REQUIRED

**EXIST. ZONING: A-7 WITH PDR OVERLAY**

MINIMUM LOT AREA = 40,000 S.F.  
 MINIMUM LOT WIDTH = 175'  
 MINIMUM LOT FRONTAGE = 175'  
 MIN. CORNER FRONTAGE = 140'  
 YARDS: FRONT = 35'  
 SIDE = 25'  
 REAR = 35'  
 MAX. BUILDING HEIGHT = 35'  
 MINIMUM OPEN SPACE = 15%  
 FRONT OR REAR BUILDING WALL TO ADJACENT BUILDING = 40' MIN.  
 SIDE BUILDING WALL TO ADJACENT SIDE BUILDING WALL = 30' MIN.  
 PDR DENSITY ALLOWS 12 UNITS PER ACRE  
 3.946 X 12 = 47 UNITS ALLOWED  
 PROPOSED DENSITY = 21 UNITS / 5.32 D.U. PER ACRE

**PARKING DATA**

EACH UNIT TO HAVE ONE GARAGE SPACE AND ONE DRIVEWAY SPACE  
 12 COMMON GUEST SPACES PROVIDED  
 2.5 PARKING SPACES REQ'D PER UNIT  
 21 X 2.5 = 52.5 SPACES REQUIRED  
 54 TOTAL SPACES PROVIDED  
 PARKING SPACES ARE 9'x18' MINIMUM

**DEVELOPMENT AREAS**

5 BUILDINGS: 0.326± AC.  
 PAVEMENT/WALKS: 0.430± AC.  
 GRASS/LANDSCAPED: 1.117± AC.  
 WOODS/BRUSH: 2.073± AC.  
 TOTAL: 3.946± AC.

**ZONING VARIANCES NOTE**

A VARIANCE WAS APPROVED TO ALLOW A FRONT YARD SETBACK OF 25'  
 A VARIANCE WAS APPROVED TO ALLOW A SIDE YARD SETBACK OF 20'  
 A VARIANCE WAS APPROVED TO ALLOW PARKING WITHIN 10' OF BUILDINGS (DRIVEWAYS)  
 A VARIANCE WAS APPROVED TO ALLOW PARKING WITHIN THE FRONT YARD SETBACK

**SHEET INDEX**

- C1 SITE DEVELOPMENT PLAN
- S2 SURVEY-EXIST. COND. PLAN
- C3 GRADING & DRAINAGE PLAN
- C4 DRAINAGE & UTILITY PLAN
- C5 DRAINAGE NOTES & DETAILS
- C6 SITE CONSTRUCTION DETAILS
- C7 EROSION CONTROL NOTES & DETAILS
- C8 WATER NOTES & DETAILS
- C9 SEWER NOTES & DETAILS

**DEVELOPMENT NOTES:**

- ALL UNITS SHALL BE TWO BEDROOM TOWNHOUSE RESIDENCES.
- ALL UNITS SHALL HAVE A ONE CAR GARAGE WITH A 10' X 20' DRIVEWAY.
- TRASH SHALL BE COLLECTED UTILIZING INDIVIDUAL TRASH AND RECYCLE BINS STORED IN UNIT GARAGES WITH PRIVATE PICK UP.
- ALL INFRASTRUCTURE, UTILITIES AND DRAINAGE SHALL BE OWNED AND MAINTAINED BY THE CONDOMINIUM ASSOCIATION.
- ALL UNITS TO BE SERVICED BY PUBLIC WATER AND SEWER.
- ALL UTILITIES SHALL BE INSTALLED UNDERGROUND.
- THE WATER METER ENCLOSURE SHALL BE A WOOD SHED CONSTRUCTED TO MATCH THE DESIGN OF THE CONDOMINIUM BUILDINGS.

**GENERAL NOTES:**

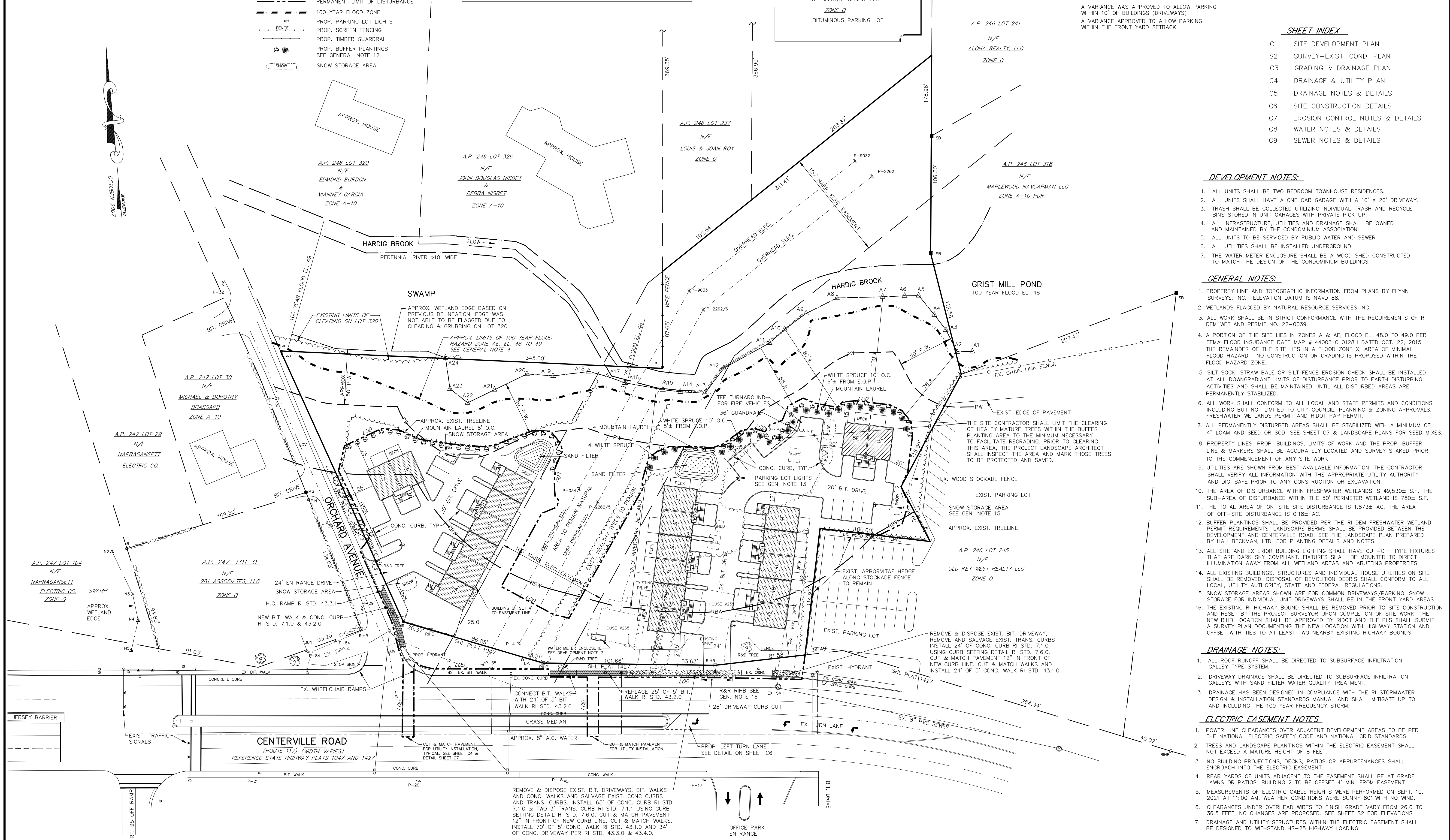
- PROPERTY LINE AND TOPOGRAPHIC INFORMATION FROM PLANS BY FLYNN SURVEYS, INC. ELEVATION DATUM IS NAVD 88.
- WETLANDS FLAGGED BY NATURAL RESOURCE SERVICES INC.
- ALL WORK SHALL BE IN STRICT CONFORMANCE WITH THE REQUIREMENTS OF RI DEM WETLAND PERMIT NO. 22-0039.
- A PORTION OF THE SITE LIES IN ZONES A & AE, FLOOD EL. 48.0 TO 49.0 PER FEMA FLOOD INSURANCE RATE MAP # 44003 C 0128H DATED OCT. 22, 2015. THE REMAINDER OF THE SITE LIES IN A FLOOD ZONE X, AREA OF MINIMAL FLOOD HAZARD. NO CONSTRUCTION OR GRADING IS PROPOSED WITHIN THE FLOOD HAZARD ZONE.
- SILT SOCK, STRAW BALE OR SILT FENCE EROSION CHECK SHALL BE INSTALLED AT ALL DOWNGRADIANT LIMITS OF DISTURBANCE PRIOR TO EARTH DISTURBING ACTIVITIES AND SHALL BE MAINTAINED UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
- ALL WORK SHALL CONFORM TO ALL LOCAL AND STATE PERMITS AND CONDITIONS INCLUDING BUT NOT LIMITED TO CITY COUNCIL PLANNING & ZONING APPROVALS, FRESHWATER WETLANDS PERMIT AND RIDOT PAP PERMIT.
- ALL PERMANENTLY DISTURBED AREAS SHALL BE STABILIZED WITH A MINIMUM OF 4" LOAM AND SEED OR SOD. SEE SHEET C7 & LANDSCAPE PLANS FOR SEED MIXES.
- PROPERTY LINES, PROP. BUILDINGS, LIMITS OF WORK AND THE PROP. BUFFER LINE & MARKERS SHALL BE ACCURATELY LOCATED AND SURVEY STAKED PRIOR TO THE COMMENCEMENT OF ANY SITE WORK.
- UTILITIES ARE SHOWN FROM BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL INFORMATION WITH THE APPROPRIATE UTILITY AUTHORITY AND DIG-SAFE PRIOR TO ANY CONSTRUCTION OR EXCAVATION.
- THE AREA OF DISTURBANCE WITHIN FRESHWATER WETLANDS IS 49,530± S.F. THE SUB-AREA OF DISTURBANCE WITHIN THE 50' PERIMETER WETLAND IS 780± S.F.
- THE TOTAL AREA OF ON-SITE SITE DISTURBANCE IS 1.873± AC. THE AREA OF OFF-SITE DISTURBANCE IS 0.18± AC.
- BUFFER PLANTINGS SHALL BE PROVIDED PER THE RI DEM FRESHWATER WETLAND PERMIT REQUIREMENTS. LANDSCAPE BERMS SHALL BE PROVIDED THROUGHOUT THE DEVELOPMENT AND CENTERVILLE ROAD. SEE THE LANDSCAPE PLAN PREPARED BY HALI BECKMAN, LTD. FOR PLANTING DETAILS AND NOTES.
- ALL SITE AND EXTERIOR BUILDING LIGHTING SHALL HAVE CUT-OFF TYPE FIXTURES THAT ARE DARK SKY COMPLIANT. FIXTURES SHALL BE MOUNTED TO DIRECT ILLUMINATION AWAY FROM ALL WETLAND AREAS AND ADJUTING PROPERTIES.
- ALL EXISTING BUILDINGS, STRUCTURES AND INDIVIDUAL HOUSE UTILITIES ON SITE SHALL BE REMOVED. DISPOSAL OF DEMOLITION DEBRIS SHALL CONFORM TO ALL LOCAL, UTILITY AUTHORITY, STATE AND FEDERAL REGULATIONS.
- SNOW STORAGE AREAS SHOWN ARE FOR COMMON DRIVEWAYS/PARKING. SNOW STORAGE FOR INDIVIDUAL UNIT DRIVEWAYS SHALL BE IN THE FRONT YARD AREAS.
- THE EXISTING RI HIGHWAY BOUND SHALL BE REMOVED PRIOR TO SITE CONSTRUCTION AND RESET BY THE PROJECT SURVEYOR UPON COMPLETION OF SITE WORK. THE NEW RHIB LOCATION SHALL BE APPROVED BY RIDOT AND THE PLS SHALL SUBMIT A SURVEY PLAN DOCUMENTING THE NEW LOCATION WITH HIGHWAY STATION AND OFFSET WITH TIES TO AT LEAST TWO NEARBY EXISTING HIGHWAY BOUNDS.

**DRAINAGE NOTES:**

- ALL ROOF RUNOFF SHALL BE DIRECTED TO SUBSURFACE INFILTRATION GALLEY TYPE SYSTEM
- DRIVEWAY DRAINAGE SHALL BE DIRECTED TO SUBSURFACE INFILTRATION GALLEYS WITH SAND FILTER WATER QUALITY TREATMENT.
- DRAINAGE HAS BEEN DESIGNED IN COMPLIANCE WITH THE RI STORMWATER DESIGN & INSTALLATION STANDARDS MANUAL AND SHALL MITIGATE UP TO AND INCLUDING THE 100 YEAR FREQUENCY STORM.

**ELECTRIC EASEMENT NOTES**

- POWER LINE CLEARANCES OVER ADJACENT DEVELOPMENT AREAS TO BE PER THE NATIONAL ELECTRIC SAFETY CODE AND NATIONAL GRID STANDARDS.
- TREES AND LANDSCAPE PLANTINGS WITHIN THE ELECTRIC EASEMENT SHALL NOT EXCEED A MATURE HEIGHT OF 8 FEET.
- NO BUILDING PROJECTIONS, DECKS, PATIOS OR APPURTENANCES SHALL ENCRUCH INTO THE ELECTRIC EASEMENT.
- REAR YARDS OF UNITS ADJACENT TO THE EASEMENT SHALL BE AT GRADE LAWNS OR PATIOS. BUILDING 2 TO BE OFFSET 4' MIN. FROM EASEMENT.
- MEASUREMENTS OF ELECTRIC CABLE HEIGHTS WERE PERFORMED ON SEPT. 10, 2021 AT 11:00 AM. WEATHER CONDITIONS WERE SUNNY 80° WITH NO WIND.
- CLEARANCES UNDER OVERHEAD WIRES TO FINISH GRADE VARY FROM 26.0 TO 36.5 FEET. NO CHANGES ARE PROPOSED. SEE SHEET S2 FOR ELEVATIONS.
- DRAINAGE AND UTILITY STRUCTURES WITHIN THE ELECTRIC EASEMENT SHALL BE DESIGNED TO WITHSTAND HS-25 HIGHWAY LOADING.



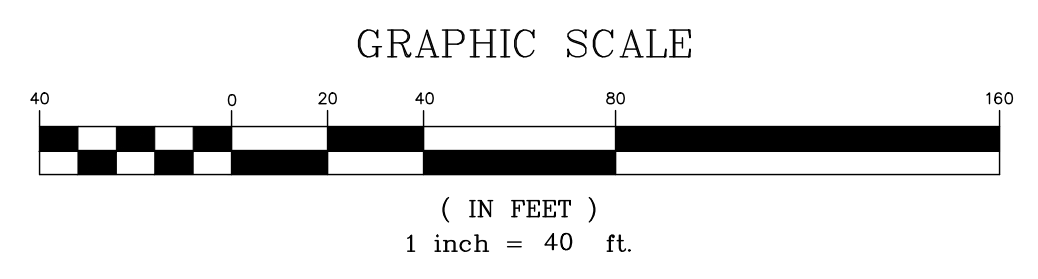
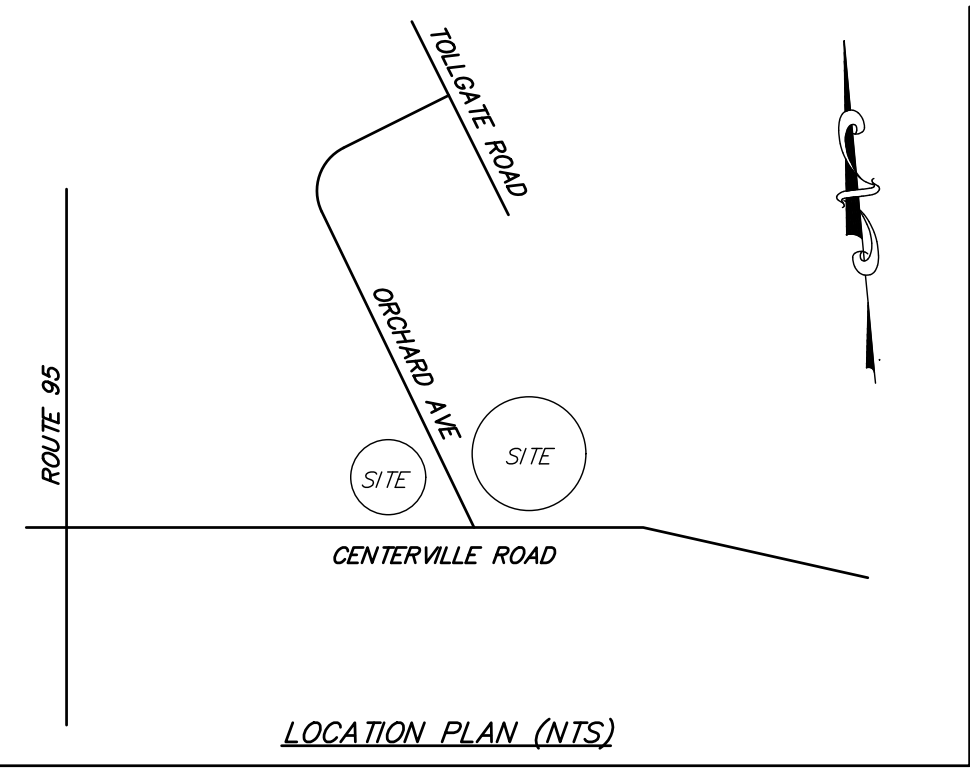
REVISION	DATE	DESCRIPTION
1	9-21-21	REDUCED TO 23 UNITS, ADJUSTED BUILDING LOCATIONS
2	1-10-22	REVISED DRAINAGE AND GRADING PER NAT. GRID
3	6-8-22	DEM WETLAND SUBMISSION
4	3-13-23	REFLAGGED WETLAND, REVISE BUILDING 5 & TURNAROUND
5	4-10-23	KCWA SUBMISSION
6	7-10-23	WATER METER ENCLOSURE, LANDSCAPE BERMS
7		RIDOT COMMENTS, ADD LEFT TURN LANE, R&R RHIB

**SCOTT F. MOOREHEAD**  
 REGISTERED PROFESSIONAL ENGINEER  
 PREPARED FOR:  
 281 ASSOCIATES, LLC  
 281 CENTERVILLE STREET  
 WARWICK, RI 02888  
 401-864-5252

**281 CENTERVILLE PLACE**  
 RESIDENTIAL CONDOMINIUMS  
 255, 265 & 281 CENTERVILLE ROAD  
 A.P. 246 LOTS 240, 243, 260 & 261  
 WARWICK, RHODE ISLAND  
 SITE DEVELOPMENT PLAN

**S.F.M. ENGINEERING ASSOCIATES**  
 410 TOUGATE AVENUE  
 COVENTRY, RI 02816  
 PHONE: 401-826-3736  
 FAX: 401-826-1711  
 SCOTT.SFM@LANATICBB.NET

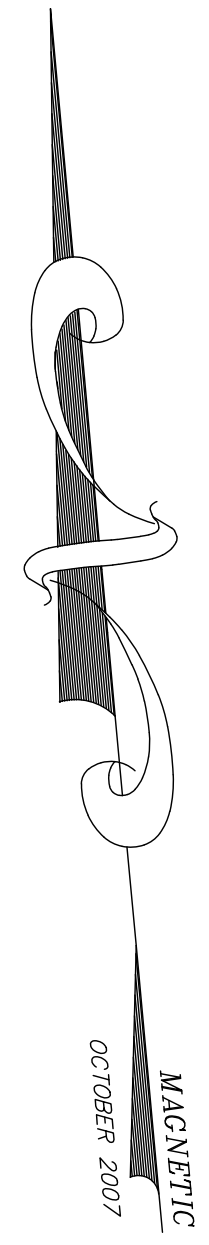
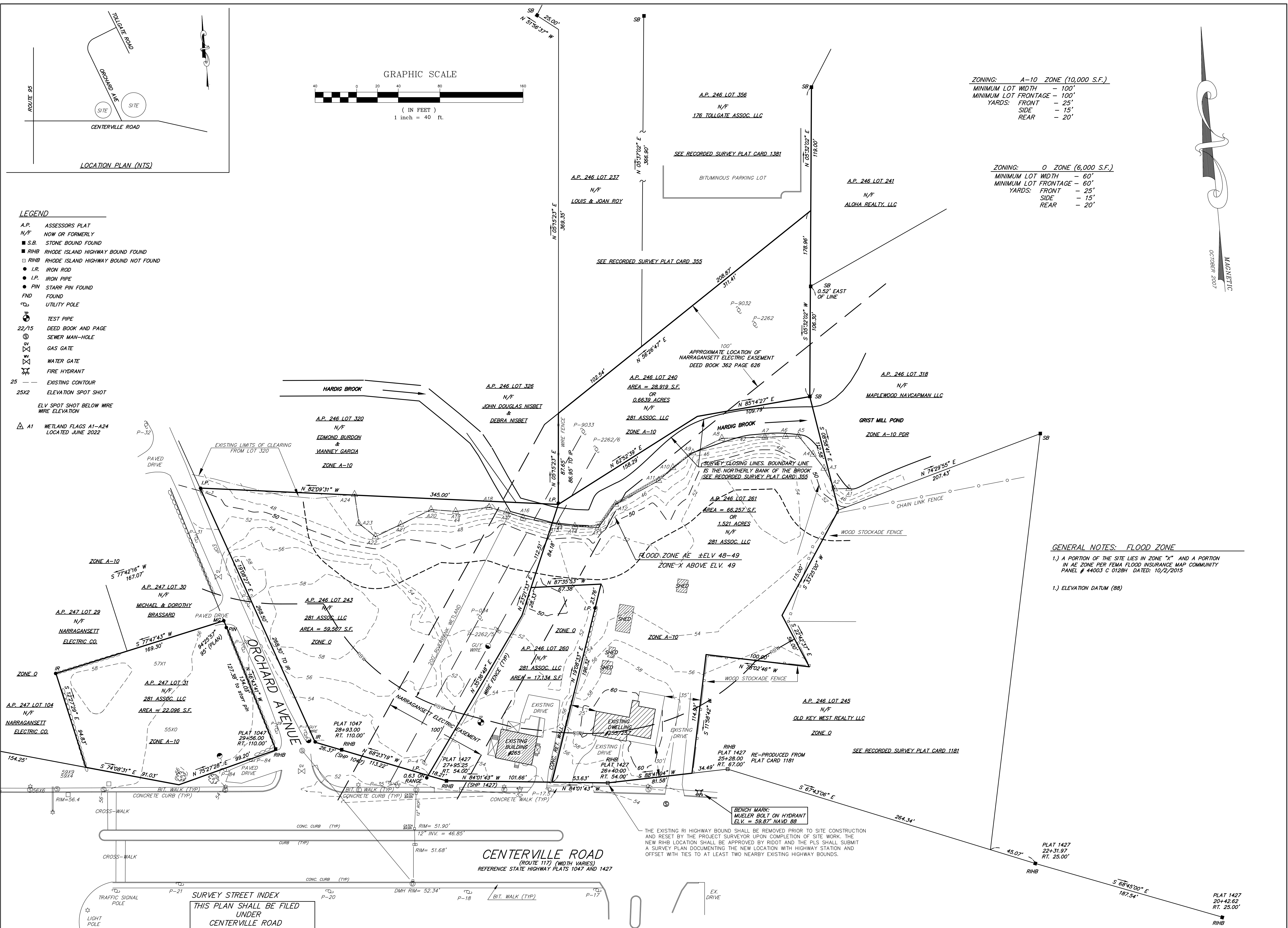
**SFM**  
 DRN. BY: SFM  
 CHK. BY: JZL  
 SCALE: 1" = 40'  
 DATE: APRIL 5, 2021  
 DWG: SFM692-SP-T  
 SHEET 1 OF 9  
 PRELIMINARY CITY SUBMISSION



- LEGEND**
- A.P. ASSESSORS PLAT
  - N/F NOW OR FORMERLY
  - S.B. STONE BOUND FOUND
  - RIHB RHODE ISLAND HIGHWAY BOUND FOUND
  - RIHB RHODE ISLAND HIGHWAY BOUND NOT FOUND
  - IR IRON ROD
  - I.P. IRON PIPE
  - PIN STARR PIN FOUND
  - FND FOUND
  - UTILITY POLE
  - TEST PIPE
  - 22/15 DEED BOOK AND PAGE
  - SEWER MAN-HOLE
  - GAS GATE
  - WATER GATE
  - FIRE HYDRANT
  - 25 EXISTING CONTOUR
  - 25X2 ELEVATION SPOT SHOT
  - ELV SPOT SHOT BELOW WIRE ELEVATION
  - A1 WETLAND FLAGS A1-A24 LOCATED JUNE 2022

ZONING: A-10 ZONE (10,000 S.F.)  
 MINIMUM LOT WIDTH - 100'  
 MINIMUM LOT FRONTAGE - 100'  
 YARDS: FRONT - 25'  
 SIDE - 15'  
 REAR - 20'

ZONING: O ZONE (6,000 S.F.)  
 MINIMUM LOT WIDTH - 60'  
 MINIMUM LOT FRONTAGE - 60'  
 YARDS: FRONT - 25'  
 SIDE - 15'  
 REAR - 20'



**GENERAL NOTES: FLOOD ZONE**

1.) A PORTION OF THE SITE LIES IN ZONE "X" AND A PORTION IN AE ZONE PER FEMA FLOOD INSURANCE MAP COMMUNITY PANEL # 44003 C 01284 DATED: 10/2/2015

1.) ELEVATION DATUM (88)

**FLYNN SURVEYS INC.**  
 22 STANTON AVENUE  
 NARRAGANSETT, R.I. 02882  
 401-783-6290  
 LAND SURVEYING / MAPPING / SITE PLANNING

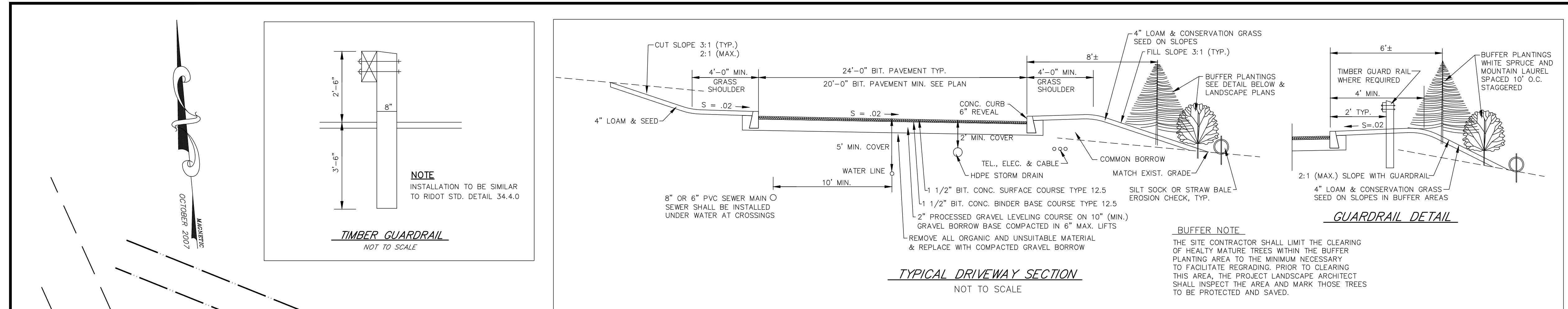
JAMES G. FLYNN  
 No. 1904  
 PROFESSIONAL LAND SURVEYOR

**CERTIFICATION**  
 THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON NOVEMBER 25, 2015, AS FOLLOWS:  
 COMPREHENSIVE BOUNDARY SURVEY CLASS 1  
 TOPOGRAPHIC SURVEY ACCURACY T-2  
 VERTICAL ACCURACY STANDARD V-2  
 BY: JAMES G. FLYNN  
 JAMES G. FLYNN P.L.S. NO. 1904

**PRE-LIMINARY SURVEY PLAN**  
**ASSESSORS PLAT 246**  
**LOTS 240, 261 & 243 AND**  
**ASSESSORS PLAT 247 LOT 31**  
 CENTERVILLE ROAD  
 WARWICK, RHODE ISLAND

SHEET 2 OF 9  
 JOB NO. 1030  
 DWG NO. 1030  
 S2

SCALE: 1" = 40'  
 DATE: DECEMBER 4, 2018  
 REVISED: 10/23/2023



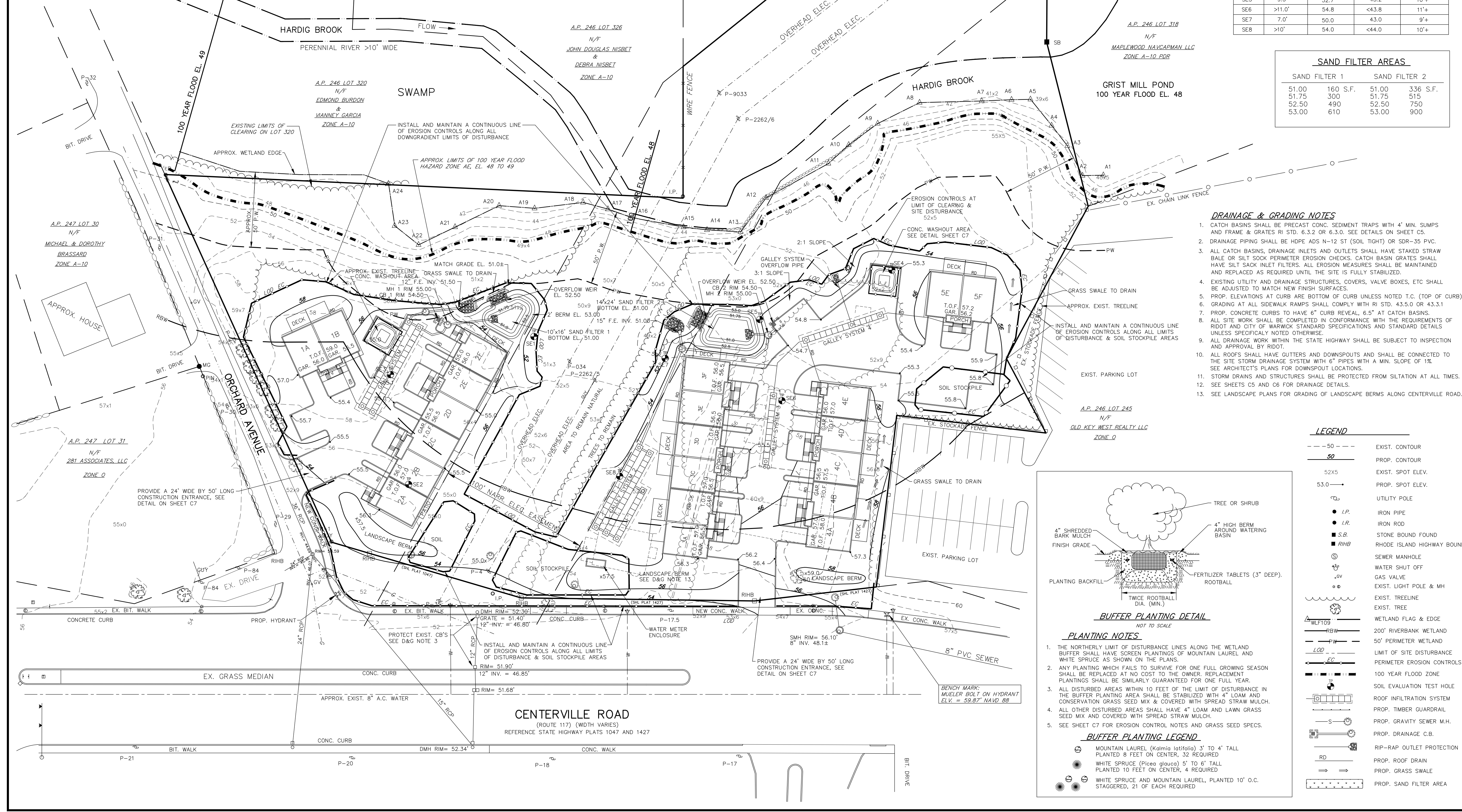
- STORMWATER SYSTEM MAINTENANCE PLAN**
- THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE STORMWATER SYSTEM FACILITY PROTECTION, INSPECTION AND MAINTENANCE PRIOR TO, DURING AND POST CONSTRUCTION UNTIL FINAL ACCEPTANCE OF CONSTRUCTION BY THE OWNER.
  - THE SAND FILTER AREAS AND GALLEY SYSTEM AREAS SHALL BE PROTECTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION TO PREVENT BOTTOM AREA COMPACTION.
  - SAND FILTERS, SEDIMENT TRAPS, AND INFILTRATION GALLEYS SHALL BE MAINTAINED ACCORDING TO THE STORMWATER MAINTENANCE SCHEDULE.
  - THE CATCH BASINS SHALL BE CLEANED & MAINTAINED A MINIMUM OF TWICE PER YEAR (SPRING & FALL). ACCUMULATED SILT, SAND & DEBRIS SHALL BE REMOVED AND DISPOSED. OIL SHALL BE TAKEN TO A LICENSED WASTE FACILITY.
  - ALL PAVED AREAS SHALL BE SWEEP AS NEEDED. ACCUMULATED SILT, SAND & DEBRIS SHALL BE REMOVED AND DISPOSED.
  - UPON FINAL ACCEPTANCE OF THE CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR INSPECTION & MAINTENANCE OF THE PAVEMENT, CATCH BASIN, MANHOLES, SEDIMENT TRAPS, SAND FILTERS, INFILTRATION GALLEYS AND ROOF DRAINS.

