"TIVERTON HEIGHTS"
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
RIDEM & PRELIMINARY PLAN SUBMISSION
COMPREHENSIVE PERMIT APPLICATION
IN
TIVERTON, RHODE ISLAND

APPLICANT/OWNER:

TIVERTON HEIGHTS LP
C/O HARKINS DEVELOPMENT
1907 EAST MAIN ROAD
PORTSMOUTH, RI 02871

PRINCIPE COMPANY ESTABLISHED IN 1981

PREPARED BY:

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RHODE ISLAND 02878
401.816.5385
INFO@PRINCIPEENGINEERING.COM
WWW.PRINCIPEENGINEERING.COM

DATE: MARCH 18, 2021

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wenesk
"Appendix B"

LIST OF DRAWINGS

MASTER PLAN APPROVAL HAS BEEN GRANTED BY THE TIVERTON PLANNING BOARD AND RECORDED IN BOOK 1631 PAGE 291

NOTE: AS PER MASTER PLAN APPROVAL, 60% OF THE TOTAL 275 UNITS (165 OF THE RESIDENTIAL UNITS) SHALL CONSIST OF 2 BEDROOMS AND 40% OF THE TOTAL 275 UNITS (110 OF THE RESIDENTIAL UNITS) SHALL CONSIST OF 3 BEDROOMS.

PHASING OF PROJECT:

PHASE I – ROAD A–C & EASTERN UNITS
RESIDENTIAL UNITS:
81 CONDO UNITS (20 UNITS AFFORDABLE) (9 BLDS)
14 DUPLEX UNITS (4 UNITS AFFORDABLE) (7 BLDS)
34 SINGLE FAMILY UNITS (8 UNITS AFFORDABLE) (34 BLDS)
129 TOTAL UNITS (32 UNITS AFFORDABLE) (50 BLDS)

COMMUNITY BUILDING: GAZEBO STRUCTURE (256 SF)

NOTE: TO ACCOMMODATE THE LOW PRESSURE SEWER SERVICE FOR PHASE I, THE GRAVITY SEWER MAIN WITHIN ROAD I TO STATION 3+09, WITHIN ROAD F TO STATION 11+12 AND FROM THE MANHOLE IN SOUZA ROAD TO ROAD E STATION 3+06 SHALL BE CONSTRUCTED IN PHASE I.

PHASE II – ROAD F–I & WESTERN UNITS
RESIDENTIAL UNITS:
32 TOWNHOUSE UNITS (8 UNITS AFFORDABLE) (8 BLDS)
32 DUPLEX UNITS (8 UNITS AFFORDABLE) (16 BLDS)
82 SINGLE FAMILY UNITS (21 UNITS AFFORDABLE) (82 BLDS)
146 TOTAL UNITS (37 UNITS AFFORDABLE) (106 BLDS)

A TOTAL MAXIMUM OF 275 RESIDENTIAL DWELLING UNITS SHALL BE CONSTRUCTED. 69 AFFORDABLE UNITS WILL BE PROVIDED. AFFORDABLE UNITS HAVE NOT YET BEEN SPECIFICALLY DESIGNATED ON THE SITE PLAN BUT WILL BE EQUALLY DISTRIBUTED AROUND THE COMMUNITY AND WITHIN THESE UNIT TYPES WITHOUT DISPROPORTIONALITY AS TO GROUPING, LOCATION OR DISPERSION OF MARKET RATE VERSUS AFFORDABLE UNITS.

LOW PRESSURE SEWER SYSTEM NOTE:
ALL HOMES WITH LOW PRESSURE SEWER SYSTEMS, SHALL BE PRE–WIRED TO ACCOMODATE A GENERATOR IN THE EVENT OF A POWER OUTAGE

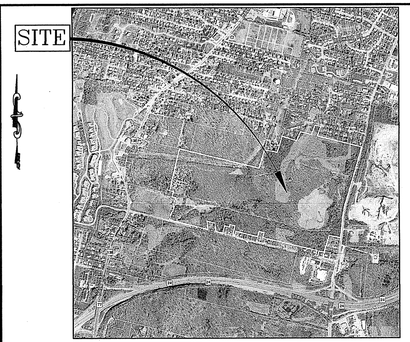
EXISTING CONDITIONS AND CLASS I PROPERTY LINE SURVEY BY: NATIONAL SURVEYORS–DEVELOPERS, INC.
42 HAMLET AVENUE
WOONSOCKET, RI

WETLANDS DELINEATED BY: NATURAL RESOURCE SERVICES, INC. BY: EDWARD J. AVIZINIS DATE: APRIL 27, 2015

ARCHITECTURE BY: UNION STUDIOS
140 UNION STREET
PROVIDENCE, RI

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

NORBERT A. THERIEN
No. 1739
PROFESSIONAL LAND SURVEYOR



SCALE: NOT TO SCALE

PROJECT DATA:

PLAT: 110 LOT: 127

NUMBER OF SINGLE FAMILY UNITS:	116
NUMBER OF DUPLEX UNITS:	46
NUMBER OF TOWNHOUSES:	32
NUMBER OF CONDOS:	81
NUMBER OF TOTAL UNITS:	275

TOTAL LOT AREA:	5,918,858 S.F. 135.88 Ac.

BUILDABLE AREA CALCULATION

TOTAL LOT AREA	135.88 Ac.
EASEMENT AREA	±3.26 AC.
WETLAND AREAS & BUFFERS	±51.87 AC.
TOTAL BUILDABLE AREA	±80.75 AC.

TOTAL LENGTH OF PROPOSED NEW PRIVATE ROADS	8,322 L.F.
ROAD A	1,793 L.F.
ROAD A (EXIT)	335 L.F.
ROAD B	660 L.F.
ROAD C	283 L.F.
ROAD E	1,917 L.F.
ROAD F	1,477 L.F.
ROAD G	662 L.F.
ROAD H	639 L.F.
ROAD I	556 L.F.

APR 12 2021

BASE FLOOD ELEVATION NOTE:
THE SITE IS LOCATED WITHIN ZONE X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 44005C0039J

THE DEVELOPMENT DOES NOT LIE WITHIN THE WATERSHED PROTECTION OVERLAY DISTRICT OR ANY OTHER AREAS DESIGNATED BY THE TOWN OR THE STATE FOR PURPOSES OF ENVIRONMENTAL PROTECTION OR NATURAL OR CULTURAL RESOURCES PROTECTION.

ZONING CRITERIA

R–60 ZONING

ZONING DISTRICT	R–60
MINIMUM LOT AREA	60,000 SQ. FT.
MINIMUM LOT WIDTH	175'
MINIMUM LOT FRONTAGE	120'
MINIMUM FRONT YARD SETBACK	40'
MINIMUM SIDE YARD SETBACK	30'
MINIMUM REAR YARD SETBACK	60'
MAXIMUM LOT BUILDING COVERAGE	15%
MAXIMUM BUILDING HEIGHT	35'

MULTI–FAMILY DWELLINGS

MINIMUM LOT AREA	*(SEE BELOW)
MINIMUM LOT WIDTH	175'
MINIMUM LOT FRONTAGE	120'
MINIMUM FRONT YARD SETBACK	40'
MINIMUM SIDE YARD SETBACK	30'
MINIMUM REAR YARD SETBACK	60'
MAXIMUM LOT BUILDING COVERAGE	20%
MAXIMUM BUILDING HEIGHT	35'

*60,000 SF PLUS 10,000 SF FOR EACH UNIT ABOVE 2 UNITS, PLUS 5,000 SF FOR EACH ADDITIONAL BEDROOM OVER 2 BEDROOMS PER UNIT.

Environmental Management
APR 12 2021
Office of Water Resources

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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Martin D. Wencek

RADIUS MAP

Thomas J. Principe, III
No. 9107
REGISTERED
PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM
ESTABLISHED IN 1981

REVISIONS

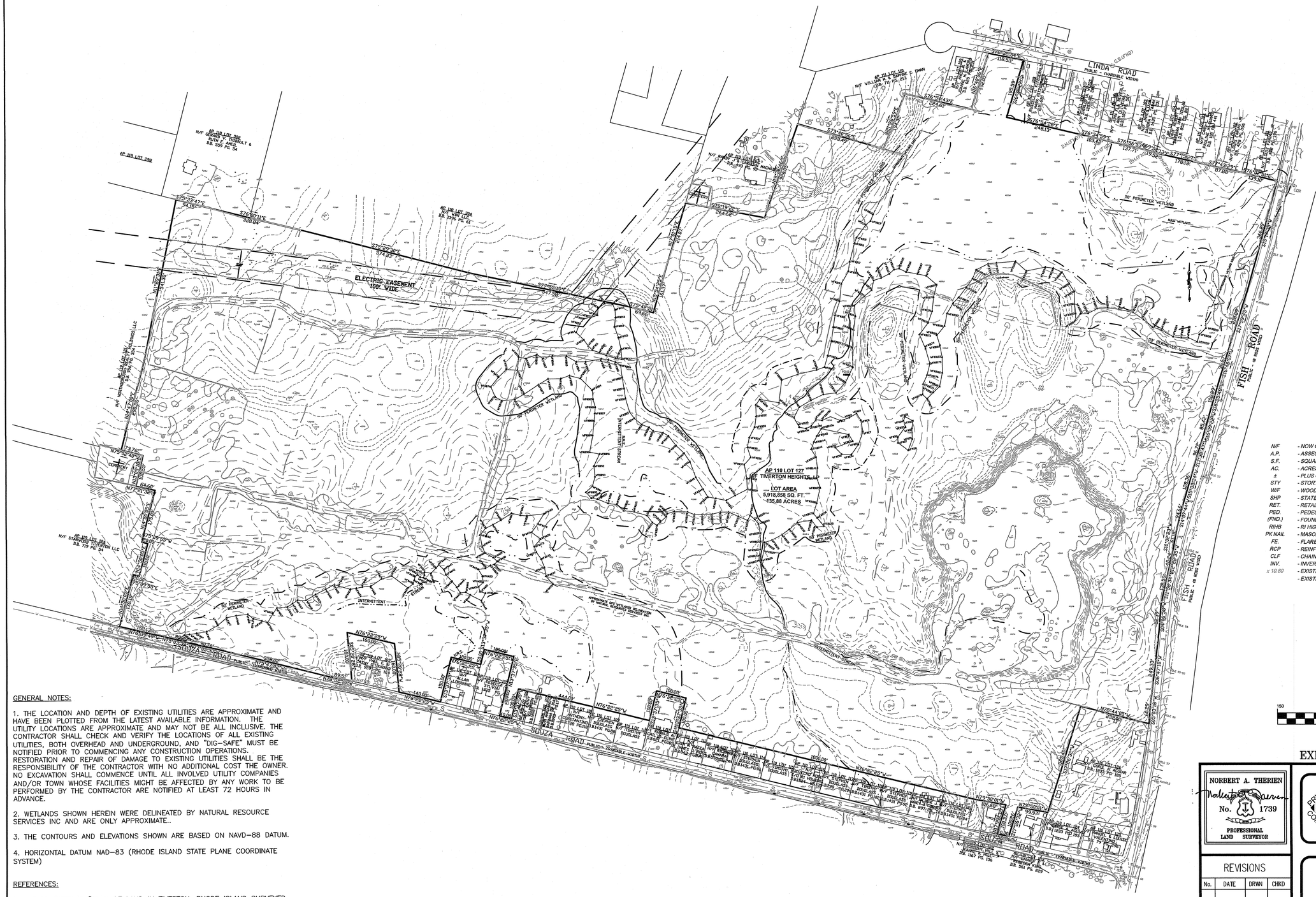
No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=200'
SHEET NO: 2 of 32
DRAWN BY: TJP
DESIGN BY: TJP
CHECKED BY: TJP
DATE: 3/18/2021
PROJECT NO.: 2015-10

GRAPHIC SCALE
400 0 200 400 800 1600
(IN FEET)
1 inch = 400 ft.

Environmental Management
APR 12 2021
Office of Water Resources



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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Martin D. Wencek

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY	▬	- PROPERTY LINE
A.P.	- ASSESSORS PLAT	—	- ZONING SETBACK LINE
S.F.	- SQUARE FEET	—15—	- EXISTING CONTOUR
AC.	- ACRES	—x—x—	- FENCE
±	- PLUS OR MINUS	—S—	- SEWER LINE
STY	- STORY	—D—	- DRAIN LINE
W/F	- WOOD FRAMED	—W—W—	- WATER LINE
SHP	- STATE HIGHWAY PLAT	—G—G—	- GAS LINE
RET.	- RETAINING WALL	—E—E—	- ELECTRIC LINE
PED.	- PEDESTRIAN	Ⓢ	- SANITARY SEWER MANHOLE
(FND.)	- FOUND	▦	- CATCH BASIN
RIHB	- RI HIGHWAY BOUND	Ⓓ	- STORM DRAIN MANHOLE
PK NAIL	- MASONRY NAIL	⊗	- WATER GATE
FE.	- FLARED END	⊗	- GAS VALVE
RCP	- REINFORCED CONCRETE PIPE	Ⓔ	- ELECTRIC MANHOLE
CLF	- CHAIN LINK FENCE	⊡	- GRANITE BOUND
INV.	- INVERT	◎	- DRILL HOLE
x 10.80	- EXISTING SPOT GRADE	○	- IRON PIPE
	- EXISTING STONE WALL		

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft.

EXISTING CONDITIONS OVERALL PLAN

GENERAL NOTES:

1. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.

2. WETLANDS SHOWN HEREIN WERE DELINEATED BY NATURAL RESOURCE SERVICES INC AND ARE ONLY APPROXIMATE..

3. THE CONTOURS AND ELEVATIONS SHOWN ARE BASED ON NAVD-88 DATUM.

4. HORIZONTAL DATUM NAD-83 (RHODE ISLAND STATE PLANE COORDINATE SYSTEM)

REFERENCES:

1. A PLAN ENTITLED "PLAN OF LAND IN TIVERTON, RHODE ISLAND SURVEYED FOR TEXACO, INC. SURVEYED BY CE MAGUIRE, INC. SCALE 1" = 80' MARCH, 1983 REVISED JAN, 1985" JOSEPH A. MARRIER P.L.S. SAID PLAN IS RECORDED IN PLAT BOOK 16 PAGE 104.

" I CERTIFY THAT THE INFORMATION SHOWN HEREON HAS BEEN OBTAINED BY AN ACTUAL SURVEY ON THE GROUND, THAT IT IS CORRECT AND THIS SURVEY AND PLAN CONFORM TO A CLASS 1 STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

BY: Norbert A Therien
NORBERT A. THERIEN P.L.S.

Thomas J. Principe, III
No. 9107
REGISTERED PROFESSIONAL ENGINEER

NORBERT A. THERIEN
Norbert A Therien
No. 1739
PROFESSIONAL LAND SURVEYOR

REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
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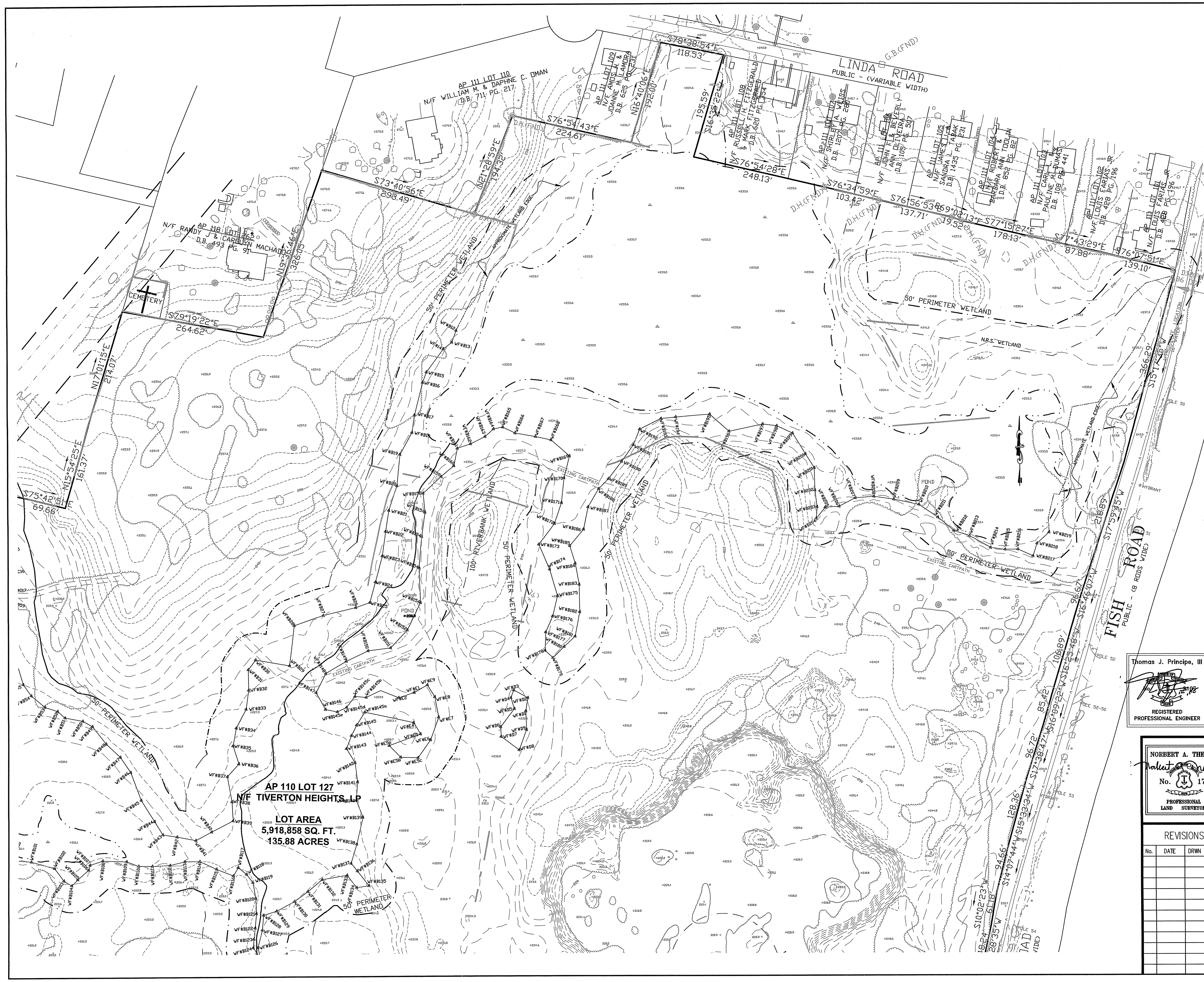
WWW.PRINCIPEENGINEERING.COM
ESTABLISHED IN 1981

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=150'	SHEET NO: 3 of 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10	



LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY		- PROPERTY LINE
A.P.	- ASSESSORS PLAT		- ZONING SETBACK LINE
S.F.	- SQUARE FEET	15	- EXISTING CONTOUR
AC.	- ACRES	x x	- FENCE
±	- PLUS OR MINUS	S	- SEWER LINE
STY	- STORY	D	- DRAIN LINE
W/F	- WOOD FRAMED	W W	- WATER LINE
SHP	- STATE HIGHWAY PLAT	G G	- GAS LINE
RET.	- RETAINING WALL	E E	- ELECTRIC LINE
PED.	- PEDESTRIAN	(S)	- SANITARY SEWER MANHOLE
(FND.)	- FOUND		- CATCH BASIN
RIHB	- RI HIGHWAY BOUND	(D)	- STORM DRAIN MANHOLE
PK NAIL	- MASONRY NAIL		- WATER GATE
FE.	- FLARED END		- GAS VALVE
RCP	- REINFORCED CONCRETE PIPE	(E)	- ELECTRIC MANHOLE
CLF	- CHAIN LINK FENCE		- GRANITE BOUND
INV.	- INVERT		- DRILL HOLE
x 10.80	- EXISTING SPOT GRADE		- IRON PIPE
	- EXISTING STONE WALL		

Thomas J. Principe, III
No. 9107
REGISTERED PROFESSIONAL ENGINEER

GRAPHIC SCALE
80 0 40 80 160 320
(IN FEET)
1 inch = 80 ft.