**GROUND WATER & LEDGE DEPTH TABLE**

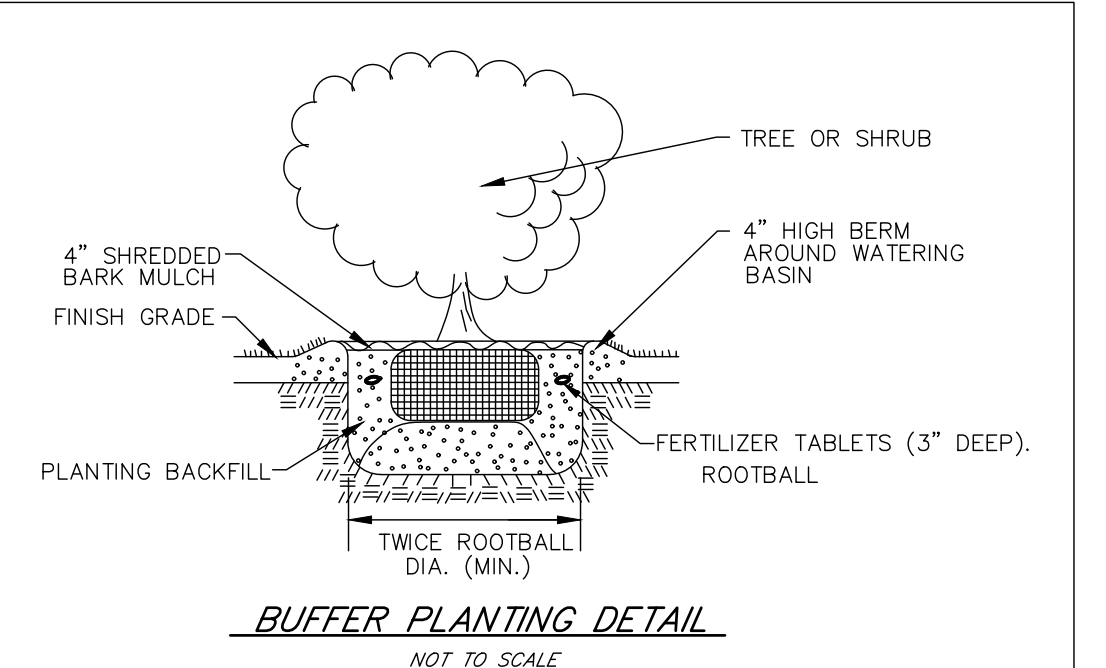
TEST PIT	SHWT DEPTH	EXIST. GROUND	SHWT ELEV.	LEDGE DEPTH
SE1	7.0'	51.2	44.2	10'+
SE2	10.5'	55.0	44.5	11'+
SE3	>14'	58.5	<44.5	14'+
SE4	9.0'	52.2	43.2	10'+
SE5	9.5'	52.7	43.2	10'+
SE6	>11.0'	54.8	<43.8	11'+
SE7	7.0'	50.0	43.0	9'+
SE8	>10'	54.0	<44.0	10'+

**SAND FILTER AREAS**

SAND FILTER 1	SAND FILTER 2
51.00	160 S.F.
51.75	300
52.50	490
53.00	610
51.00	336 S.F.
51.75	515
52.50	750
53.00	900



- DRAINAGE & GRADING NOTES**
- CATCH BASINS SHALL BE PRECAST CONC. SEDIMENT TRAPS WITH 4" MIN. SUMPS AND FRAME & GRATES RI STD. 6.3.2 OR 6.3.0. SEE DETAILS ON SHEET C5.
  - DRAINAGE PIPING SHALL BE HDPE ADS N-12 ST (SOIL TIGHT) OR SDR-35 PVC.
  - ALL CATCH BASINS, DRAINAGE INLETS AND OUTLETS SHALL HAVE STAKED STRAW BALE OR SILT SOCK PERIMETER EROSION CHECKS. CATCH BASIN GRATES SHALL HAVE SILT SOCK INLET FILTERS. ALL EROSION MEASURES SHALL BE MAINTAINED AND REPLACED AS REQUIRED UNTIL THE SITE IS FULLY STABILIZED.
  - EXISTING UTILITY AND DRAINAGE STRUCTURES, COVERS, VALVE BOXES, ETC SHALL BE ADJUSTED TO MATCH NEW FINISH SURFACES.
  - PROP. ELEVATIONS AT CURB ARE BOTTOM OF CURB UNLESS NOTED T.C. (TOP OF CURB)
  - GRADING AT ALL SIDEWALK RAMPS SHALL COMPLY WITH RI STD. 43.5.0 OR 43.3.1
  - PROP. CONCRETE CURBS TO HAVE 6" CURB REVEAL, 6.5" AT CATCH BASINS.
  - ALL SITE WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE REQUIREMENTS OF RIOT AND CITY OF WARWICK STANDARD SPECIFICATIONS AND STANDARD DETAILS UNLESS SPECIFICALLY NOTED OTHERWISE.
  - ALL DRAINAGE WORK WITHIN THE STATE HIGHWAY SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY RIOT.
  - ALL ROOFS SHALL HAVE GUTTERS AND DOWNSPOUTS AND SHALL BE CONNECTED TO THE SITE STORM DRAINAGE SYSTEM WITH 6" PIPES WITH A MIN. SLOPE OF 1%. SEE ARCHITECT'S PLANS FOR DOWNSPOUT LOCATIONS.
  - STORM DRAINS AND STRUCTURES SHALL BE PROTECTED FROM SILTATION AT ALL TIMES.
  - SEE SHEETS C5 AND C6 FOR DRAINAGE DETAILS.
  - SEE LANDSCAPE PLANS FOR GRADING OF LANDSCAPE BERMS ALONG CENTERVILLE ROAD.



- PLANTING NOTES**
- THE NORTHERLY LIMIT OF DISTURBANCE LINES ALONG THE WETLAND BUFFER SHALL HAVE SCREEN PLANTINGS OF MOUNTAIN LAUREL AND WHITE SPRUCE AS SHOWN ON THE PLANS.
  - ANY PLANTING WHICH FAILS TO SURVIVE FOR ONE FULL GROWING SEASON SHALL BE REPLACED AT NO COST TO THE OWNER. REPLACEMENT PLANTINGS SHALL BE SIMILARLY GUARANTEED FOR ONE FULL YEAR.
  - ALL DISTURBED AREAS WITHIN 10 FEET OF THE LIMIT OF DISTURBANCE IN THE BUFFER PLANTING AREA SHALL BE STABILIZED WITH 4" LOAM AND CONSERVATION GRASS SEED MIX & COVERED WITH SPREAD STRAW MULCH.
  - ALL OTHER DISTURBED AREAS SHALL HAVE 4" LOAM AND LAWN GRASS SEED MIX AND COVERED WITH SPREAD STRAW MULCH.
  - SEE SHEET C7 FOR EROSION CONTROL NOTES AND GRASS SEED SPECS.
- BUFFER PLANTING LEGEND**
- MOUNTAIN LAUREL (*Kalmia latifolia*) 3' TO 4' TALL PLANTED 8 FEET ON CENTER, 32 REQUIRED
  - WHITE SPRUCE (*Picea glauca*) 5' TO 6' TALL PLANTED 10 FEET ON CENTER, 4 REQUIRED
  - WHITE SPRUCE AND MOUNTAIN LAUREL, PLANTED 10' O.C. STAGGERED, 21 OF EACH REQUIRED

**LEGEND**

- 50 --- EXIST. CONTOUR
- 50 --- PROP. CONTOUR
- 52x5 EXIST. SPOT ELEV.
- 53.0 --- PROP. SPOT ELEV.
- U UTILITY POLE
- I.P. IRON PIPE
- I.R. IRON ROD
- S.B. STONE BOUND FOUND
- RI/HB RHODE ISLAND HIGHWAY BOUND
- ⊙ SEWER MANHOLE
- ⊙ WATER SHUT OFF
- ⊙ GAS VALVE
- ⊙ EXIST. LIGHT POLE & MH
- EXIST. TREELINE
- EXIST. TREE
- WLF109 WETLAND FLAG & EDGE
- RBW 200' RIVERBANK WETLAND
- PW 50' PERIMETER WETLAND
- LOD LIMIT OF SITE DISTURBANCE
- EC PERIMETER EROSION CONTROLS
- 100 YEAR FLOOD ZONE
- ⊙ SOIL EVALUATION TEST HOLE
- ROOF INFILTRATION SYSTEM
- PROP. TIMBER GUARDRAIL
- PROP. GRAVITY SEWER M.H.
- PROP. DRAINAGE C.B.
- RIP-RAP OUTLET PROTECTION
- PROP. ROOF DRAIN
- PROP. GRASS SWALE
- PROP. SAND FILTER AREA

REVISION

DATE	DESCRIPTION
9-21-21	REDUCED TO 23 UNITS, ADJUSTED BUILDING LOCATIONS
9-21-21	REVISED DRAINAGE AND GRADING PER NAT. GRID
1-10-22	DEM WETLAND SUBMISSION
6-8-22	REVISE BUILDING 5, TURNAROUND & GALLEY SYSTEM 4
3-13-23	KCWA SUBMISSION
4-10-23	LANDSCAPE BERMS
7-10-23	RIOT COMMENTS, SHL NOTED

SCOTT F. MOOREHEAD  
REGISTERED PROFESSIONAL ENGINEER

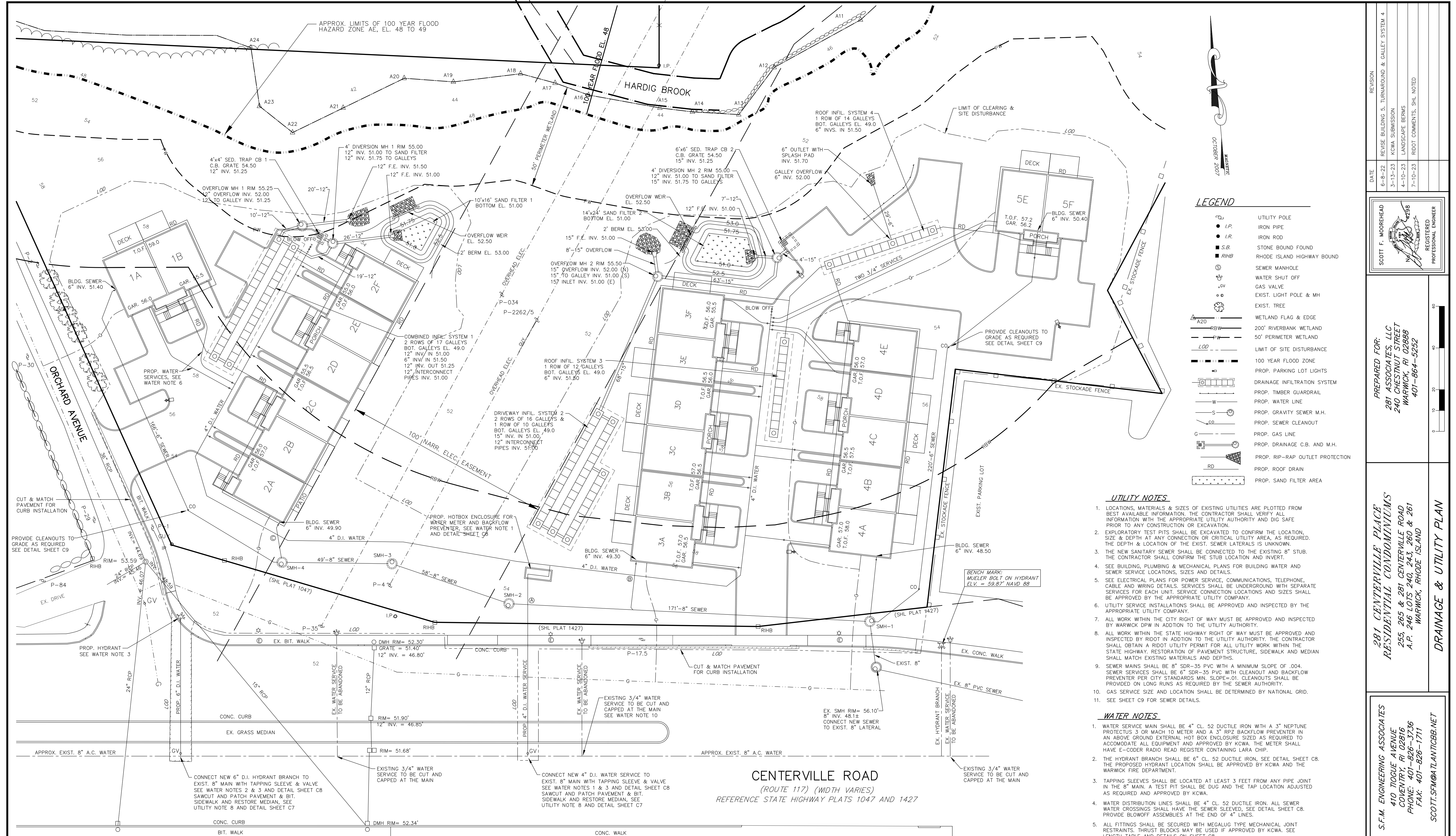
PREPARED FOR:  
281 ASSOCIATES, LLC  
240 CHESTNUT STREET  
WARWICK, RI 02888  
401-864-5252

281 CENTERVILLE PLACE  
RESIDENTIAL CONDOMINIUMS  
255, 265 & 281 CENTERVILLE ROAD  
A.P. 246 LOTS 240, 243, 260 & 261  
WARWICK, RHODE ISLAND

S.F.M. ENGINEERING ASSOCIATES  
410 TOGUE AVENUE  
COVENTRY, RI 02816  
PHONE: 401-826-3736  
FAX: 401-826-1711  
SCOTT.SFM@TLANVICBB.NET

**SFM**

DRN. BY: SFM  
CHK. BY: JZL  
SCALE: 1" = 30'  
DATE: APRIL 5, 2020  
DWG: SFM692-GP-T  
SHEET 3 OF 9



### LEGEND

- UTILITY POLE
- I.P. IRON PIPE
- I.R. IRON ROD
- S.B. STONE BOUND FOUND
- R/HB RHODE ISLAND HIGHWAY BOUND
- SEWER MANHOLE
- WATER SHUT OFF
- GAS VALVE
- EXIST. LIGHT POLE & MH
- EXIST. TREE
- A20 WETLAND FLAG & EDGE
- RBW 200' RIVERBANK WETLAND
- PW 50' PERIMETER WETLAND
- LOD LIMIT OF SITE DISTURBANCE
- 100 YEAR FLOOD ZONE
- PROP. PARKING LOT LIGHTS
- DRAINAGE INFILTRATION SYSTEM
- W PROP. TIMBER GUARDRAIL
- S PROP. WATER LINE
- CO PROP. SEWER CLEANOUT
- G PROP. GAS LINE
- PROP. DRAINAGE C.B. AND M.H.
- PROP. RIP-RAP OUTLET PROTECTION
- RD PROP. ROOF DRAIN
- PROP. SAND FILTER AREA

- ### UTILITY NOTES
- LOCATIONS, MATERIALS & SIZES OF EXISTING UTILITIES ARE PLOTTED FROM BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL INFORMATION WITH THE APPROPRIATE UTILITY AUTHORITY AND DIG SAFE PRIOR TO ANY CONSTRUCTION OR EXCAVATION.
  - EXPLORATORY TEST PITS SHALL BE EXCAVATED TO CONFIRM THE LOCATION, SIZE & DEPTH AT ANY CONNECTION OR CRITICAL UTILITY AREA, AS REQUIRED. THE DEPTH & LOCATION OF THE EXIST. SEWER LATERALS IS UNKNOWN.
  - THE NEW SANITARY SEWER SHALL BE CONNECTED TO THE EXISTING 8" STUB. THE CONTRACTOR SHALL CONFIRM THE STUB LOCATION AND INVERT.
  - SEE BUILDING, PLUMBING & MECHANICAL PLANS FOR BUILDING WATER AND SEWER SERVICE LOCATIONS, SIZES AND DETAILS.
  - SEE ELECTRICAL PLANS FOR POWER SERVICE, COMMUNICATIONS, TELEPHONE, CABLE AND WIRING DETAILS. SERVICES SHALL BE UNDERGROUND WITH SEPARATE SERVICES FOR EACH UNIT. SERVICE CONNECTION LOCATIONS AND SIZES SHALL BE APPROVED BY THE APPROPRIATE UTILITY COMPANY.
  - UTILITY SERVICE INSTALLATIONS SHALL BE APPROVED AND INSPECTED BY THE APPROPRIATE UTILITY COMPANY.
  - ALL WORK WITHIN THE CITY RIGHT OF WAY MUST BE APPROVED AND INSPECTED BY WARWICK DPW IN ADDITION TO THE UTILITY AUTHORITY.
  - ALL WORK WITHIN THE STATE HIGHWAY RIGHT OF WAY MUST BE APPROVED AND INSPECTED BY RIDOT IN ADDITION TO THE UTILITY AUTHORITY. THE CONTRACTOR SHALL OBTAIN A RIDOT UTILITY PERMIT FOR ALL UTILITY WORK WITHIN THE STATE HIGHWAY. RESTORATION OF PAVEMENT STRUCTURE, SIDEWALK AND MEDIAN SHALL MATCH EXISTING MATERIALS AND DEPTHS.
  - SEWER MAINS SHALL BE 8" SDR-35 PVC WITH A MINIMUM SLOPE OF .004. SEWER SERVICES SHALL BE 6" SDR-35 PVC WITH CLEANOUT AND BACKFLOW PREVENTER PER CITY STANDARDS MIN. SLOPE=.01. CLEANOUTS SHALL BE PROVIDED ON LONG RUNS AS REQUIRED BY THE SEWER AUTHORITY.
  - GAS SERVICE SIZE AND LOCATION SHALL BE DETERMINED BY NATIONAL GRID.
  - SEE SHEET C9 FOR SEWER DETAILS.

- ### WATER NOTES
- WATER SERVICE MAIN SHALL BE 4" CL 52 DUCTILE IRON WITH A 3" NEPTUNE PROTECTUS 3 OR MACH 10 METER AND A 3" RPZ BACKFLOW PREVENTER IN AN ABOVE GROUND EXTERNAL HOT BOX ENCLOSURE SIZED AS REQUIRED TO ACCOMMODATE ALL EQUIPMENT AND APPROVED BY KWVA. THE METER SHALL HAVE E-CODER RADIO READ REGISTER CONTAINING LARA CHIP.
  - THE HYDRANT BRANCH SHALL BE 6" CL 52 DUCTILE IRON. SEE DETAIL SHEET C8. THE PROPOSED HYDRANT LOCATION SHALL BE APPROVED BY KWVA AND THE WARWICK FIRE DEPARTMENT.
  - TAPPING SLEEVES SHALL BE LOCATED AT LEAST 3 FEET FROM ANY PIPE JOINT IN THE 8" MAIN. A TEST PIT SHALL BE DUG AND THE TAP LOCATION ADJUSTED AS REQUIRED AND APPROVED BY KWVA.
  - WATER DISTRIBUTION LINES SHALL BE 4" CL 52 DUCTILE IRON. ALL SEWER WATER CROSSINGS SHALL HAVE THE SEWER SLEEVED. SEE DETAIL SHEET C8. PROVIDE BLOWOFF ASSEMBLIES AT THE END OF 4" LINES.
  - ALL FITTINGS SHALL BE SECURED WITH MEGALUG TYPE MECHANICAL JOINT RESTRAINTS. THRUST BLOCKS MAY BE USED IF APPROVED BY KWVA. SEE LENGTH TABLE AND DETAILS ON SHEET C8.
  - EACH UNIT SHALL HAVE A 3/4" TYPE 'K' COPPER OR POLYETHYLENE INDIVIDUAL WATER SERVICE WITH CURB STOP AND BOX.
  - WATER LINES SHALL BE INSTALLED ABOVE SEWER LINES WITH AN 18" MINIMUM VERTICAL SEPARATION. SEWERS SHALL BE SLEEVED IF THERE IS LESS THAN 18" SEPARATION. A HORIZONTAL SEPARATION OF 10' SHALL BE MAINTAINED BETWEEN WATER LINES AND OTHER UTILITIES.
  - THE KENT COUNTY WATER AUTHORITY RULES AND REGULATIONS SHALL BE KEPT ON SITE DURING THE CONSTRUCTION OPERATION. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE RULES, REGULATIONS & DETAILS.
  - THE CONTRACTOR IS RESPONSIBLE TO PROPERLY SIZE THE MAIN AND BLOW OFFS AND TO FULFILL THE AWWA REQUIREMENTS FOR FLUSHING AND DISINFECTION.
  - WATER AS-BUILT DRAWINGS SHALL BE PROVIDED AND CONFORM TO THE REQUIREMENTS OF APPENDIX B OF THE KWVA REGULATIONS.
  - THE 3 EXISTING WATER SERVICES TO EXISTING HOUSES SHALL BE CUT & PLUGGED AT THE WATER MAIN.

#### SEWER/WATER CROSSING ELVs.

LABEL	FIN. GR.	SEWER EL.	WATER EL.	SEPARATION
A	56.0	49.8	50.9	1.1'
B	56.0	50.0	50.9	0.9'
C	56.0	50.5	50.9	0.4'

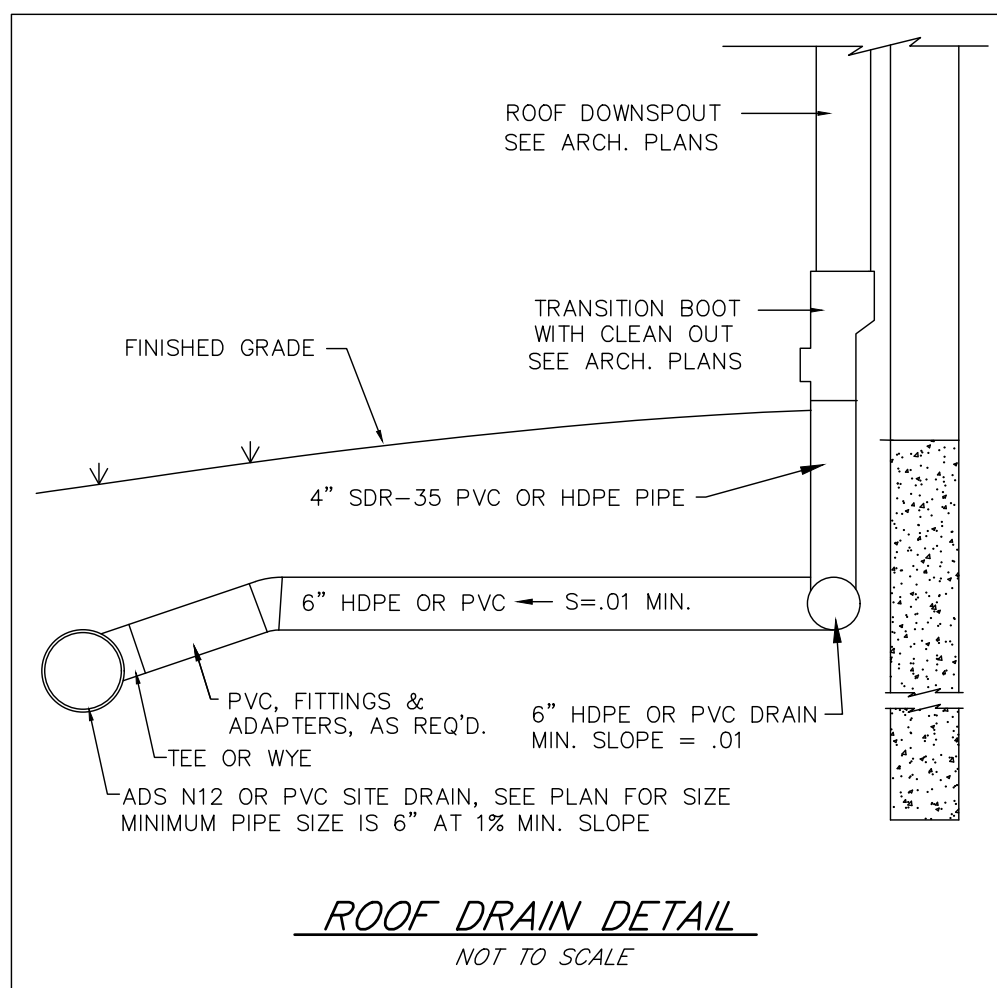
NOTES: SEWER EL. IS TOP OF PIPE  
WATER EL. IS BOTTOM OF PIPE  
COVER OVER WATER IS 5.0'  
SEWER SLEEVES REQUIRED AT ALL  
WATER CROSSINGS, SEE DETAIL SHEET C8

#### SEWER MANHOLE DATA

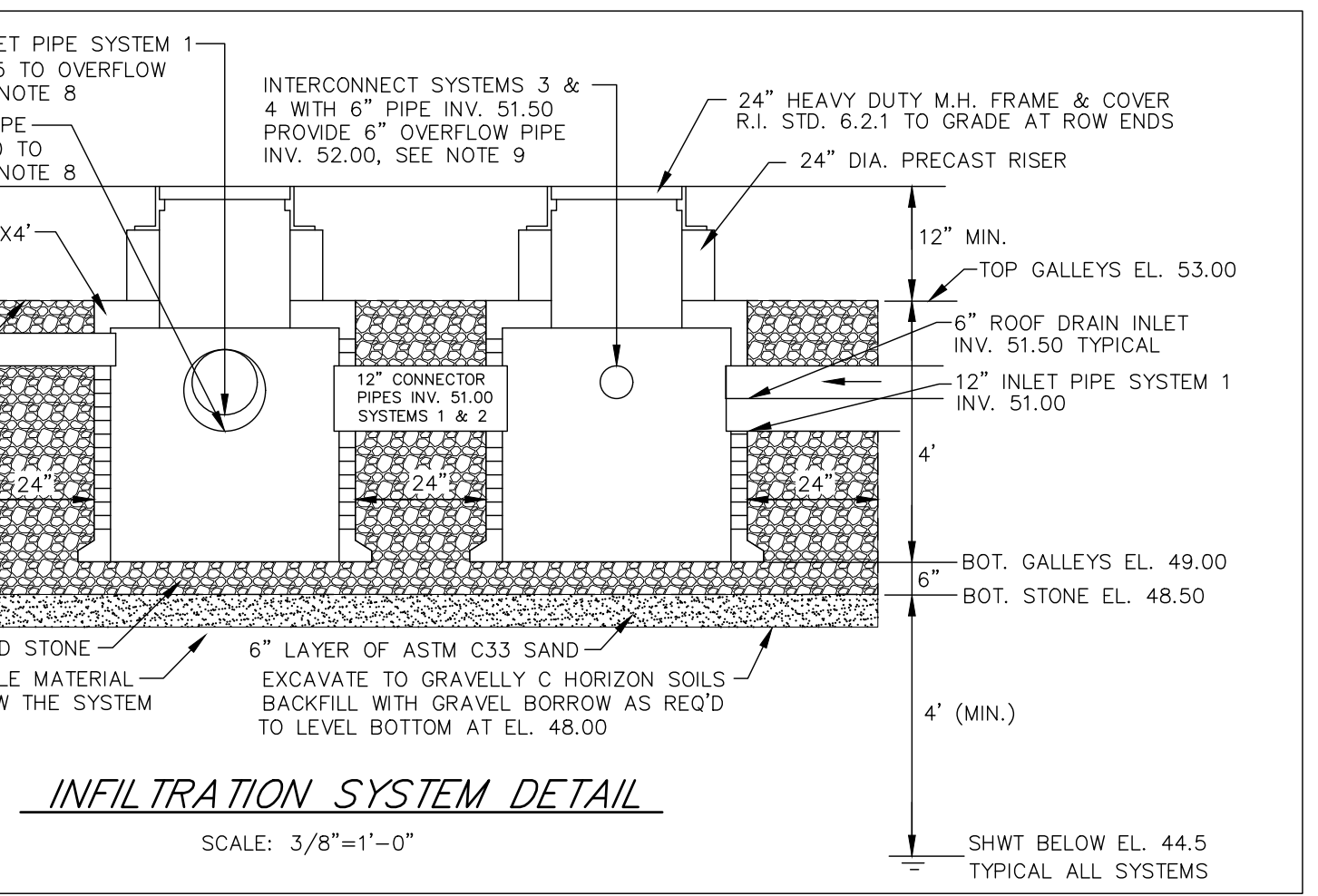
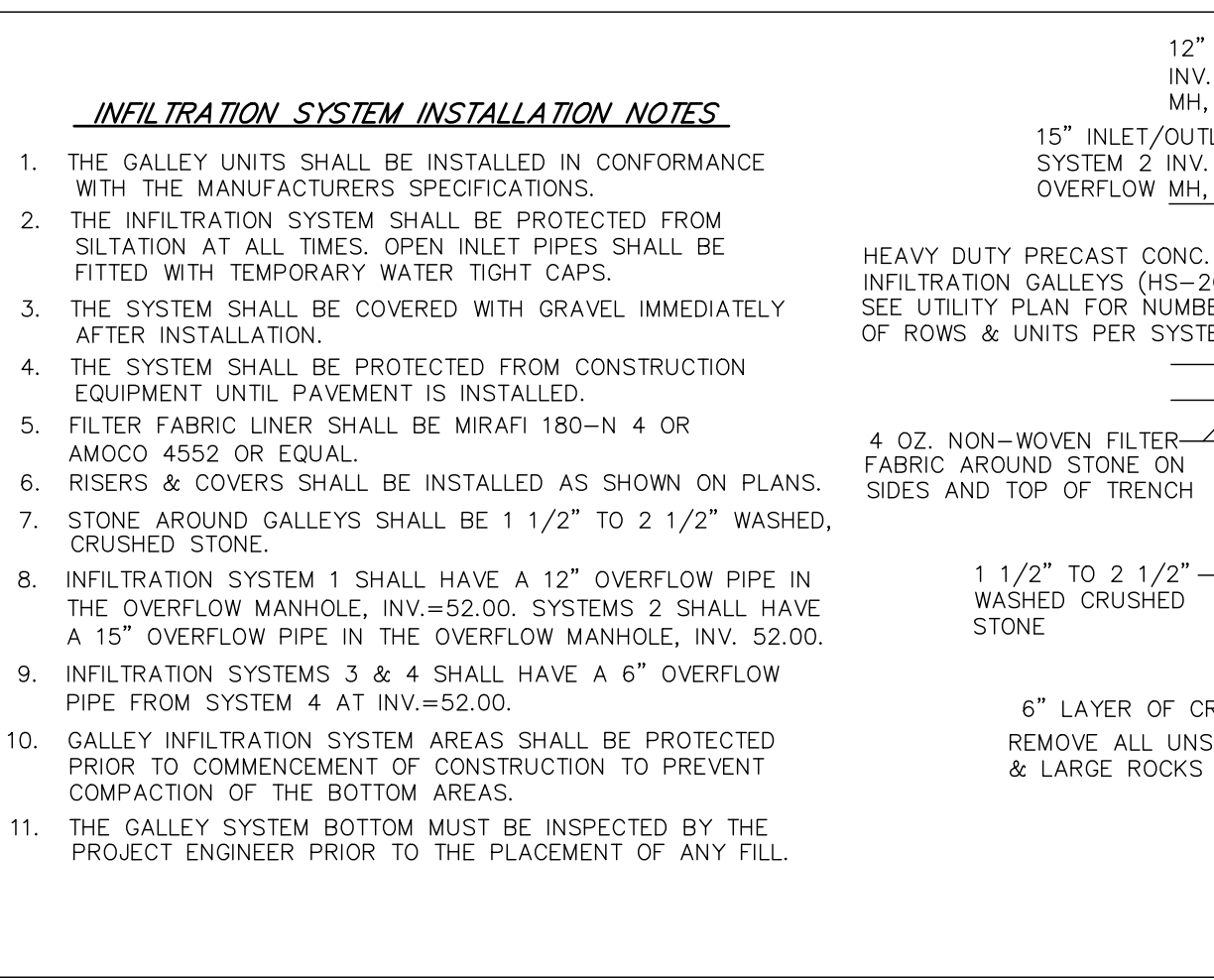
MH #	RIM	INV. IN	INV. OUT
EXIST.	56.10	8" 48.10	8" 48.00
1	56.50	8" 48.40	8" 48.30
		6" 48.20	
2	56.00	8" 49.20	8" 49.10
3	56.20	8" 49.60	8" 49.50
4	56.00	6" 49.70	8" 49.50

**CENTERVILLE ROAD**  
(ROUTE 117) (WIDTH VARIES)  
REFERENCE STATE HIGHWAY PLATS 1047 AND 1427

REVISION 6-8-22 REVISE BUILDING 5, TURNAROUND & GALLEY SYSTEM 4 3-13-23 KWA SUBMISSION 4-10-23 LANDSCAPE BERMS 7-10-23 ROOT COMMENTS, SHL NOTED	DATE 6-8-22 3-13-23 4-10-23 7-10-23	PREPARED FOR: <b>S.F.M. ENGINEERING ASSOCIATES</b> 410 TOGUE AVENUE COVENTRY, RI 02816 PHONE: 401-826-3736 FAX: 401-826-1711 SCOTT.SFM@ATLANTICBB.NET	PROJECT: <b>281 CENTERVILLE PLACE</b> <b>RESIDENTIAL CONDOMINIUMS</b> 255, 265 & 281 CENTERVILLE ROAD A.P. 246 LOTS 240, 243, 260 & 261 WARWICK, RHODE ISLAND	DRAWING: <b>DRAINAGE &amp; UTILITY PLAN</b> SHEET 4 OF 9 PRELIMINARY CITY SUBMISSION
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**ROOF DRAIN DETAIL**  
NOT TO SCALE



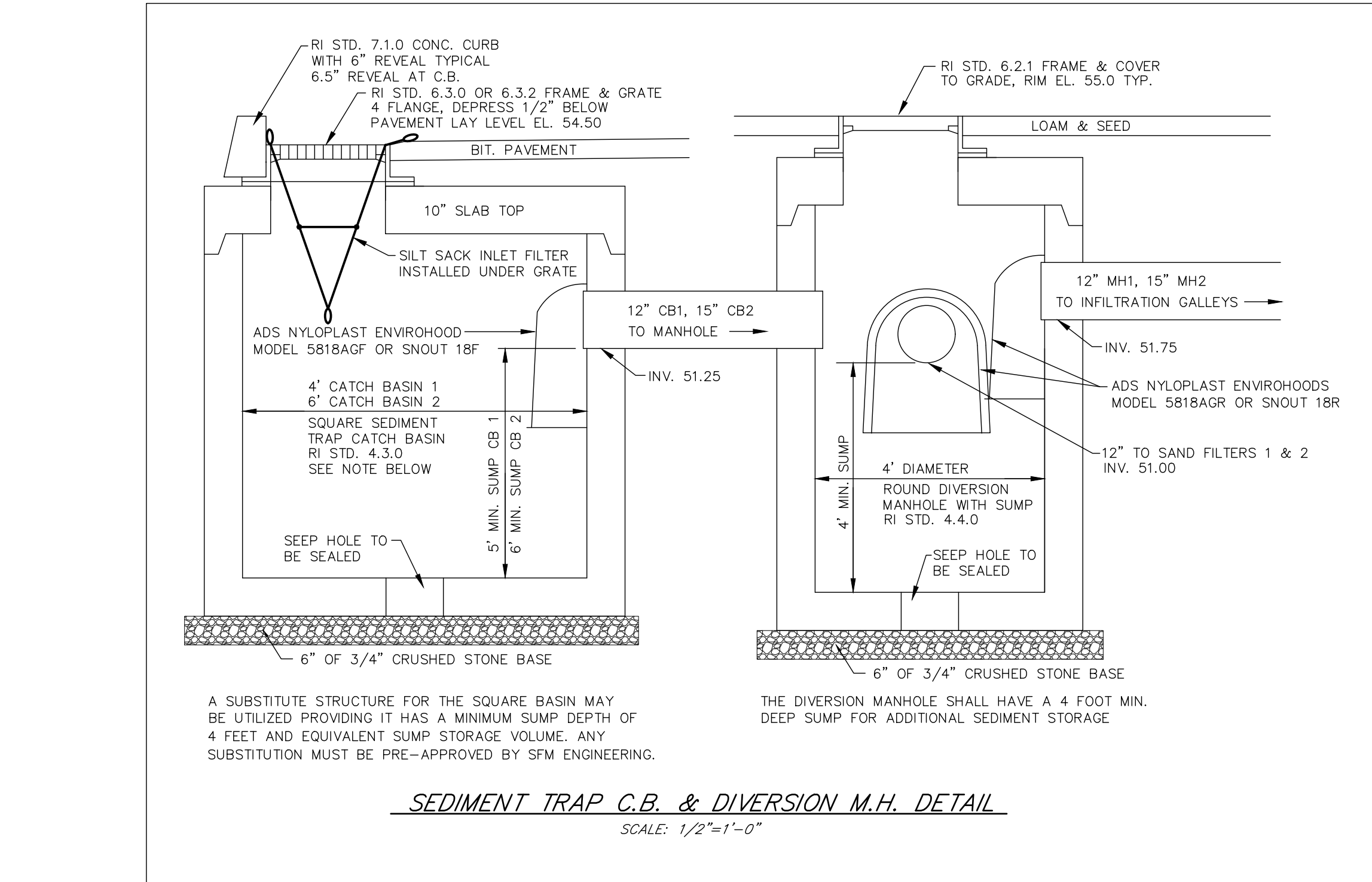
**INFILTRATION SYSTEM DETAIL**  
SCALE: 3/8"=1'-0"

**STORMWATER CONSTRUCTION NOTES**

- INSIDE AND OUTSIDE SLOPES OF SAND FILTERS SHALL BE 3:1 OR FLATTER.
- SAND FILTER AREAS SHALL BE CONSTRUCTED AND STABILIZED PRIOR TO OTHER CONSTRUCTION. TEMPORARY DRAINAGE SHALL BE DIVERTED TO TEMPORARY SEDIMENT BASINS AS NEEDED. SEE DETAIL SHEET C7.
- UNDESIRABLE SOIL SHALL BE STRIPPED FROM THE SAND FILTER & GALLEY AREAS. THE BOTTOM AREA & 1 FOOT AROUND SHALL BE EXCAVATED TO THE GRAVELLY SUBSTRATE SOILS AT LEAST 6" BELOW THE DESIGN BOTTOM GRADE. SCREENED GRAVEL SHALL BE PLACED AS REQUIRED TO BRING THE SUBGRADE TO DESIGN ELEVATIONS.
- SAND FILTER & GALLEY SUBGRADE MUST BE INSPECTED AND APPROVED BY SFM ENGINEERING ASSOC. PRIOR TO THE PLACEMENT OF MATERIALS.
- LOAMY SAND AND ASTM C-33 SAND SHALL BE LAB TESTED PRIOR TO INSTALLATION. LAB TEST RESULTS SHALL BE SUBMITTED TO SFM ENGINEERING FOR APPROVAL PRIOR TO PLACEMENT.
- SEDED SLOPES SHALL BE PROTECTED WITH EITHER SPREAD STRAW MULCH, ADHESIVE MULCH STABILIZER OR BIO-DEGRADABLE EROSION CONTROL BLANKET.
- ONLY LIGHT EARTH MOVING EQUIPMENT ON TRACKS SHALL BE USED TO INSURE THAT THE BOTTOM AREAS ARE NOT OVERLY COMPACTED.
- THE CONTRACTOR SHALL MAINTAIN ADEQUATE EROSION AND SEDIMENT CONTROLS AT ALL TIMES TO INSURE NO SILTS ARE DEPOSITED IN THE SAND FILTERS OR INFILTRATION GALLEY SYSTEMS. CATCH BASIN EROSION CONTROLS, SILT SACKS AND SAND FILTER INLET EROSION CONTROLS SHALL BE MAINTAINED UNTIL THE SITE IS PERMANENTLY STABILIZED.
- INLETS TO CATCH BASINS AND SAND FILTERS SHALL BE PROTECTED WITH SILT SOCK OR STRAW BALE EROSION CHECKS.
- ACCUMULATED SILTS AND SEDIMENTS SHALL BE REMOVED IMMEDIATELY FROM SAND FILTERS AND GALLEYS AS REQUIRED DURING SITE CONSTRUCTION, AFTER RAIN EVENTS AND IMMEDIATELY PRIOR TO LOAMING AND SEEDING.
- SAND FILTERS & GALLEYS SHALL BE CONSTRUCTION STAKED BY THE PROJECT SURVEYOR TO INSURE ACCURATE LOCATION AND ELEVATION. THE PROJECT SURVEYOR SHALL AS-BUILT SURVEY THE SAND FILTERS PRIOR TO SEEDING AND PROVIDE A REPORT TO SFM ENGINEERING. ANY DISCREPANCIES SHALL BE CORRECTED PRIOR TO SEEDING.

**STORMWATER SYSTEM MAINTENANCE PLAN**

- THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE STORMWATER SYSTEM PROTECTION, INSPECTION AND MAINTENANCE PRIOR TO, DURING AND POST CONSTRUCTION UNTIL FINAL ACCEPTANCE OF CONSTRUCTION.
- SAND FILTER AREAS AND INFILTRATION GALLEY AREAS SHALL BE PROTECTED PRIOR TO COMMENCEMENT OF CONSTRUCTION TO PREVENT COMPACTING OF THE BOTTOM AREAS.
- CATCH BASINS SHALL BE CLEANED & MAINTAINED AS NEEDED BY THE SITE CONTRACTOR DURING SITE CONSTRUCTION AND ANNUALLY BY THE OWNER AFTER ACCEPTANCE. (ACCUMULATED SILT, SAND, DEBRIS & OIL SHALL BE REMOVED AND DISPOSED OF AT A LICENSED WASTE FACILITY.)
- ALL PAVED AREAS SHALL BE SWEEP AS NEEDED. ACCUMULATED SILT, SAND & DEBRIS SHALL BE REMOVED AND DISPOSED.
- THE SAND FILTER AREAS SHALL BE MAINTAINED ACCORDING TO THE FOLLOWING SCHEDULE:
  - THE SAND FILTER BOTTOMS & BERMS SHALL BE INSPECTED AT LEAST TWICE PER YEAR.
  - SOIL EROSION GULLIES SHALL BE REPAIRED WHEN THEY OCCUR.
  - THE GRASS IN THE SAND FILTERS AND THE BERMS SHALL BE MOWED AT LEAST THREE (3) TIMES BETWEEN THE MONTHS OF MAY AND OCTOBER. MOWED HEIGHT OF VEGETATION SHALL NOT BE LESS THAN TWO INCHES. THE MAXIMUM HEIGHT OF VEGETATION SHALL BE 12" INCHES.
  - DEBRIS AND GRASS CLIPPINGS SHALL BE REMOVED FROM THE SAND FILTER BOTTOMS AND SLOPES. FERTILIZER SHALL NOT BE APPLIED TO THE SAND FILTERS OR INSIDE SLOPES EXCEPT STARTER FERTILIZER FOR RESEEDING.
  - SILT AND DEBRIS SHALL BE REMOVED WHEN THE ACCUMULATION EXCEEDS ONE INCH.
- SHOULD THE INFILTRATION CAPACITY OF ANY SAND FILTER AREA DECREASE OVER TIME SUCH THAT STANDING WATER REMAINS FOR MORE THAN 72 HOURS AFTER A RAINFALL EVENT, REMEDIATION SHALL BE REQUIRED. REMEDIATION SHALL INCLUDE AT A MINIMUM, SEDIMENT REMOVAL, HARROWING AND RESEEDING OF THE FILTER BOTTOM. AFTER REMEDIATION A QUALIFIED TESTING LABORATORY SHALL PERFORM INFILTRATION TESTS TO INSURE DESIGN INFILTRATION RATES ARE RESTORED.
- DURING CONSTRUCTION AND THE FIRST 6 MONTHS OF OPERATION, THE SAND FILTER AND THE INFILTRATION GALLEYS SHALL BE INSPECTED WITHIN 24 HOURS OF EACH RAINFALL EVENT THAT GENERATES .25 INCHES OF RAIN IN A 24 HOUR PERIOD. AFTER THE FIRST SIX MONTHS OF OPERATION, THE SAND FILTER AND BASIN SHALL BE INSPECTED AFTER ANY RAINFALL EVENT THAT GENERATES MORE THAN 2 INCHES OF RAIN IN A 24 HOUR PERIOD.
- ANY INADVERTENT OR DELIBERATE DISCHARGE OF WASTE OIL OR ANY OTHER POLLUTANT TO THE STORMWATER DISPOSAL SYSTEM REQUIRES IMMEDIATE NOTIFICATION OF RI DEM.
- ANY INCIDENT OF GROUNDWATER CONTAMINATION RESULTING FROM THE IMPROPER DISCHARGE OF CONTAMINANTS TO THE DISPOSAL SYSTEM SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE RIDEM WILL REQUIRE THE PROPERTY OWNER TO REMEDIATE ANY INCIDENTS THAT MAY ADVERSELY IMPACT GROUNDWATER QUALITY.
- UPON FINAL ACCEPTANCE OF CONSTRUCTION, THE OWNER OR HOMEOWNERS ASSOCIATION SHALL BE RESPONSIBLE FOR INSPECTION & MAINTENANCE OF THE PAVEMENT, DRAIN PIPES, OUTLET STRUCTURES, CATCH BASINS, MANHOLES, ROOF DRAINS, SAND FILTERS AND INFILTRATION GALLEY SYSTEMS WITHIN THE SITE.



**SEDIMENT TRAP C.B. & DIVERSION M.H. DETAIL**  
SCALE: 1/2"=1'-0"

**INFILTRATION SYSTEM WATER ELEVATIONS**

SYSTEM	Q1	WQ VOL.	Q10	Q100
1	48.61	48.52	49.47	51.88
2	48.50	48.50	49.11	51.88
3&4	49.23	48.59	50.16	52.07

**GROUND WATER & LEDGE DEPTH TABLE**

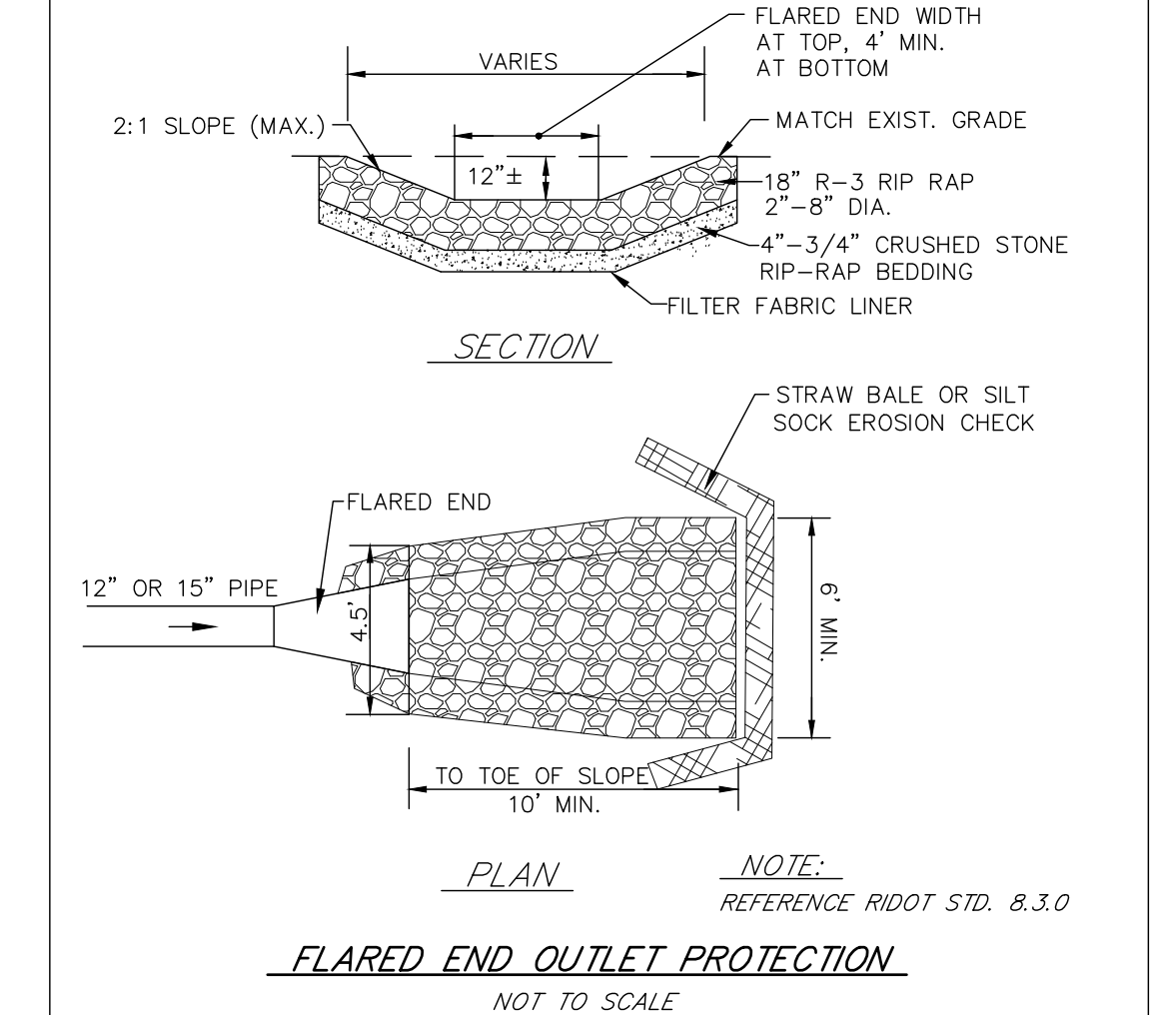
TEST PIT	SHWT DEPTH	EXIST. GROUND	SHWT ELEV.	LEDGE DEPTH
SE1	7.0'	51.2	44.2	10'
SE2	10.5'	55.0	44.5	11'
SE3	>14'	58.5	<44.5	14'
SE4	9.0'	52.2	43.2	10'
SE5	9.5'	52.7	43.2	10'
SE6	>11.0'	54.8	<43.8	11'
SE7	7.0'	50.0	43.0	9'
SE8	>10'	54.0	<44.0	10'

**SAND FILTER WATER ELEVATIONS**

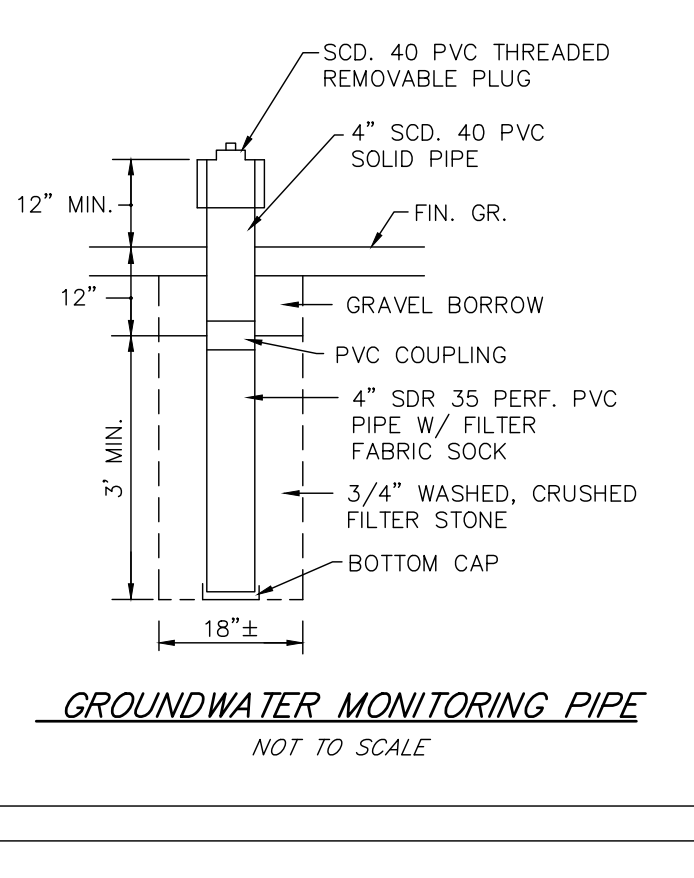
SYSTEM	Q1	WQ VOL.	Q10	Q100
1	51.30	48.49	52.04	52.30
2	51.15	48.37	52.14	52.53

**SAND FILTER AREAS**

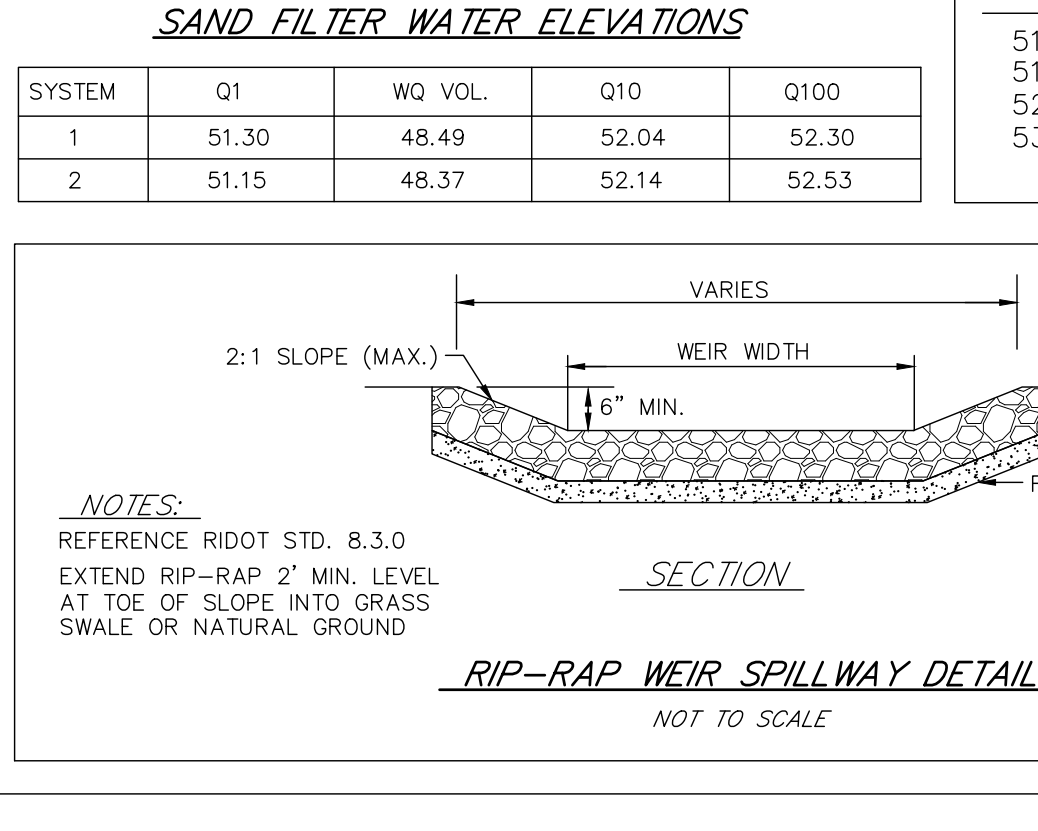
SAND FILTER 1	SAND FILTER 2
51.00	160 S.F.
51.75	300
52.50	490
53.00	610
51.00	336 S.F.
51.75	515
52.50	750
53.00	900



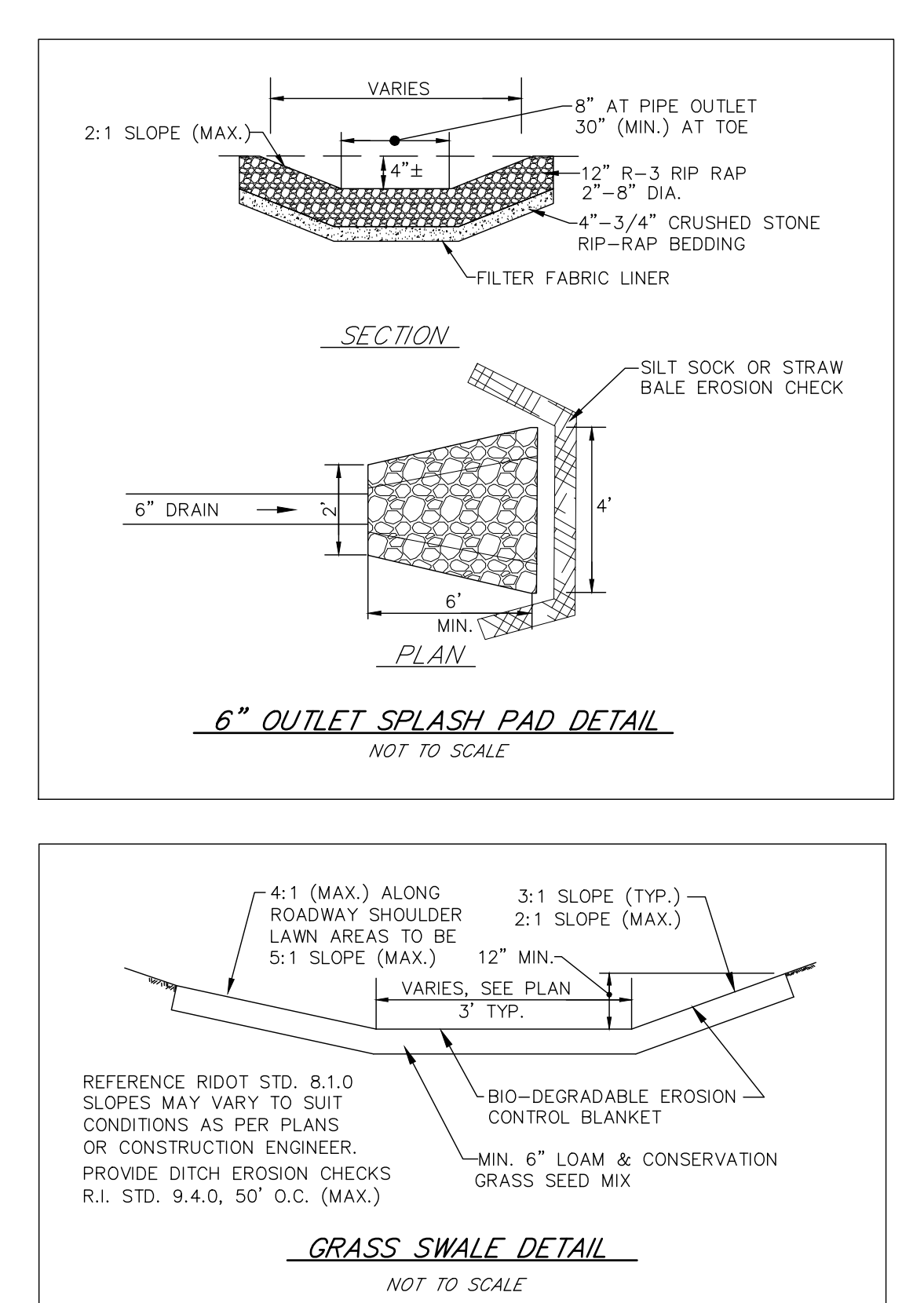
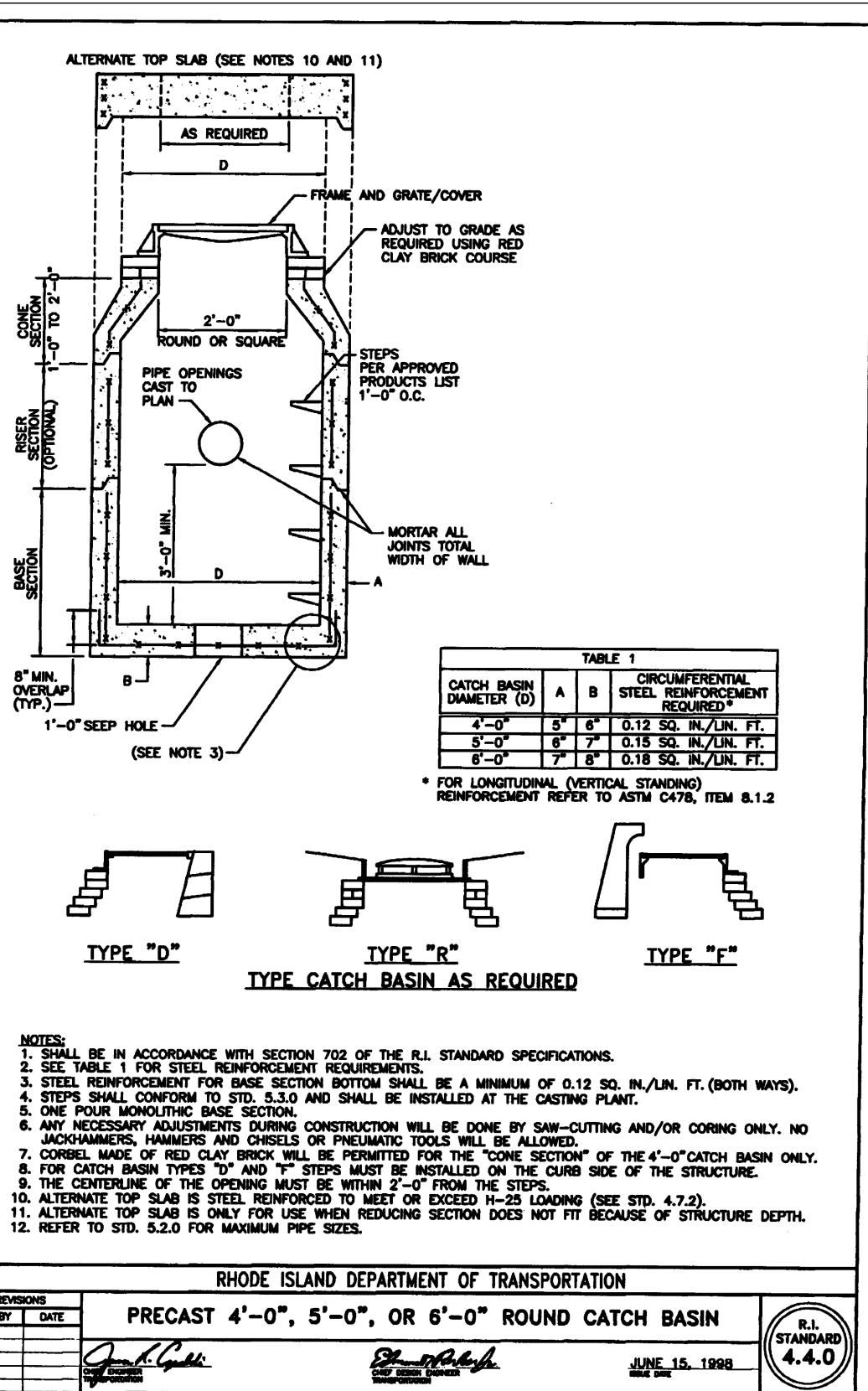
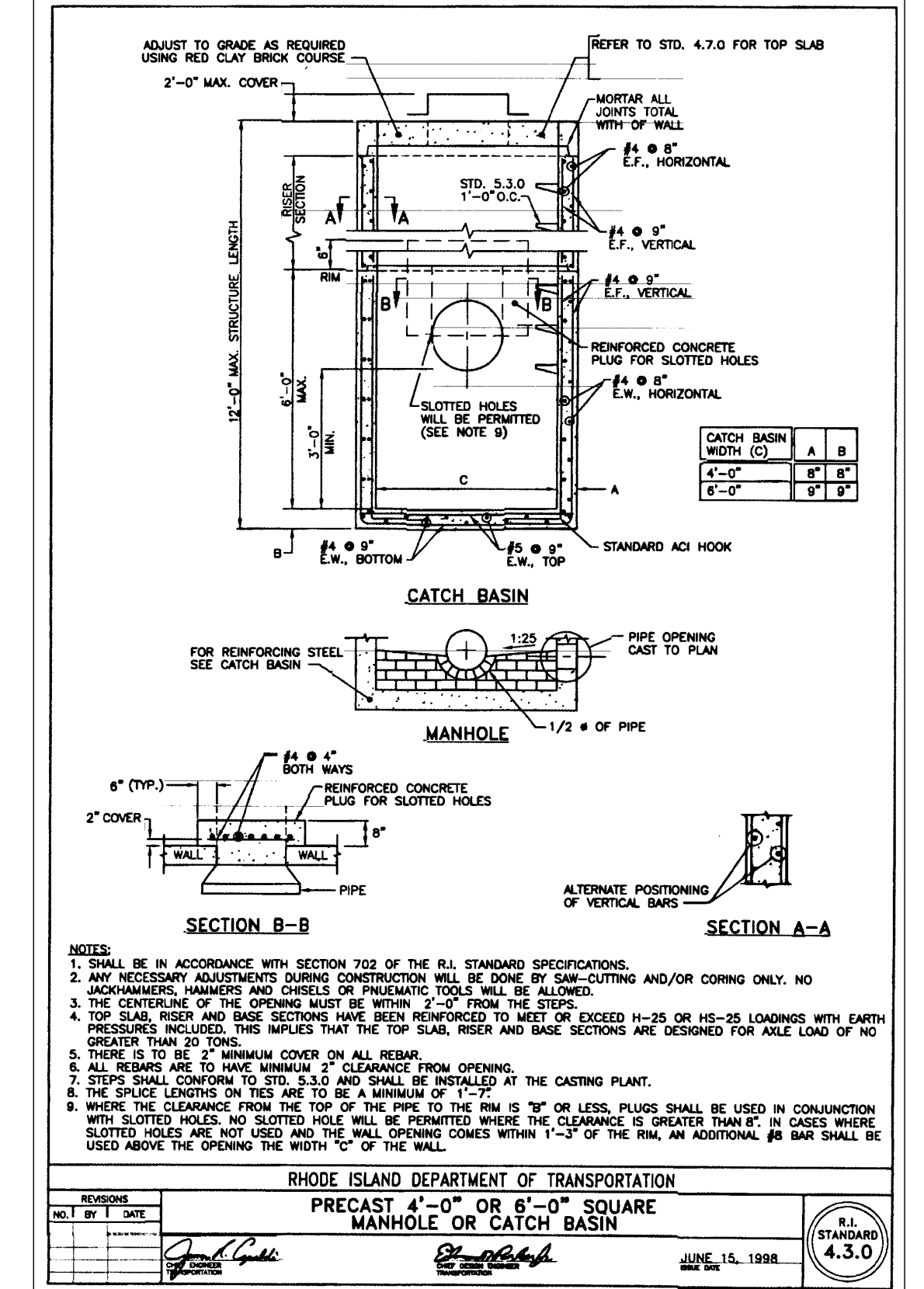
**FLARED END OUTLET PROTECTION**  
NOT TO SCALE



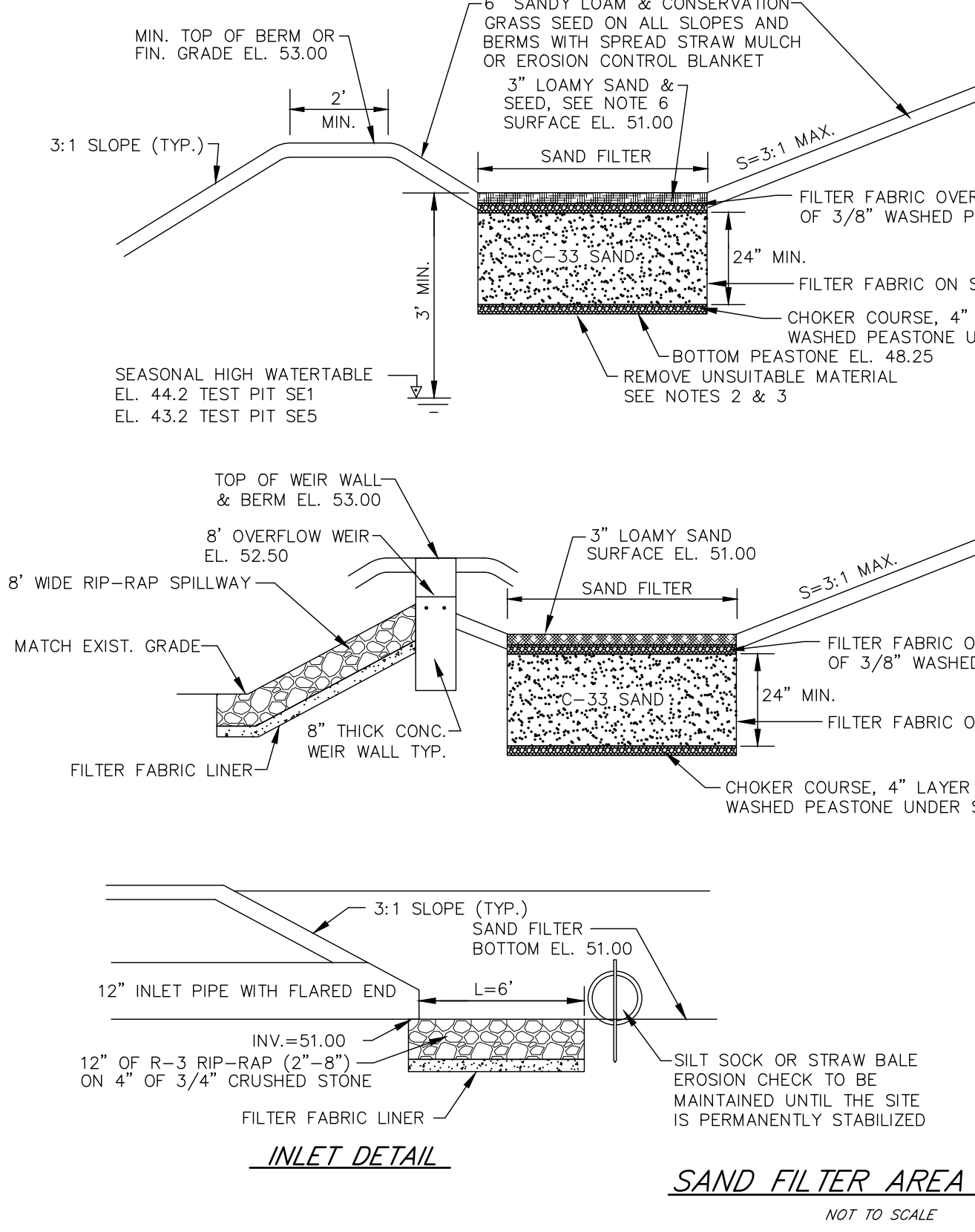
**GROUNDWATER MONITORING PIPE**  
NOT TO SCALE