EXISTING CONDITIONS-1

NORBERT A. THERIEN
No. 1739
PROFESSIONAL LAND SURVEYOR

PRINCIPE COMPANY, INC.
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PO BOX 298
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REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=80'		SHEET NO: 4 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

Environmental Management
APR 12 2021
Office of Water Resources

PARTMENT OF ENVIRONMENTAL MANAGEMENT
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Martin D. Wencek

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY		- PROPERTY LINE
A.P.	- ASSESSORS PLAT		- ZONING SETBACK LINE
S.F.	- SQUARE FEET	15	- EXISTING CONTOUR
AC.	- ACRES	X X	- FENCE
±	- PLUS OR MINUS	S	- SEWER LINE
STY	- STORY	D	- DRAIN LINE
W/F	- WOOD FRAMED	W W	- WATER LINE
SHP	- STATE HIGHWAY PLAT	G G	- GAS LINE
RET.	- RETAINING WALL	E E	- ELECTRIC LINE
PED.	- PEDESTRIAN	S	- SANITARY SEWER MANHOLE
(FND.)	- FOUND		- CATCH BASIN
RIHB	- RI HIGHWAY BOUND	D	- STORM DRAIN MANHOLE
PK NAIL	- MASONRY NAIL		- WATER GATE
FE.	- FLARED END		- GAS VALVE
RCP	- REINFORCED CONCRETE PIPE	E	- ELECTRIC MANHOLE
CLF	- CHAIN LINK FENCE		- GRANITE BOUND
INV.	- INVERT		- DRILL HOLE
x 10.80	- EXISTING SPOT GRADE		- IRON PIPE
	- EXISTING STONE WALL		

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

EXISTING CONDITIONS-2

NORBERT A. THERIEN
No. 1739
PROFESSIONAL LAND SURVEYOR

REVISIONS

No.	DATE	DRWN	CHKD

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ESTABLISHED IN 1981

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=80'	SHEET NO: 5 of 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10	

Environmental Management
APR 12 2021
Office of Water Resources

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Martin D. Venezia

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
STY	- STORY
WF	- WOOD FRAMED
SHP	- STATE HIGHWAY PLAT
RET.	- RETAINING WALL
PED.	- PEDESTRIAN
(FND.)	- FOUND
RIHB	- RI HIGHWAY BOUND
PK NAIL	- MASONRY NAIL
FE.	- FLARED END
RCP	- REINFORCED CONCRETE PIPE
CLF	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPERTY LINE
	- ZONING SETBACK LINE
15	- EXISTING CONTOUR
x x	- FENCE
s s	- SEWER LINE
s s	- DRAIN LINE
w w	- WATER LINE
g g	- GAS LINE
e e	- ELECTRIC LINE
S	- SANITARY SEWER MANHOLE
	- CATCH BASIN
D	- STORM DRAIN MANHOLE
W	- WATER GATE
G	- GAS VALVE
E	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

NORBERT A. THERIEN
No. 1739
PROFESSIONAL LAND SURVEYOR

EXISTING CONDITIONS -3

REVISIONS

No.	DATE	DRWN	CHKD

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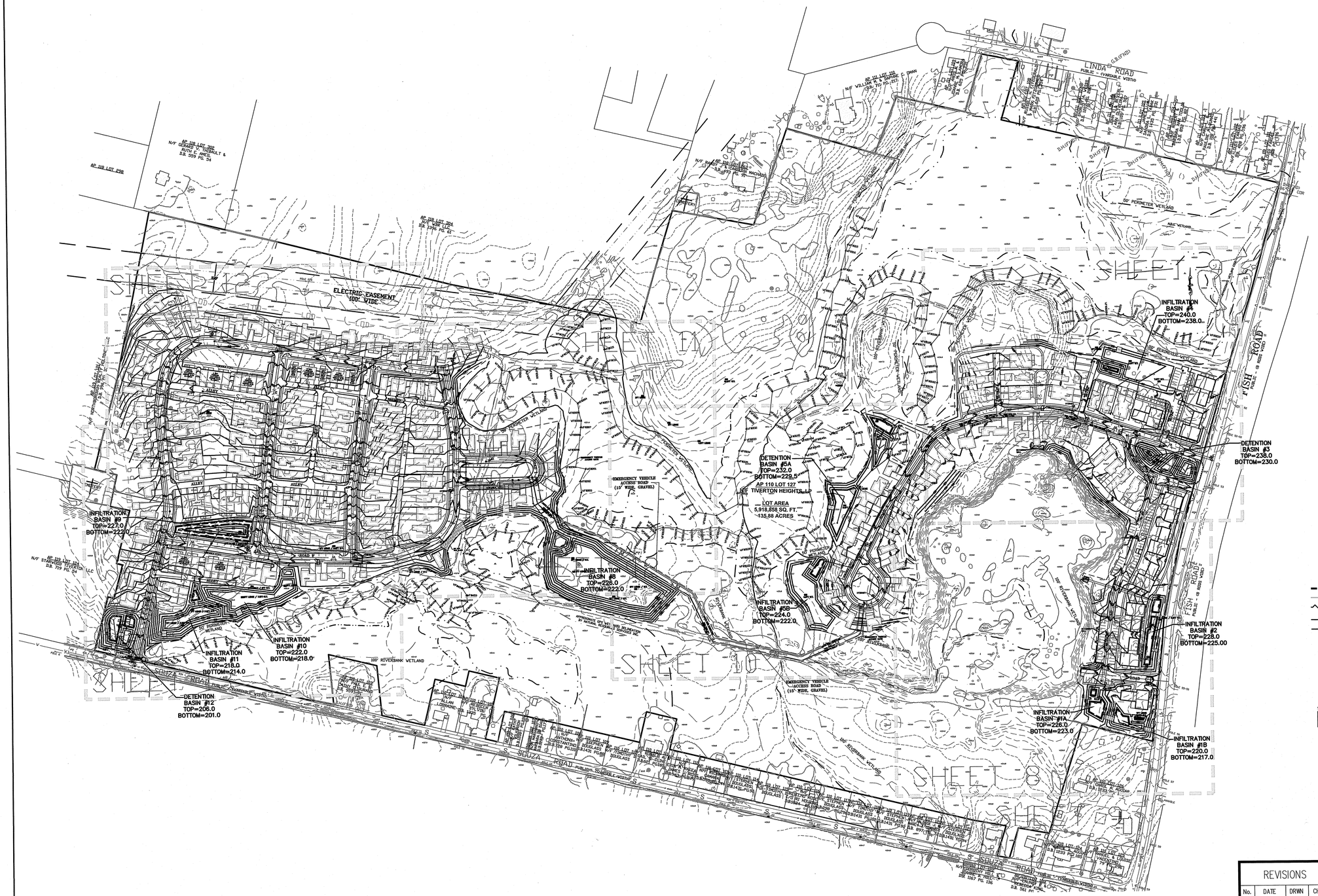
ESTABLISHED IN 1981

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=80'		SHEET NO: 6 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

Environmental Management
APR 1 2 2021
Office of Water Resources



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Martin D. Sencek

LEGEND & ABBREVIATIONS

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A.P.	- ASSESSORS PLAT	━━━	- ZONING SETBACK LINE
S.F.	- SQUARE FEET	——15——	- EXISTING CONTOUR
AC.	- ACRES	—x——x—	- FENCE
±	- PLUS OR MINUS	——S——	- SEWER LINE
STY	- STORY	——D——	- DRAIN LINE
W/F	- WOOD FRAMED	——W——	- WATER LINE
SHP	- STATE HIGHWAY PLAT	——G——	- GAS LINE
RET.	- RETAINING WALL	——E——	- ELECTRIC LINE
PED.	- PEDESTRIAN	Ⓢ	- SANITARY SEWER MANHOLE
(FND.)	- FOUND	▦	- CATCH BASIN
RIHB	- RI HIGHWAY BOUND	Ⓓ	- STORM DRAIN MANHOLE
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FE.	- FLARED END	GV	- GAS VALVE
RCP	- REINFORCED CONCRETE PIPE	Ⓔ	- ELECTRIC MANHOLE
CLF	- CHAIN LINK FENCE	⊡	- GRANITE BOUND
INV.	- INVERT	◎	- DRILL HOLE
x 10.80	- EXISTING SPOT GRADE	○	- IRON PIPE
	- EXISTING STONE WALL	━━━	- PROPOSED LOT LINE
▬ ▬ ▬	- PROPOSED SILT FENCE AT LIMIT OF DISTURBANCE	– – – –	- PROPOSED EASEMENT
— — —LOD—	- PROPOSED LIMIT OF DISTURBANCE	——W——	- PROPOSED WATER LINE
⋀⋀⋀	- SHEET PILE RETAINING WALL TYPE A-2	——S——	- PROPOSED SEWER LINE
—⋀—⋀—	- PRECAST BLOCK RETAINING WALL TYPE A-1	——FM——	- PROPOSED SEWER FORCE MAIN
——224——	- PROPOSED CONTOUR LINE	———	- PROPOSED EDGE OF PAVEMENT
		▭	- PROPOSED SIDEWALK

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft.

DEVELOPMENT KEY PLAN

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
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PRINCIPE COMPANY ESTABLISHED IN 1981

REVISIONS

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No. 8107
REGISTERED
PROFESSIONAL ENGINEER

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=150'	SHEET NO: 7 of 32
DRAWN BY: TJP	DESIGN BY: TJP / CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015–10

Environmental Management
APR 12 2021
Office of Water Resources

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OFFICE OF WATER RESOURCES
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NOTE: AS PER THE TRAFFIC IMPACT REPORT VEGETATION SHALL BE REMOVED AS REQUIRED TO INSURE ADEQUATE SITE DISTANCE FOR ALL PROPOSED ACCESS POINTS ON FISH AND SOUZA ROADS

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
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CLF	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPOSED SILT FENCE AT LIMIT OF DISTURBANCE
LOD	- PROPOSED LIMIT OF DISTURBANCE
	- SHEET PILE RETAINING WALL TYPE A-2
	- PRECAST BLOCK RETAINING WALL TYPE A-1
	- PROPOSED CONTOUR LINE
	- PROPERTY LINE
	- ZONING SETBACK LINE
	- EXISTING CONTOUR
X X	- FENCE
S	- SEWER LINE
D	- DRAIN LINE
W	- WATER LINE
G	- GAS LINE
E	- ELECTRIC LINE
S	- SANITARY SEWER MANHOLE
	- CATCH BASIN
D	- STORM DRAIN MANHOLE
W	- WATER GATE
GV	- GAS VALVE
E	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE
	- PROPOSED LOT LINE
	- PROPOSED EASEMENT
W	- PROPOSED WATER LINE
S	- PROPOSED SEWER LINE
FM	- PROPOSED SEWER FORCE MAIN
	- PROPOSED EDGE OF PAVEMENT
	- PROPOSED SIDEWALK

DEVELOPMENT PLAN-1

Thomas J. Principe, III
LICENSED PROFESSIONAL ENGINEER
No. 9107
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPEENGINEERING.COM

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=40'		SHEET NO: 8 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
STY	- STORY
W/F	- WOOD FRAMED
SHP	- STATE HIGHWAY PLAT
RET.	- RETAINING WALL
PED.	- PEDESTRIAN
(FND.)	- FOUND
RIHB	- RI HIGHWAY BOUND
PK NAIL	- MASONRY NAIL
FE.	- FLARED END
RCP	- REINFORCED CONCRETE PIPE
CLF.	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPOSED SILT FENCE AT LIMIT OF DISTURBANCE
LOD	- PROPOSED LIMIT OF DISTURBANCE
	- SHEET PILE RETAINING WALL TYPE A-2
	- PRECAST BLOCK RETAINING WALL TYPE A-1
220	- PROPOSED CONTOUR LINE
	- PROPERTY LINE
	- ZONING SETBACK LINE
	- EXISTING CONTOUR
x x	- FENCE
s	- SEWER LINE
d	- DRAIN LINE
w	- WATER LINE
g	- GAS LINE
e	- ELECTRIC LINE
S	- SANITARY SEWER MANHOLE
	- CATCH BASIN
D	- STORM DRAIN MANHOLE
W	- WATER GATE
GV	- GAS VALVE
E	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE
	- PROPOSED LOT LINE
	- PROPOSED EASEMENT
W	- PROPOSED WATER LINE
S	- PROPOSED SEWER LINE
FM	- PROPOSED SEWER FORCE MAIN
	- PROPOSED EDGE OF PAVEMENT
	- PROPOSED SIDEWALK

NOTE: AS PER THE TRAFFIC IMPACT REPORT VEGETATION SHALL BE REMOVED AS REQUIRED TO INSURE ADEQUATE SITE DISTANCE FOR ALL PROPOSED ACCESS POINTS ON FISH AND SOUZA ROADS

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

DEVELOPMENT PLAN-2

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

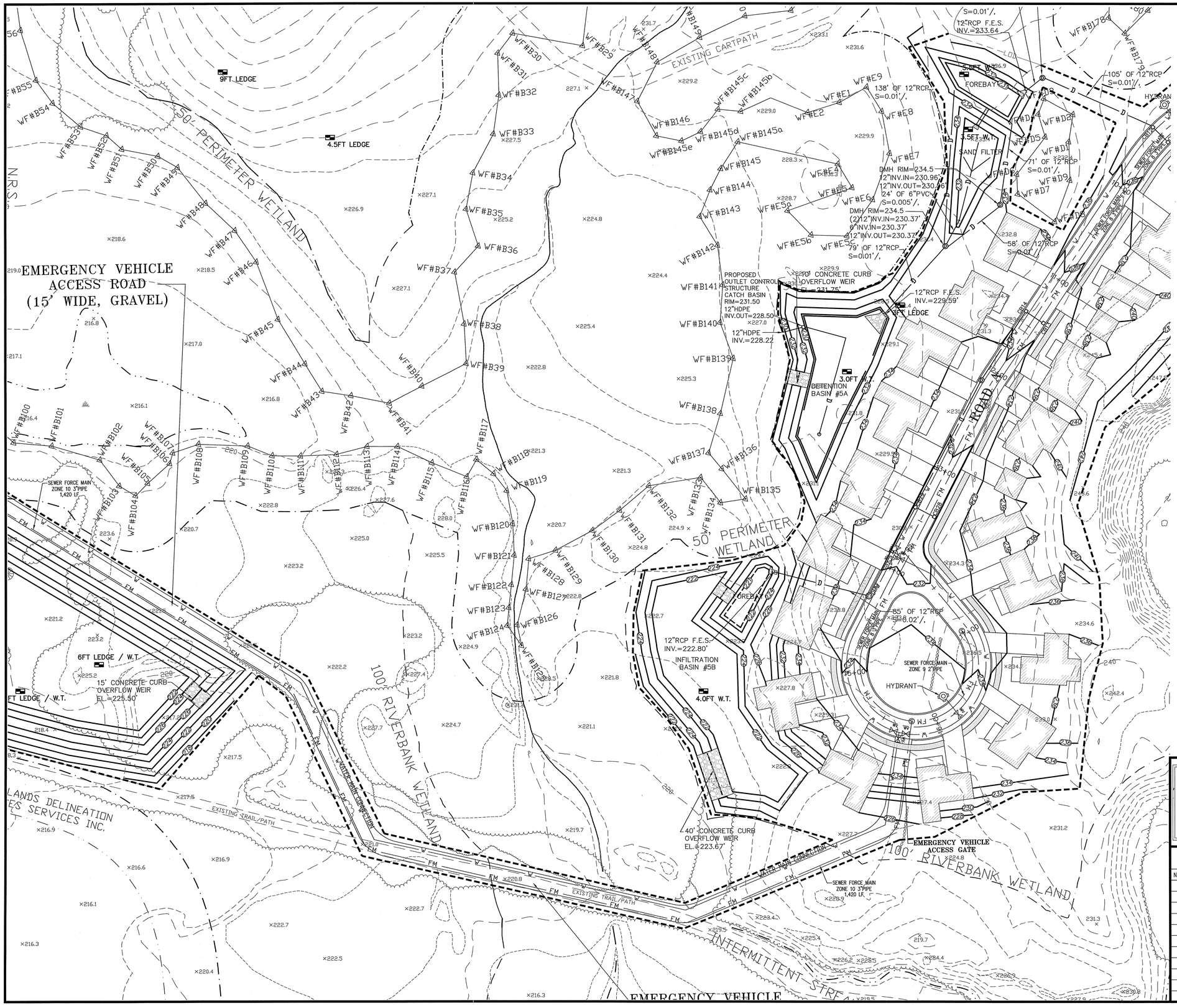
REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPEENGINEERING.COM

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=40'		SHEET NO: 9 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10



Environmental Management
APR 12 2021
RI Water Resources

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
STY	- STORY
W/F	- WOOD FRAMED
(FND.)	- FOUND
RIHB	- RI HIGHWAY BOUND
PK NAIL	- MASONRY NAIL
FE.	- FLARED END
RCP	- REINFORCED CONCRETE PIPE
CLF	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPOSED SILT FENCE AT LIMIT OF DISTURBANCE
LOD	- PROPOSED LIMIT OF DISTURBANCE
	- SHEET PILE RETAINING WALL TYPE A-2
	- PRECAST BLOCK RETAINING WALL TYPE A-1
WF#B39	WETLAND FLAG
	EXISTING VEGETATION LINE
	PROPOSED PAVEMENT SAWCUT
	- PROPERTY LINE
	- ZONING SETBACK LINE
15	- EXISTING CONTOUR
x x	- FENCE
s	- SEWER LINE
d	- DRAIN LINE
w	- WATER LINE
g	- GAS LINE
e	- ELECTRIC LINE
S	- SANITARY SEWER MANHOLE
	- CATCH BASIN
D	- STORM DRAIN MANHOLE
W	- WATER GATE
G	- GAS VALVE
E	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE
68	- PROPOSED CONTOUR
	- PROPOSED EASEMENT
W	- PROPOSED WATER LINE
S	- PROPOSED SEWER LINE
FM	- PROPOSED SEWER FORCE MAIN
	- PROPOSED EDGE OF PAVEMENT
	- PROPOSED SIDEWALK

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencek

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

DEVELOPMENT PLAN–3

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPEENGINEERING.COM

REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=40'		SHEET NO: 10 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015–10

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
STY	- STORY
W/F	- WOOD FRAMED
(FND.)	- FOUND
RIHB	- RI HIGHWAY BOUND
PK NAIL	- MASONRY NAIL
FE.	- FLARED END
RCP	- REINFORCED CONCRETE PIPE
CLF	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPOSED SILT FENCE AT LIMIT OF DISTURBANCE
LOD	- PROPOSED LIMIT OF DISTURBANCE
	- SHEET PILE RETAINING WALL TYPE A-2
	- PRECAST BLOCK RETAINING WALL TYPE A-1
WF#B39	WETLAND FLAG
	EXISTING VEGETATION LINE
	PROPOSED PAVEMENT SAWCUT
	- PROPERTY LINE
	- ZONING SETBACK LINE
15	- EXISTING CONTOUR
x x	- FENCE
S	- SEWER LINE
D	- DRAIN LINE
W	- WATER LINE
G	- GAS LINE
E	- ELECTRIC LINE
S	- SANITARY SEWER MANHOLE
	- CATCH BASIN
D	- STORM DRAIN MANHOLE
W	- WATER GATE
G	- GAS VALVE
E	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE
240	- PROPOSED CONTOUR
	- PROPOSED EASEMENT
W	- PROPOSED WATER LINE
S	- PROPOSED SEWER LINE
FM	- PROPOSED SEWER FORCE MAIN
	- PROPOSED EDGE OF PAVEMENT
	- PROPOSED SIDEWALK