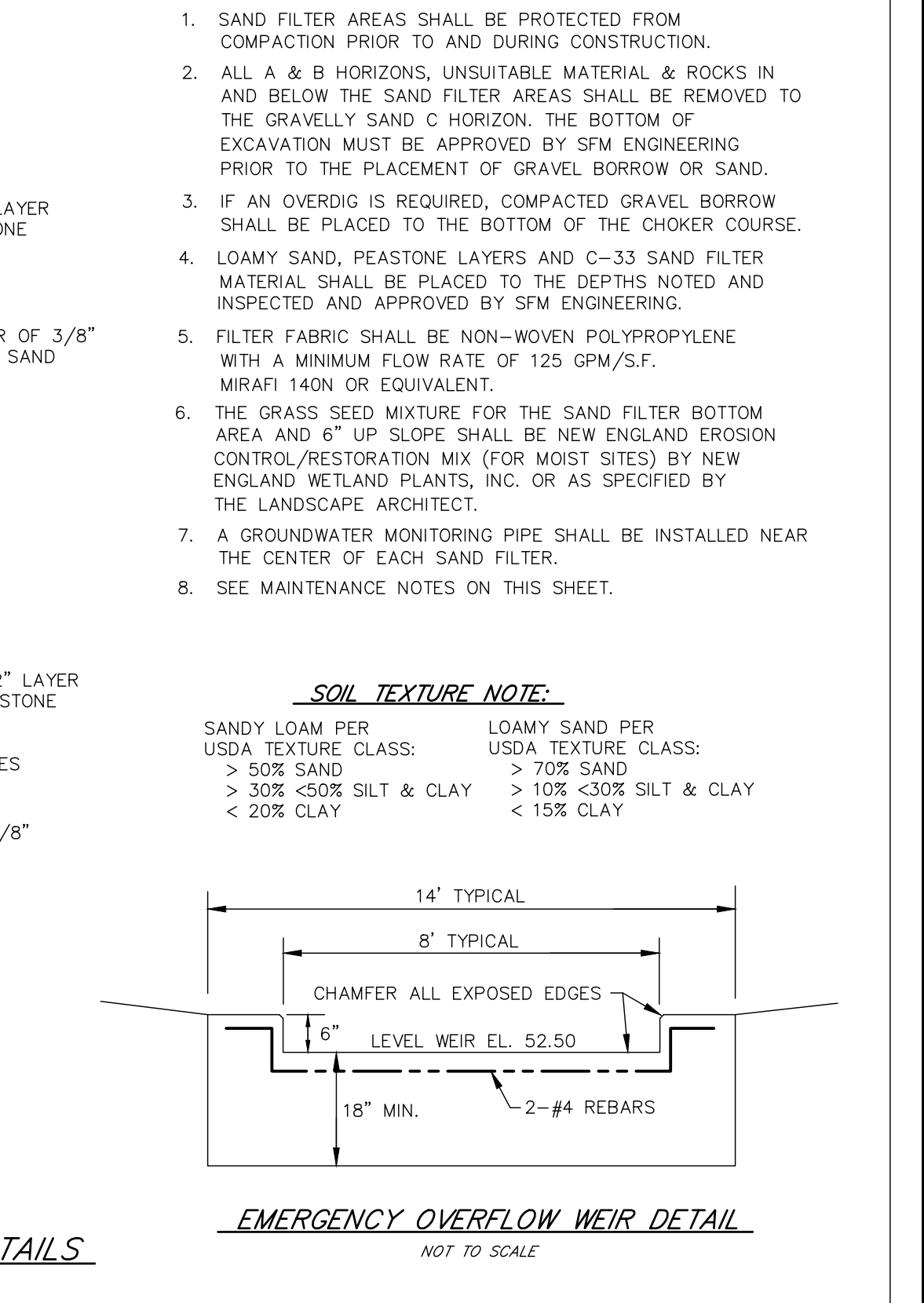
**RIP-RAP WEIR SPILLWAY DETAIL**  
NOT TO SCALE



**6" OUTLET SPLASH PAD DETAIL**  
NOT TO SCALE



**INLET DETAIL**  
NOT TO SCALE



**EMERGENCY OVERFLOW WEIR DETAIL**  
NOT TO SCALE

**SOIL TEXTURE NOTE:**

SANDY LOAM PER USDA TEXTURE CLASS:	LOAMY SAND PER USDA TEXTURE CLASS:
> 50% SAND	> 70% SAND
> 30% < 50% SILT & CLAY	> 10% < 30% SILT & CLAY
< 20% CLAY	< 15% CLAY

REVISION  
DATE  
6-8-22  
3-13-23  
7-10-23

REVISION  
REVISE BUILDING 5, TURNAROUND & DRAINAGE  
KRW SUBMISSION  
RIOT COMMENTS

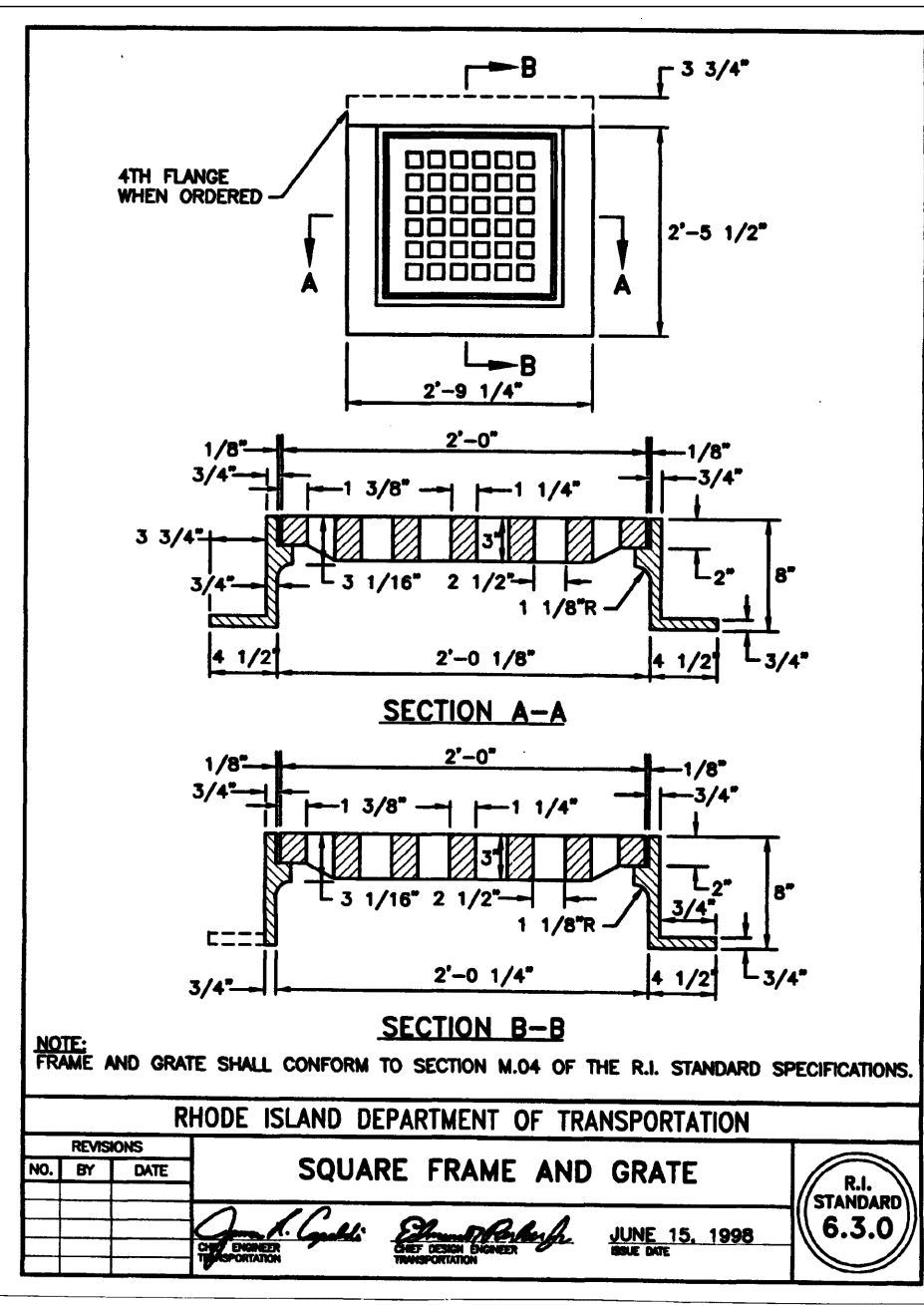
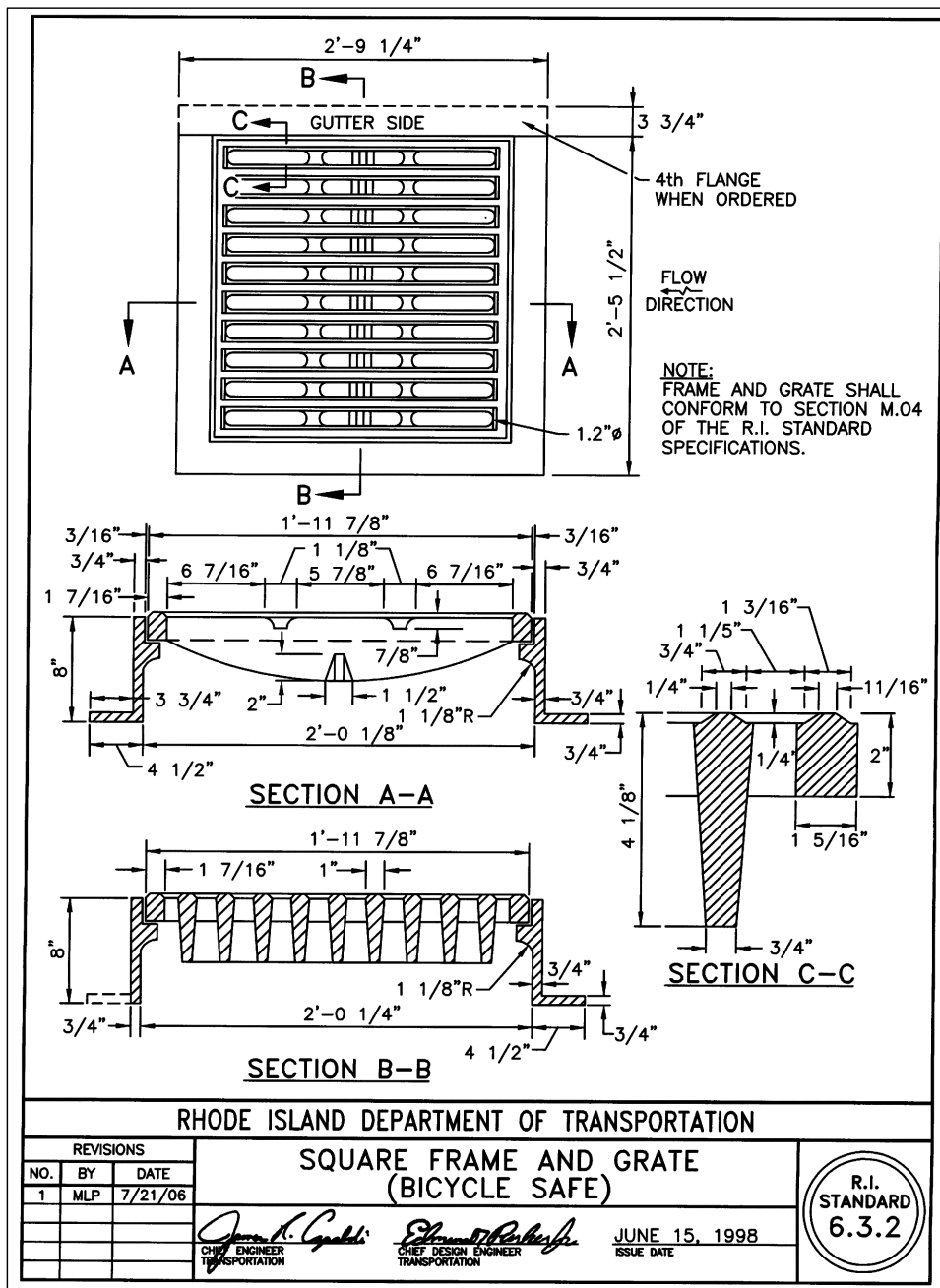
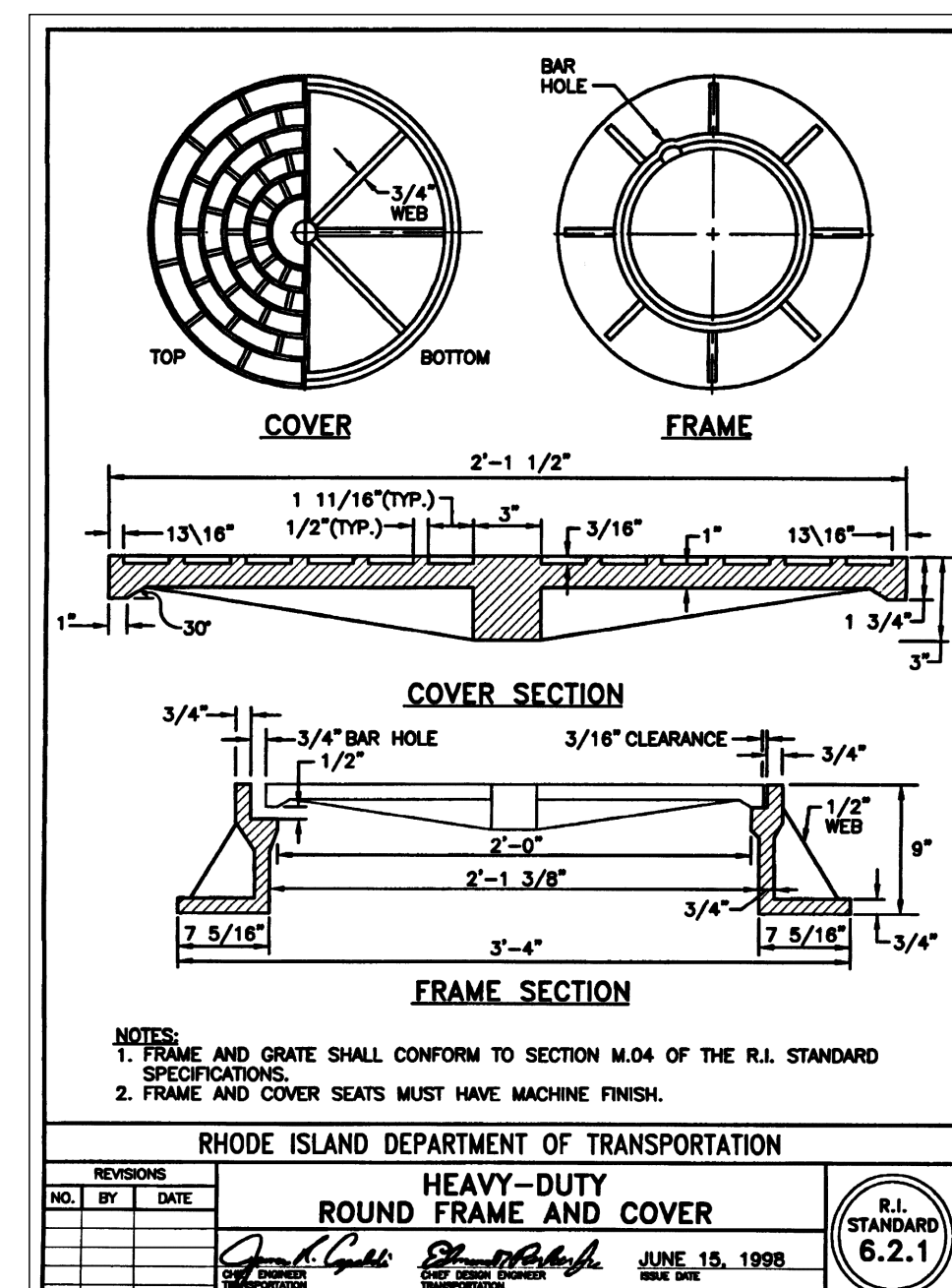
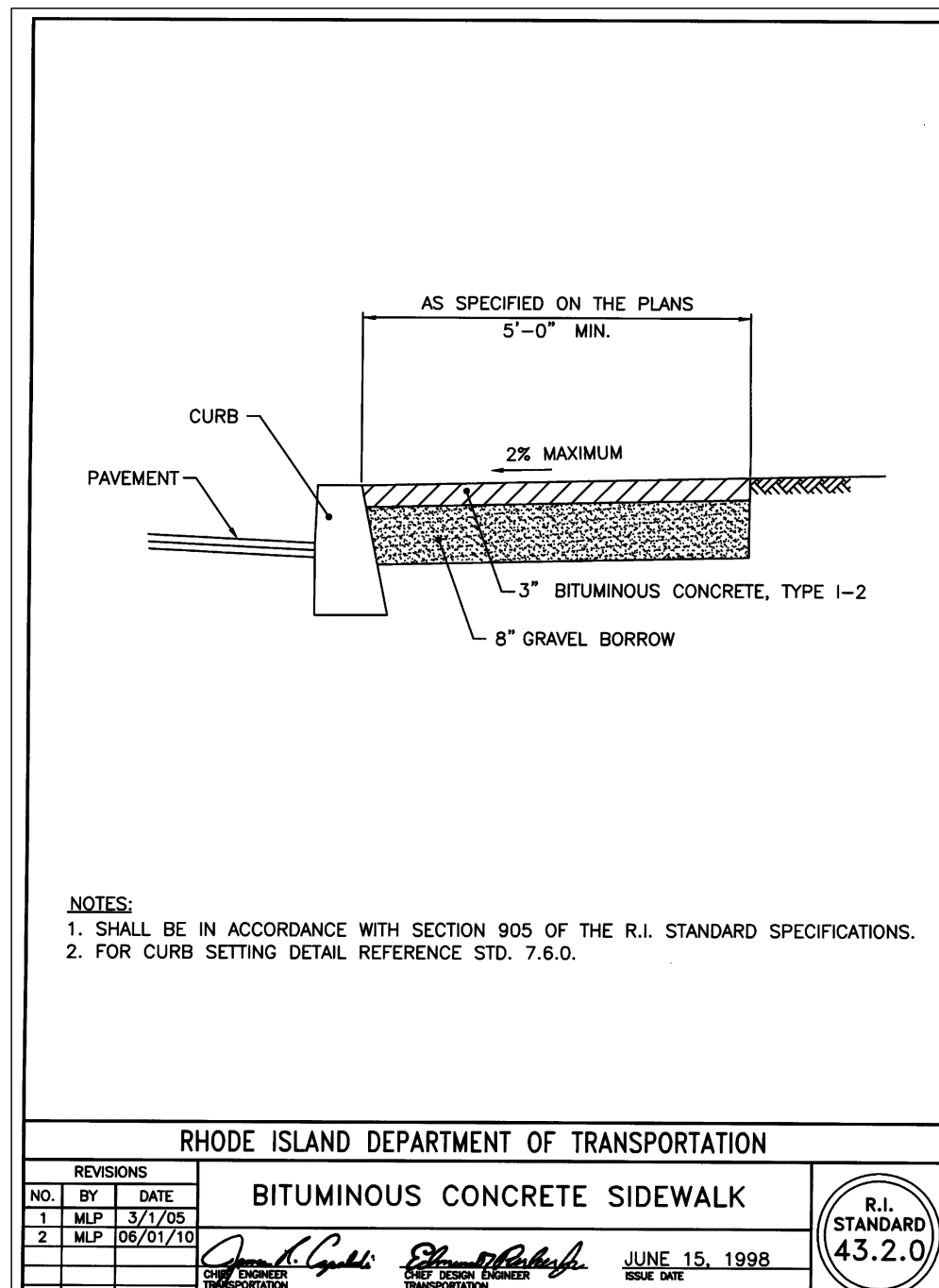
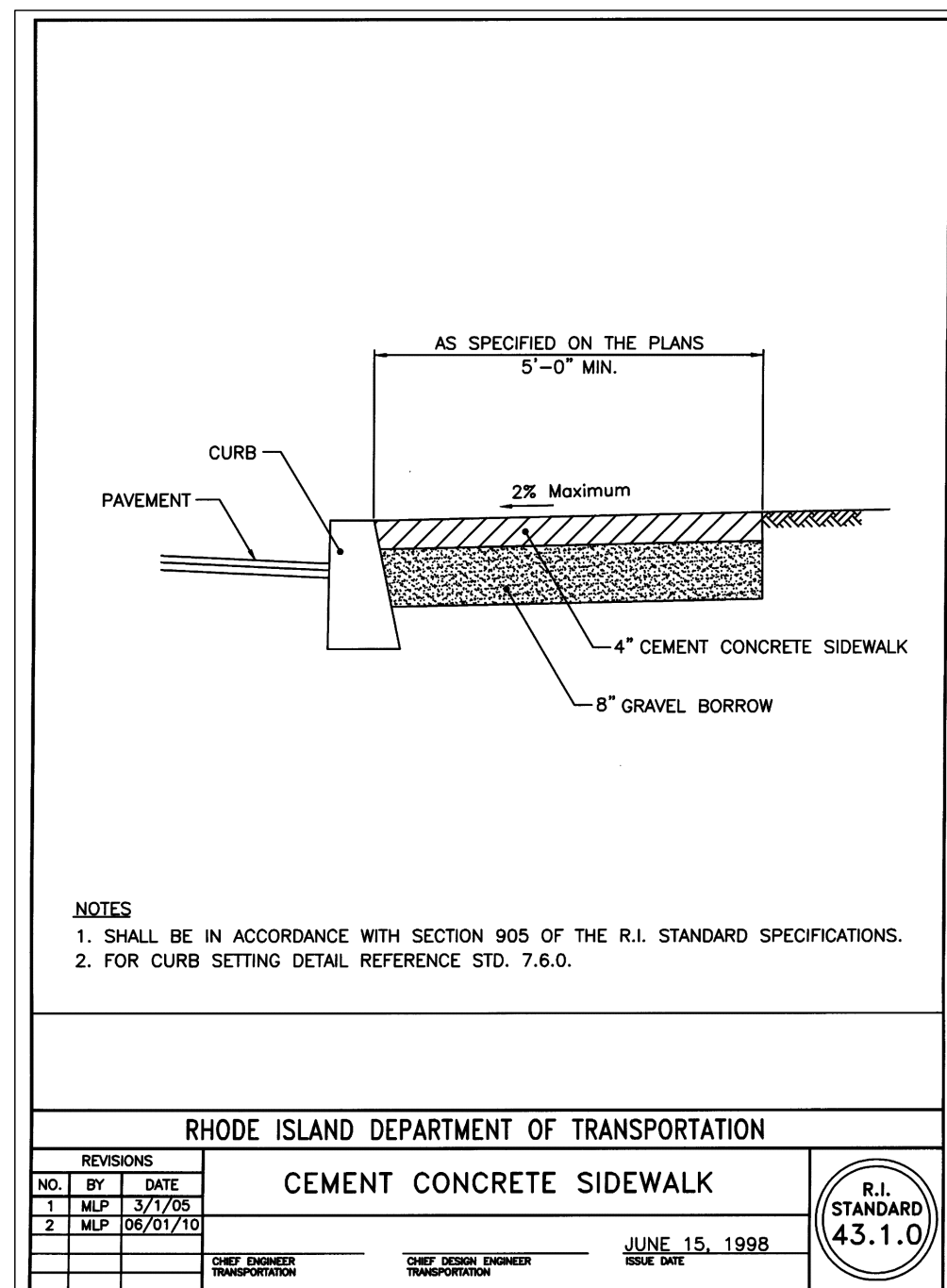
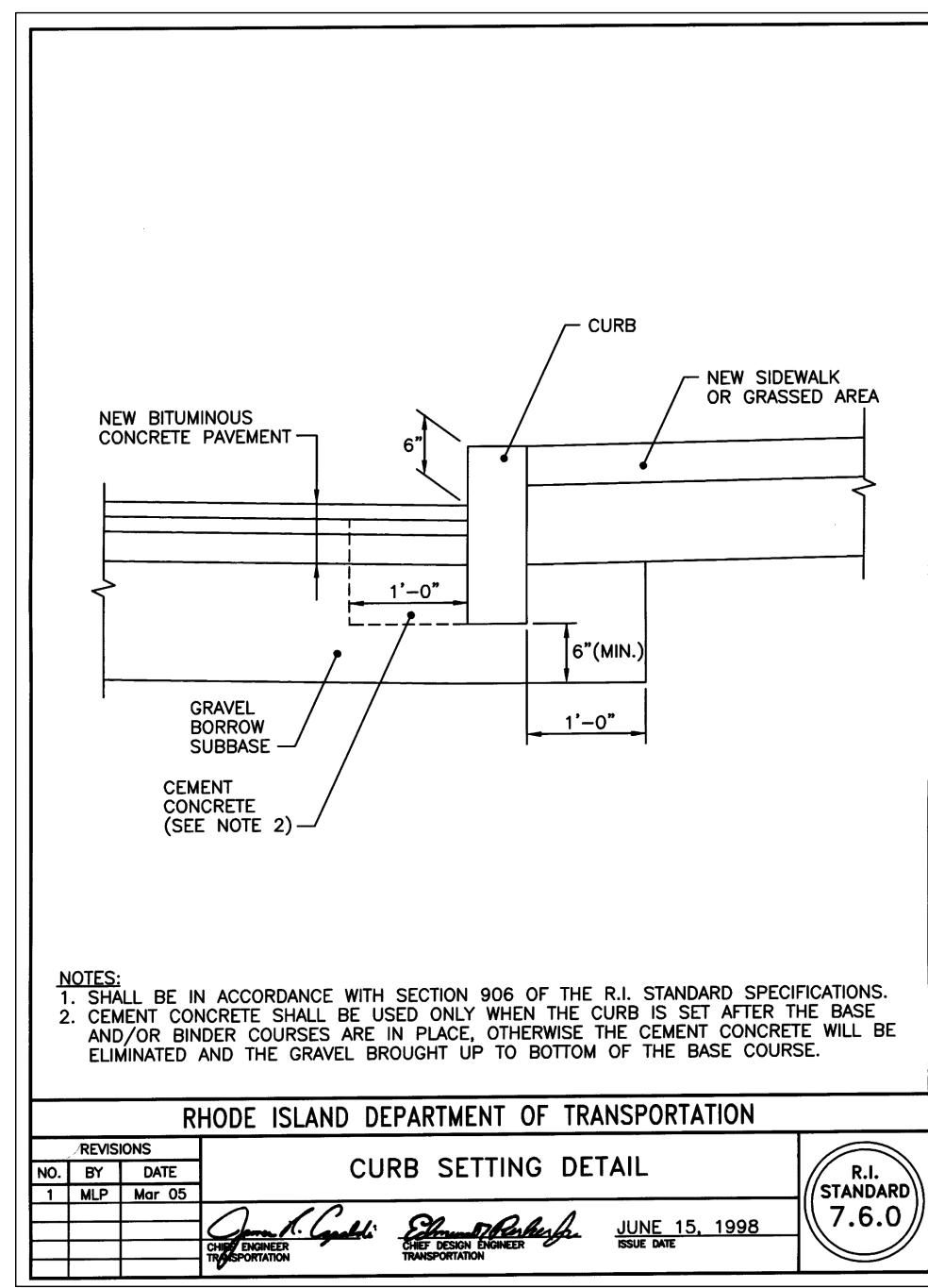
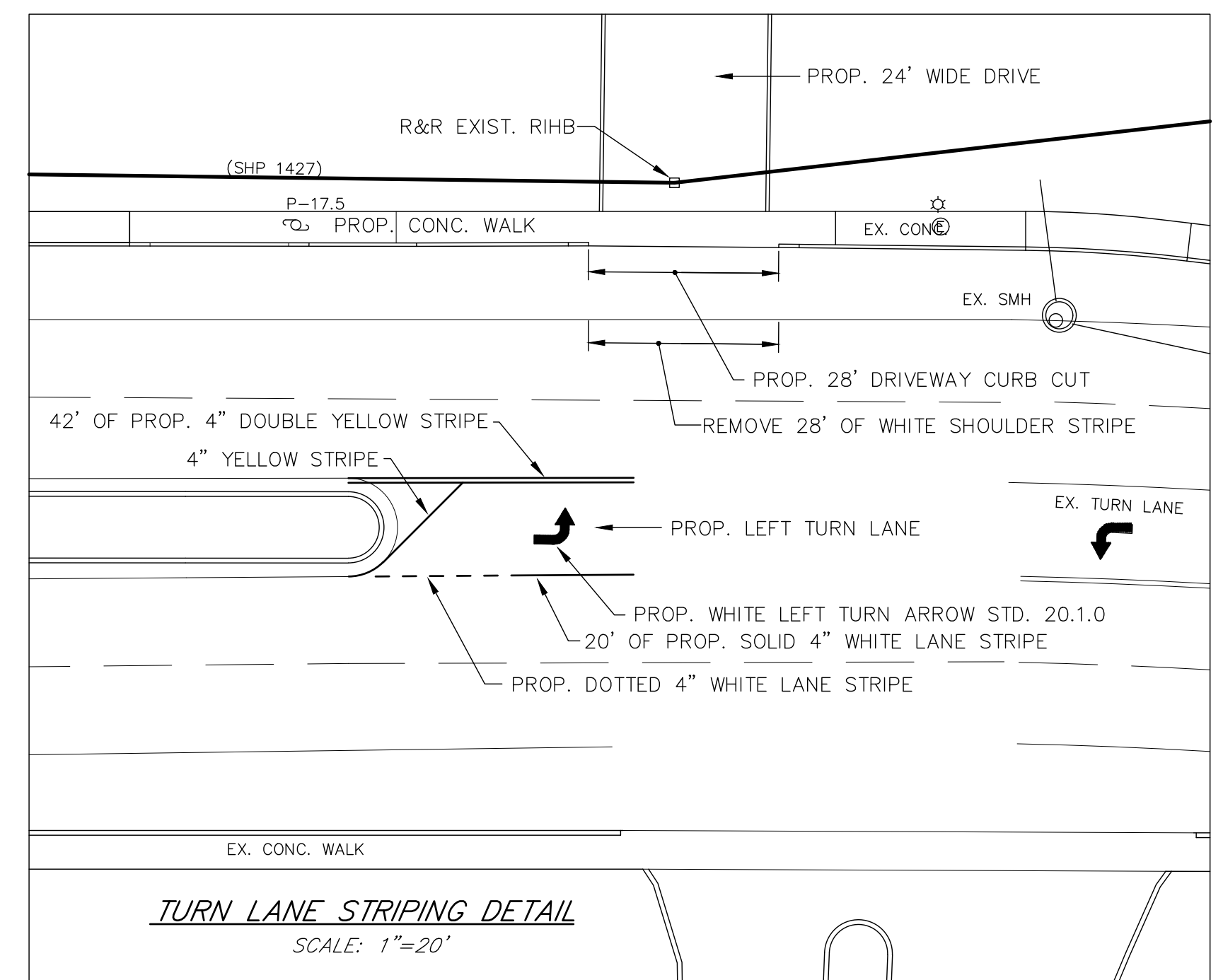
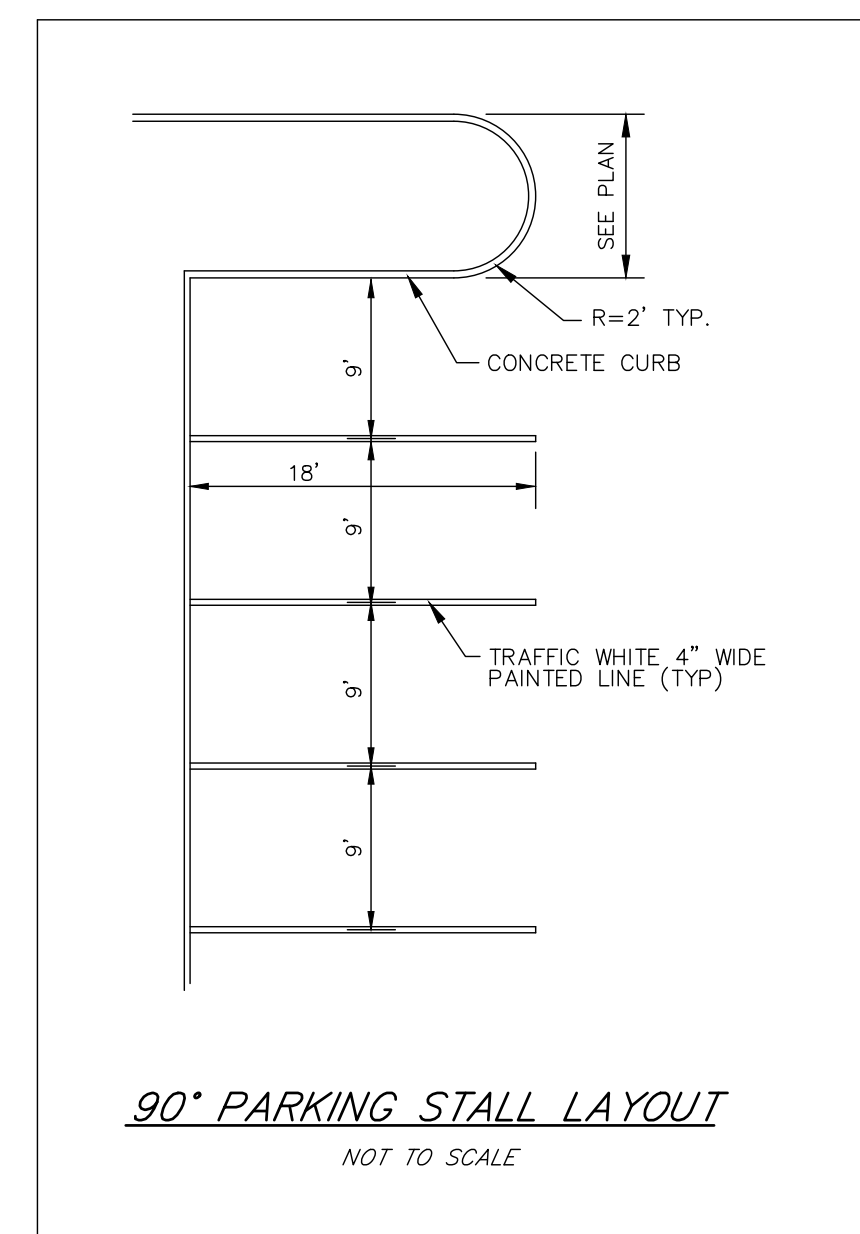
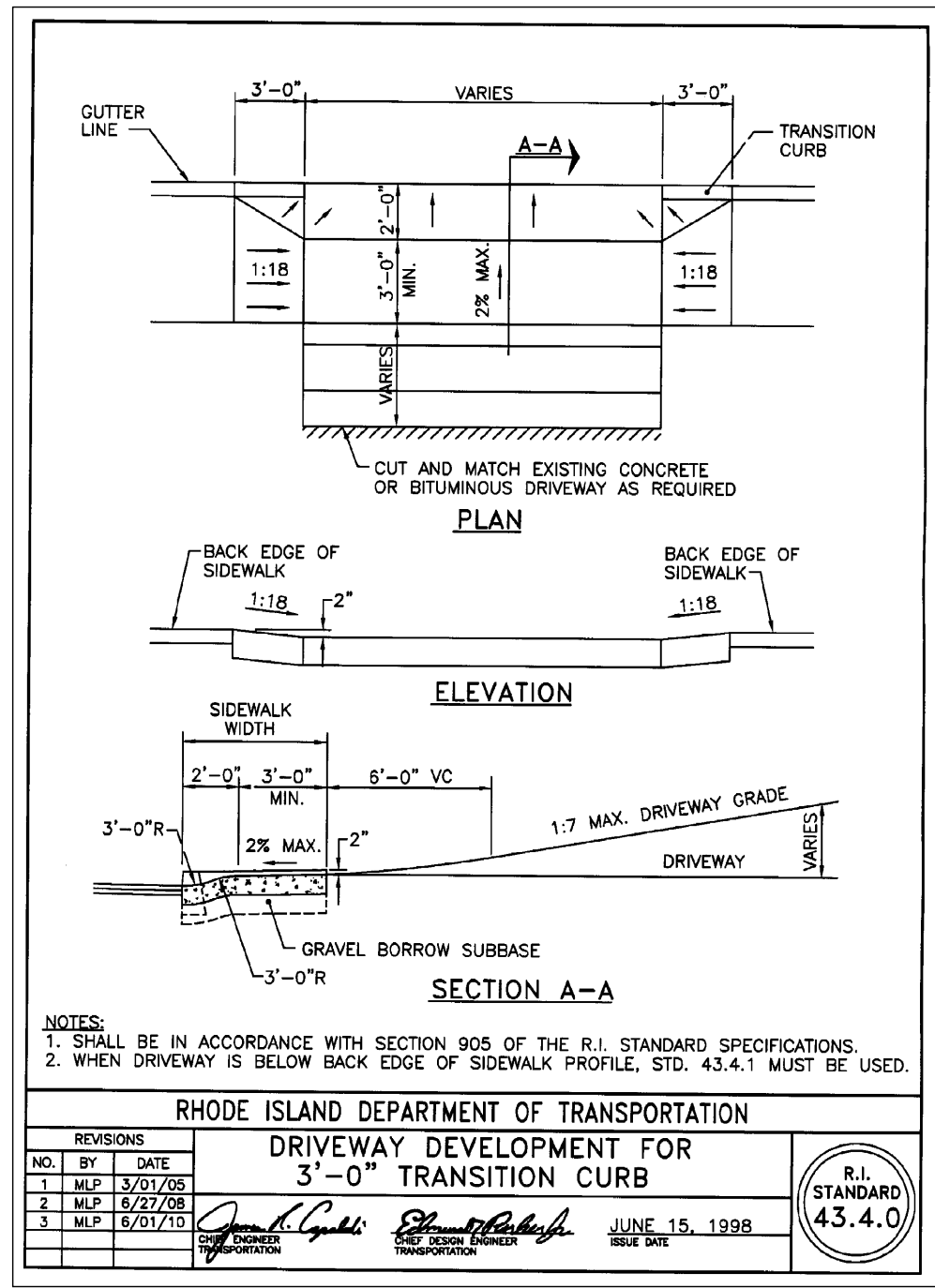
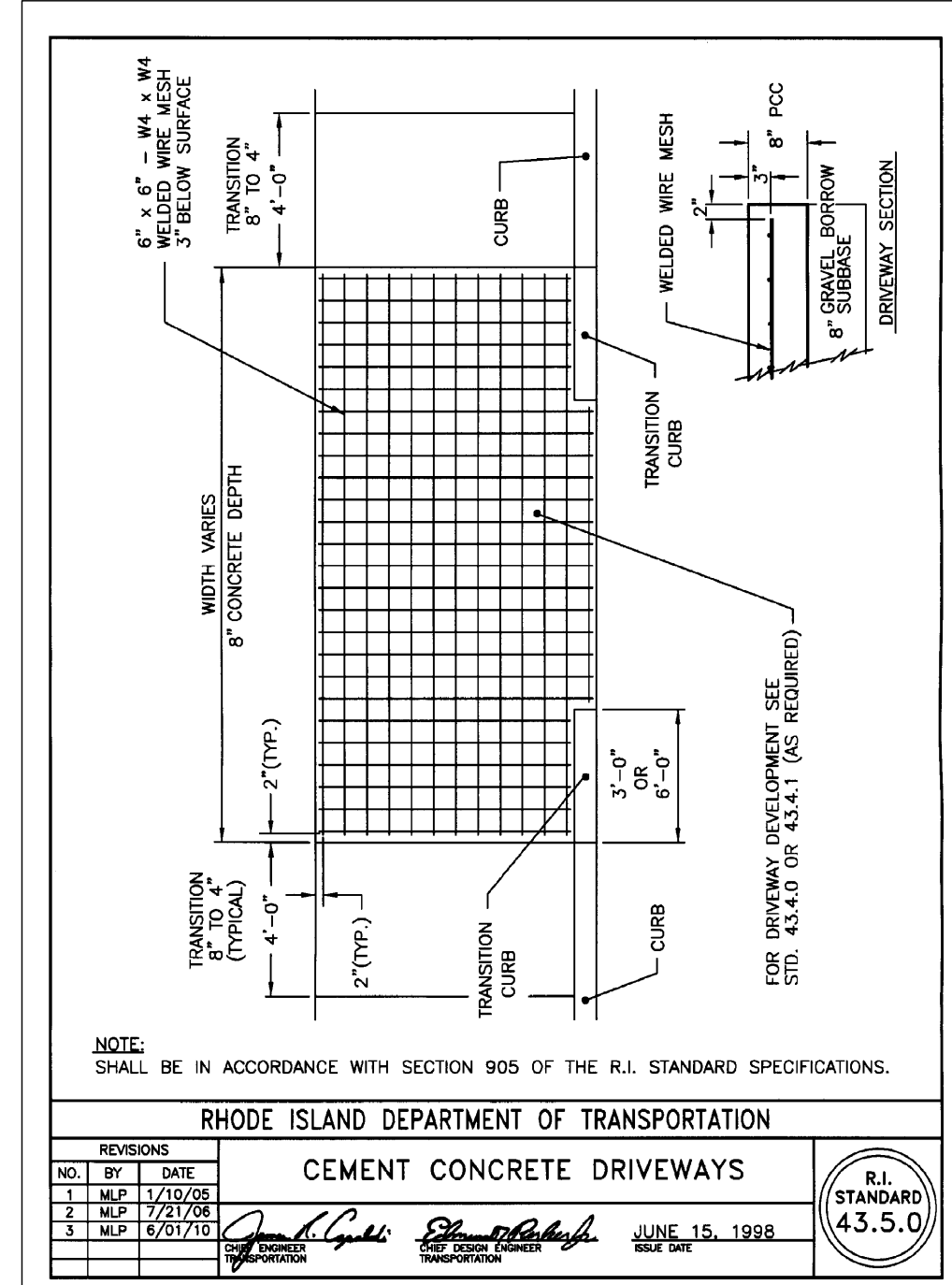
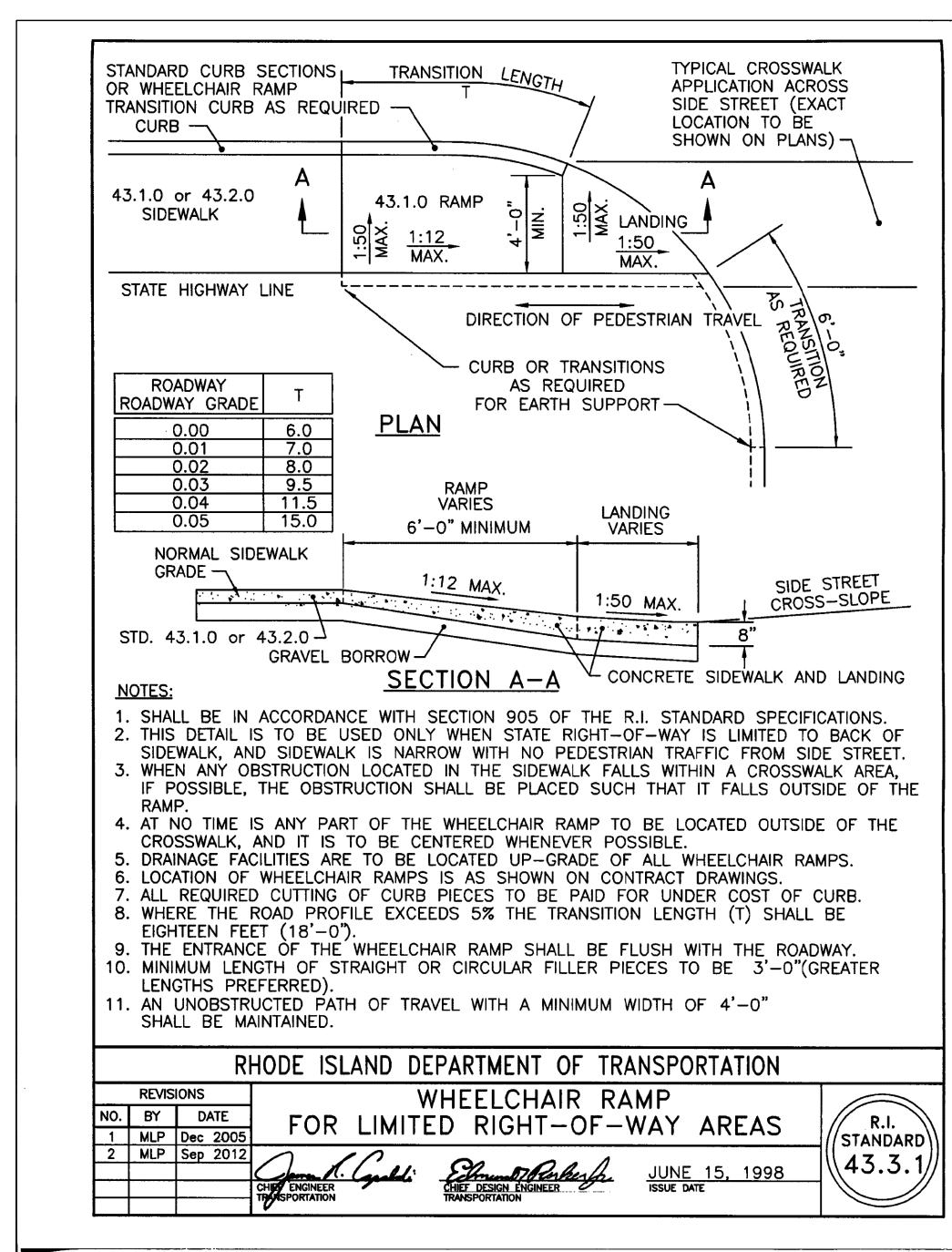
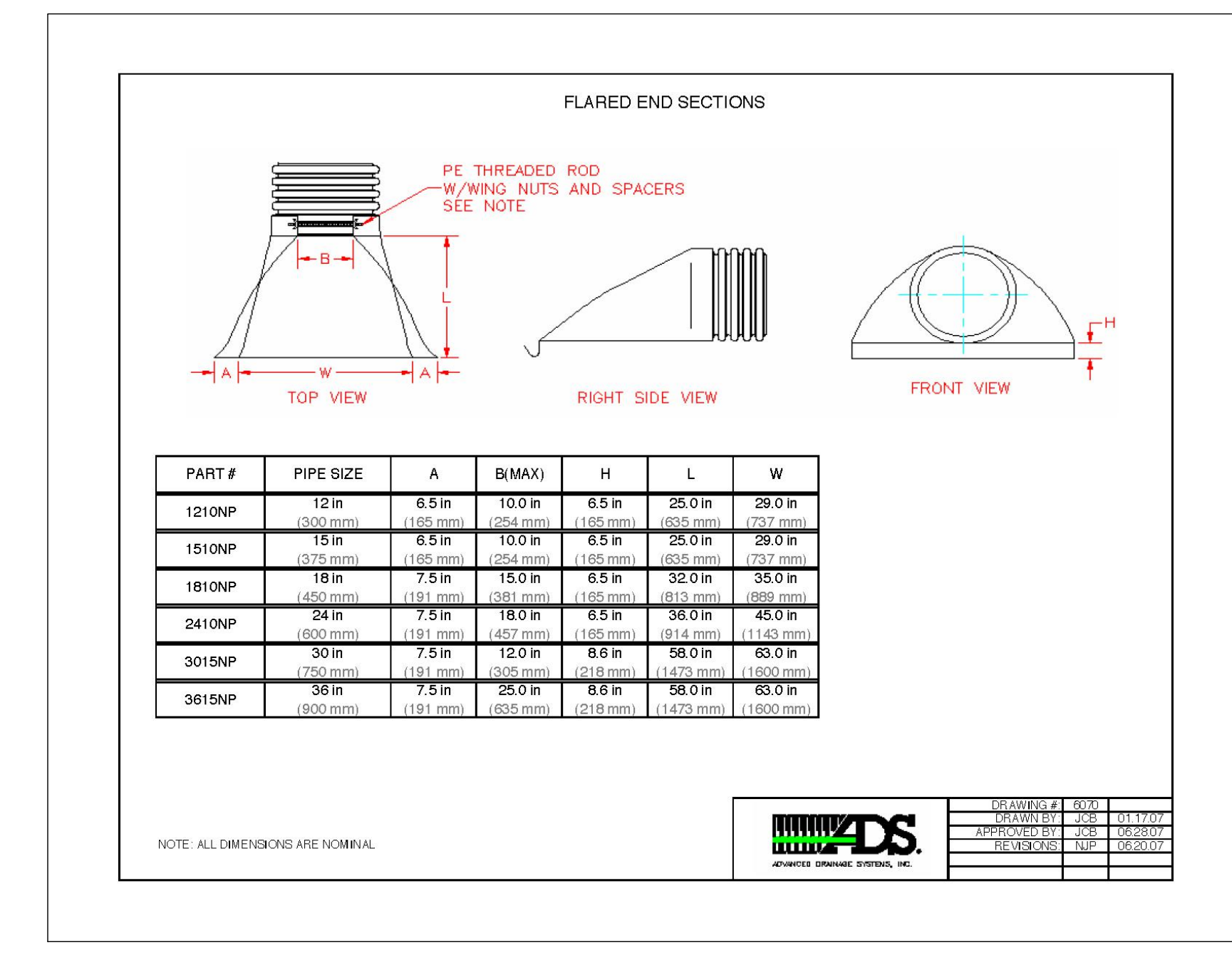
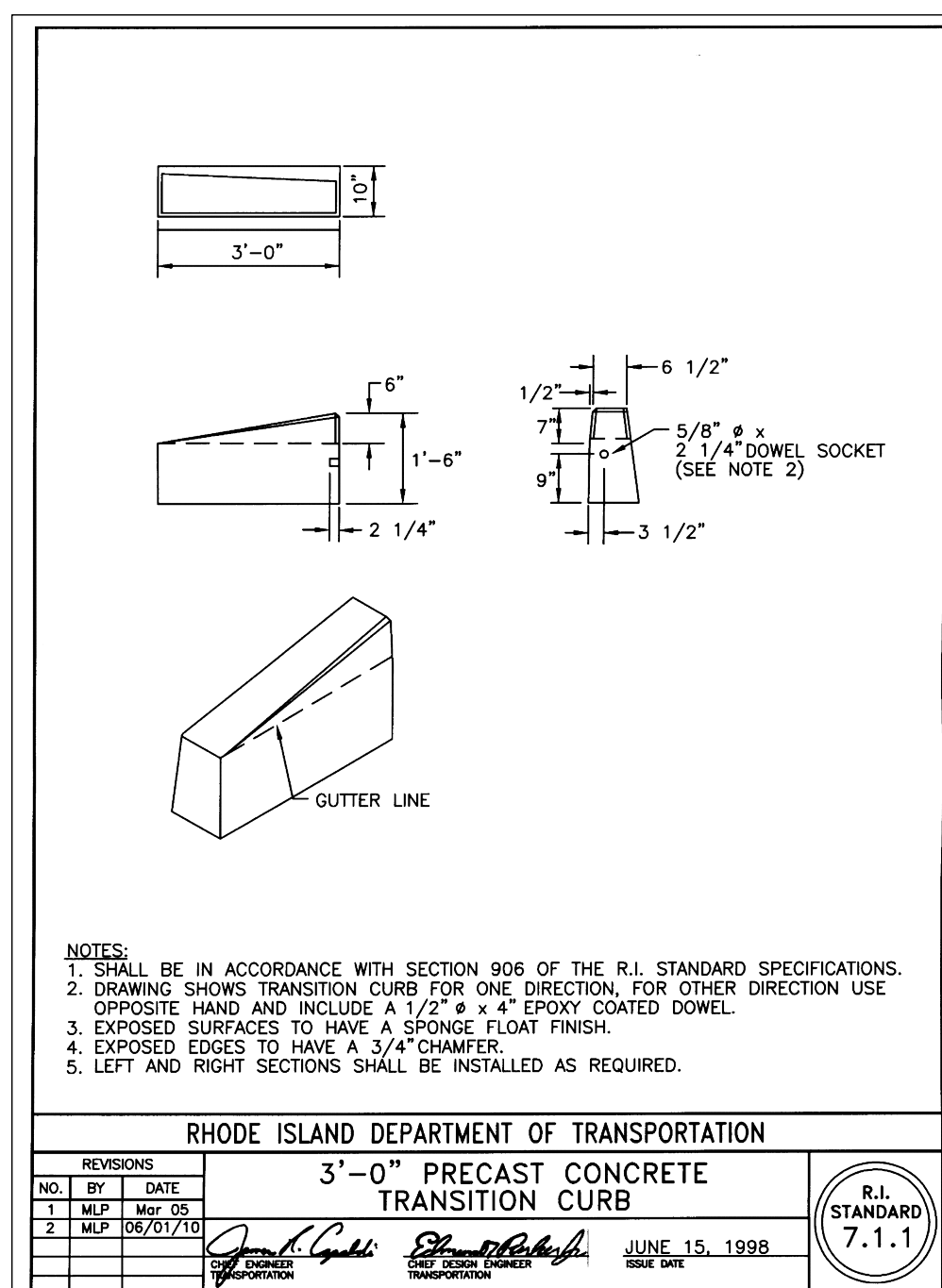
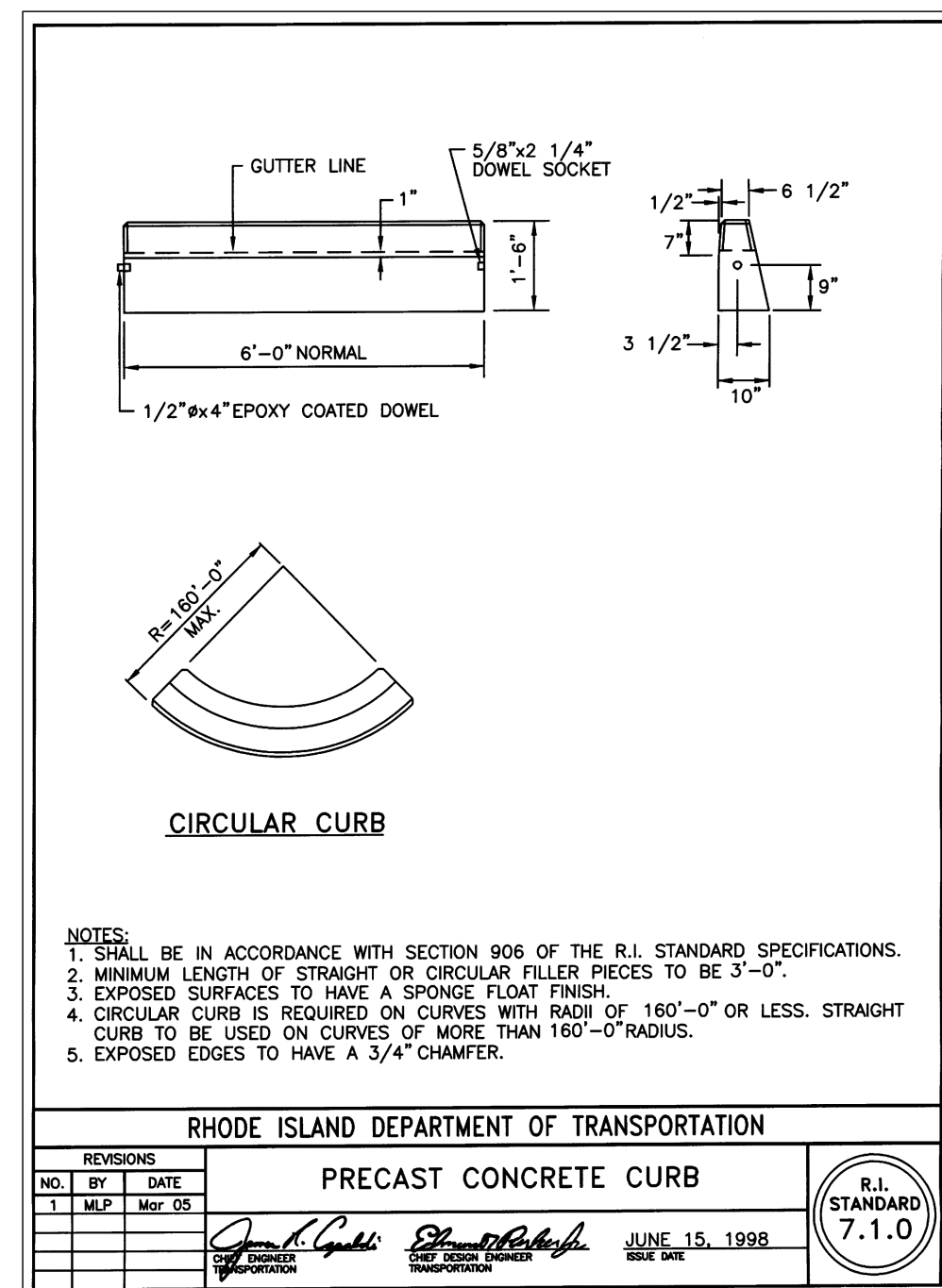
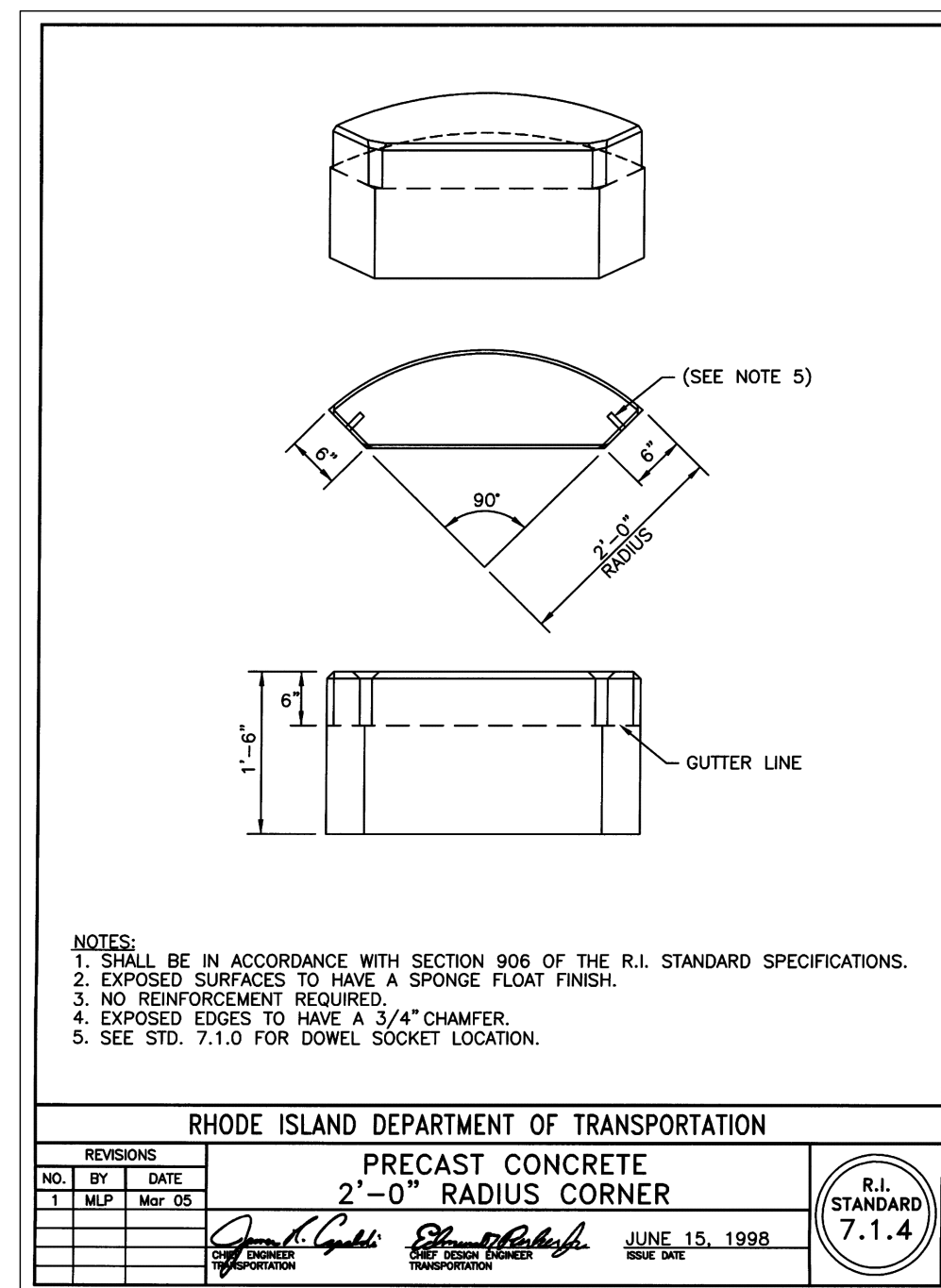
SCOTT F. MOOREHEAD  
REGISTERED PROFESSIONAL ENGINEER

PREPARED FOR:  
281 CENTERVILLE PLACE  
RESIDENTIAL CONDOMINIUMS  
255, 265 & 281 CENTERVILLE ROAD  
A.P. 246 LOTS 240, 243, 260 & 261  
WARWICK, RHODE ISLAND  
401-864-5252

S.F.M. ENGINEERING ASSOCIATES  
410 TOGUE AVENUE  
COVENTRY, RI 02816  
PHONE: 401-826-3736  
FAX: 401-826-1711  
SCOTT.SFM@LANVICBB.NET

DRN. BY: SFM  
CHK. BY: JZL  
SCALE: AS NOTED  
DATE: JAN 10, 2022  
DWG: SFM692-DD-T  
SHEET 5 OF 9

PRELIMINARY CITY SUBMISSION



REVISION

DATE	REVISION
6-8-22	REVISE BUILDING 5 AND TURNAROUND
3-13-23	KCWA SUBMISSION
7-10-23	RI DOT COMMENTS, LEFT TURN LANE DETAIL

SCOTT F. MOOREHEAD  
 REGISTERED PROFESSIONAL ENGINEER

PREPARED FOR:  
 281 ASSOCIATES, LLC  
 240 CHESTNUT STREET  
 WARWICK, RI 02888  
 401-864-5252

281 CENTERVILLE PLACE  
 RESIDENTIAL CONDOMINIUMS  
 255, 265 & 281 CENTERVILLE ROAD  
 A.P. 246 LOTS 240, 243, 260 & 261  
 WARWICK, RHODE ISLAND

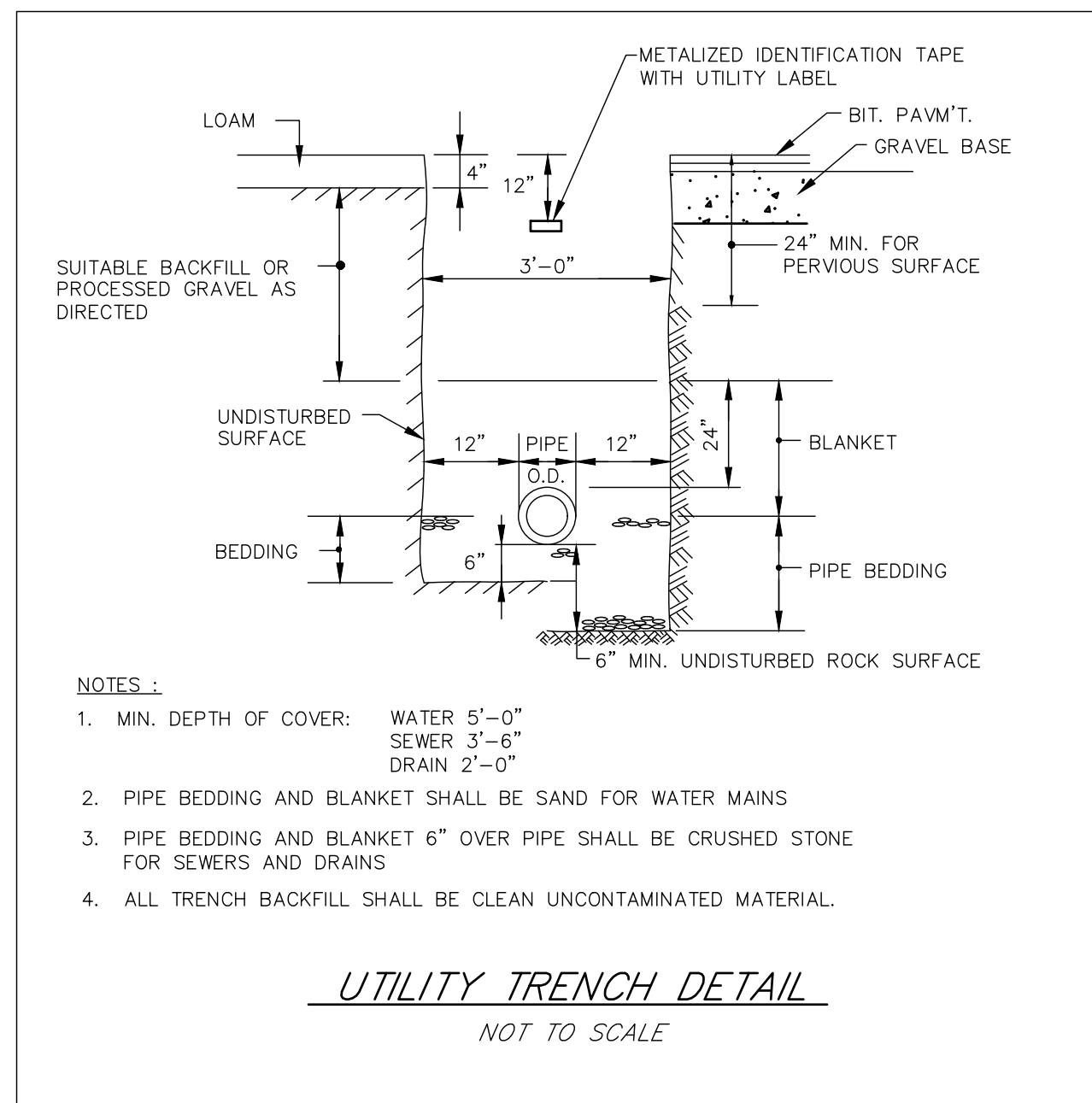
SITE CONSTRUCTION DETAILS

S.F.M. ENGINEERING ASSOCIATES  
 410 TOGUE AVENUE  
 COVENTRY, RI 02816  
 PHONE: 401-826-3736  
 FAX: 401-826-1711

SCOTT.SFM@LANATICBB.NET

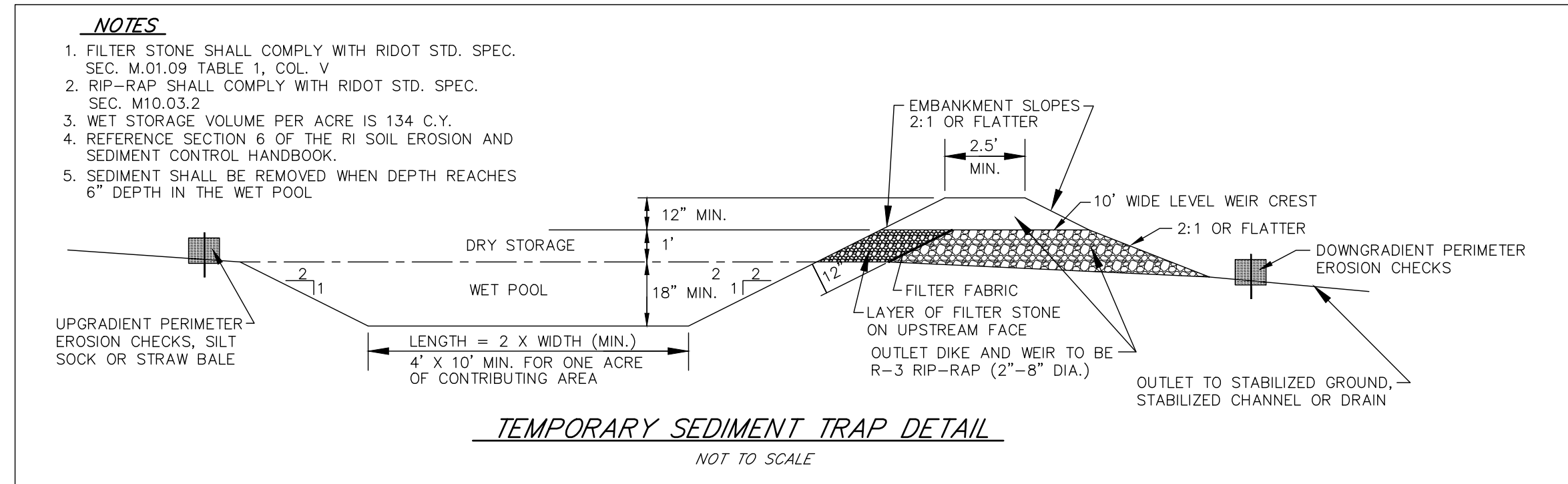
DRN. BY: SFM  
 CHK. BY: JZL  
 SCALE: AS NOTED  
 DATE: JAN. 10, 2022  
 DWG: SFM692-CD-T  
 SHEET 6 OF 9

R.I. STANDARD 6.3.0  
 JUNE 15, 1998

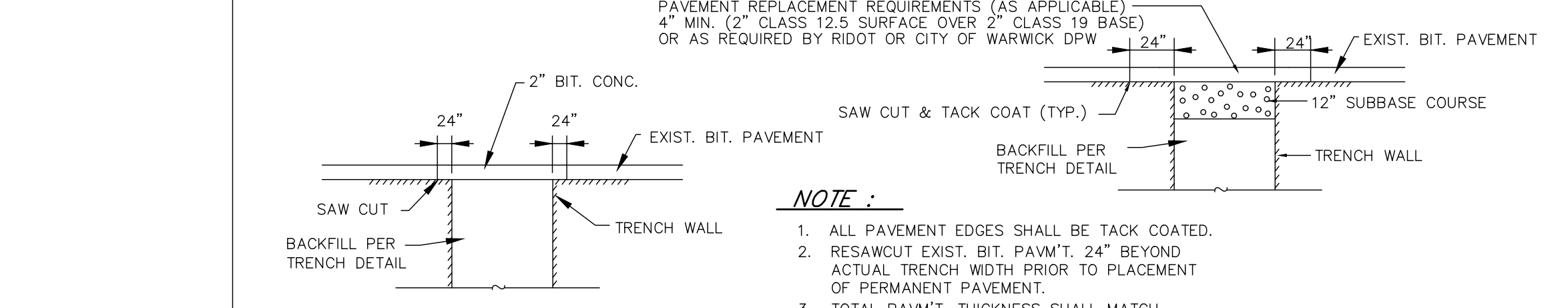


**NOTES:**  
 1. MIN. DEPTH OF COVER: WATER 5'-0", SEWER 3'-6", DRAIN 2'-0"  
 2. PIPE BEDDING AND BLANKET SHALL BE SAND FOR WATER MAINS  
 3. PIPE BEDDING AND BLANKET 6" OVER PIPE SHALL BE CRUSHED STONE FOR SEWERS AND DRAINS  
 4. ALL TRENCH BACKFILL SHALL BE CLEAN UNCONTAMINATED MATERIAL.