Environmental Management
APR 12 2021
Office of Water Resources

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencek

GRAPHIC SCALE

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

DEVELOPMENT PLAN-4

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPEENGINEERING.COM

REVISIONS

No.	DATE	DRWN	CHKD

DEVELOPMENT PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=40'		SHEET NO: 11 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
STY	- STORY
WF	- WOOD FRAMED
SHP	- STATE HIGHWAY PLAT
RET.	- RETAINING WALL
PED.	- PEDESTRIAN
(FND.)	- FOUND
RIHB	- RI HIGHWAY BOUND
PK NAIL	- MASONRY NAIL
FE.	- FLARED END
RCP	- REINFORCED CONCRETE PIPE
CLF	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPOSED SILT FENCE AT LIMIT OF DISTURBANCE
LOD	- PROPOSED LIMIT OF DISTURBANCE
	- SHEET PILE RETAINING WALL TYPE A-2
	- PRECAST BLOCK RETAINING WALL TYPE A-1
250	- PROPOSED CONTOUR LINE
	- PROPERTY LINE
	- ZONING SETBACK LINE
	- EXISTING CONTOUR
x x	- FENCE
S	- SEWER LINE
D	- DRAIN LINE
W	- WATER LINE
G	- GAS LINE
E	- ELECTRIC LINE
	- PROPOSED LOT LINE
	- PROPOSED EASEMENT
W	- PROPOSED WATER LINE
S	- PROPOSED SEWER LINE
FM	- PROPOSED SEWER FORCE MAIN
	- PROPOSED EDGE OF PAVEMENT
	- PROPOSED SIDEWALK
S	- SANITARY SEWER MANHOLE
	- CATCH BASIN
D	- STORM DRAIN MANHOLE
W	- WATER GATE
GV	- GAS VALVE
E	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE

Environmental Management
APR 12 2021
Office of Water Resources

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 20 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencek

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

DEVELOPMENT PLAN-5

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPEENGINEERING.COM

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=40'		SHEET NO: 12 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

Environmental Management
APR 12 2021
Office of Water Resources

LEGEND & ABBREVIATIONS

NIF	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
STY	- STORY
W/F	- WOOD FRAMED
SHP	- STATE HIGHWAY PLAT
RET.	- RETAINING WALL
PED.	- PEDESTRIAN
(FND.)	- FOUND
RIHB	- RI HIGHWAY BOUND
PK NAIL	- MASONRY NAIL
FE.	- FLARED END
RCP	- REINFORCED CONCRETE PIPE
CLF	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPOSED SILT FENCE AT LIMIT OF DISTURBANCE
LOD	- PROPOSED LIMIT OF DISTURBANCE
	- SHEET PILE RETAINING WALL TYPE A-2
	- PRECAST BLOCK RETAINING WALL TYPE A-1
220	- PROPOSED CONTOUR LINE
	- PROPERTY LINE
	- ZONING SETBACK LINE
	- EXISTING CONTOUR
x x	- FENCE
S	- SEWER LINE
D	- DRAIN LINE
W	- WATER LINE
G	- GAS LINE
E	- ELECTRIC LINE
S	- SANITARY SEWER MANHOLE
	- CATCH BASIN
D	- STORM DRAIN MANHOLE
W	- WATER GATE
G	- GAS VALVE
E	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE
	- PROPOSED LOT LINE
	- PROPOSED EASEMENT
W	- PROPOSED WATER LINE
S	- PROPOSED SEWER LINE
FM	- PROPOSED SEWER FORCE MAIN
	- PROPOSED EDGE OF PAVEMENT
	- PROPOSED SIDEWALK

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D Vencen

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

DEVELOPMENT PLAN-6

Thomas J. Principe, III
No. 9107
REGISTERED PROFESSIONAL ENGINEER

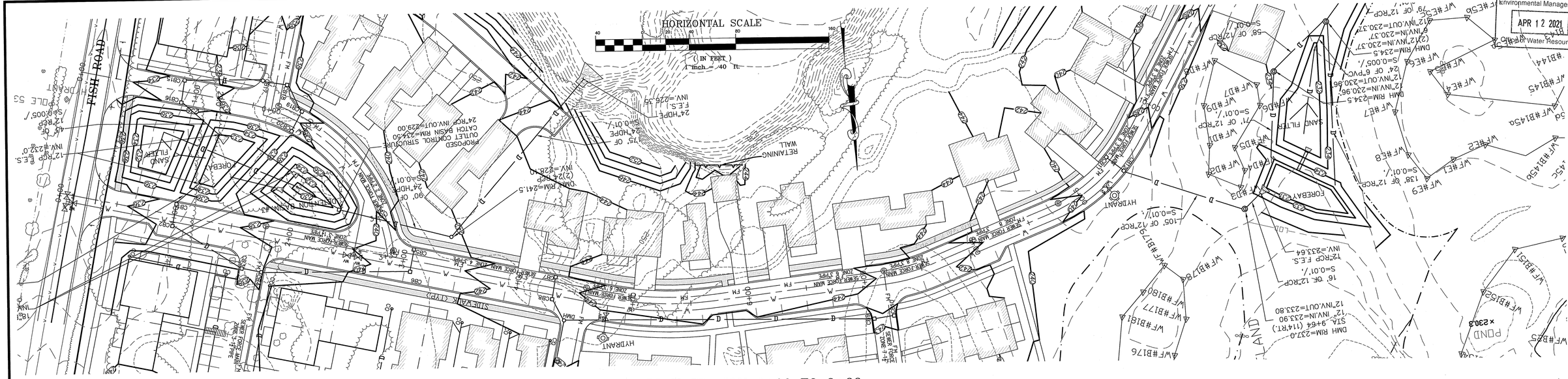
REVISIONS

No.	DATE	DRWN	CHKD

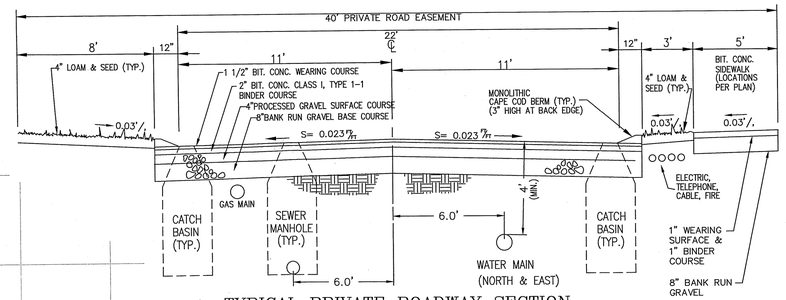
PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPEENGINEERING.COM

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

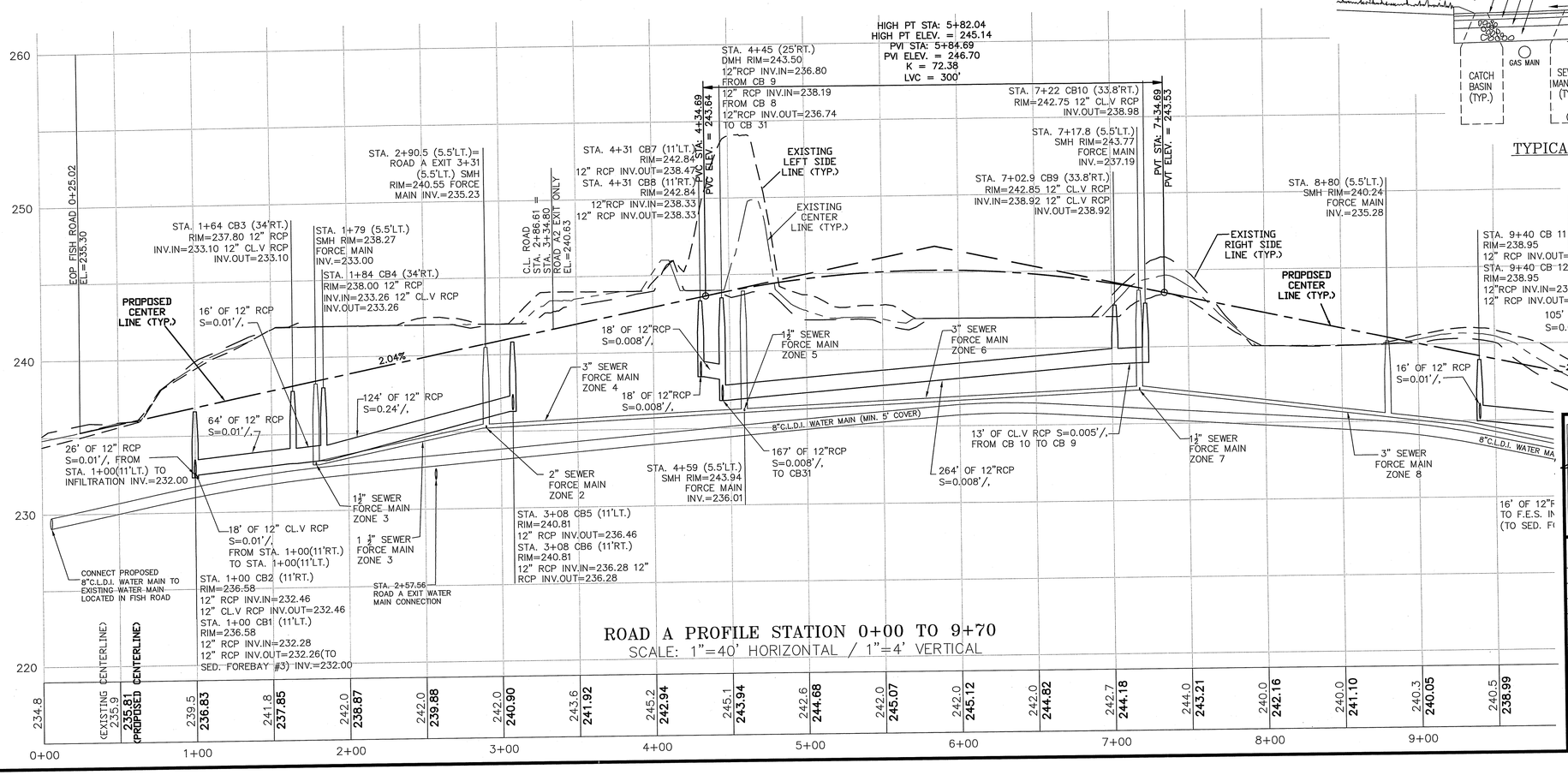
SCALE: 1"=40'		SHEET NO: 13 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10



ROAD A PLAN STATION 0+00 TO 9+00
SCALE: 1"=40'



TYPICAL PRIVATE ROADWAY SECTION
NOT TO SCALE



ROAD A PROFILE STATION 0+00 TO 9+70
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

Martin D. Wencer
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 2 8 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

ROADWAY PROFILE – ROAD A

Thomas J. Principe, III
No. 9102
REGISTERED PROFESSIONAL ENGINEER

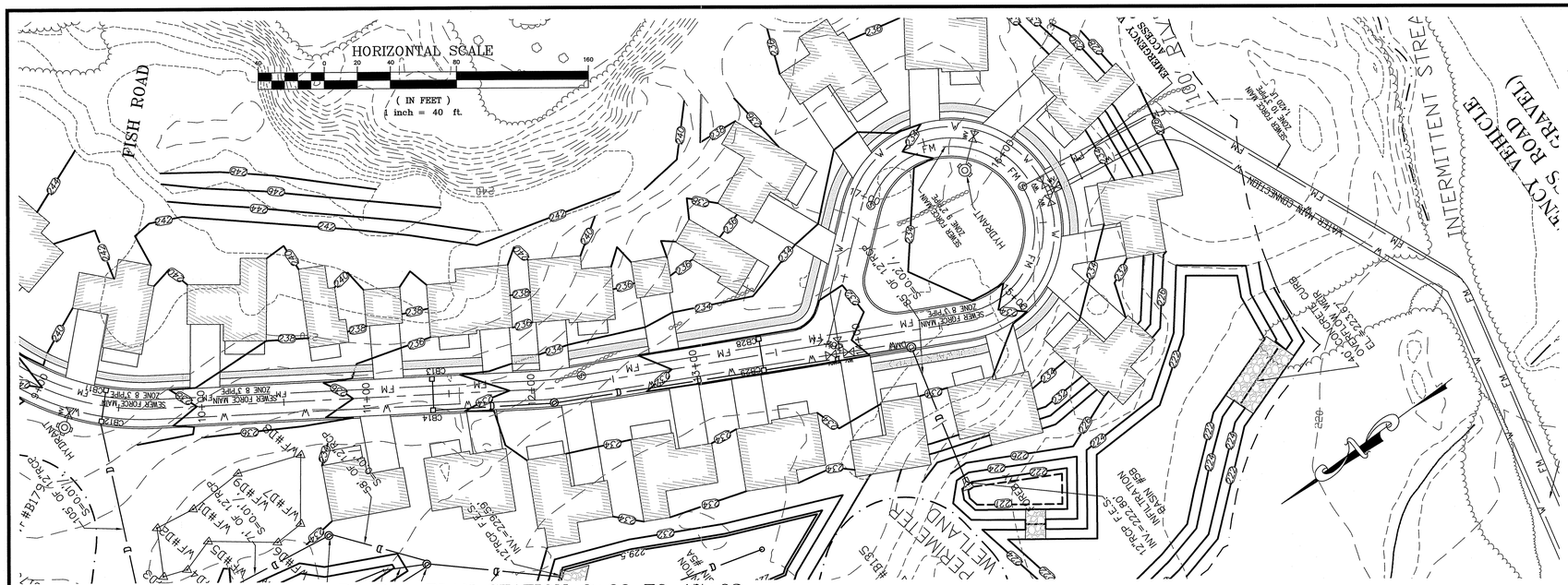
REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 14 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10



Environmental Management
APR 12 2021
Office of Water Resources

ROAD A PLAN STATION 9+00 TO 17+93
SCALE: 1"=40'

ROAD A PROFILE STATION 9+00 TO END
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 2 8 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
COMPLETE PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencek

ROADWAY PROFILE – ROAD A

Thomas J. Principe, III
9107
REGISTERED PROFESSIONAL ENGINEER

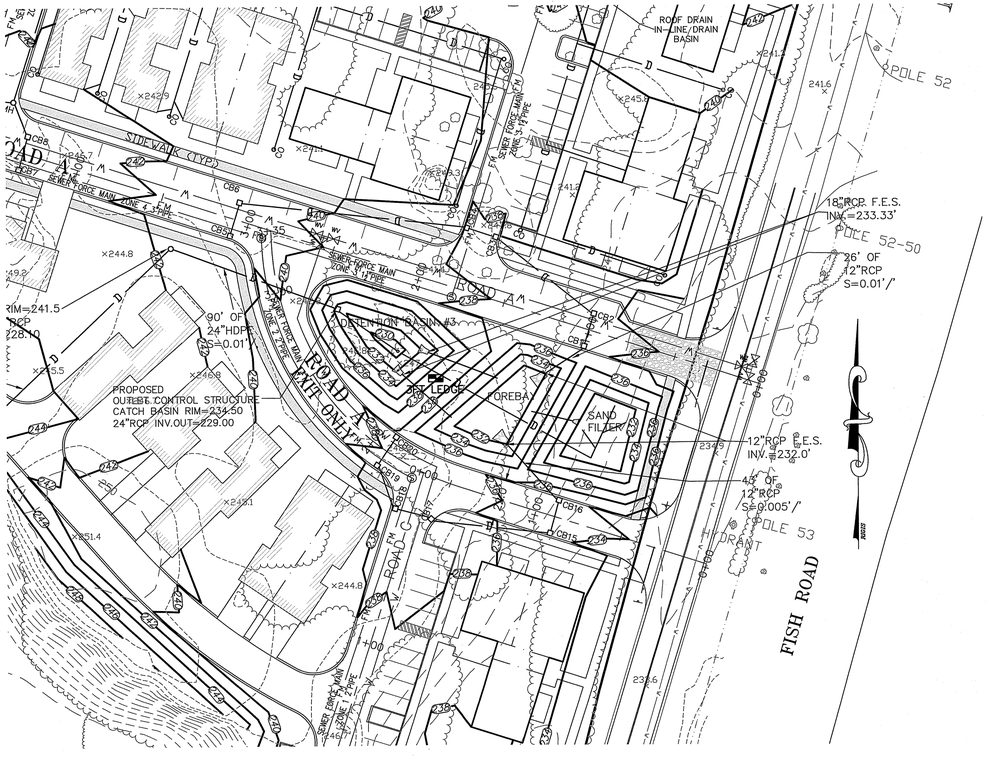
PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM
ESTABLISHED IN 1991

REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 15 of 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10	

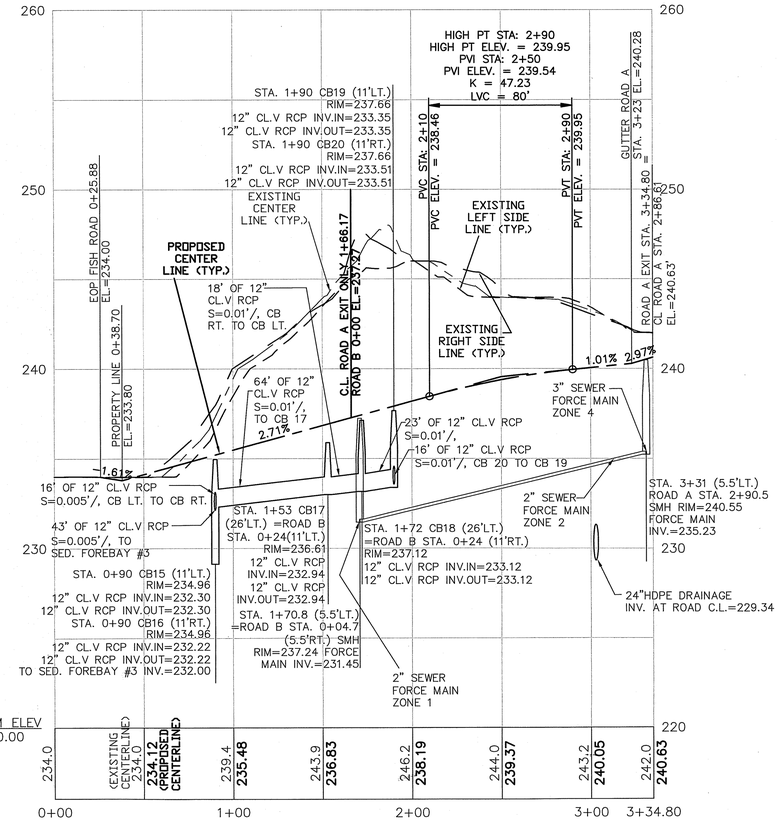


ROAD A EXIT ONLY PLAN
SCALE: 1"=40'

HORIZONTAL SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.