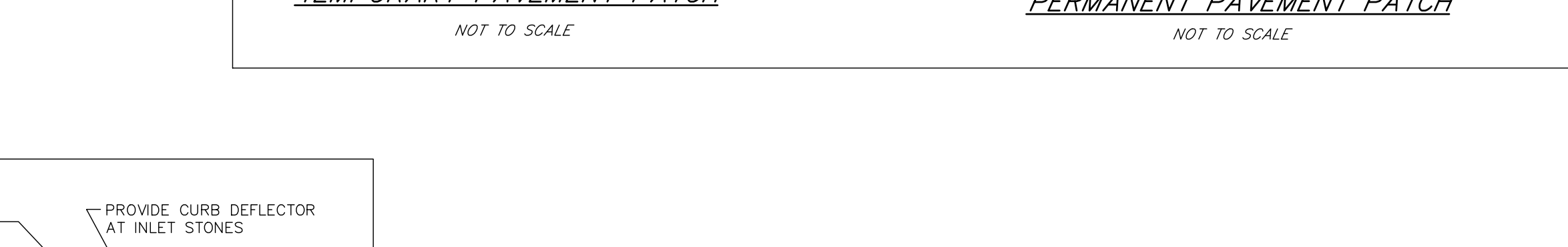
**UTILITY TRENCH DETAIL**  
NOT TO SCALE



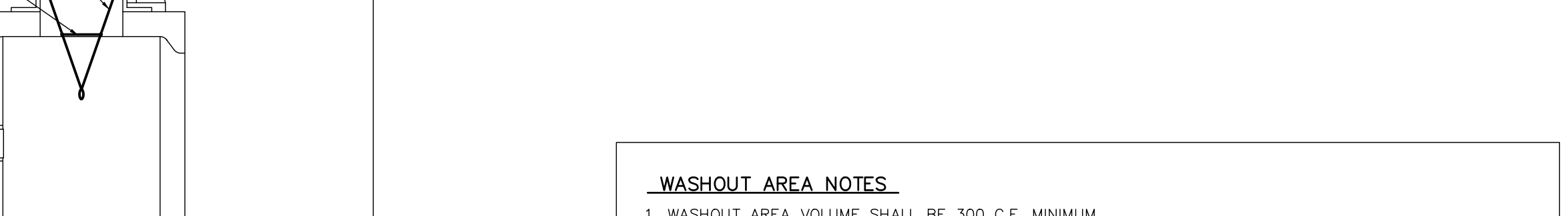
**TEMPORARY SEDIMENT TRAP DETAIL**  
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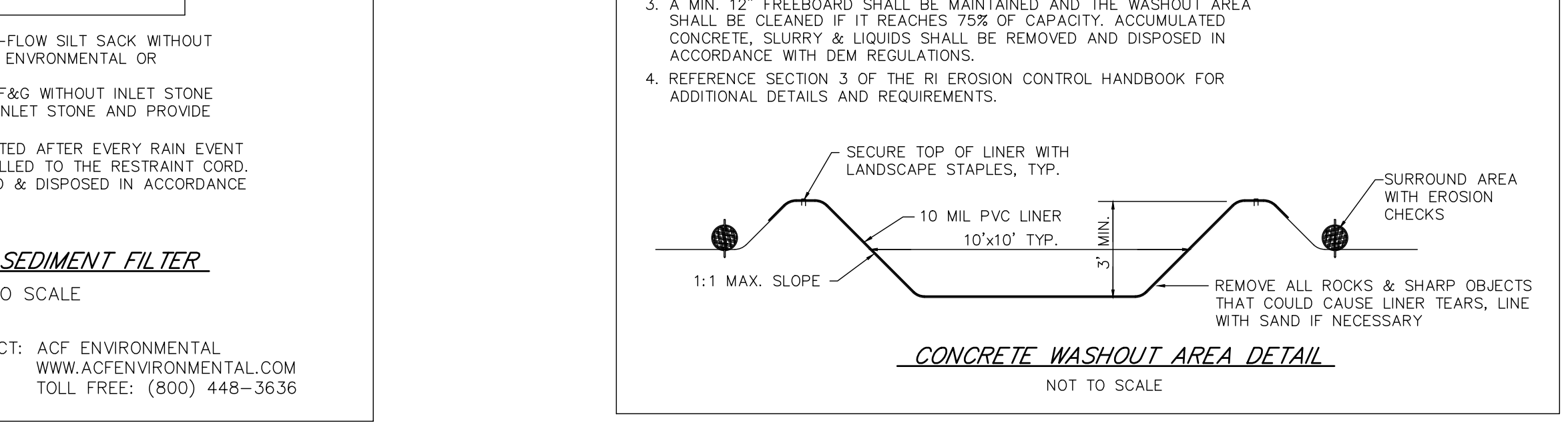
**TEMPORARY PAVEMENT PATCH**  
NOT TO SCALE



**PERMANENT PAVEMENT PATCH**  
NOT TO SCALE



**CATCH BASIN SEDIMENT FILTER**  
NOT TO SCALE



**CONCRETE WASHOUT AREA DETAIL**  
NOT TO SCALE

**GENERAL NOTES**

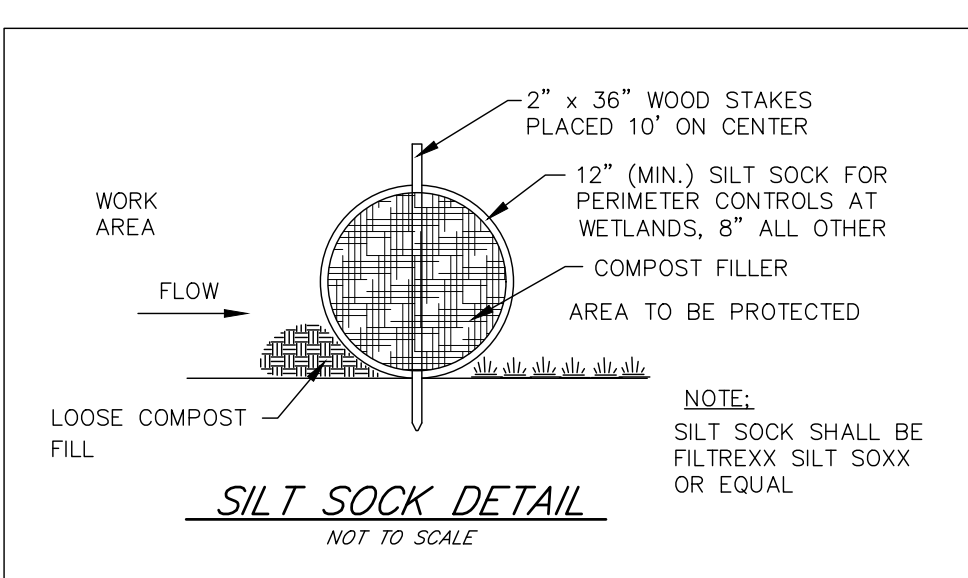
1. ALL WORK PERFORMED HEREIN SHALL BE GOVERNED BY THE R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (REVISION OF 12-2010) WITH ALL CORRECTIONS AND ADDENDA AND THE 12-1-2010 R.I. STANDARD DETAILS WITH ALL CORRECTIONS AND ADDENDA.
2. EMBANKMENT SLOPES AND ALL DISTURBED AREAS ARE TO RECEIVE 4" OF TOPSOIL AND SEEDED. SEE EROSION CONTROL PROGRAM.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENTATION AND EROSION CONTROLS.
4. IN ALL EXCAVATION AND REPLACEMENT OF FILL, THE CONTRACTOR SHALL PERFORM THE WORK IN FULL COMPLIANCE WITH THE R.I. STANDARD SPECIFICATION SECTION 202.
5. ALL EXCESS SOIL, STUMPS, TREES, ROCKS, BOULDERS AND OTHER REFUSE SHALL BE DISCARDED OFF SITE OUTSIDE OF ALL WETLANDS AND WETLANDS SETBACK AREAS UNLESS OTHERWISE SPECIFIED.
6. CONSTRUCTION WASTE SHALL BE COLLECTED, REMOVED AND DISPOSED OF OFFSITE IN ACCORDANCE WITH ALL STATE AND TOWN REQUIREMENTS. TRASH SHALL BE COLLECTED ROUTINELY AND REMOVED FROM SITE FOR DISPOSAL.
7. A SOIL AND EROSION CONTROL PERMIT WILL BE REQUIRED FROM THE CITY OF WARWICK. INSPECTIONS SHALL BE SCHEDULED AS REQUIRED.
8. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF ALL RI DEM, RIDOT, UTILITY AUTHORITY AND CITY REGULATIONS & PERMITS.

**SEDIMENTATION CONTROL PROGRAM**

1. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY SEDIMENTS FROM ENTERING THE WETLANDS OR ADJOINING PROPERTIES.
2. BANKS OR SLOPES OVER 5 PERCENT SHALL BE SEEDED AS SOON AS POSSIBLE AND SHALL BE PROTECTED WITH A HAY, STRAW OR FIBER MULCH.
3. DURING THE SITE CONSTRUCTION PERIOD, THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
4. SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL.
5. CARE SHALL BE TAKEN SO NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECT TO STORM WATER FLOW.
6. ADDITIONAL STRAW BALES, SILT FENCE OR SILT SOCKS SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER.
7. REFERENCE THE "R.I. EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE RI STATE CONSERVATION COMMITTEE, ISSUED 1989 REVISED 2014, AS A GUIDE.

**ORDER OF PROCEDURE**

1. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION OR EXCAVATION, THE SITE CONTRACTOR SHALL PHYSICALLY MARK THE ENTIRE LIMIT OF DISTURBANCE. EROSION CHECKS SHALL BE ESTABLISHED AT ALL DOWN GRADIENT LIMITS OF DISTURBANCE AND AS DEPicted ON THE SITE PLANS. TEMPORARY EROSION CHECKS SHALL BE INSTALLED AT LIMIT OF WORK ACTIVITY IF CONSTRUCTION IS TO BE DONE IN PHASES. EROSION CHECKS CONSIST OF STRAW BALES, SILT FENCE OR SILT SOCKS.
2. SITE CONTRACTOR SHALL PROVIDE A BARRIER AROUND THE SAND FILTER AREAS TO PROTECT THEM FROM SOIL COMPACTION.
3. ONLY AREAS THAT CAN BE REASONABLY EXPECTED TO HAVE ACTIVE CONSTRUCTION WORK BEING PERFORMED WITHIN 14 DAYS OF DISTURBANCE SHALL BE CLEARED AND GRUBBED AT ONE TIME. IF CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED FOR MORE THAN 14 DAYS, STABILIZATION PRACTICES SHALL BE INITIATED. REFERENCE THE EROSION CONTROL & SEDIMENTATION PROGRAMS FOR TEMPORARY CONTROLS.
4. ALL EROSION AND SEDIMENTATION CONTROL STRUCTURES SHALL BE PERIODICALLY MAINTAINED AS PER THE RESPECTIVE PROGRAMS FOR TEMPORARY CONTROL.
5. EROSION CHECKS ALONG AND AT THE ENDS OF ROADWAYS MAY ALSO BE REMOVED AFTER FINAL SOIL STABILIZATION HAS BEEN ACHIEVED AND APPROVED.
6. EROSION CHECKS LOCATED AT DRAINAGE INLETS OR OUTLETS MUST REMAIN UNTIL SUCH TIME THAT A DESIRABLE STAND OF GRASS OR GROUND COVER HAS BEEN ESTABLISHED AND THE PROJECT RECEIVES A FAVORABLE APPROVAL FOR FINAL ACCEPTANCE FROM THE ENGINEER.



**SILT SOCK DETAIL**  
NOT TO SCALE

**EROSION CONTROL & SOIL STABILIZATION PROGRAM**

1. DENUDE SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.
2. ALL DISTURBED SLOPES, EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15, SHALL BE SEEDED OR PROTECTED BY THAT DATE FOR ANY WORK COMPLETED DURING EACH CONSTRUCTION YEAR.
3. THE TOP SOIL 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 R.I. STANDARD SPECIFICATION M. 20.
4. THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
5. THE SEEDING SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE LANDSCAPE ARCHITECT'S PLANS. FOR AREAS NOT DESIGNATED BY THE L.A., THE DESIGN MIX SHALL COMPLY WITH THE FOLLOWING:
 

A. MOWED AREA (ALL FLATS OR SLOPES LESS THAN 3:1)	
MIXTURE	% BY WT.
CREeping RED FESCUE	70
KENTUCKY BLUEGRASS	15
COLONIAL BENTGRASS	5
PERENNIAL RYEGRASS	10
TOTAL	150 LBS/AC
B. UNMOWED AREA OR INFREQUENTLY MOWED (FLAT OR SLOPES GREATER THAN 3:1)	
MIXTURE	% BY WT.
CREeping RED FESCUE	60
COLONIAL BENTGRASS	5
PERENNIAL RYEGRASS	10
BIRDSEED TREFOIL	15
TOTAL	150 LBS/AC
C. CONSERVATION SEEDING AREAS	
MIXTURE	% BY WT.
SWITCH GRASS	20
LITTLE BLUE STEM	20
PERENNIAL RYEGRASS	20
WILDFLOWER MIX	20
HARD FESCUE	20
TOTAL	60 LBS/AC

SPECIES	LBS./1,000 S.F.	LBS./Ac.	SEEDING DATES
ANNUAL RYEGRASS	1.0 - 1.5	40 - 60	3/1 - 6/1
PERENNIAL RYEGRASS	1.0 - 1.5	40 - 60	3/1 - 6/1
SUDAN GRASS	0.7 - 1.0	30 - 40	5/15 - 8/15
MILLET	0.7 - 1.0	30 - 40	5/15 - 6/15
WINTER RYE	3.0	120	4/15 - 6/15

9. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE.
10. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1 - OCTOBER 15.
11. ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE R.I.D.P.W. STD. SPECIFICATIONS SECTION 202.
12. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 15 DAYS OF FINAL GRADING.
13. STOCKPILES OF TOPSOILS SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES SHALL ALSO BE SEEDED AND/OR STABILIZED.
14. ON BOTH STEEP AND LONG SLOPES, CONSIDERATION SHOULD BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
15. REFERENCE THE SEDIMENTATION CONTROL PROGRAM AND ORDER OF PROCEDURE FOR PROPER COORDINATION.

**NOTE**  
BALED HAY SHALL ONLY BE USED FOR SHORT TERM EROSION CONTROL OF THREE MONTHS OR LESS. PERIMETER EROSION CONTROLS SHALL BE STRAW BALE, SILT FENCE, SILT SOCK OR COMBINATION THEREOF.

REFERENCE R.I. SOIL EROSION & SEDIMENT CONTROL HANDBOOK SECTION 6	2" CRUSHED STONE % FINER
4" (MIN.) OF CRUSHED STONE	100
6" GRAVEL BASE OR FILTER FABRIC	95-100
2 1/2"	30-55
2"	0-25
1 1/2"	0-5
1 1/4"	
1"	

CONSTRUCTION ENTRANCES SHALL BE 24" WIDE AND 50' LONG MINIMUM  
**CONSTRUCTION ENTRANCE STABILIZATION PAD**  
NOT TO SCALE

**CONSTRUCTION ACCESS**  
R.I. STANDARD 9.9.0  
JUNE 15, 1998

**BALED HAY DITCH AND SWALE EROSION CHECK**  
R.I. STANDARD 9.4.0  
JUNE 15, 1998

**BALED HAY CATCH BASIN INLET PROTECTION**  
R.I. STANDARD 9.8.0  
JUNE 15, 1998

**BALED HAY EROSION CHECK**  
R.I. STANDARD 9.1.0  
JUNE 15, 1998

**SILT FENCE DETAIL**  
R.I. STANDARD 9.2.0  
JUNE 15, 1998

**DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES**  
R.I. STANDARD 51.1.1  
JUNE 15, 1998

REVISIONS

NO.	BY	DATE	DESCRIPTION
6-8-22			REVISE BUILDING 5 AND TURNAROUND
3-13-23			KRM SUBMISSION
7-10-23			RIDOT COMMENTS

DATE: 6-8-22  
 PREPARED FOR: 281 CENTERVILLE PLACE  
 281 ASSOCIATES, LLC  
 240 CHESTNUT STREET  
 WARWICK, RI 02888  
 401-864-5292

SCOTT F. MOOREHEAD  
 REGISTERED PROFESSIONAL ENGINEER

281 CENTERVILLE PLACE  
 RESIDENTIAL CONDOMINIUMS  
 255, 265 & 281 CENTERVILLE ROAD  
 A.P. 246 LOTS 240, 243, 260 & 261  
 WARWICK, RHODE ISLAND

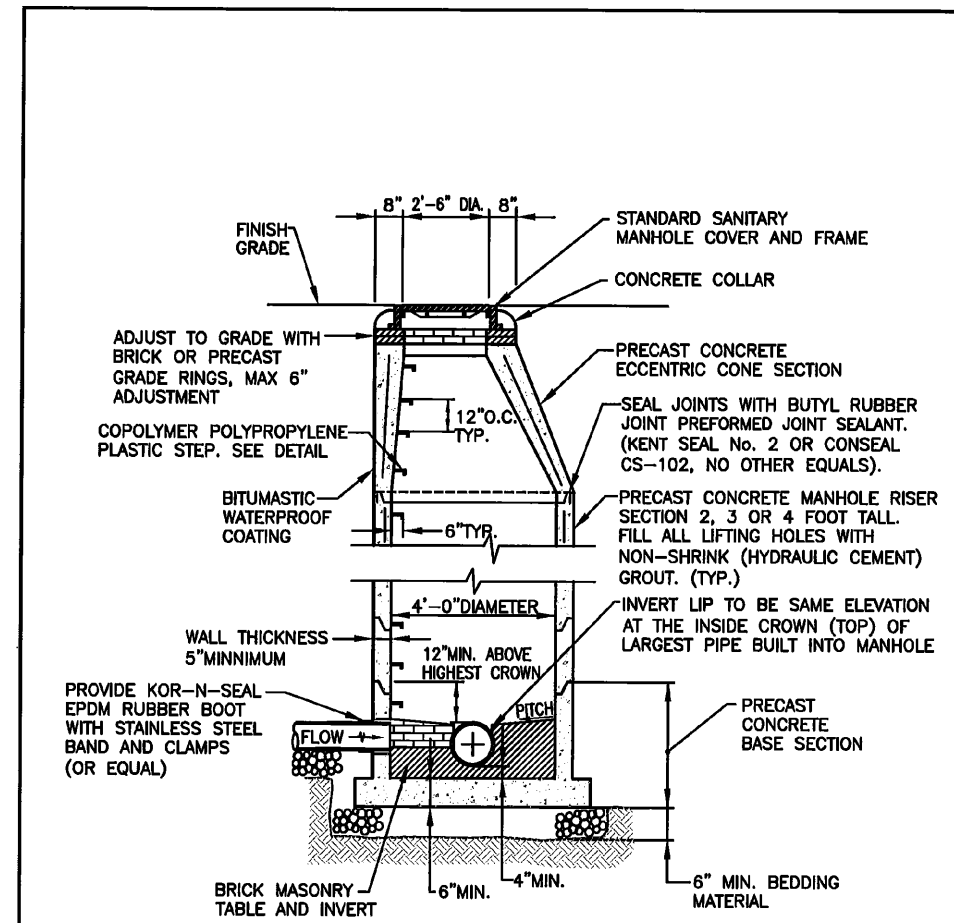
EROSION CONTROL NOTES & DETAILS

S.F.M. ENGINEERING ASSOCIATES  
 410 TOGUE AVENUE  
 COVENTRY, RI 02816  
 PHONE: 401-826-3736  
 FAX: 401-826-1711

SCOTT.SFM@LANVICBB.NET

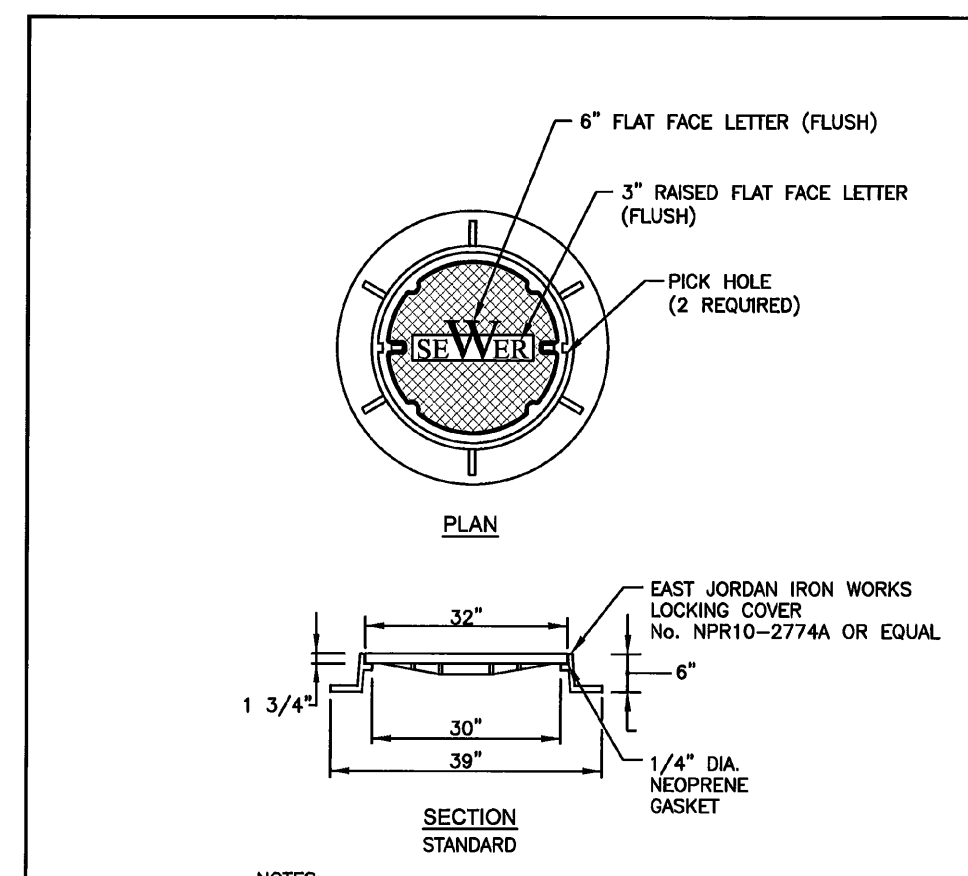
ORN. BY: SFM  
 CHK. BY: JZL  
 SCALE: AS NOTED  
 DATE: JAN. 10, 2022  
 DWG: SFM692-ER-T  
 SHEET 7 OF 9

PRELIMINARY CITY SUBMISSION



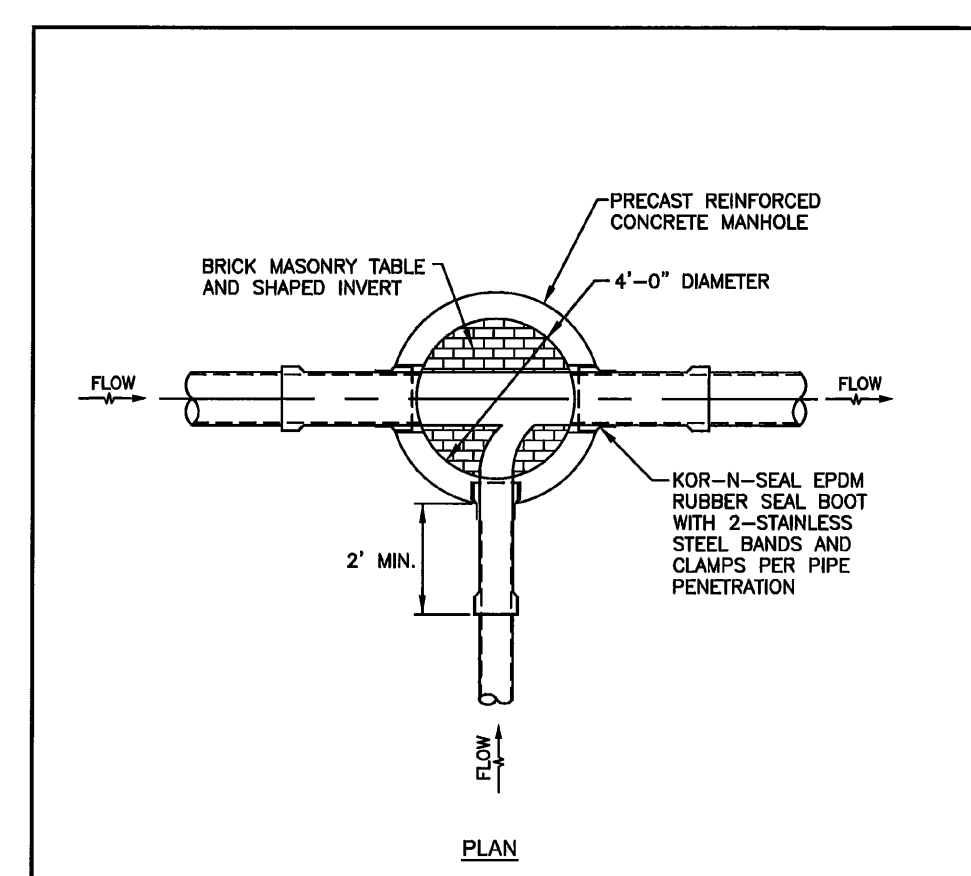
**NOTES:**  
 1. ALL JOINTS SHALL BE TONGUE AND GROOVE WITH BUTYL RUBBER JOINT PREFORMED SEALANT.  
 2. ALL LIFTING HOLES OR INDENTS ARE TO BE SEALED WITH NON-SHRINKING (HYDRAULIC CEMENT) GROUT.

Detail No. WSA - 3  
 Sanitary Manhole  
 Contract DD  
 Date: May 2017  
 Scale: Not to Scale  
**WARWICK SEWER AUTHORITY**  
 125 Arthur Devine Boulevard  
 Warwick, Rhode Island 02889



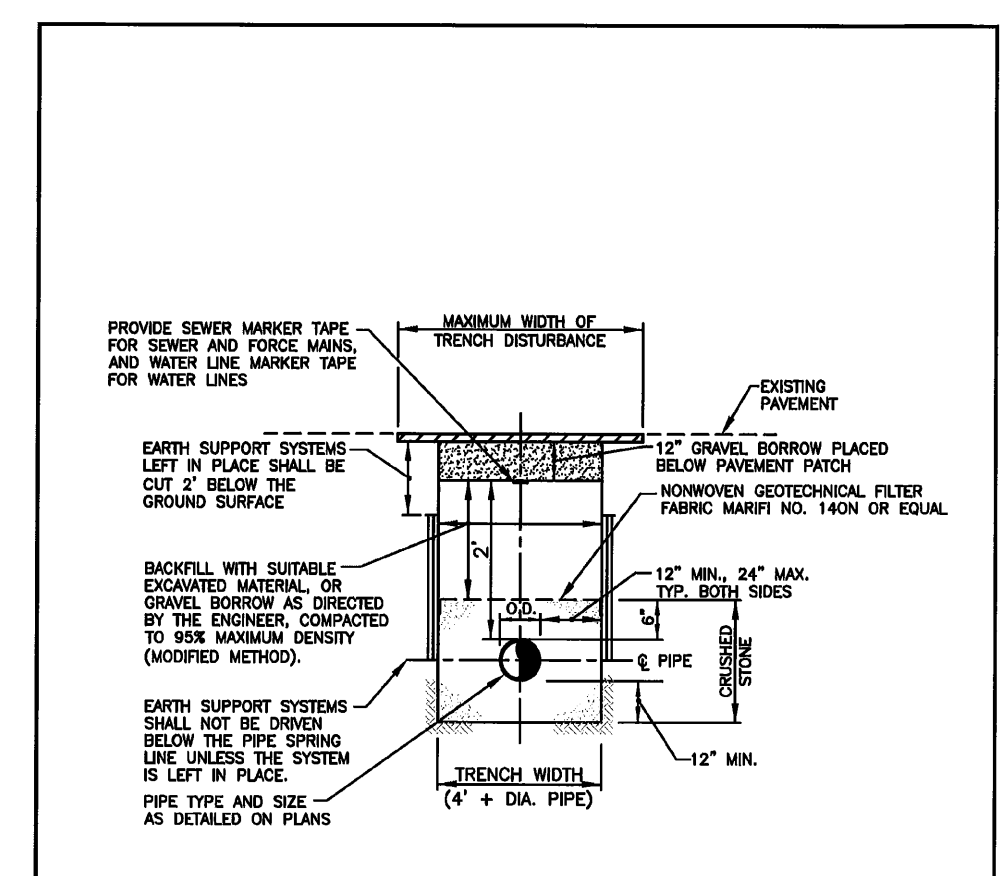
**NOTES:**  
 1. ALL MANHOLES SHALL RECEIVE STANDARD COVERS UNLESS OTHERWISE INDICATED ON THE PLANS.  
 2. COVERS TO HAVE NO VENT HOLES.  
 3. COVER MUST BE SUITABLE FOR H-20 HIGHWAY LOADING.