ROAD A EXIT ONLY PROFILE
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

NOTE: 8"C.L.D.I. WATER MAIN NOT SHOWN FOR CLARITY TO MAINTAIN A MINIMUM OF 4' OF COVER TO FINISH ELEVATION

ROADWAY PROFILE – ROAD A EXIT ONLY

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

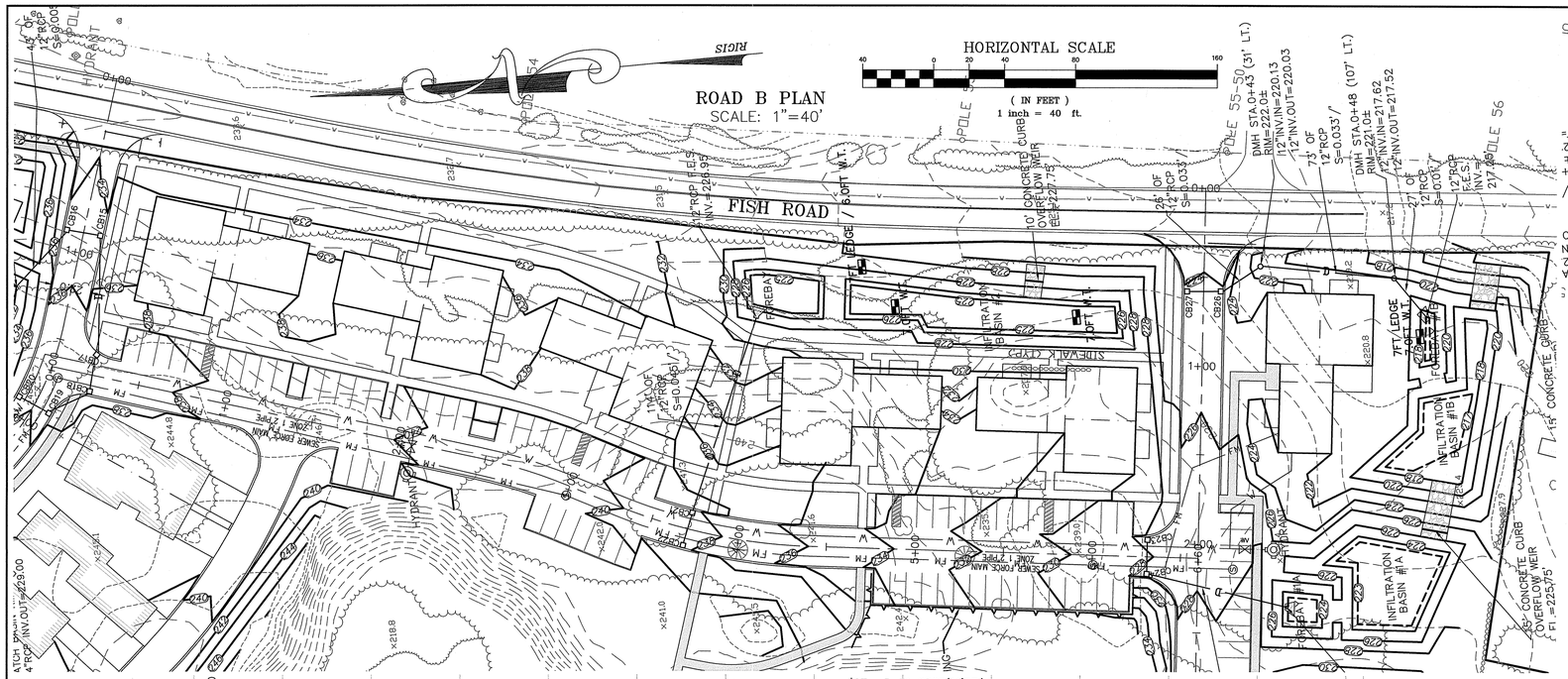
PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM

REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 16 of 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/32/21	PROJECT NO.: 2015-10	



ROAD B PLAN
SCALE: 1"=40'

ROAD C PLAN
SCALE: 1"=40'

ROAD C PROFILE
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

ROAD B PROFILE
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

ROADWAY PROFILE – ROAD B & C

Thomas J. Principe, III
No. 9107
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM
PRINCIPE COMPANY ESTABLISHED IN 1981

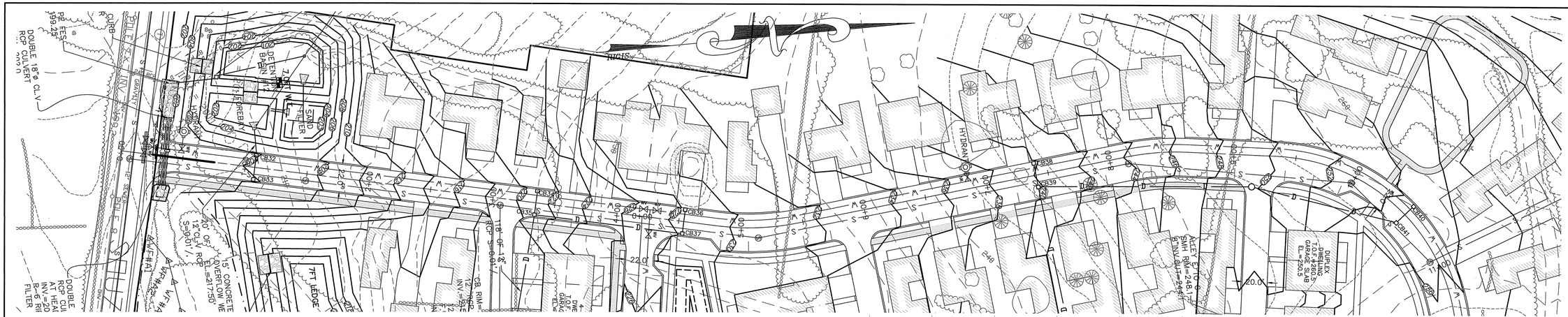
REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 17 of 32
DRAWN BY: TJP	DESIGN BY: TJP CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015–10

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 2 8 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencek



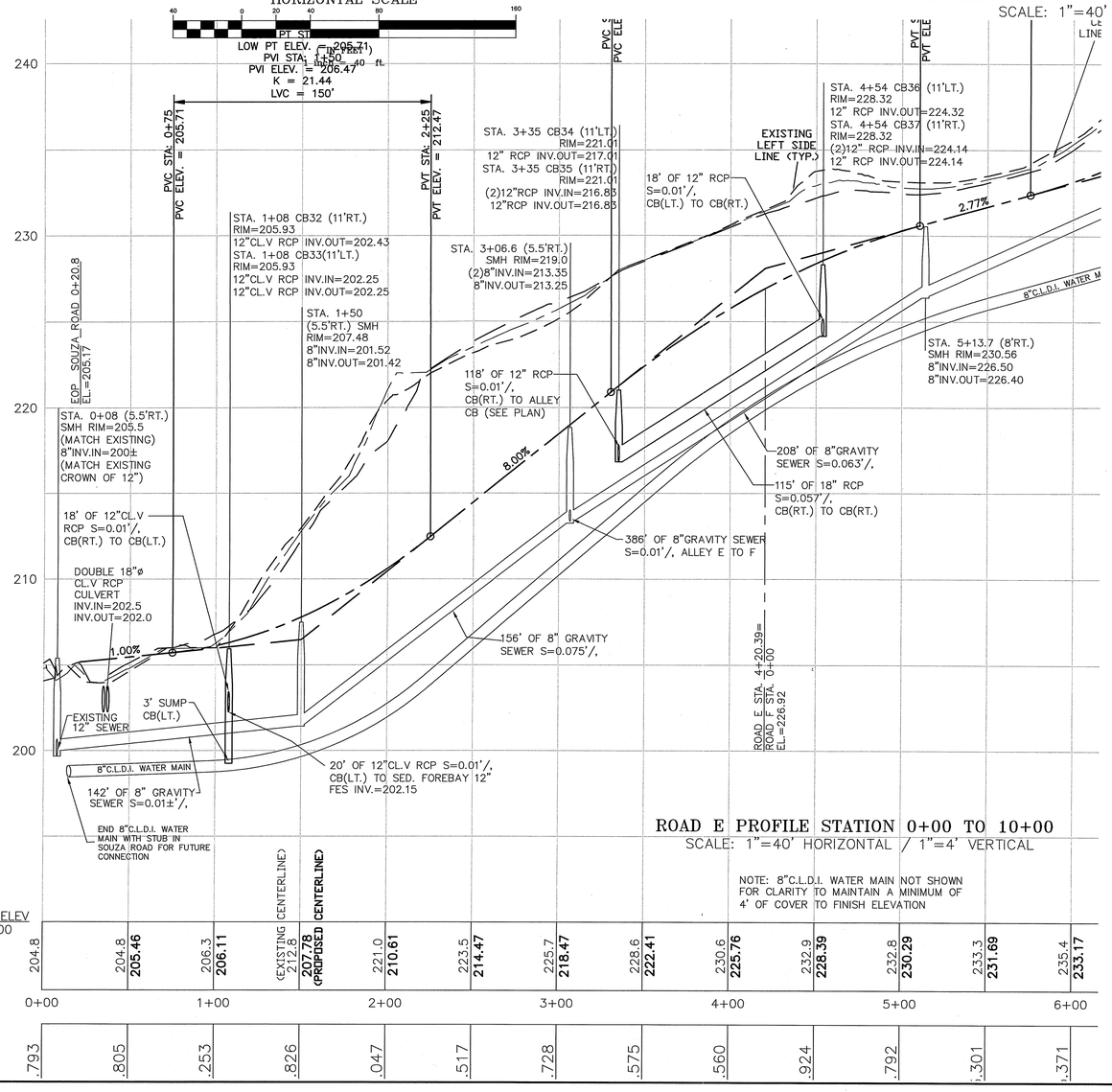
Environmental Management
APR 12 2021
Office of Water Resources

HORIZONTAL SCALE

40 0 20 40 80 160

ROAD E PLAN STATION 0+00 TO 9+50

SCALE: 1"=40'



ROAD E PROFILE STATION 0+00 TO 10+00

SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

NOTE: 8"C.L.D.I. WATER MAIN NOT SHOWN FOR CLARITY TO MAINTAIN A MINIMUM OF 4' OF COVER TO FINISH ELEVATION

ROADWAY PROFILE – ROAD E

OFFICE OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencen

Thomas J. Principe, III
No. 9397
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM
ESTABLISHED IN 1981

REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION

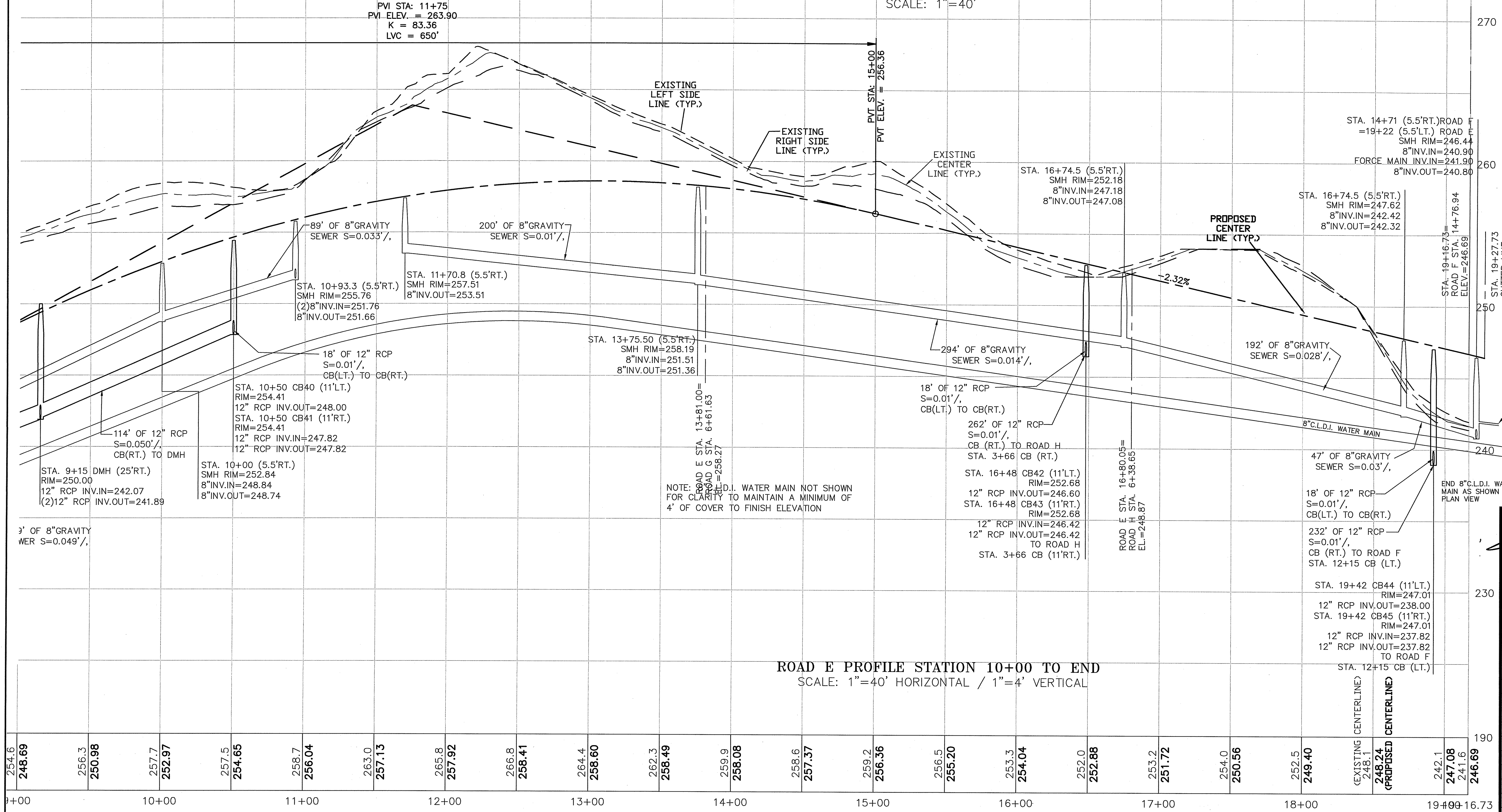
for

TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 18 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

ROAD E PLAN STATION 9+50 TO 19+17
SCALE: 1"=40'

HORIZONTAL SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.



ROAD E PROFILE STATION 10+00 TO END
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

ROADWAY PROFILE – ROAD E

Thomas J. Principe, III
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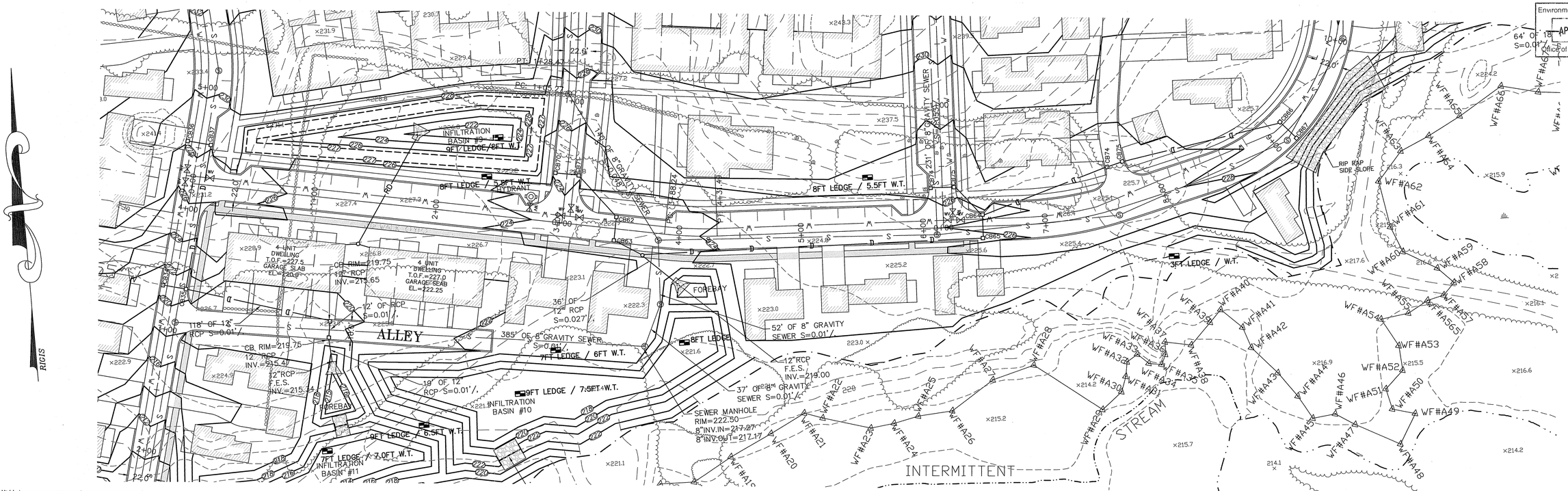
REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 19 of 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10	



Environmental Management
APR 12 2021
Office of Water Resources

ROAD F PLAN STATION 0+00 TO 9+00
SCALE: 1"=40'

HORIZONTAL SCALE
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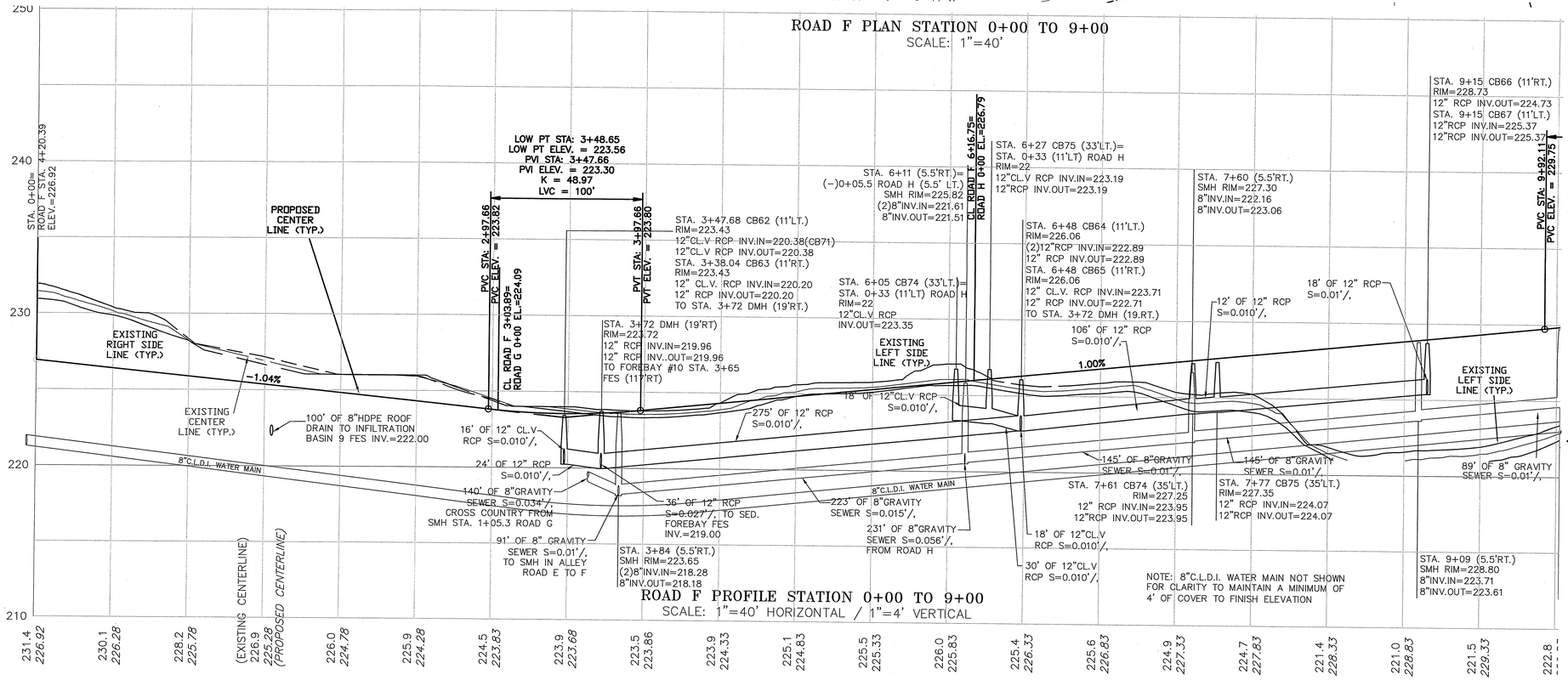
(IN FEET)
1 inch = 40 ft.



ROAD F PROFILE STATION 0+00 TO 9+00
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Vencer

ROADWAY PROFILE – ROAD F

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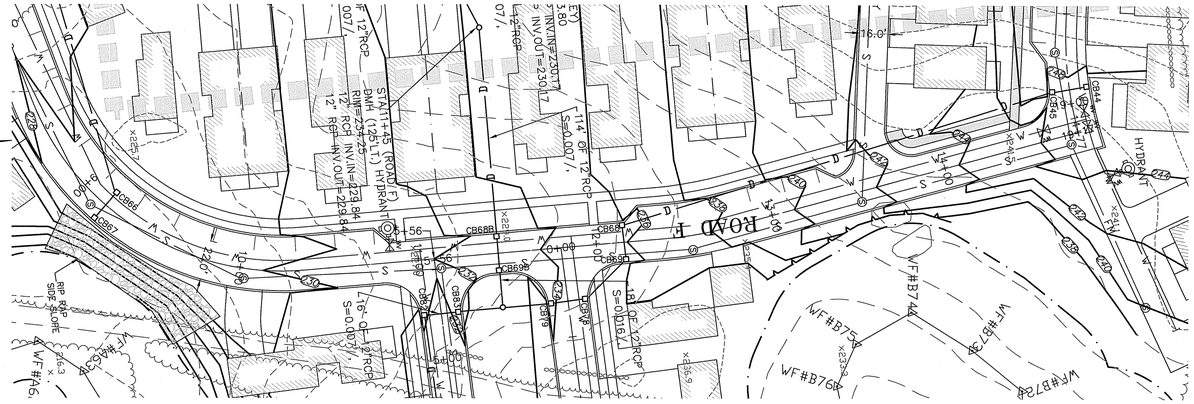
ESTABLISHED IN 1981

REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 20 of 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10	



ROAD F PLAN STATION 9+00 TO END
SCALE: 1"=40'

HORIZONTAL SCALE
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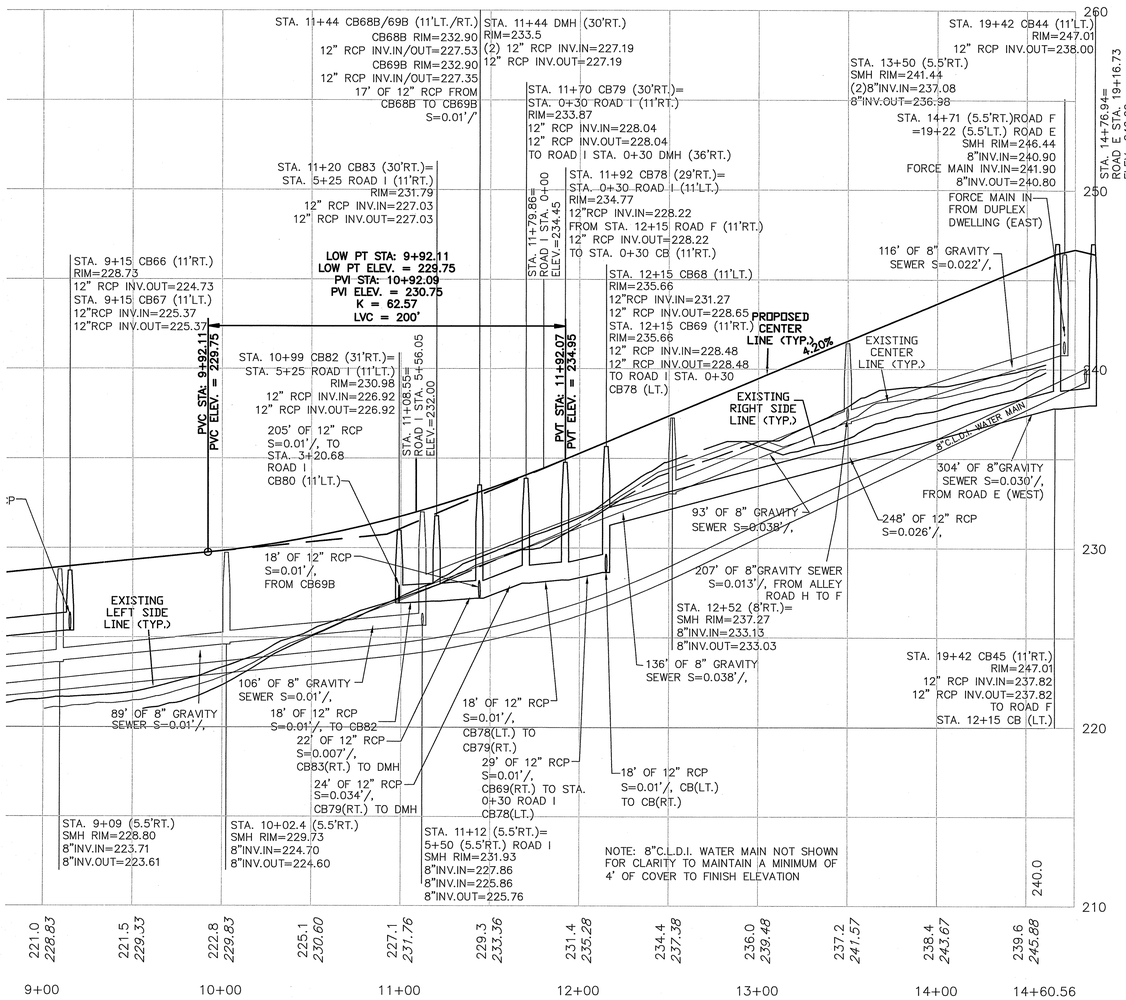
(IN FEET)
1 inch = 40 ft.



ROAD F PROFILE STATION 9+00 TO END
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

ROADWAY PROFILE – ROAD F

Thomas J. Principe, III
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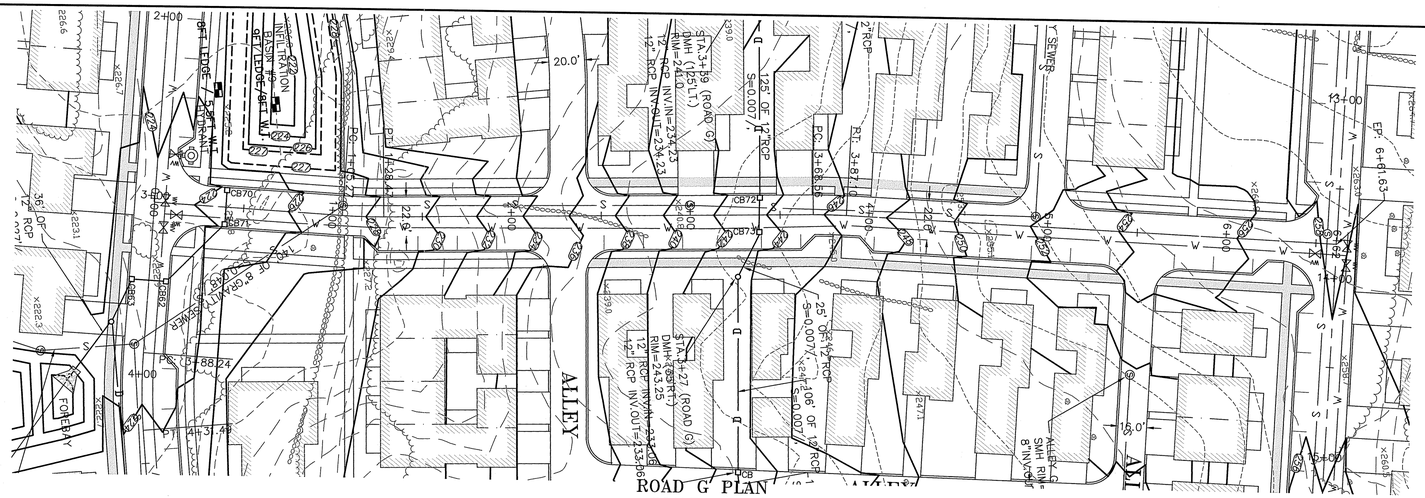
REVISIONS

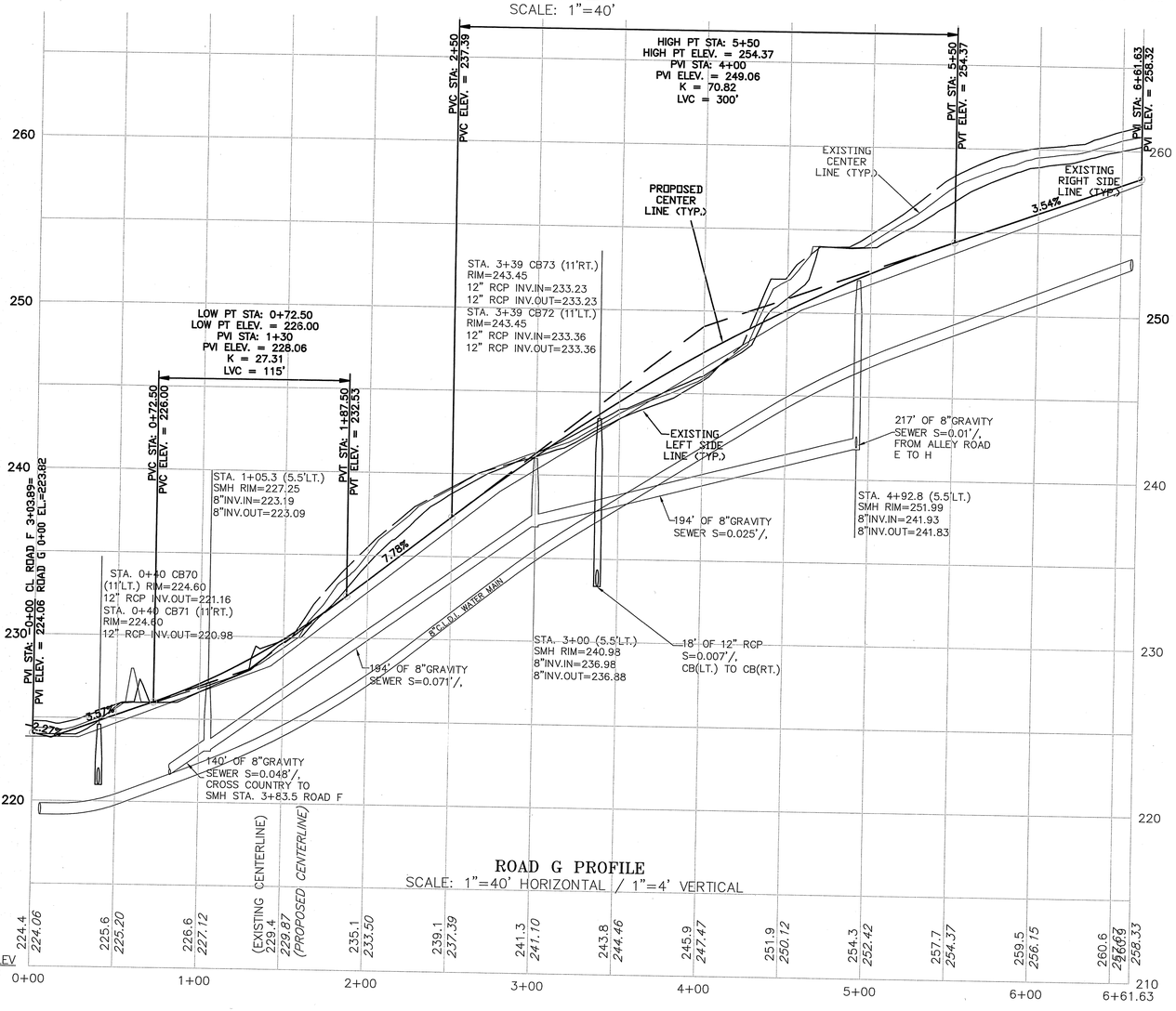
No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 21 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10



ROAD G PLAN
SCALE: 1"=40'



ROAD G PROFILE
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

RIGIS

HORIZONTAL SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

ROADWAY PROFILE – ROAD G

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DRWN	CHKD

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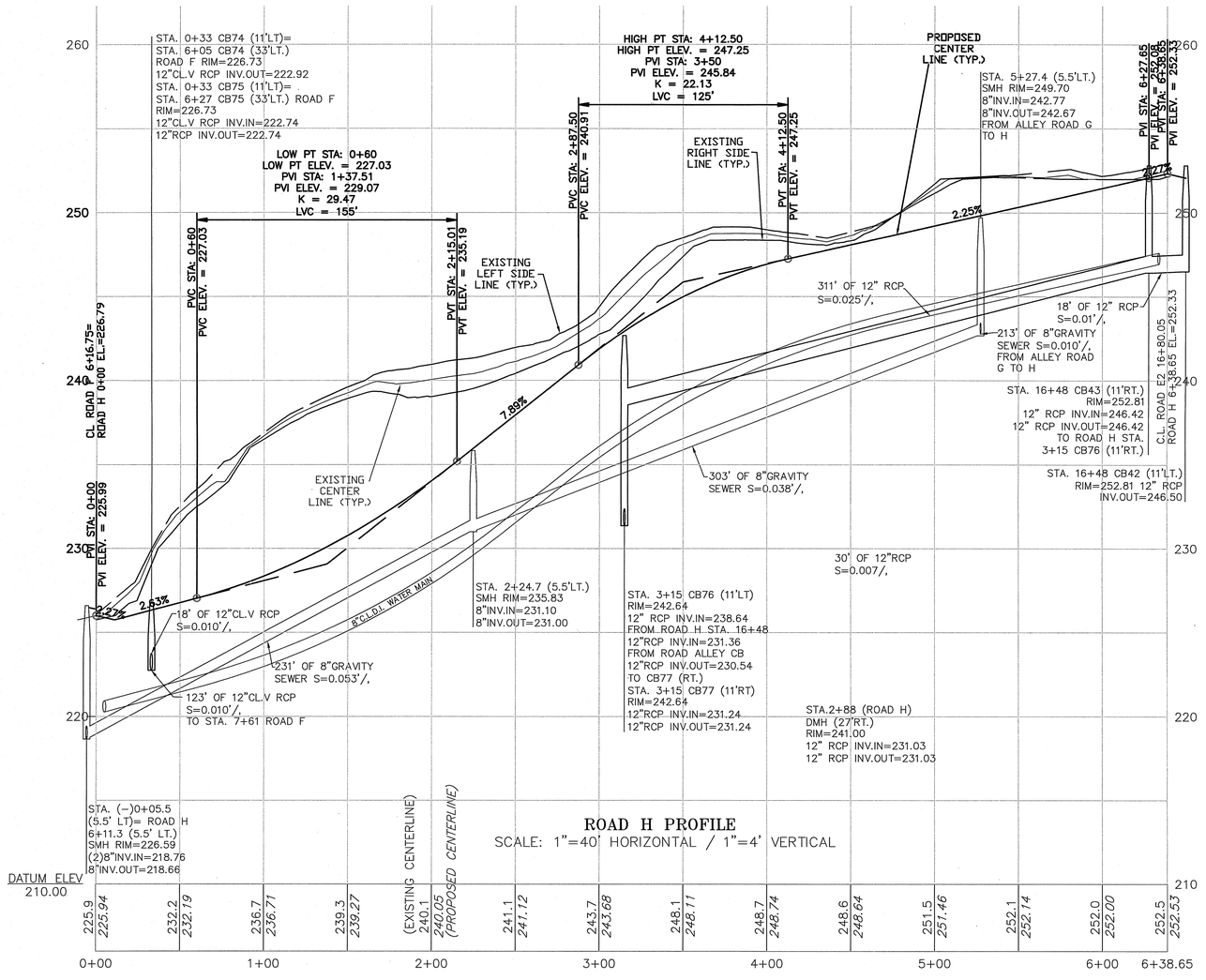
PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 22 of 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/20	PROJECT NO.: 2015-10	

RIGIS

ROAD H PLAN
SCALE: 1"=40'



ROAD H PROFILE
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

Environmental Management
APR 12 2021
Office of Water Resources

HORIZONTAL SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin B. Vencek

ROADWAY PROFILE – ROAD H

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
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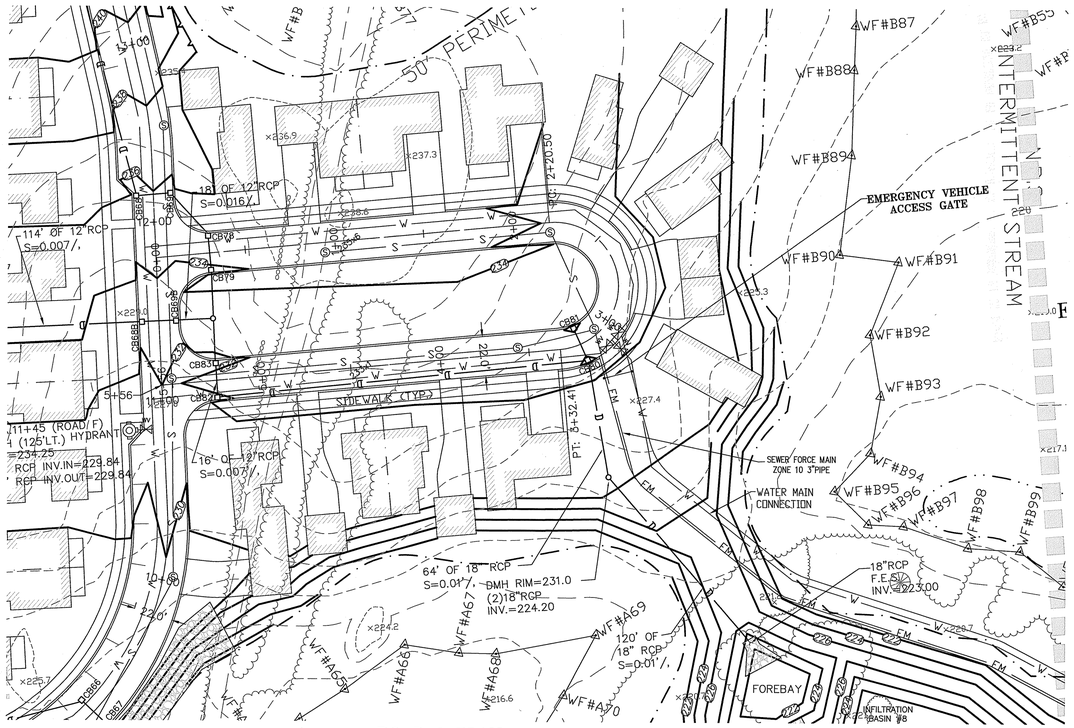
PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 23 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

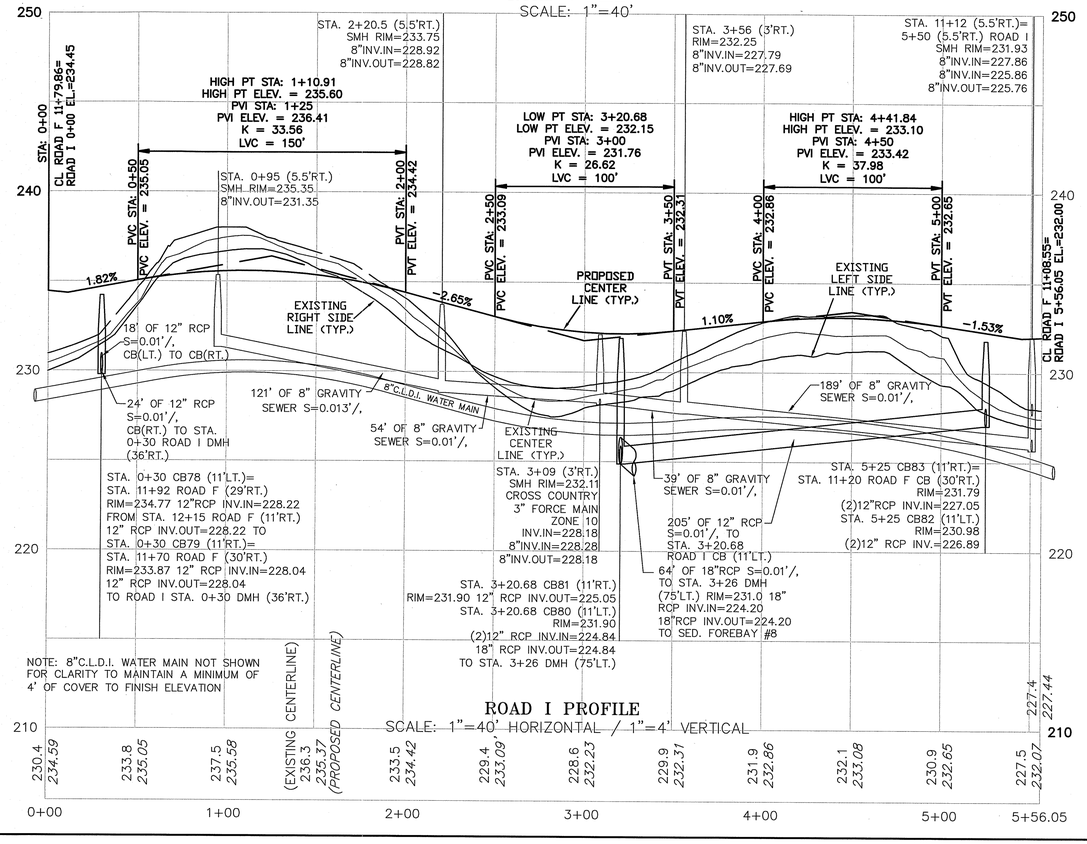


HORIZONTAL SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

ROAD I PLAN
SCALE: 1"=40'