Detail No. WSA - 5  
 Sanitary Manhole Cover  
 Contract DD  
 Date: May 2017  
 Scale: Not to Scale  
**WARWICK SEWER AUTHORITY**  
 125 Arthur Devine Boulevard  
 Warwick, Rhode Island 02889



**NOTES:**  
 1. MINIMUM INVERT DROP BETWEEN INLET AND OUTLET PIPE SHALL BE 0.1".  
 2. MAXIMUM INVERT DROP BETWEEN INLET AND OUTLET SHALL BE 24".

Detail No. WSA - 6  
 Manhole Invert Table  
 Contract DD  
 Date: May 2017  
 Scale: Not to Scale  
**WARWICK SEWER AUTHORITY**  
 125 Arthur Devine Boulevard  
 Warwick, Rhode Island 02889



**NOTE:**  
 AS A MINIMUM, FILTER FABRIC SHALL BE PLACED ON THE TOP OF THE BEDDING. PLACE OF FILTER FABRIC ON THE TOP, BOTTOM AND SIDES OF THE BEDDING WILL BE DETERMINED ON A SITE SPECIFIC BASIS BY THE ENGINEER.

Detail No. WSA - 15  
 Typical Trench  
 Contract DD  
 Date: May 2017  
 Scale: Not to Scale  
**WARWICK SEWER AUTHORITY**  
 125 Arthur Devine Boulevard  
 Warwick, Rhode Island 02889

- UTILITY NOTES**
- LOCATIONS, MATERIALS & SIZES OF EXISTING UTILITIES ARE PLOTTED FROM BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL INFORMATION WITH THE APPROPRIATE UTILITY AUTHORITY AND DIG SAFE PRIOR TO ANY CONSTRUCTION OR EXCAVATION.
  - EXPLORATORY TEST PITS SHALL BE EXCAVATED TO CONFIRM THE LOCATION, SIZE & DEPTH AT ANY CONNECTION OR CRITICAL UTILITY AREA, AS REQUIRED. THE DEPTH & LOCATION OF THE EXIST. SEWER LATERALS IS UNKNOWN.
  - THE NEW SANITARY SEWER SHALL BE CONNECTED TO THE EXISTING 8" STUB. THE CONTRACTOR SHALL CONFIRM THE STUB LOCATION AND INVERT.
  - SEE BUILDING, PLUMBING & MECHANICAL PLANS FOR BUILDING WATER AND SEWER SERVICE LOCATIONS, SIZES AND DETAILS.
  - SEE ELECTRICAL PLANS FOR POWER SERVICE, COMMUNICATIONS, TELEPHONE, CABLE AND WIRING DETAILS. SERVICES SHALL BE UNDERGROUND WITH SEPARATE SERVICES FOR EACH UNIT. SERVICE CONNECTION LOCATIONS AND SIZES SHALL BE APPROVED BY THE APPROPRIATE UTILITY COMPANY.
  - UTILITY SERVICE INSTALLATIONS SHALL BE APPROVED AND INSPECTED BY THE APPROPRIATE UTILITY COMPANY.
  - ALL WORK WITHIN THE CITY RIGHT OF WAY MUST BE APPROVED AND INSPECTED BY WARWICK DPW IN ADDITION TO THE UTILITY AUTHORITY.
  - ALL WORK WITHIN THE STATE HIGHWAY RIGHT OF WAY MUST BE APPROVED AND INSPECTED BY RIDOT IN ADDITION TO THE UTILITY AUTHORITY. THE CONTRACTOR SHALL OBTAIN A RIDOT UTILITY PERMIT FOR ALL UTILITY WORK WITHIN THE STATE HIGHWAY. RESTORATION OF PAVEMENT STRUCTURE, SIDEWALK AND MEDIAN SHALL MATCH EXISTING MATERIALS AND DEPTHS.
  - SEWER MAINS SHALL BE 8" SDR-35 PVC WITH A MINIMUM SLOPE OF .004. SEWER SERVICES SHALL BE 6" SDR-35 PVC WITH CLEANOUT AND BACKFLOW PREVENTER PER CITY STANDARDS MIN. SLOPE=.01. CLEANOUTS SHALL BE PROVIDED ON LONG RUNS AS REQUIRED BY THE SEWER AUTHORITY.
  - INDIVIDUAL WATER SERVICES SHALL BE TYPE "K" COPPER. SERVICE MAIN SHALL BE 4" D.I. WITH A 3" E-CODER NEPTUNE METER AND 3" RPZ BACKFLOW PREVENTER IN AN ABOVE GROUND EXTERNAL HOTBOX ENCLOSURE.
  - THE 3 EXISTING WATER SERVICES SHALL BE CUT & PLUGGED AT THE WATER MAIN.
  - GAS SERVICE SIZE AND LOCATION SHALL BE DETERMINED BY NATIONAL GRID.
  - WATER LINES SHALL BE INSTALLED ABOVE SEWER LINES WITH AN 18" MINIMUM VERTICAL SEPARATION. SEWERS SHALL BE SLEEVED IF THERE IS LESS THAN 18" SEPARATION. A HORIZONTAL SEPARATION OF 10' SHALL BE MAINTAINED BETWEEN WATER LINES AND OTHER UTILITIES.

REVISION	DATE	DESCRIPTION
3-13-23	3-13-23	KCWA SUBMISSION
7-10-23	7-10-23	RIDOT COMMENTS

SCOTT F. MOOREHEAD  
 125 ARTHUR DEVINE BOULEVARD  
 WARWICK, RHODE ISLAND 02889  
 REGISTERED PROFESSIONAL ENGINEER

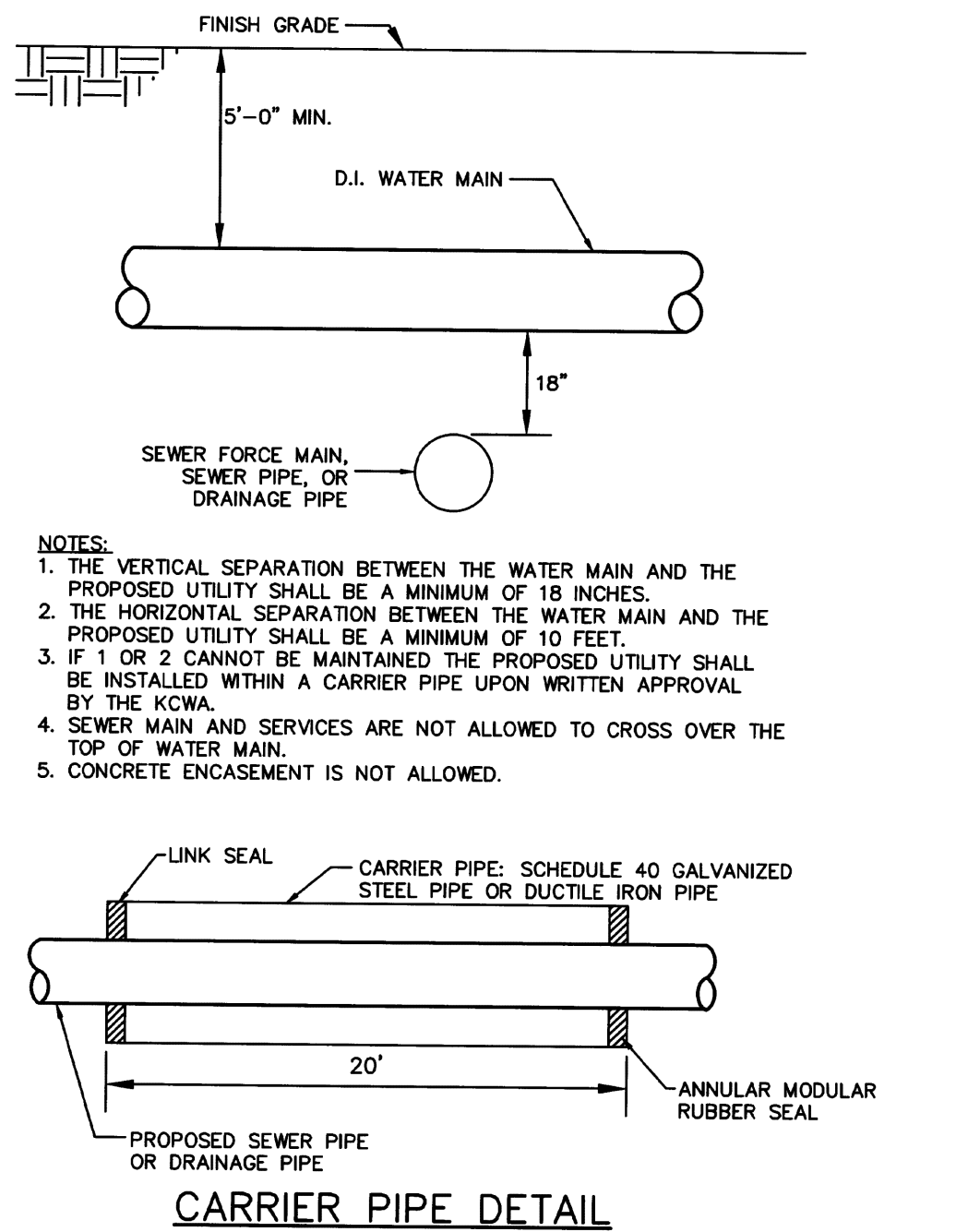
PREPARED FOR:  
 281 CENTERVILLE PLACE  
 RESIDENTIAL CONDOMINIUMS  
 255, 265 & 281 CENTERVILLE ROAD  
 A.P. 246 LOTS 240, 243, 260 & 261  
 WARWICK, RHODE ISLAND  
 401-864-5252

SEWER NOTES & DETAILS

S.F.M. ENGINEERING ASSOCIATES  
 410 TOGUE AVENUE  
 COVENTRY, RI 02816  
 PHONE: 401-826-3736  
 FAX: 401-826-1711  
 SCOTT.SFM@TLANTICBB.NET

**SFM**

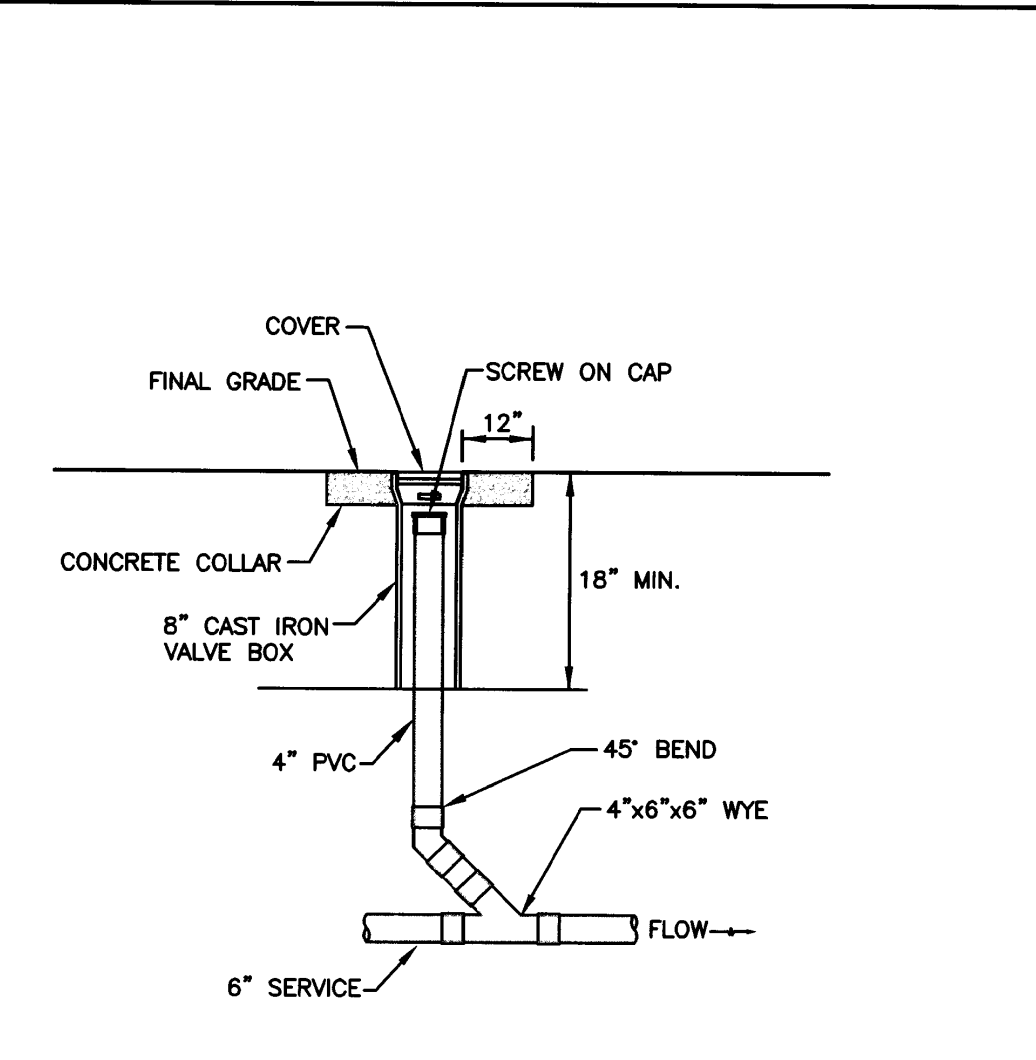
DRN. BY: SFM  
 CHK. BY: JZL  
 SCALE: AS NOTED  
 DATE: FEB. 28, 2023  
 DWG: SFM692-SD-T  
 SHEET 9 OF 9  
 PRELIMINARY CITY SUBMISSION



**NOTES:**  
 1. THE VERTICAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 18 INCHES.  
 2. THE HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 10 FEET.  
 3. IF 1 OR 2 CANNOT BE MAINTAINED THE PROPOSED UTILITY SHALL BE INSTALLED WITHIN A CARRIER PIPE UPON WRITTEN APPROVAL BY THE KCWA.  
 4. SEWER MAIN AND SERVICES ARE NOT ALLOWED TO CROSS OVER THE TOP OF WATER MAIN.  
 5. CONCRETE ENGAGEMENT IS NOT ALLOWED.

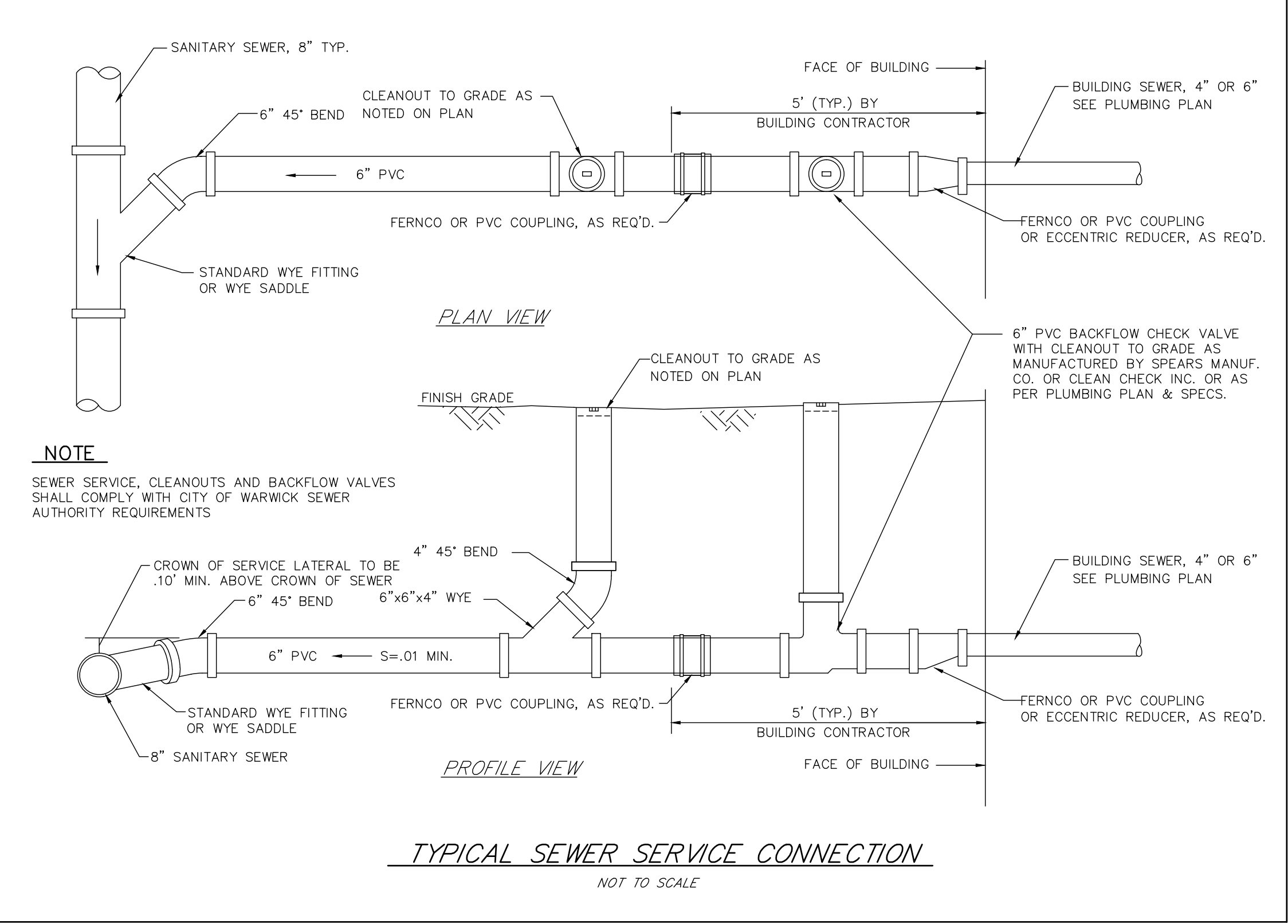
KCWA  
 "proudly serving"  
 UTILSEPD.DWG

KENT COUNTY WATER AUTHORITY  
**UTILITY SEPARATION**  
 NOT TO SCALE  
 DATE: 09/2006



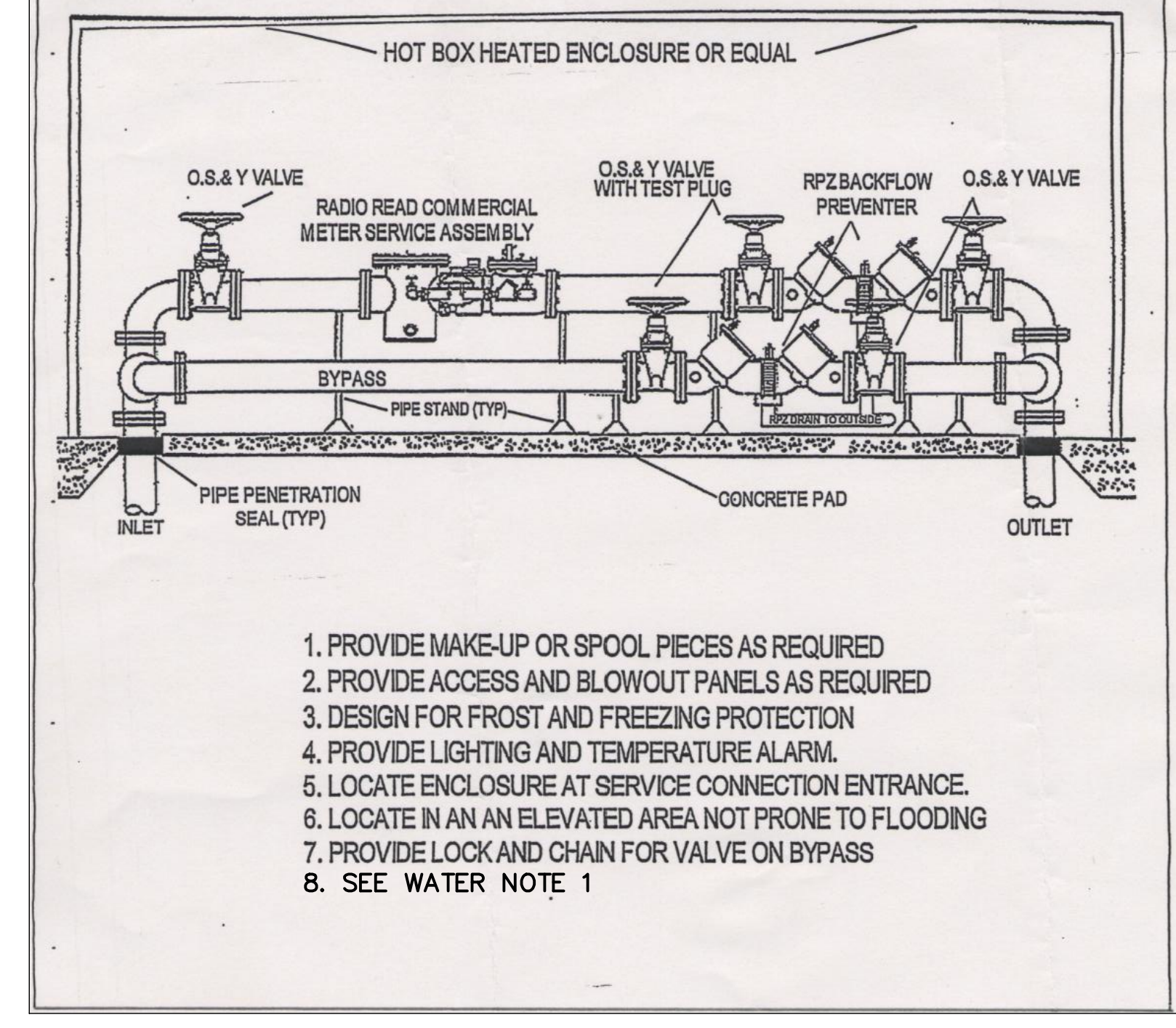
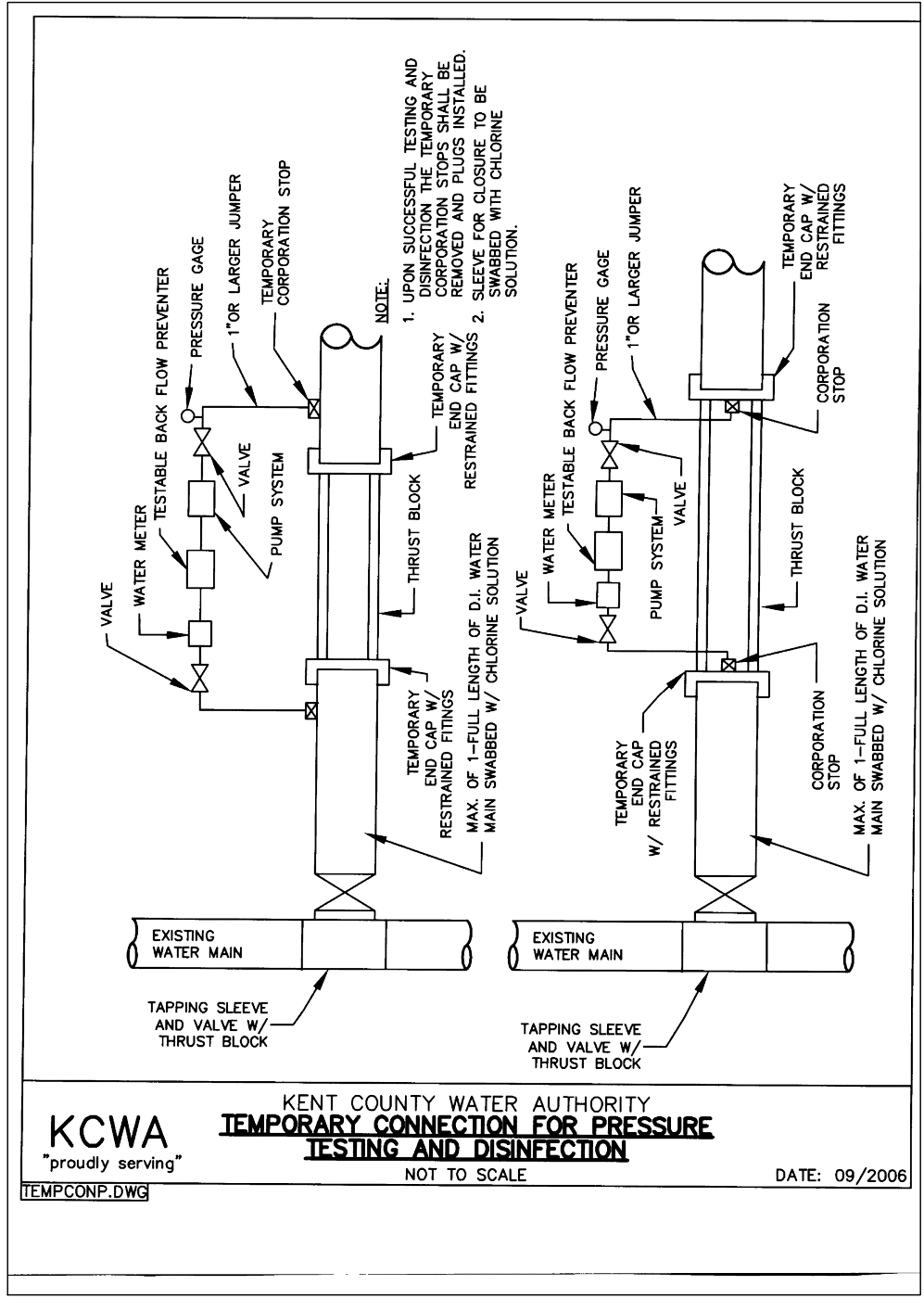
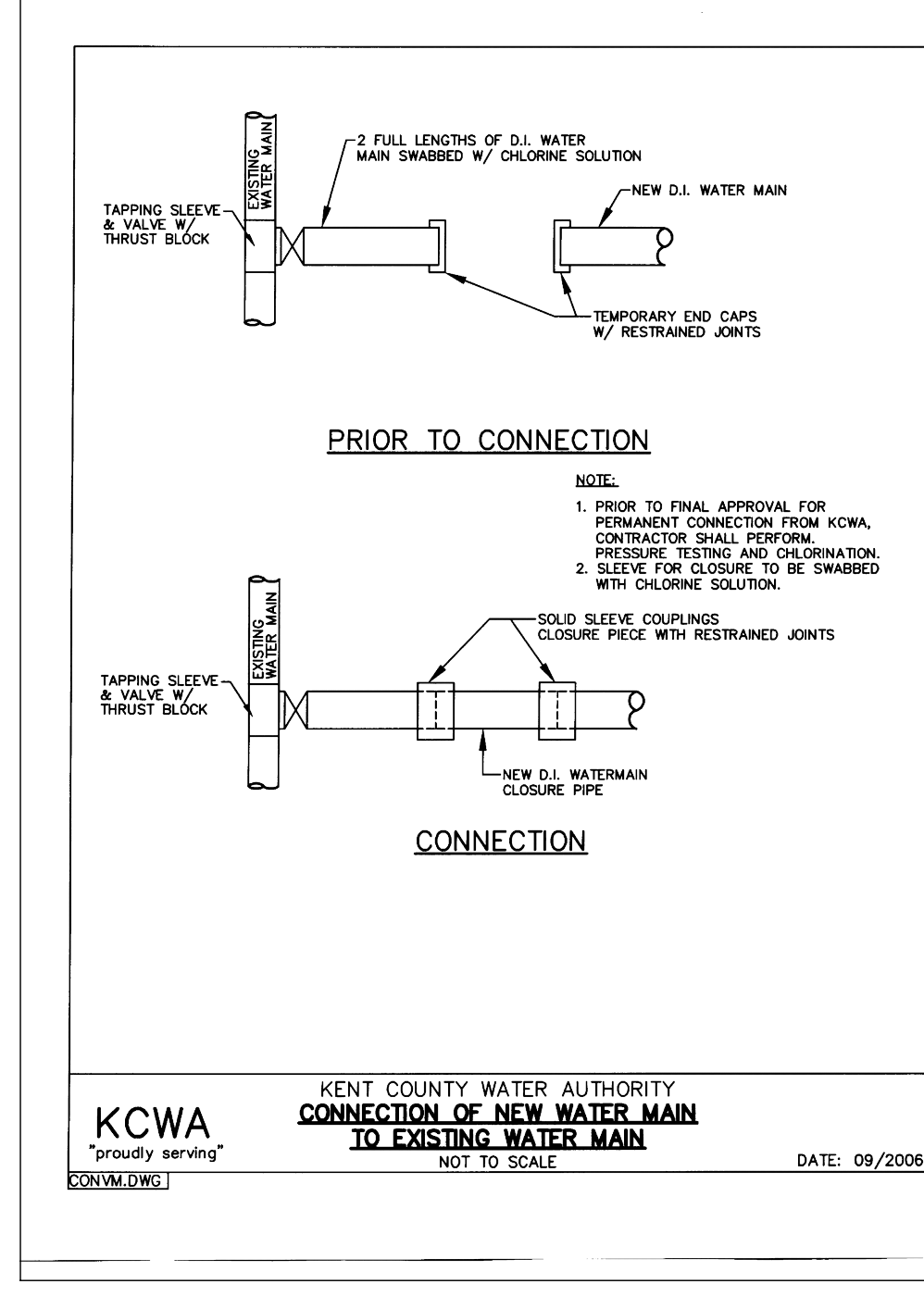
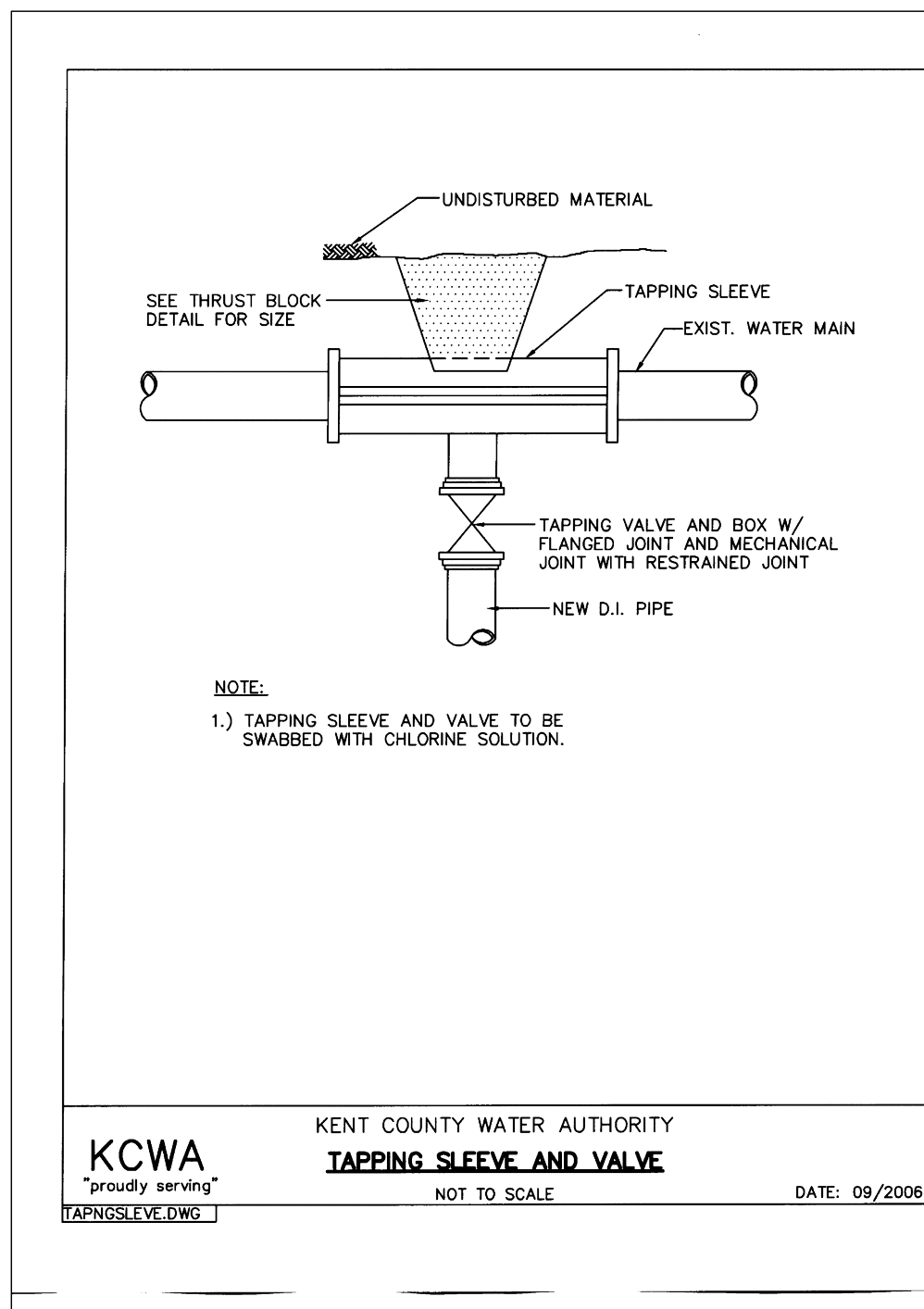
**NOTE:**  
 COVER SHALL BE CAST IRON, LOCKING LID MARKED SEWER AND DESIGNED FOR H-20 TRAFFIC LOADING.

Detail No. WSA - 21  
 Service Cleanout  
 Contract BB  
 Date: September 2011  
 Scale: Not to Scale  
**WARWICK SEWER AUTHORITY**  
 125 Arthur Devine Boulevard  
 Warwick, Rhode Island 02889



**NOTE:**  
 SEWER SERVICE, CLEANOUTS AND BACKFLOW VALVES SHALL COMPLY WITH CITY OF WARWICK SEWER AUTHORITY REQUIREMENTS.