ROAD I PROFILE
SCALE: 1"=40' HORIZONTAL / 1"=4' VERTICAL

ROADWAY PROFILE – ROAD I

Thomas J. Principe, III
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REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
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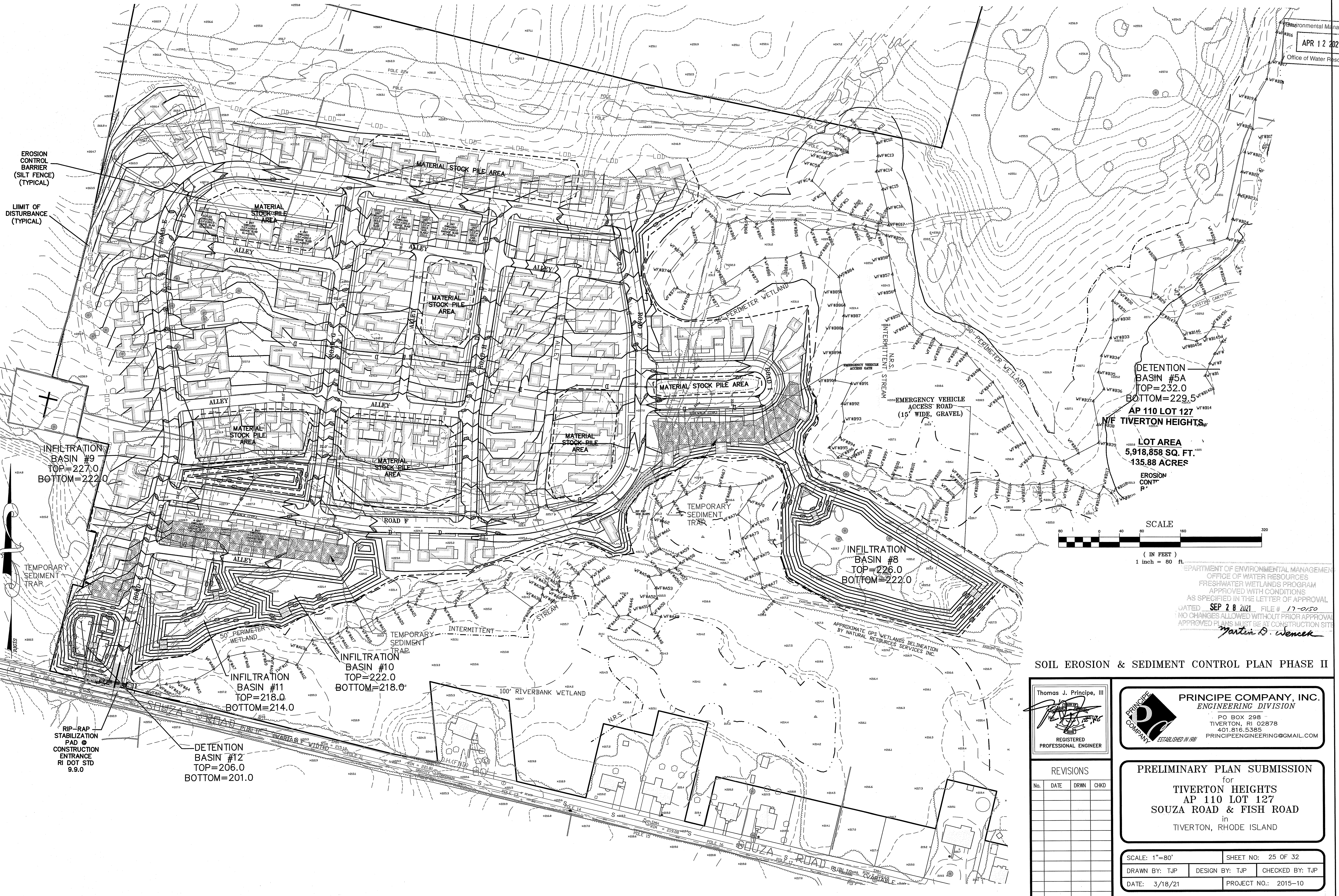
PRINCIPEENGINEERING@GMAIL.COM
ESTABLISHED IN 1981

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 24 of 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10



Environmental Management
APR 1 2 2021
Office of Water Resources
EROSION CONTROL BARRIER (SILT FENCE) (TYPICAL)
LIIMIT OF DISTURBANCE (TYPICAL)
MATERIAL STOCK PILE AREA
ALLEY
ROAD F
INFILTRATION BASIN #9
TOP=227.0
BOTTOM=222.0
TEMPORARY SEDIMENT TRAP
50' PERIMETER WETLAND
INFILTRATION BASIN #11
TOP=218.0
BOTTOM=214.0
INFILTRATION BASIN #10
TOP=222.0
BOTTOM=218.0
INTERMITTENT STREAM
EMERGENCY VEHICLE ACCESS ROAD (15' WIDE, GRAVEL)
N.R.S. INTERMITTENT STREAM
INFILTRATION BASIN #8
TOP=226.0
BOTTOM=222.0
DETENTION BASIN #5A
TOP=232.0
BOTTOM=229.5
AP 110 LOT 127
N/F TIVERTON HEIGHTS
LOT AREA
5,918,858 SQ. FT.
135.88 ACRES
SCALE
(IN FEET)
1 inch = 80 ft.
APPROXIMATE GPS WETLANDS DELINEATION BY NATURAL RESOURCES SERVICES INC.
100' RIVERBANK WETLAND
SOUZA ROAD
RIP-RAP STABILIZATION PAD @ CONSTRUCTION ENTRANCE RI DOT STD 9.9.0
DETENTION BASIN #12
TOP=206.0
BOTTOM=201.0
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 2 8 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

SOIL EROSION & SEDIMENT CONTROL PLAN PHASE II

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

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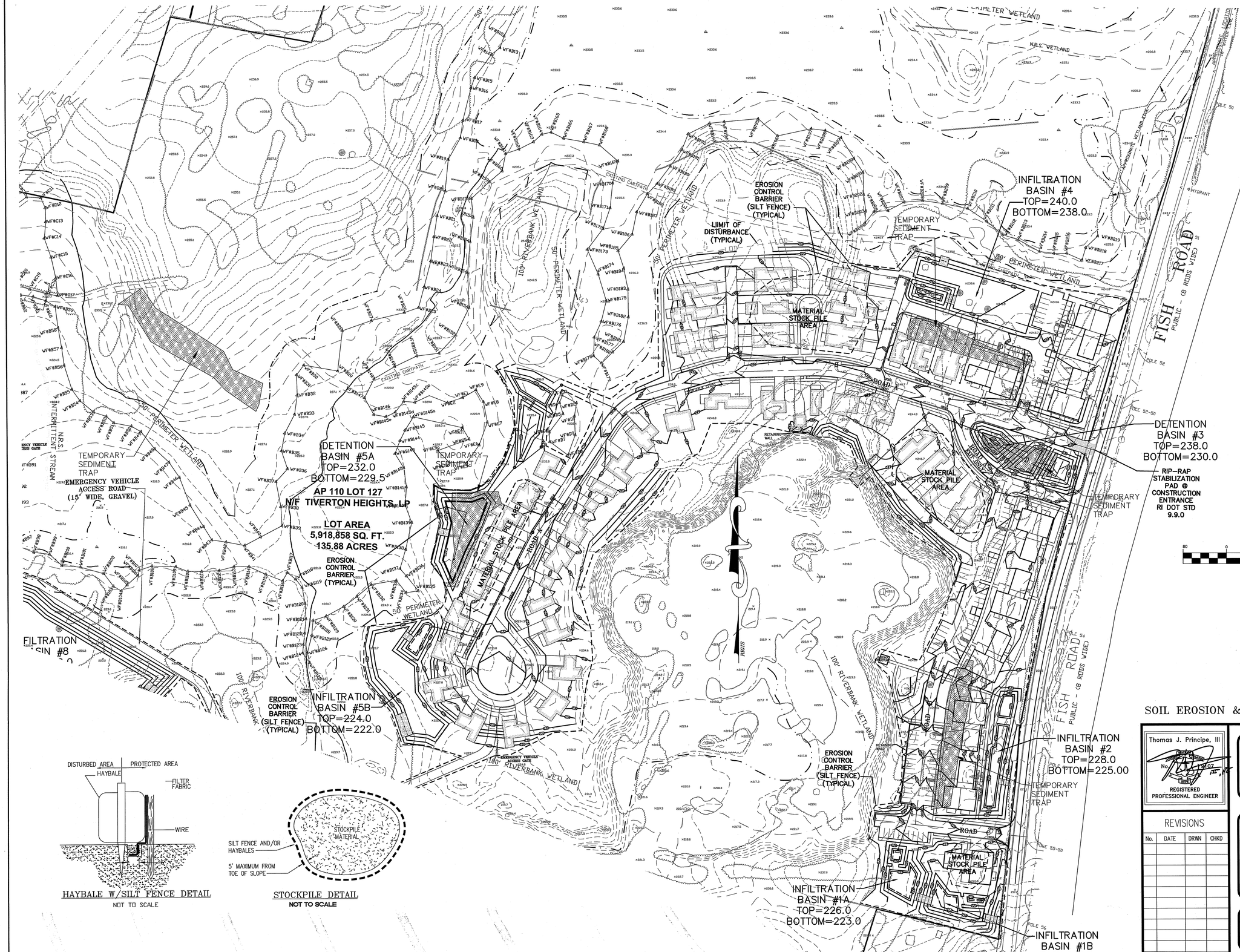
ESTABLISHED IN 1981

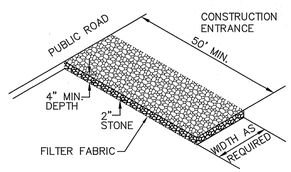
REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=80'	SHEET NO: 25 OF 32
DRAWN BY: TJP	DESIGN BY: TJP / CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10





MATERIALS SIZE

SQUARE MESH SIEVES	2"CRUSHED STONE OR GRAVEL	ASTM C-33 NO. 2	ASTM C-33 NO. 3
	% FINER	% FINER	% FINER
2-1/2 INCHES	100	90-100	100
2 INCHES	95-100	35-70	90-100
1-1/2 INCHES	30-55	0-15	35-70
1-1/4 INCHES	0-25	–	–
1 INCH	0-5	–	0-15
3/4 INCH	–	0-5	–
1/2 INCH	–	–	0-5
3/8 INCH	–	–	–

NOTE:
STABILIZATION PAD TO BE IN COMFORMANCE WITH STANDARDS SET FORTH IN THE "RHODE ISLAND GUIDELINES FOR SOIL & SEDIMENT CONTROL".

RIP-RAP STABILIZATION PAD @ CONSTRUCTION ENTRANCE
NOT TO SCALE

SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

HAYBALE W/SILT FENCE DETAIL
NOT TO SCALE

STOCKPILE DETAIL
NOT TO SCALE

SOIL EROSION & SEDIMENT CONTROL PLAN PHASE I

Thomas J. Principe, III
No. 9807
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
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PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: 1"=80'		SHEET NO: 26 OF 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015-10

GENERAL NOTES

1. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY THE STATE OF RHODE ISLAND AND THE MUNICIPALITY PRIOR TO COMMENCING ANY WORK.
2. IT SHALL ALSO BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ABUTTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.
3. BEFORE STARTING ANY CONSTRUCTION THE CONTRACTOR SHALL COORDINATE INSTALLATION OF ANY HYDRANTS, WATER MAINS, BLOWOFF ASSEMBLIES, FITTINGS, AND VALVES WITH THE LOCAL WATER DEPARTMENT AS TO TYPE AND MANUFACTURER.
4. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE MUNICIPAL ENGINEERING DEPARTMENT AND ALL UTILITY INSTALLATIONS AND INSPECTIONS WITH THE APPROPRIATE UTILITY COMPANY. A 48 HOUR ADVANCE NOTICE IS REQUIRED BEFORE WORK COMMENCEMENT.
5. ALL WORK PERFORMED HEREIN SHALL BE GOVERNED BY THE "R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (REVISION OF 1997)" WITH ALL CORRECTIONS AND ADDENDA AND THE 1974 R.I. STANDARD DETAILS WITH ALL CORRECTIONS AND ADDENDA AND THE TOWN OF WARREN STANDARD SPECIFICATIONS AND DETAILS.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR QUANTITY TAKE-OFF IN COMPUTING ANY ESTIMATES.
7. EMBANKMENT SLOPES AND ALL DISTURBED AREAS ARE TO RECEIVE 4" OF TOPSOIL AND SEEDED, SEE EROSION CONTROL PROGRAM.
8. UNLESS OTHERWISE SPECIFIED, ALL STORM DRAINS SHALL BE REINFORCED CONCRETE CLASS III PIPE.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION INDICATED ON THESE PLANS. THAT INCLUDES ANY CONSTRUCTION TO BRING UTILITIES TO SITE, ANY REPAIRS, ANY TRENCHING REQUIRED, HYDRANTS, ANY AND ALL CONSTRUCTION FOR ACCEPTANCE OF ROADS AND EASEMENTS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENTATION AND EROSION CONTROLS.
11. THE LOCATION OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR. "DIG SAFE" SHALL BE CONTACTED BY THE CONTRACTOR AS PART OF THIS VERIFICATION.
12. IN ALL EXCAVATION AND PLACEMENT OF FILL, THE CONTRACTOR SHALL PERFORM THE WORK IN FULL COMPLIANCE WITH THE R.I. STANDARD SPECIFICATION SECTION 202.
13. ALL WATER MAINS SHALL BE DEFLECTED ALONG A CURVE WITH A MINIMUM RADIUS OF 250' AT ANY LOCATION WHERE THIS IS NOT POSSIBLE, PROPER BENDS AND FITTINGS SHALL BE USED.
14. ALL EXCESS SOIL, STUMPS, TREES, ROCKS, BOULDERS, AND OTHER REFUSE SHALL BE DISCARDED OFF SITE, IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

EROSION CONTROL & SOIL STABILIZATION PROGRAM

1. DENUDED 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 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 R.I. STD SPECIFICATION M 18.
4. THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCOLUM FOR EACH VARIETY.
5. THE DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING PERMANENT SEEDING MIXTURES:

A. MOWED AREA (ALL FLATS OR SLOPES LESS THAN 3:1)

MIXTURE:	% BY WEIGHT:	SEEDING DATES:
RED FESCUE	75	APRIL 1 – JUNE 15
KENTUCKY BLUEGRASS	15	AUGUST 15 – OCTOBER 15
COLONIAL BENTGRASS	5	
PERENNIAL RYEGRASS	5	
TOTAL:	100 lbs/Ac.	

B. UNMOWED AREA OR INFREQUENTLY MOSED (ALL SLOPES GREATER THAN 3:1)

MIXTURE:	% BY WEIGHT:	SEEDING DATES:
RED FESCUE	75	APRIL 1 – JUNE 15
COLONIAL BENTGRASS	5	AUGUST 15 – OCTOBER 15
PERENNIAL RYEGRASS	5	
BIRDSFOOT TREFOIL	15	
TOTAL:	100 lbs/Ac.	

6. TEMPORARY TREATMENTS SHALL CONSIST OF A HAY, STRAW, OR 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.
7. HAY OR STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 3,000 – 4,000 lbs/Ac.
8. ALL HAYBALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP MINIMIZE THE EROSION. A TEMPORARY SEEDING GUIDE MUST BE INCLUDED AS A REFERENCE. THE FOLLOWING SPECIES ARE RECOMMENDED:

MIXTURE:	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 – 8/15
WINTER RYE	3.0	120	4/15 – 6/15
OATS	0.5 – 5.0	86 – 120	3/1 – 6/15
WEEPING COVER GRASS	0.5 – 5.0	5 – 20	5/1 – 7/1

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. ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE R.I.D.P.W. STD SPECIFICATIONS SECTION 202.
11. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 15 DAYS OF FINAL GRADING.
12. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS, THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES SHALL ALSO BE SEEDED AND/OR STABILIZED.
13. ON BOTH STEEP AND LONG SLOPES CONSIDERATION SHALL BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
14. REFERENCE THE SEDIMENTATION CONTROL PROGRAM AND ORDER OF PROCEDURE FOR PROPER COORDINATION
15. THE DRAINAGE SYSTEM SHALL RECEIVE ONE FINAL CLEANING PRIOR TO ACCEPTANCE TO THE OVERALL PROJECT BY THE OWNER SEDIMENTS SHALL BE DISPOSED OF IN A PROPER MANNER.

ORDER OF PROCEDURE:

1. PRIOR TO ANY CLEARING AND GRUBBING OR ANY ROUGH GRADING, TEMPORARY HAYBALES AND SANDBAGS SHALL BE PLACED OUTSIDE THE LIMITS OF CONSTRUCTION AS PER THE PLANS (I.E. ALONG ROADWAYS, STREAM BANKS, CRITICAL AREAS, ETC.).
2. ALL EROSION AND SEDIMENTATION CONTROL STRUCTURES SHALL BE PERIODICALLY MAINTAINED AS PER THE RESPECTIVE PROGRAMS FOR TEMPORARY CONTROL.
3. IF WORK PROGRESS IS TO BE INTERRUPTED AT ANY TIME, REFERENCE EROSION AND SEDIMENTATION PROGRAMS FOR TEMPORARY CONTROL.
4. TEMPORARY HAYBALES AND SANDBAGS ALONG AND AT THE ENDS OF ROADWAYS MAY ALSO BE REMOVED AFTER FINAL SOIL STABILIZATION HAS BEEN ACHIEVED AND APPROVED.
5. HAYBALES LOCATED AT DRAINAGE OUTLETS MUST REMAIN UNTIL SUCH TIME THAT A DESIRABLE STAND OF GRASS OR COVER HAS BEEN ESTABLISHED AND THE PROJECT RECEIVES A FAVORABLE APPROVAL FOR FINAL ACCEPTANCE FROM THE ENGINEER.

SEDIMENTATION CONTROL PROGRAM:

1. RIP RAP SPLASH PADS SHALL BE INSTALLED AT THE OUTLETS FOR ALL CULVERTS DISCHARGING INTO A WATERWAY.
2. EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL ENTERING THE WETLANDS.
3. ALL DISTURBED AREAS SUBJECT TO EROSIVE TENDENCIES WHETHER THEY BE NEWLY FILLED OR EXCAVATED SHALL BE SEEDED AND PROTECTED WITH A FIBER MULCH.
4. DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
5. SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL.
6. CARE SHOULD BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECTED TO STORM WATER FLOW.
7. ADDITIONAL HAYBALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT.
8. ALL SEDIMENTS SHALL BE REMOVED FROM THE DRAINAGE AND DETENTION FACILITIES AS SCHEDULED FOR EACH FACILITY (SEE DETENTION BASIN MAINTENANCE, THIS SHEET).
9. REFERENCE THE "R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE U.S. DEPT. OF AGRICULTURE, SOIL CONSERVATION SERVICE, 1989, AS A GUIDE.

DETENTION BASIN MAINTENANCE SCHEDULE:

1. Side-slopes, embankments, and the upper stage of the basin will be mowed at least once per growing season, to prevent unwanted woody growth. This storm water facility is to be managed for wildlife habitat, therefore, mowings will be conducted after mid August to prevent mortality to ground nesting birds and animals.
2. All trash and litter and other debris will be removed from the storm water facility including inlet and outlet structures. This will be accomplished at least twice per year, preferably spring and fall.
3. Sediments will be removed from the basin immediately following site stabilization and every year thereafter. Accumulated sediments may have to be removed more frequently if the sediment storage capacity of the forebays or sediment storage areas are within the last 10 percent of available capacity. Sediment removal within the basin will restore the original capacity and design depth.
4. If blockage of a basin outlet structure occurs it may be necessary to dewater the pond for access to the blockage. The dewatering flow must be adequately filtered prior to discharge into a receiving water body to remove suspended solids.
5. Pools of stagnant water in detention basins indicates failure due to erosion and scouring of the basin bottom, particularly near an inlet device. This deficiency will be corrected immediately to prevent a nuisance habitat for insects, especially mosquitoes.
6. All outlet structures and outflow channels will be inspected annually. Inspections will be accomplished several times during the first six months of operation, especially after rainfall events to check for clogging or, conversely, too rapid of a release.
7. The grassed areas of the basin will be inspected at least twice per year to check for erosion problems. Problem areas must be reseeded immediately to stabilize exposed soils, thereby preventing erosion and potential clogging of outflow devices.
8. Repairs or replacement of inlet/outlet structures, rip-rap channels, fences, or other elements of the facility will be done within 30 days of deficiency reports. If an emergency situation is imminent then repair/replacement must be done immediately to avert failure or danger to nearby residents.
9. All sediment generated during construction and as a result of maintenance of the drainage system must be disposed of properly. Sediment shall not be disposed of in or near State or Federal regulated waters.
10. Records of the first two years of maintenance following construction shall be submitted to RIDEM Division of Water Resources. Maintenance records for subsequent years shall be kept on file and submitted to RIDEM, Division of Water Resources, upon request.
11. All drainage facilities will be maintained by a Homeowner's Association.

CATCH BASIN SEDIMENTATION CONTROL AND MAINTENANCE:

1. AT NO TIME DURING CONSTRUCTION SHALL THE SUBGRADE OF THE NEW ROADWAY BE SUCH THAT SURFACE RUNOFF WILL BE PERMITTED TO DIRECTLY ENTER ANY DRAINAGE STRUCTURE. A TEMPORARY DEPRESSED AREA AROUND THE STRUCTURE SHALL BE INCORPORATED AS A SEDIMENTATION TRAP. THE MOUTH OF THE TRAP SHALL BE LINED WITH HAYBALES AROUND THE COMPLETE PERIMETER. DURING ALL PRELIMINARY STAGES, THE TOP OF THE STRUCTURE SHALL ALWAYS BE HIGHER THAN THE SUBGRADE.
2. HAYBALE EROSION CHECKS SHALL BE MAINTAINED AROUND ALL CATCH BASINS UNTIL ALL UPGRADIENT DISTURBED AREAS ARE STABILIZED BY PAVEMENT OR VEGETATION.
3. ALL COMPONENTS OF THE DRAINAGE SYSTEM MUST BE CLEANED OF SEDIMENT BY THE DEVELOPER OR HIS REPRESENTATIVE IMMEDIATELY AFTER CONSTRUCTION IS CLEANED.
4. AFTER ACCEPTANCE OF THE ROADWAY BY THE TOWN OF WARREN, ALL MAINTENANCE OF CATCH BASINS SHALL BE THE RESPONSIBILITY OF THE TOWN OF WARREN AND FOLLOW THE STANDARD MAINTENANCE SCHEDULE OF THE TOWN.

VEGETATIVE COVER AND PLANTING

1. THE NORMAL ACCEPTABLE SEASONABLE SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.

2. TOP SOIL FOR PERMANENT OR LONG TERM TEMPORARY SEEDING SHOULD HAVE A SANDY LOAM TEXTURE, RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS. TOP SOIL SHALL CONFORM WITH RHODE ISLAND SPECIFICATIONS M18.01.

3. THE DESIGN SEED MIX UTILIZED IN ALL DISTURBED AREAS TO BE SEEDED SHALL BE COMPRISED OF THE FOLLOWING:

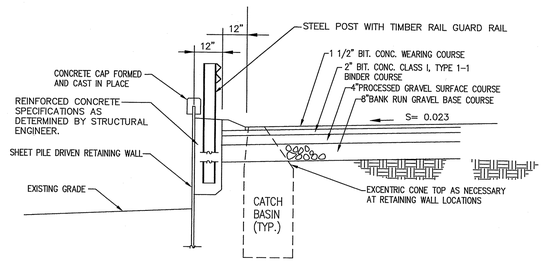
TYPE	% BY WEIGHT	SEEDING DATE
CREEPING RED FESCUE	70	
ASTORIA BENTGRASS	5	APRIL 1 – JUNE 15
BIRDFOOT TREFOIL	15	AUG. 15 – OCT. 15
PERENNIAL RYE GRASS	10	

APPLICATION RATE – 100 LBS PER ACRE

SEED MIX SHALL BE INOCULATED WITHIN 24 – HOURS BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULATION FOR EACH SEED VARIETY. ALTERNATE SEED TYPES DUE TO SITE SPECIFIC CONDITIONS AND SOILS ARE ACCEPTABLE WITH THE ENGINEER'S APPROVAL.

4. IN TOPSOIL SEEDING AREAS, THE CONTRACTOR WILL LIME AND FERTILIZE AS REQUIRED TO COMPLIMENT OR UPGRADE SOIL CONDITIONS.

5. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY PERMANENT VEGETATIVE COVER AREAS THAT DO NOT DEVELOP OR WHICH ERODE WITHIN A ONE (1) YEAR PERIOD.

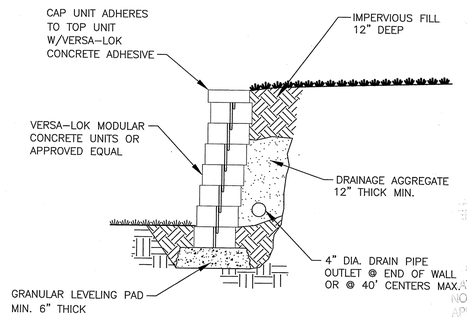


GALVANIZED STEEL SHEET PILE DRIVEN RETAINING WALL AND GUARD RAIL AT ROADWAY

SHOP DRAWING SUBMITTAL REQUIRED

NOT TO SCALE

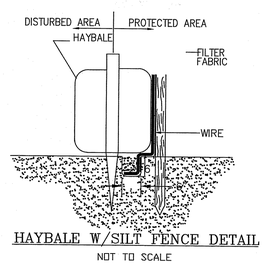
DETAIL A-1



TYPICAL SECTION-UNREINFORCED PRECAST BLOCK RETAINING WALL

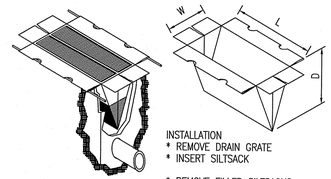
DETAIL A-2

NOT TO SCALE



HAYBALE W/SILT FENCE DETAIL

NOT TO SCALE

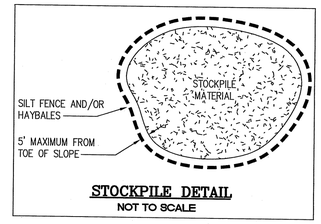


INSTALLATION
* REMOVE DRAIN GRATE
* INSERT SILTSACK
* REMOVE FILLED SILTSACKS
* CLEAN AND REUSE

AS MANUFACTURED BY ACF ENVIRONMENTAL OR APPROVED EQUAL

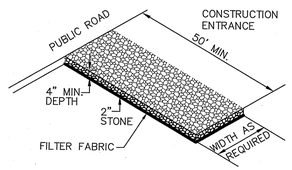
SILTSACK DETAIL

NOT TO SCALE



STOCKPILE DETAIL

NOT TO SCALE



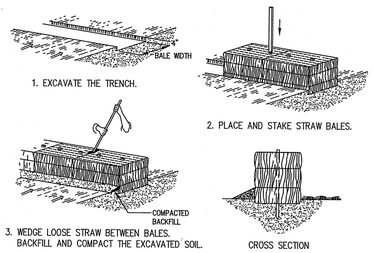
MATERIALS SIZE

SQUARE MESH SIEVES	2"CRUSHED STONE OR GRAVEL	ASTM C-33 NO. 2	ASTM C-33 NO. 3
	% FINER	% FINER	% FINER
2-1/2 INCHES	100	90-100	100
2 INCHES	95-100	35-70	90-100
1-1/2 INCHES	30-55	0-15	35-70
1-1/4 INCHES	0-25	–	–
1 INCH	0-5	–	0-15
3/4 INCH	–	0-5	–
1/2 INCH	–	–	0-5
3/8 INCH	–	–	–

NOTE:
STABILIZATION PAD TO BE IN COMFORMANCE WITH STANDARDS SET FORTH IN THE "RHODE ISLAND GUIDELINES FOR SOIL & SEDIMENT CONTROL".

RIP-RAP STABILIZATION PAD @ CONSTRUCTION ENTRANCE

NOT TO SCALE



PLACEMENT AND CONSTRUCTION OF HAYBALE EROSION CHECK

NOT TO SCALE

EROSION CONTROL, SOIL STABILIZATION AND SEDIMENT CONTROL PLAN

1. PRIOR TO THE COMMENCEMENT OF ANY CLEARING, GRUBBING, DEMOLITION OR EARTHWORK ACTIVITY, TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE PLANS ARE TO BE INSTALLED BY THE CONTRACTOR.

2. CONSTRUCTION ACCESS STABILIZATION ENTRANCE PADS ARE TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE GRUBBING OR EARTHWORK ACTIVITY.

3. EXISTING CATCH BASINS ARE TO BE PROTECTED WITH HAY BALES AND/OR SILT SACS PRIOR TO THE START OF SITE GRUBBING, EARTHWORK OR UNDERGROUND UTILITY AND DRAINAGE INFRASTRUCTURE INSTALLATION TO SERVE THE DEVELOPMENT SITE.

4. THE PROJECT CONSTRUCTION SEQUENCE, TO THE EXTENT PRACTICAL, SHOULD REQUIRE THE INSTALLATION OF DOWN GRADE AND OFF SITE STORM DRAINAGE SYSTEM IMPROVEMENTS BEFORE THE START OF SITE GRUBBING AND EARTHWORK ACTIVITY.

5. TEMPORARY SITE SLOPE TREATMENTS FOR SOIL STABILIZATION SHALL CONSIST OF HAY, STRAW, FIBER MULCH, RIP RAP OR PROTECTIVE COVERS SUCH AS MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, AND EXCELSIOR OR EQUAL PRODUCTS). THESE AND OTHER ACCEPTABLE MEASURES SHALL BE INCORPORATED INTO THE SITE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.

6. CONSTRUCTION SITES ARE DYNAMIC, THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND OR MOVEMENT AND MAINTENANCE OF EROSION CONTROLS, SOIL STABILIZATION AND SEDIMENT CONTROL MEASURES AS NEEDED TO MAXIMIZE THE INTENT OF THE PLAN FOR ALL SITE CONDITIONS THROUGHOUT THE CONSTRUCTION PERIOD.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION, MAINTENANCE, REPAIR, AND REPLACEMENT OF EROSION CONTROLS, SOIL STABILIZATION AND SEDIMENT CONTROL DEVICES UNTIL AN ACCEPTABLE PERMANENT VEGETATIVE GROWTH IS ESTABLISHED. THE CONTRACTOR SHALL MAINTAIN A DETAIL LOG OF ALL EROSION CONTROL INSPECTIONS, COMPLAINTS RELATED TO EROSION OR SEDIMENT, AND CORRECTIVE REMEDIAL MEASURES TAKEN THROUGHOUT THE COURSE OF THE PROJECT CONSTRUCTION.

8. SOIL EROSION AND SEDIMENT CONTROL IS NOT LIMITED TO DAMAGES CAUSED BY WATER BUT ALSO INCLUDES EROSION AND SEDIMENT RESULTING FROM WINDS. MEASURES, SUCH AS TEMPORARY GROUND COVERS, WATER AND CALCIUM APPLICATIONS ARE TO BE UNDERTAKEN AS NEEDED TO MINIMIZE WIND RELATED SOIL AND DUST CONTROL.

9. STOCK PILES OF EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS OR WETLANDS. STOCK PILES SHALL HAVE SIDE SLOPES NO GREATER THAN THIRTY PERCENT (30%). STOCK PILES SHALL BE SURROUNDED ON THE DOWN GRADIENT OF THE EXISTING GROUND SURFACE BY HAY BALES OR SILT FENCE. THE STOCK PILES SHALL ALSO BE SEEDED OR STABILIZED IN SOME MANOR TO PREVENT SOIL EROSION.

10. THE SMALLEST POSSIBLE SITE AREAS SHALL BE DISTURBED OR EXPOSED AT ONE TIME AND DENUDED SLOPES OR WORK AREAS SHALL NOT BE LEFT EXPOSED FOR EXCESSIVE PERIODS OF TIME, SUCH AS INACTIVE PERIODS OR SITE WORK SHUT DOWNS.

11. TO THE EXTENT POSSIBLE, ALL DISTURBED AREAS MUST BE SEEDED OR STABILIZED WITHIN THE CONSTRUCTION SEASON. STABILIZATION OF ONE FORM OR ANOTHER SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.

12. EXPOSED STEEP OR LONG SLOPES SHOULD BE TREATED WITH "CRIMPING" OR "TRACKING" TO REDUCE EROSION AND SEDIMENT AND TO TACK DOWN SEEDING OR MULCH APPLICATIONS.

13. IF CONCRETE IS TO BE USED ON SITE, THE CONTRACTOR MUST ESTABLISH AND MAINTAIN SPECIFIC WASHOUT AREAS FOR THE CONCRETE TRUCKS WITH APPROPRIATE PROTECTION CONTROLS.

14. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING COLLECTION AND STORAGE LOCATIONS ON-SITE FOR ALL CONSTRUCTION DEBRIS AND TRASH SO THAT THIS MATERIAL DOES NOT BECOME A NEIGHBORHOOD NUISANCE.

15. EXISTING TREES AND VEGETATION WILL BE RETAINED WHENEVER FEASIBLE.

16. SITE SOIL EROSION AND SOIL STABILIZATION AND SEDIMENT CONTROLS MUST CONFORM TO ALL REQUIREMENTS OF THE APPLICABLE LOCAL COMMUNITY ORDINANCES AND STATE REGULATIONS.

CONSTRUCTION DETAILS 1

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REVISIONS

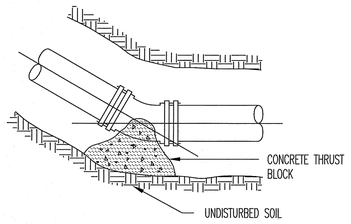
No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

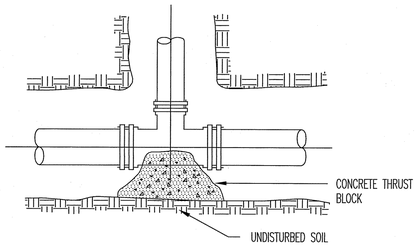
SCALE: AS NOTED	SHEET NO: 27 OF 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10	

NOTES:
1. ALL CEMENT TO BE 300 PSI PORTLAND CEMENT.
2. ALL WORK IS TO BE IN ACCORDANCE WITH THE WATER COMPANY STANDARDS AND/OR LOCAL SEWER AUTHORITY.
3. THRUST BLOCK DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED ON SOIL BEARING CAPACITY OF 1500 PSF AND STATIC WATER PRESSURE OF 70 PSI. WHERE SOIL BEARING CAPACITY IS LESS THAN 1500 PSF OR EXCAVATION LIMITS ENCOUNTERED DURING CONSTRUCTION MAKE IT UNFEASIBLE TO PLACE THRUST BLOCKS AGAINST UNDISTURBED EARTH, THE CONTRACTOR SHALL PLACE SPECIAL REACTION BLOCKS OF SUFFICIENT WEIGHT TO RESIST THE FULL THRUST OF THE LINE UNDER TEST AND OPERATING PRESSURES.

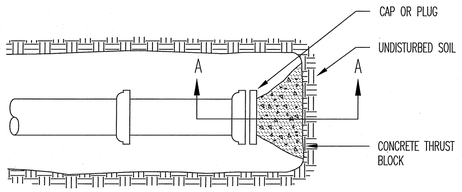
SIZE	1/4" BENDS		1/8" BENDS		1/16" BENDS		TEES		PLUGS	
	A	B	A	B	A	B	A	B	C	D
4"	12"	8"	8"	9"	6"	8"	8"	10"	8"	18'
6"	18"	12"	10"	12"	8"	9"	10"	14"	10"	21"
8"	24"	14"	13"	14"	9"	11"	14"	17"	12"	29"
12"	33"	22"	18"	22"	12"	18"	20"	26"	16"	41"



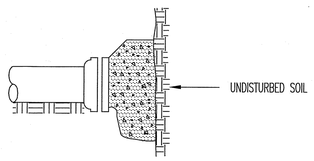
PLAN HORIZONTAL BEND



PLAN TEE



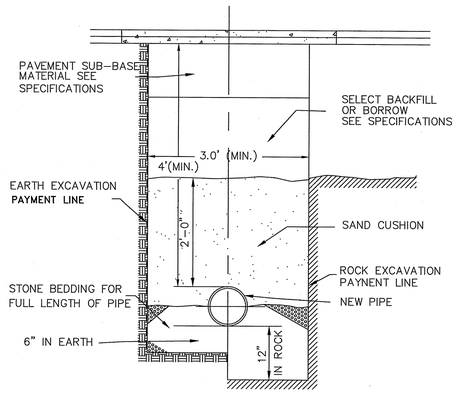
PLAN PLUG



SECTION A–A

THRUST BLOCK DETAILS

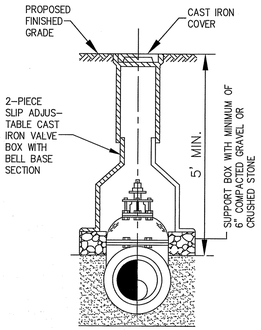
NOT TO SCALE



PIPE DIA.	TRENCH WIDTH
4" TO 12"	= 3'–0"
15" TO 24"	= DIA. + 2'–0"
27" TO 36"	= DIA. + 2'–6"

EARTH – ROCK TRENCH SECTION

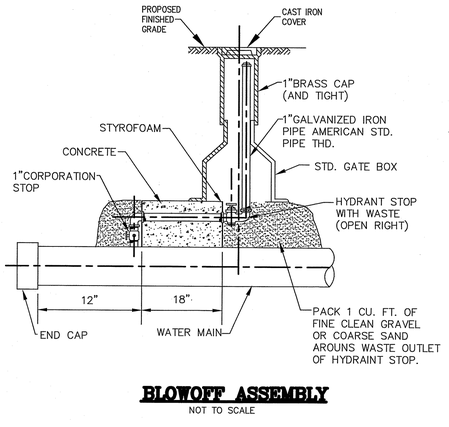
NOT TO SCALE



NOTES:
CAST IRON AMERICAN OR FOREIGN MADE MEETING ALL REQUIREMENTS OF KCWA WITH PRIOR APPROVAL. SLIP STYLE 24" TOP SECTION, 48" BOTTOM SECTION WITH 5 1/4" BURY, LIDS WITH 'WATER' CAST UPON IT.

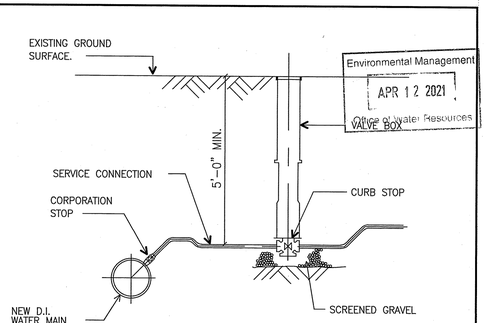
VALVE BOX ASSEMBLY DETAIL

NOT TO SCALE



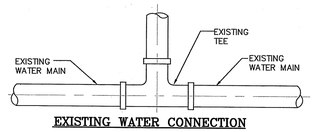
BLOWOFF ASSEMBLY

NOT TO SCALE

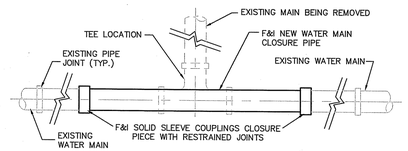


NEW SERVICE CONNECTION DETAIL

NOT TO SCALE



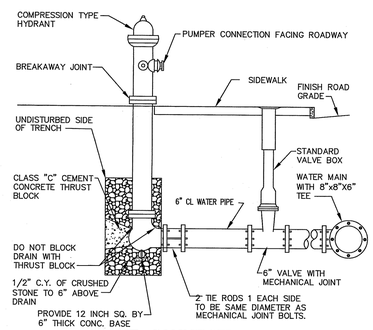
EXISTING WATER CONNECTION



WATER MAIN TEE REMOVAL DETAIL

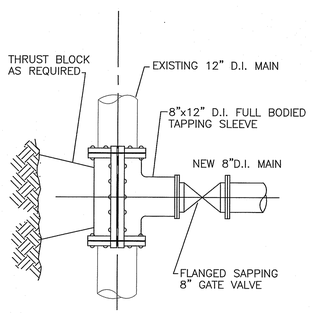
NOT TO SCALE

NOTE:
1. PRIOR TO FINAL APPROVAL FOR PERMANENT CONNECTION FROM K.C.W.A., CONTRACTOR SHALL PERFORM PRESSURE TESTING AND CHLORINATION.
2. SLEEVE FOR CLOSURE TO BE SWABBED WITH CHLORINE SOLUTION.
3. CONSTRUCTION METHOD, PIPE AND SLEEVE COUPLING MATERIALS MUST BE ACCEPTABLE TO K.C.W.A.