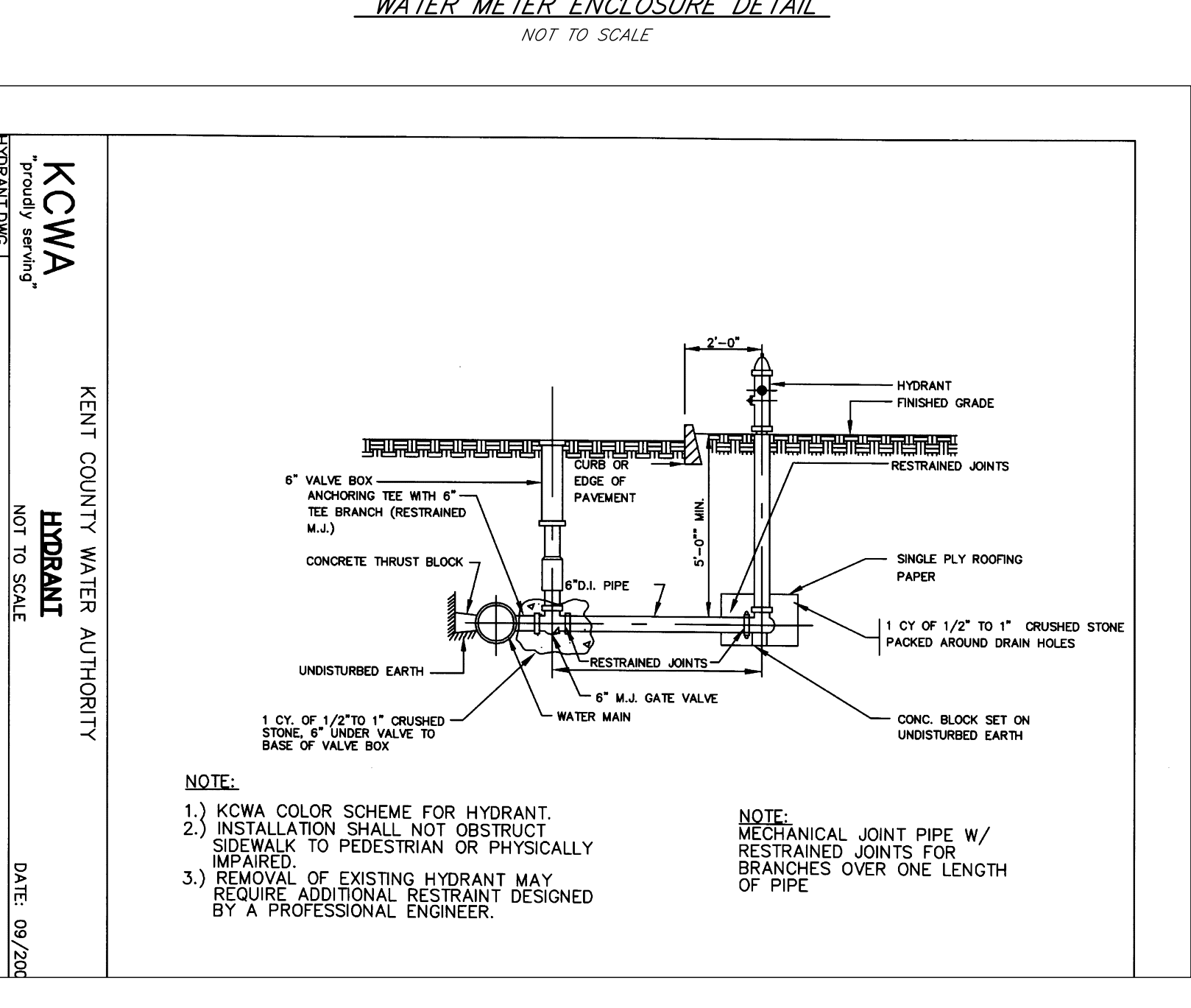
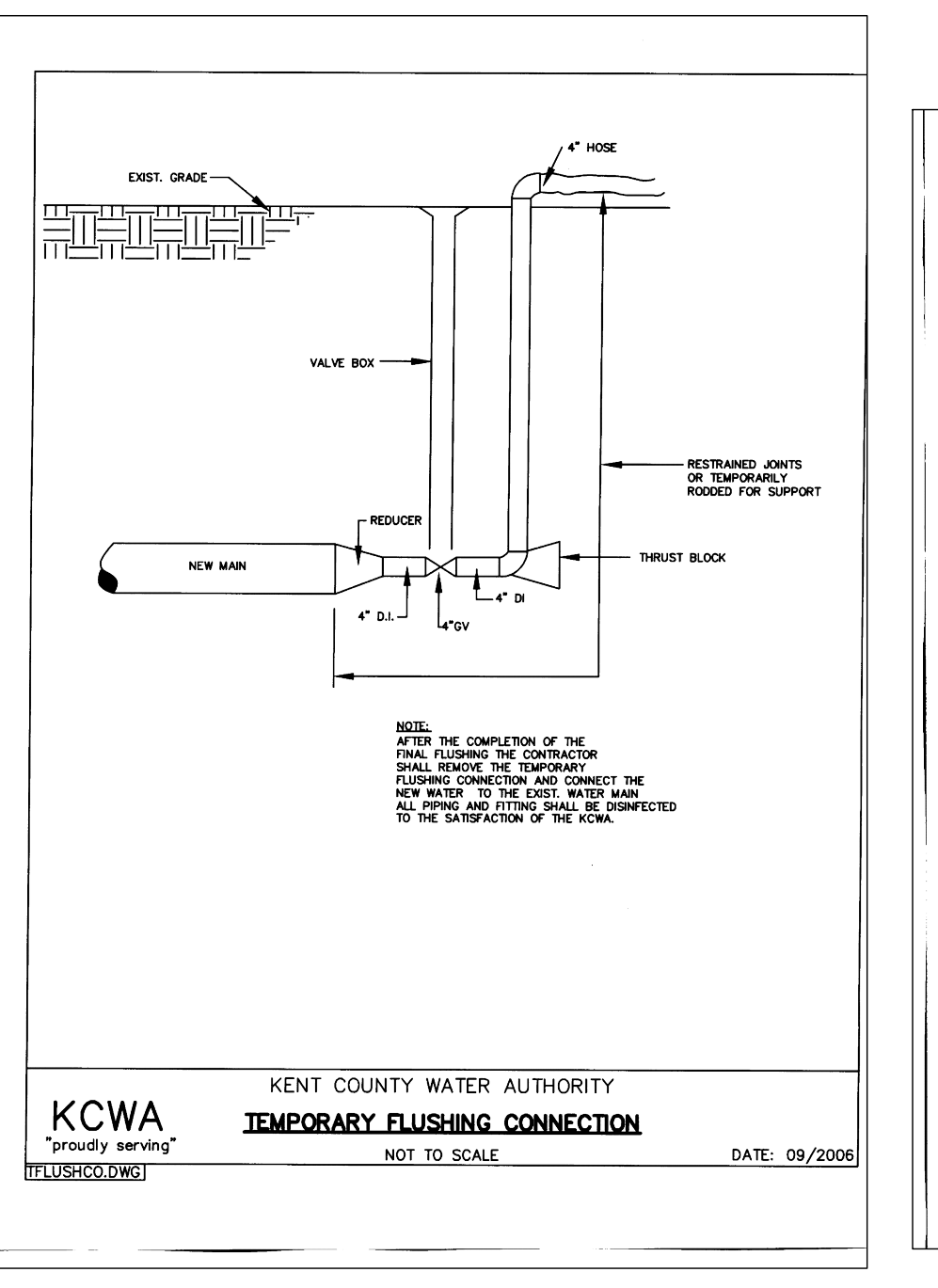
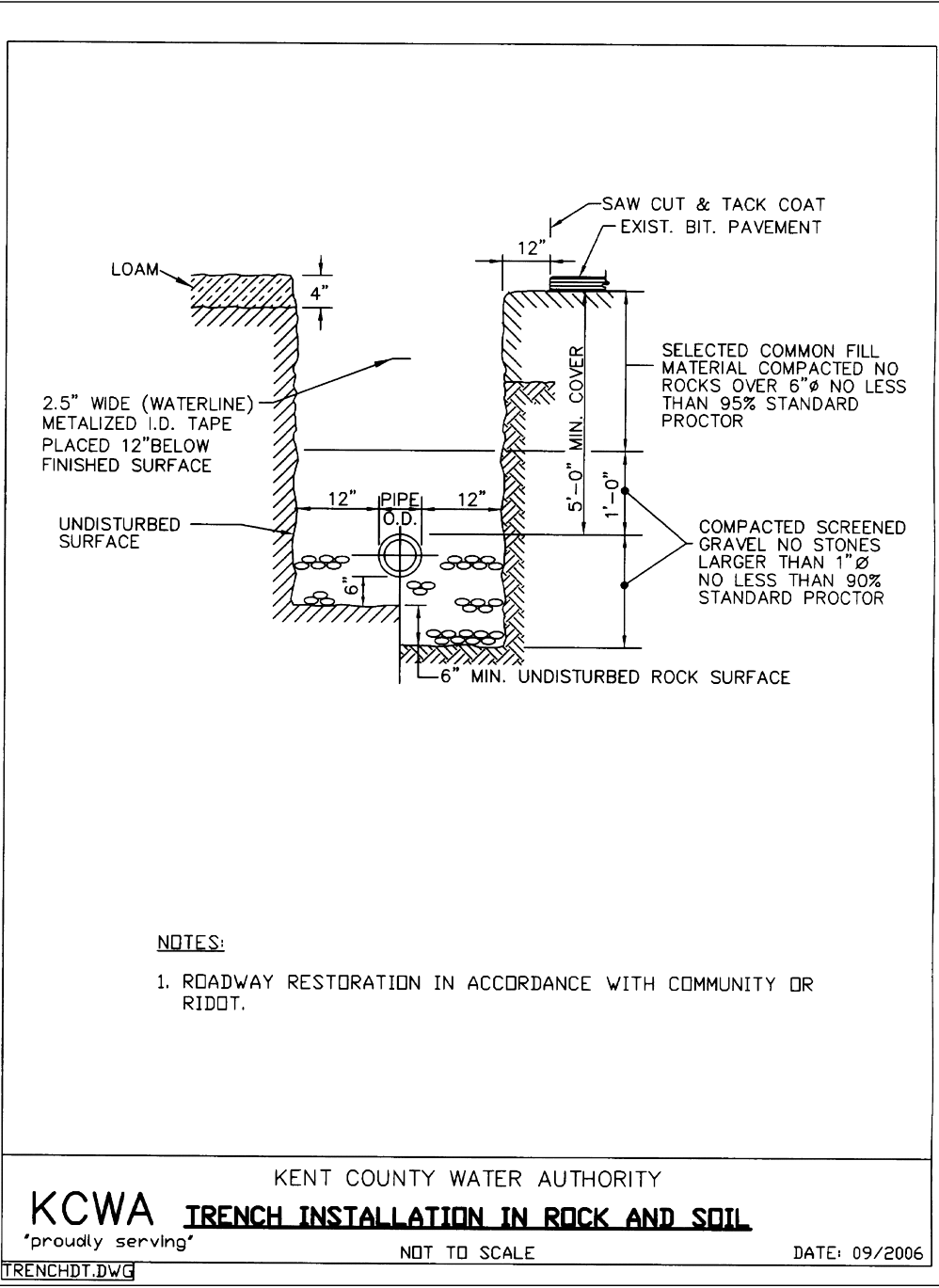
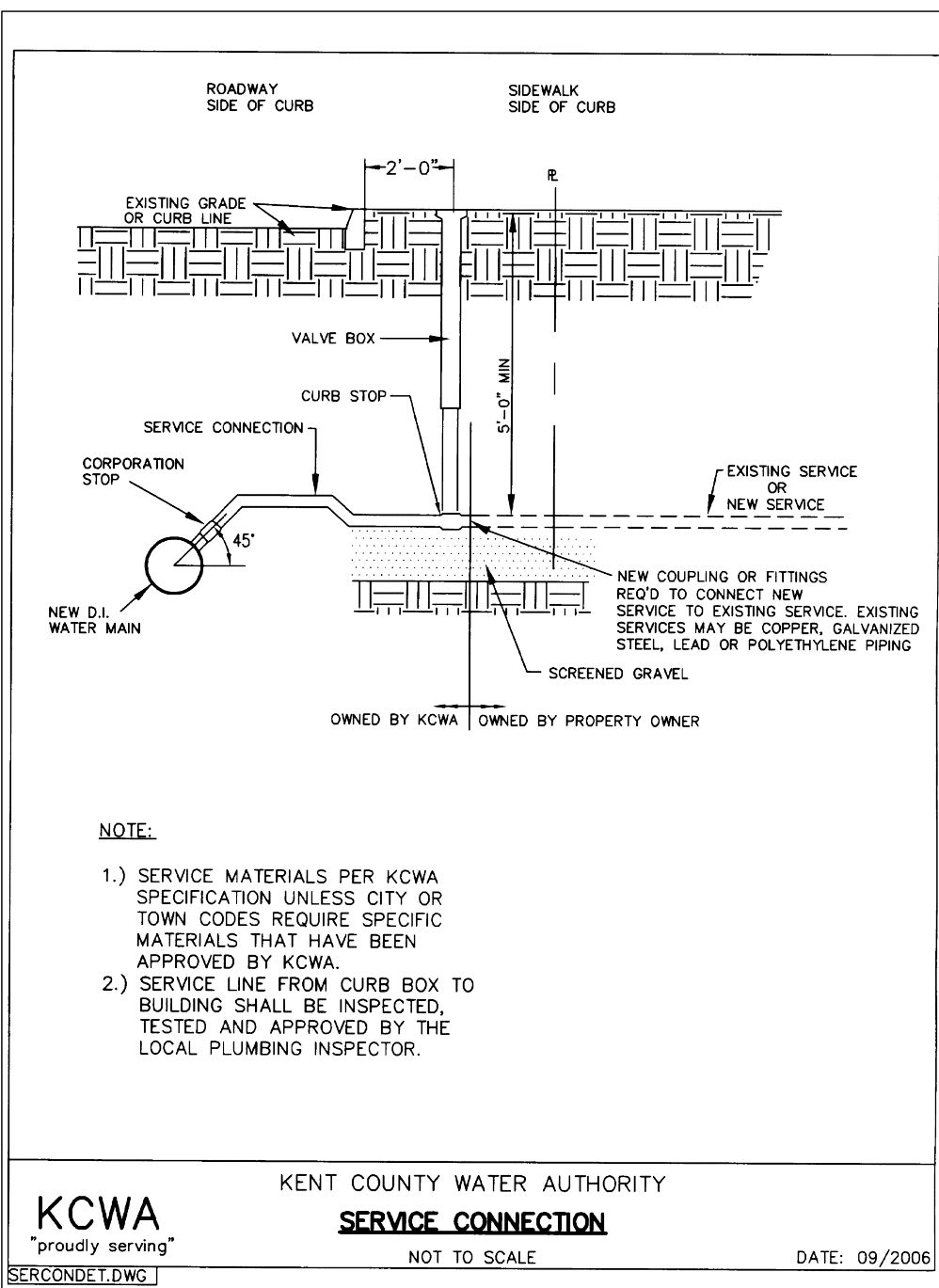




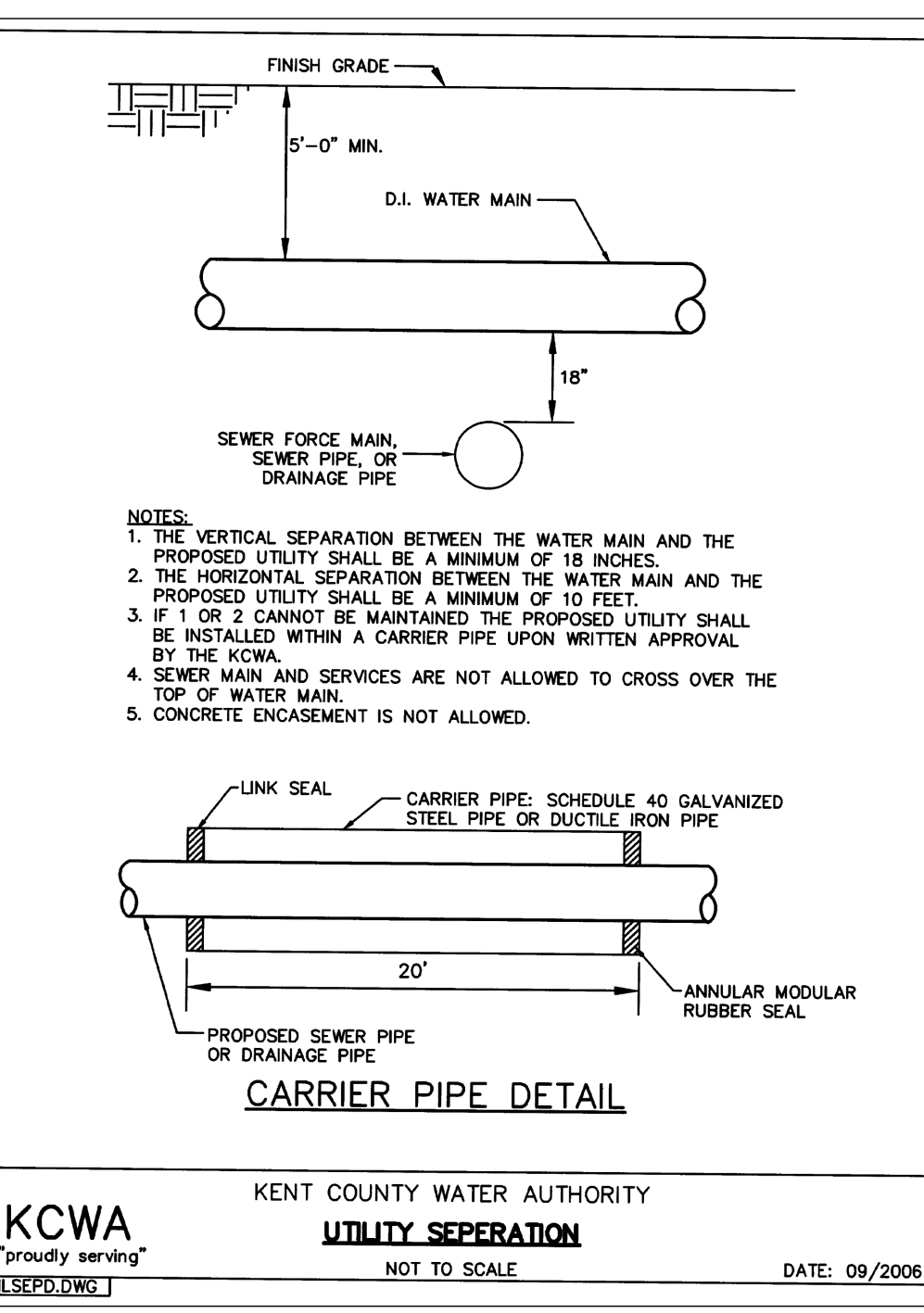
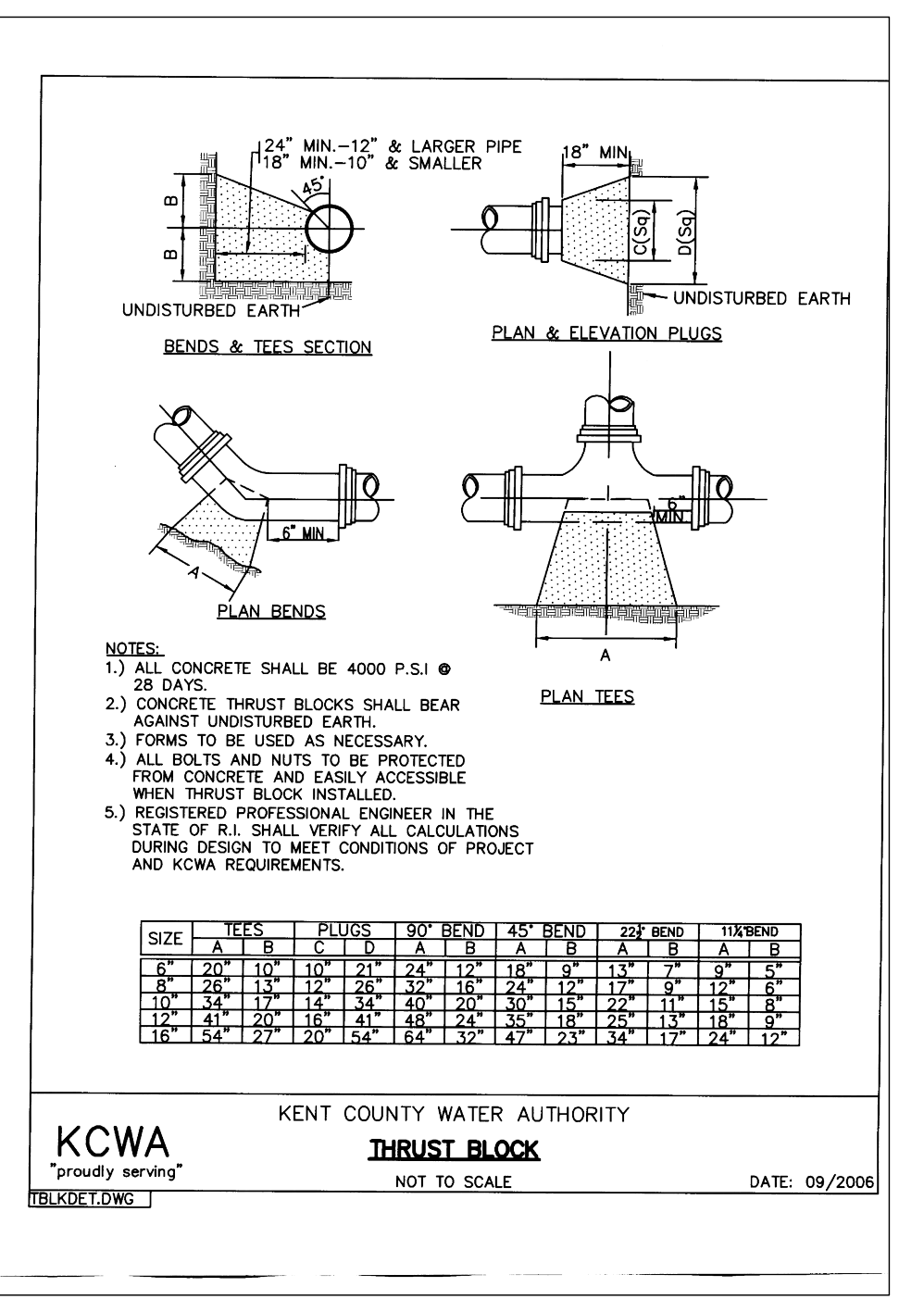
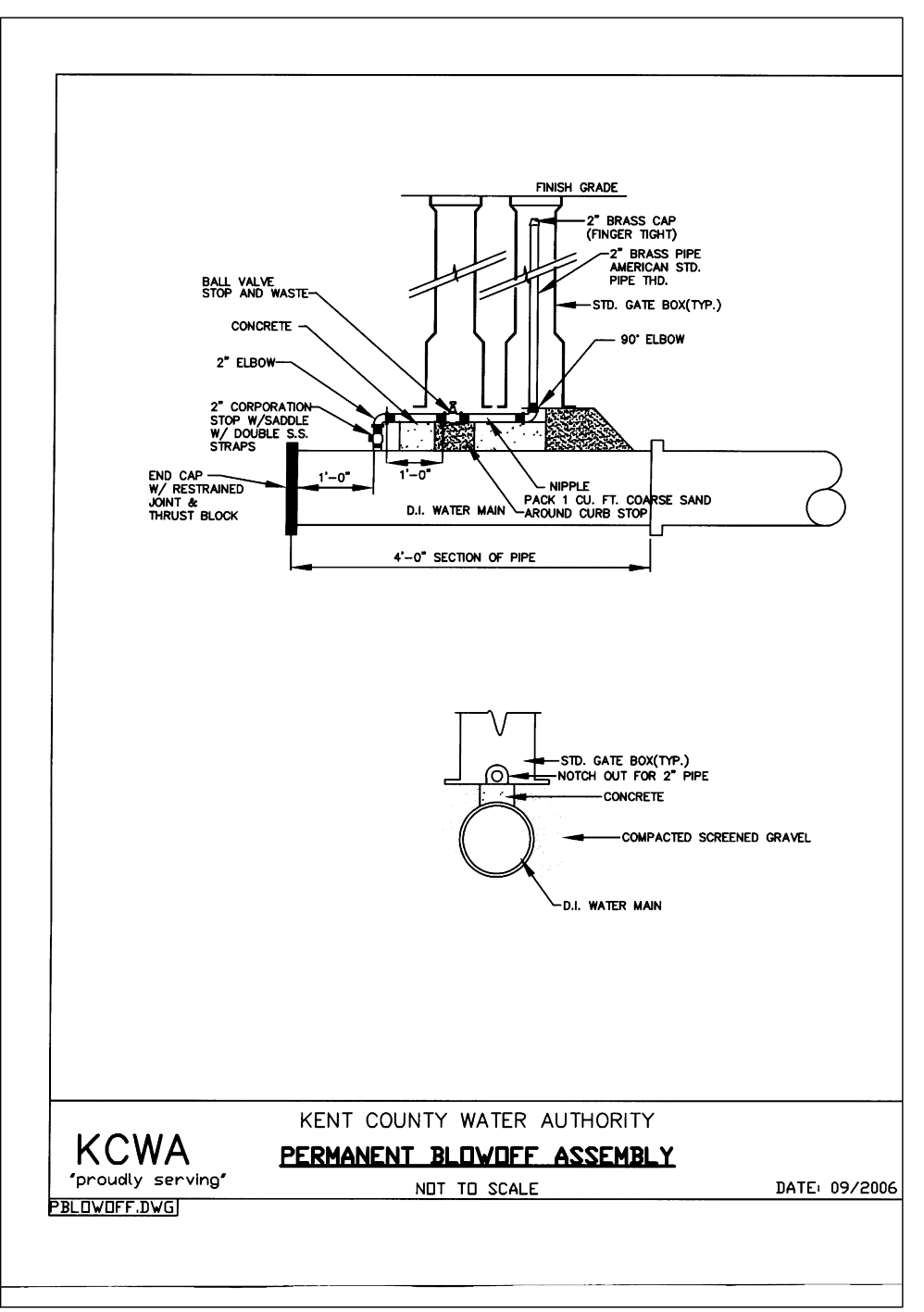
- UTILITY NOTES**
1. LOCATIONS, MATERIALS & SIZES OF EXISTING UTILITIES ARE PLOTTED FROM BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY ALL INFORMATION WITH THE APPROPRIATE UTILITY AUTHORITY AND DIG SAFE PRIOR TO ANY CONSTRUCTION OR EXCAVATION.
  2. EXPLORATORY TEST PITS SHALL BE EXCAVATED TO CONFIRM THE LOCATION, SIZE & DEPTH AT ANY CONNECTION OR CRITICAL UTILITY AREA, AS REQUIRED. THE DEPTH & LOCATION OF THE EXIST. SEWER LATERALS IS UNKNOWN.
  3. THE NEW SANITARY SEWER SHALL BE CONNECTED TO THE EXISTING 8" STUB. THE CONTRACTOR SHALL CONFIRM THE STUB LOCATION AND INVERT.
  4. SEE BUILDING, PLUMBING & MECHANICAL PLANS FOR BUILDING WATER AND SEWER SERVICE LOCATIONS, SIZES AND DETAILS.
  5. SEE ELECTRICAL PLANS FOR POWER SERVICE, COMMUNICATIONS, TELEPHONE, CABLE AND WIRING DETAILS. SERVICES SHALL BE UNDERGROUND WITH SEPARATE SERVICES FOR EACH UNIT. SERVICE CONNECTION LOCATIONS AND SIZES SHALL BE APPROVED BY THE APPROPRIATE UTILITY COMPANY.
  6. UTILITY SERVICE INSTALLATIONS SHALL BE APPROVED AND INSPECTED BY THE APPROPRIATE UTILITY COMPANY.
  7. ALL WORK WITHIN THE CITY RIGHT OF WAY MUST BE APPROVED AND INSPECTED BY WARWICK DPW IN ADDITION TO THE UTILITY AUTHORITY.
  8. ALL WORK WITHIN THE STATE HIGHWAY RIGHT OF WAY MUST BE APPROVED AND INSPECTED BY RIDOT IN ADDITION TO THE UTILITY AUTHORITY. THE CONTRACTOR SHALL OBTAIN A RIDOT UTILITY PERMIT FOR ALL UTILITY WORK WITHIN THE STATE HIGHWAY. RESTORATION OF PAVEMENT STRUCTURE, SIDEWALK AND MEDIAN SHALL MATCH EXISTING MATERIALS AND DEPTHS.
  9. SEWER SERVICES SHALL BE 6" SDR-35 PVC WITH CLEANOUT AND BACKFLOW PREVENTER PER CITY STANDARDS. SEWER MAIN SHALL BE 8" SDR-35 PVC.
  10. INDIVIDUAL WATER SERVICES SHALL BE TYPE 'K' COPPER. SERVICE MAIN SHALL BE 4" D.I. WITH A 3" E-CODER NEPTUNE METER AND 3" RPZ BACKFLOW PREVENTER IN AN ABOVE GROUND EXTERNAL HOTBOX ENCLOSURE.
  11. THE EXISTING WATER SERVICES SHALL BE CUT & PLUGGED AT THE WATER MAIN.
  12. GAS SERVICE SIZE AND LOCATION SHALL BE DETERMINED BY NATIONAL GRID.
- WATER NOTES**
1. WATER SERVICE MAIN SHALL BE 4" CL. 52 DUCTILE IRON WITH A 3" NEPTUNE PROTECTUS 3 OR MACH 10 METER AND A 3" RPZ BACKFLOW PREVENTER IN AN ABOVE GROUND EXTERNAL HOT BOX ENCLOSURE SIZED AS REQUIRED TO ACCOMMODATE ALL EQUIPMENT AND APPROVED BY KCWA. THE METER SHALL HAVE E-CODER RADIO READ REGISTER CONTAINING LARA CHIP.
  2. THE HYDRANT BRANCH SHALL BE 6" CL. 52 DUCTILE IRON, SEE DETAIL SHEET C8. THE PROPOSED HYDRANT LOCATION SHALL BE APPROVED BY KCWA AND THE WARWICK FIRE DEPARTMENT.
  3. TAPPING SLEEVES SHALL BE LOCATED AT LEAST 3 FEET FROM ANY PIPE JOINT IN THE 8" MAIN. A TEST PIT SHALL BE DUG AND THE TAP LOCATION ADJUSTED AS REQUIRED AND APPROVED BY KCWA.
  4. WATER DISTRIBUTION LINES SHALL BE 4" CL. 52 DUCTILE IRON. ALL SEWER WATER CROSSINGS SHALL HAVE THE SEWER SLEEVED, SEE DETAIL SHEET C8. PROVIDE BLOWOFF ASSEMBLIES AT THE END OF 4" LINES.
  5. ALL FITTINGS SHALL BE SECURED WITH MEGALUG TYPE MECHANICAL JOINT RESTRAINTS. THRUST BLOCKS MAY BE USED IF APPROVED BY KCWA. SEE LENGTH TABLE AND DETAILS ON SHEET C8.
  6. EACH UNIT SHALL HAVE A 3/4" TYPE 'K' COPPER OR POLYETHYLENE INDIVIDUAL WATER SERVICE WITH CURB STOP AND BOX.
  7. WATER LINES SHALL BE INSTALLED ABOVE SEWER LINES WITH AN 18" MINIMUM VERTICAL SEPARATION. SEWERS SHALL BE SLEEVED IF THERE IS LESS THAN 18" SEPARATION. A HORIZONTAL SEPARATION OF 10" SHALL BE MAINTAINED BETWEEN WATER LINES AND OTHER UTILITIES.
  8. THE KENT COUNTY WATER AUTHORITY RULES AND REGULATIONS SHALL BE KEPT ON SITE DURING THE CONSTRUCTION OPERATION. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE RULES, REGULATIONS & DETAILS.
  9. THE CONTRACTOR IS RESPONSIBLE TO PROPERLY SIZE THE MAIN AND BLOW OFF AND TO FULFILL THE AWWA REQUIREMENTS FOR FLUSHING AND DISINFECTION.
  10. WATER AS-BUILT DRAWINGS SHALL BE PROVIDED AND CONFORM TO THE REQUIREMENTS OF APPENDIX B OF THE KCWA REGULATIONS.
  11. THE 3 EXISTING WATER SERVICES TO EXISTING HOUSES SHALL BE CUT & PLUGGED AT THE WATER MAIN.

REVISION  
 3-13-23  
 7-10-23  
 KCWA SUBMISSION  
 RIDOT COMMENTS

SCOTT F. MOOREHEAD  
 4286  
 REGISTERED PROFESSIONAL ENGINEER



- PREPARED FOR:**  
 281 CENTERVILLE PLACE  
 RESIDENTIAL CONDOMINIUMS  
 255, 265 & 281 CENTERVILLE ROAD  
 A.P. 246 LOTS 240, 243, 260 & 261  
 WARWICK, RHODE ISLAND  
 401-864-5252
- WATER NOTES & DETAILS**



**WATER PIPE RESTRAINED JOINT TABLE**

FITTING	MIN. RESTRAINED LENGTH
8"x6" TEE	2' ON RUN, AND ALL JOINTS TO HYDRANT ON BRANCH
8"x4" TEE	2' ON RUN, 1' ON BRANCH
4"x4" TEE	2' ON RUN, 8" ON BRANCH
4" 45° BEND	3' BOTH DIRECTIONS
4" PLUG	16"

**NOTES:**

1. ALL JOINTS INCLUDING PIPE JOINTS, VALVE JOINTS & FITTING JOINTS SHALL BE RESTRAINED WITHIN THE LIMITS OF THE RESTRAINED LENGTHS LISTED ON THIS TABLE.
2. WHERE POSSIBLE, FULL LENGTHS OF PIPE SHALL BE PLACED ON BOTH SIDES OF FITTINGS.
3. ALL JOINTS SHALL BE PROPERLY RESTRAINED PRIOR TO PRESSURE TESTING.

S.F.M. ENGINEERING ASSOCIATES  
 410 TOGUE AVENUE  
 COVENTRY, RI 02816  
 PHONE: 401-826-3736  
 FAX: 401-826-1711  
 SCOTT.SFM@TLANTICBB.NET

**SFM**

DRN. BY: SFM  
 CHK. BY: JZL  
 SCALE: AS NOTED  
 DATE: FEB. 28, 2023  
 DWG: SFM692-WD-T  
 SHEET 8 OF 9

PRELIMINARY CITY SUBMISSION **C8**