HYDRANT CONNECTION DETAIL

NOT TO SCALE



PLAN

TAPPING SLEEVE AND VALVE DETAILS

NOT TO SCALE

INSTALLATION OF TAPPING SLEEVES AND VALVES:

1. B.C.W.A. SHALL BE CONTACTED AND THEIR PERMISSION GRANTED PRIOR TO TAPPING A "LIVE" LINE. THE REQUIRED PROCEDURES AND TIME TABLE SHALL BE FOLLOWED EXACTLY.
2. INSTALLATION SHALL BE MADE UNDER PRESSURE AND FLOW SHALL BE MAINTAINED. THE DIAMETERS OF THE TAP SHALL BE NOT LESS THAN 1/4–IN LESS THAN THE INSIDE DIAMETER OF THE BRANCH LINE
3. THE ENTIRE OPERATION SHALL BE CONDUCTED BY WORKERS EXPERIENCED IN THE INSTALLATION OF TAPPING SLEEVES AND VALVES. THE TAPPING MACHINE SHALL BE FURNISHED BY THE CONTRACTOR.
4. DETERMINE THE LOCATION OF THE LINE TO BE TAPPED TO CONFIRM THAT THE PROPOSED LOCATION WILL BE SATISFACTORY AND THAT NOT INTERFERENCE WILL BE ENCOUNTERED SUCH AS JOINTS OR FITTINGS. NO TAP OR SLEEVE WILL BE MADE CLOSER THAN THREE FEET FROM A PIPE JOINT.
5. TAPPING SLEEVE AND VALVE WITH BOXES SHALL BE SET SQUARELY CENTERED ON THE LINE TO BE TAPPED. ADEQUATE SUPPORT SHALL BE PROVIDED UNDER THE SLEEVE AND VALVE DURING THE TAPPING OPERATION. THRUST BLOCKS OR OTHER PERMANENT RESTRAINTS SHALL BE PROVIDED BEHIND ALL TAPPING SLEEVES. PROPER TAMPING OF SUPPORTING PIPE BEDDING MATERIAL AROUND AND UNDER THE VALVE AND SLEEVE IS MANDATORY FOR BURIED INSTALLATIONS.
6. AFTER COMPLETING THE TAP, THE VALVE SHALL BE FLUSHED TO ENSURE THAT THE VALVE SEAT IS CLEAN. ALL PROPER REGULATORY PROCEDURES (INCLUDING DISINFECTION) SHALL BE FOLLOWED EXACTLY.

CONSTRUCTION DETAILS 2

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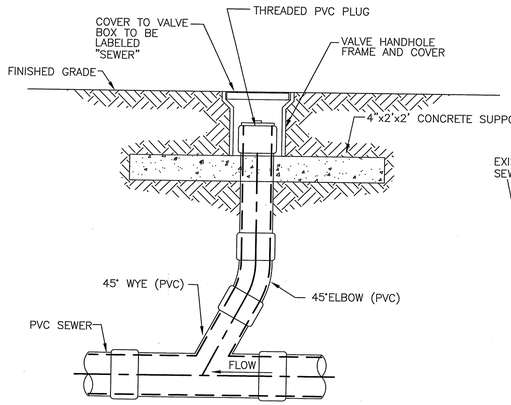
REVISIONS

No.	DATE	DRWN	CHKD

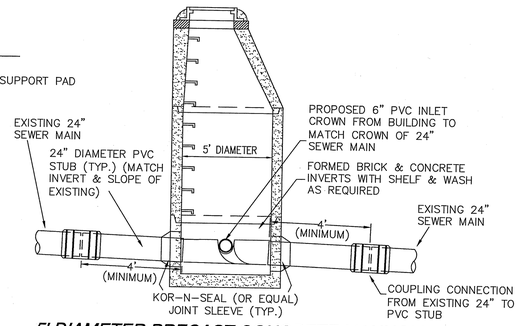
PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 28 OF 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015–10



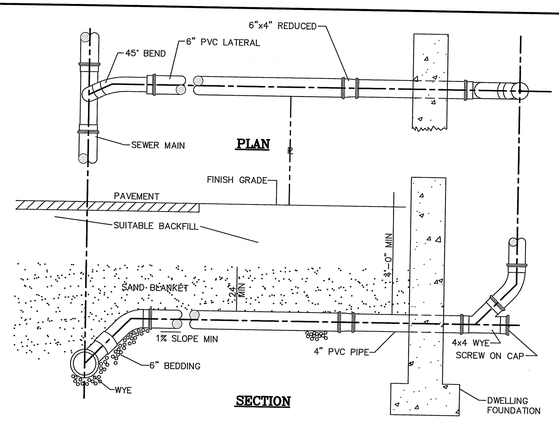
CLEANOUT DETAIL

NOT TO SCALE



5' DIAMETER PRECAST CONCRETE MANHOLE INSTALLATION AT 24" SEWER MAIN

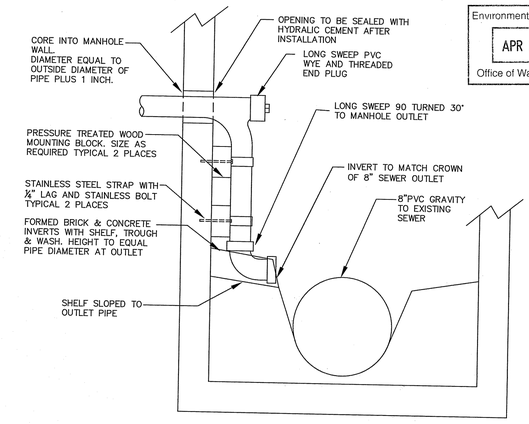
NOT TO SCALE
SHOP DRAWING SUBMITTAL REQUIRED



STANDARD HOUSE CONNECTION DETAIL

NOT TO SCALE

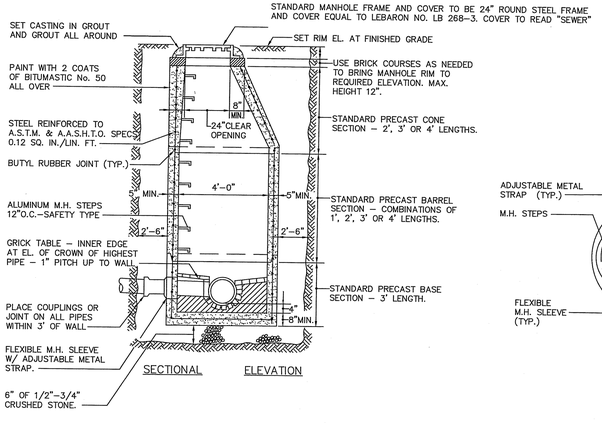
NOTE: FOR AN EXISTING SEWER MAIN THAT DOES NOT HAVE A WYE INSTALLED, THE CONTRACTOR SHALL INSTALL A PIPE SADDLE.

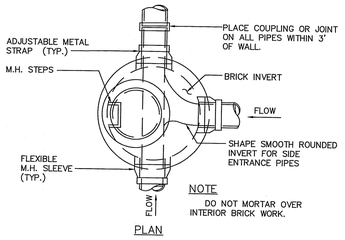


SEWER FORCE MAIN TO GRAVITY MANHOLE

NOT TO SCALE
SHOP DRAWING SUBMITTAL REQUIRED

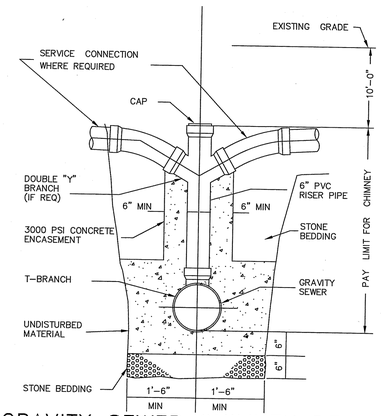
Environmental Management
APR 12 2021
Office of Water Resources





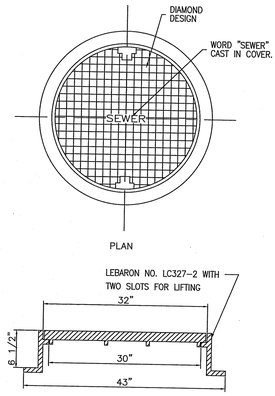
TYPICAL PRECAST CONCRETE MANHOLE DETAILS

NOT TO SCALE



GRAVITY SEWER CHIMNEY DETAIL

NOT TO SCALE



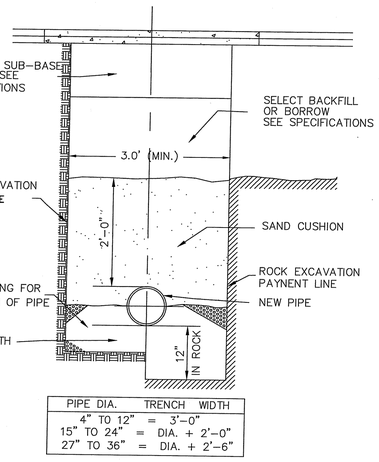
NOTE:
1. VENTILATION HOLES OF ANY SIZE ARE NOT ALLOWED.

SANITARY MANHOLE FRAME & COVER

NOT TO SCALE

SEWER NOTES:

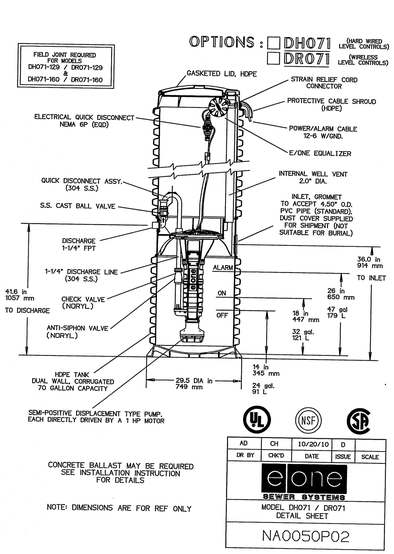
1. Testing of sewer system includes but is not limitted to: pipe deflection test, vaccuum test of manholes, and an infiltration test or low pressure test as applicable.
2. Pipe Deflection Test: Test each section of PVC sewer pipe for vertical ring deflection 60 days following installation. Maximum deflection shall be 7.5% of the inside diameter.
3. Infiltration Test: An infiltration test requires groundwater levels to be a minimum of 2 feet above the crown of the pipe of the high end of the section being tested. A. V–Notched weir shall be constructed and water shall flow through the pipe and be allowed to build up and flow over the weir as steady uniform flow. leakage shall not exceed 10 gallons per inch diameter, per day, per mile of pipe. Should the pipe, as laid, fail to meet the requirements, the contractor shall perform necessary work to meet those requirements.
4. Low Pressure Air Test : After completing backfill of the pipe, the contractor shall conduct a line acceptane test using low pressure air. The line shall be flushed and cleaned prior to testing.
5. All pneumatic plugs shall be seal tested before used in the actual test installation. Plugs shall hold a pressure of 25psig without bracing and without movement.
6. After a manhole to manhole stretch of pipe has been backfilled and cleaned, and plugs Installed, the system shall be inflated to 25 psig. Low pressure air shall be introduced into the sealed line until the internal pressure reaches 4 psig greater than the average back pressure that may be over the pipe. At least 2 minutes shall be allowed for pressure stabilization.
7. After stabilization period, the time for the pressure to decrease from 3.5 psig to 2.5 psig shall be less for the following diameter pipe:
   8 inches – – 4 minutes
   10 inches – – 5 minutes
   12 inches – – 6 minutes



PIPE DIA.	TRENCH WIDTH
4" TO 12"	= 3'–0"
15" TO 24"	= DIA. + 2'–0"
27" TO 36"	= DIA. + 2'–6"

EARTH – ROCK TRENCH SECTION

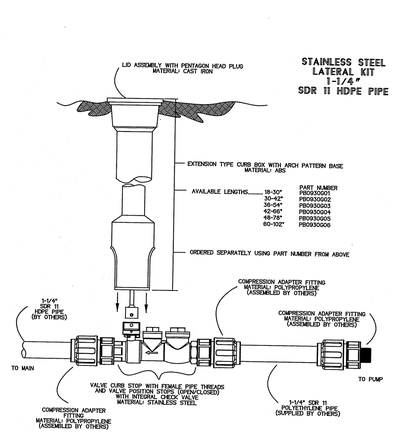
NOT TO SCALE



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTION FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY

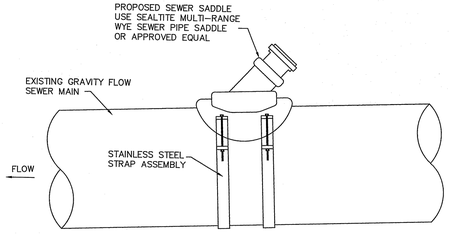
AD	CH	10/20/10	D	
DR BY	CHK'D	DATE	ISSUE	SCALE
SEWER SYSTEMS				
MODEL DH071 / DR071 DETAIL SHEET				
NA0050P02				



NOTES:
1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY, TO BE ASSEMBLED BY OTHERS
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
3. ASSEMBLY IS TO BE PRESSURE TESTED (BY OTHERS)
4. ASSEMBLY IS TO BE USED WITH SDR11 HDPE PIPE
5. TO ORDER SS LATERAL KIT, USE PART NUMBER NC0193G01
6. CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

KIT PARTS ARE NOT ASSEMBLED

SDS	DN	11/02/11	A	3/16
DR BY	CHK'D	DATE	ISSUE	SCALE
SEWER SYSTEMS				
STAINLESS STEEL LATERAL KIT 1-1/4" SDR 11 HDPE PIPE				
NA0330P02				



SEWER PIPE SADDLE DETAIL

NOT TO SCALE
SHOP DRAWING SUBMITTAL REQUIRED

CONSTRUCTION DETAILS 3

Thomas J. Principe, III
9107
REGISTERED PROFESSIONAL ENGINEER

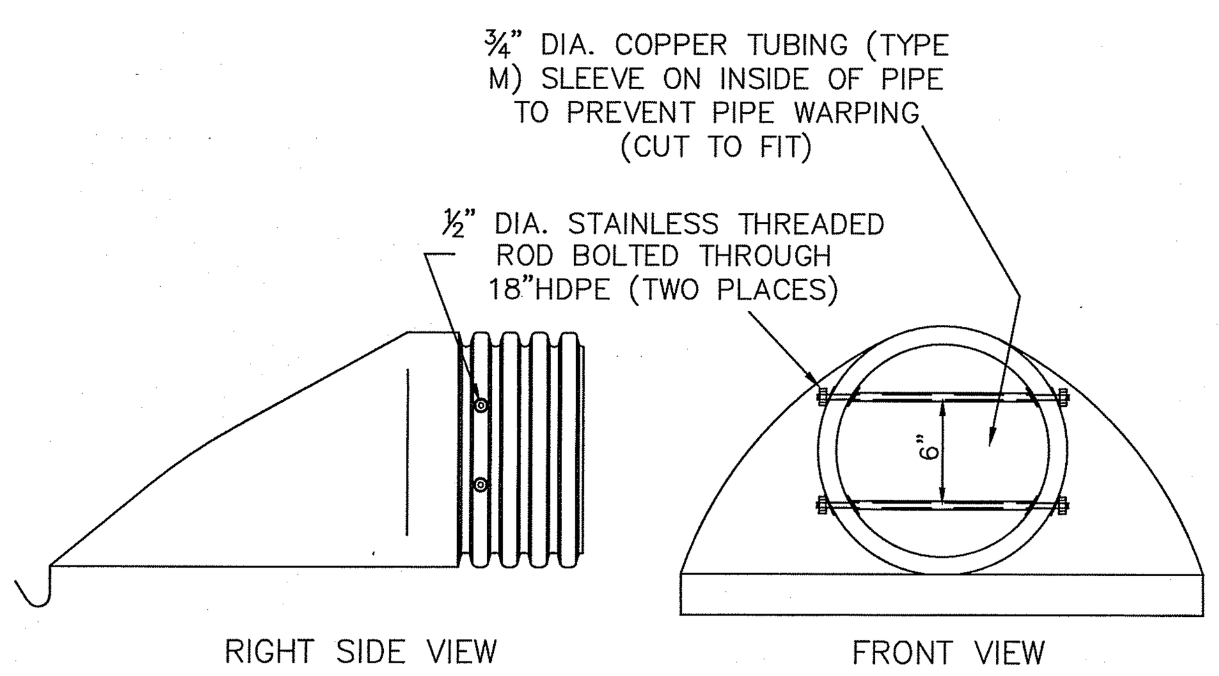
REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM

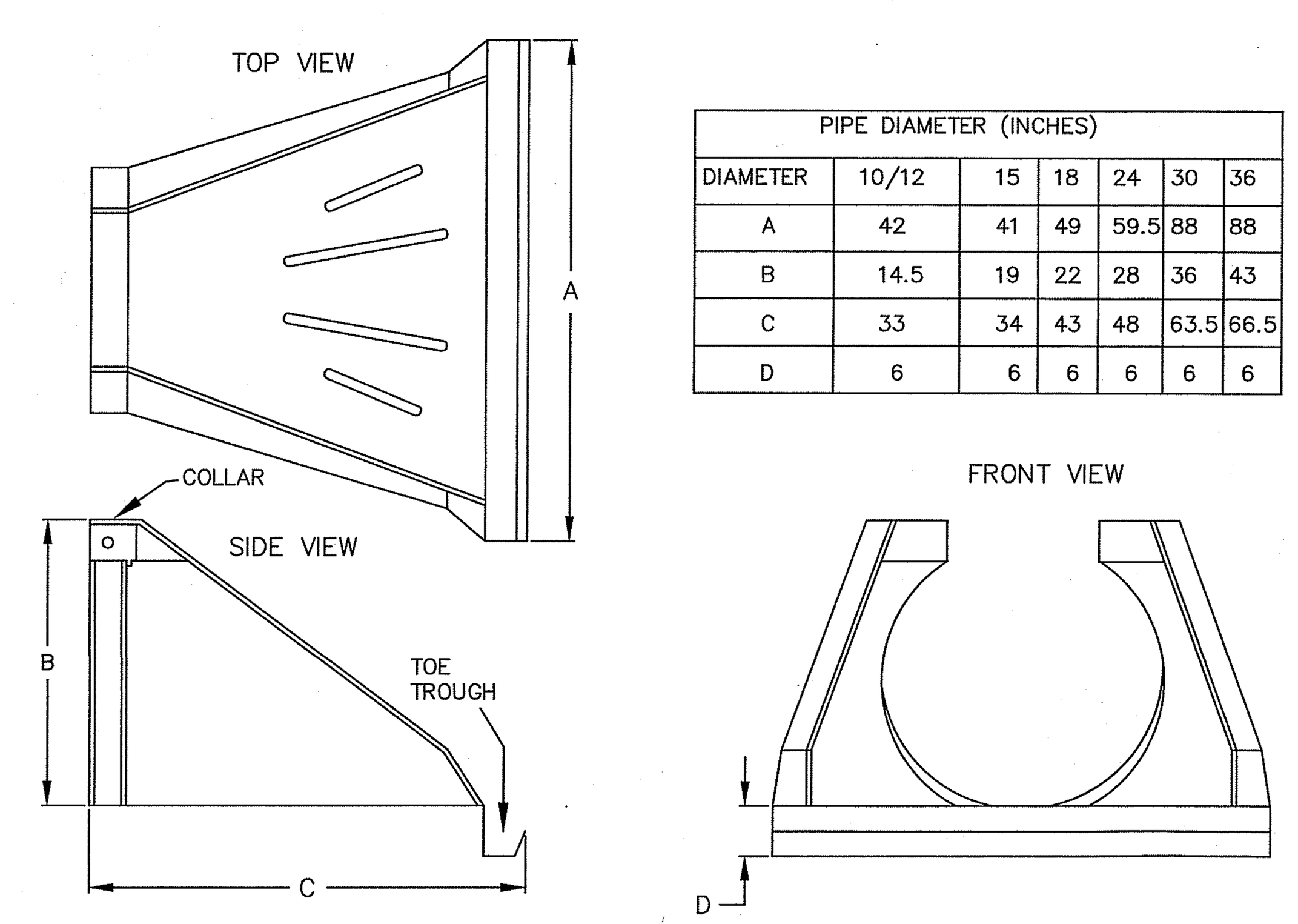
PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 29 OF 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015–10



TRASH RACK DETAIL FOR HDPE FLARED END SECTION

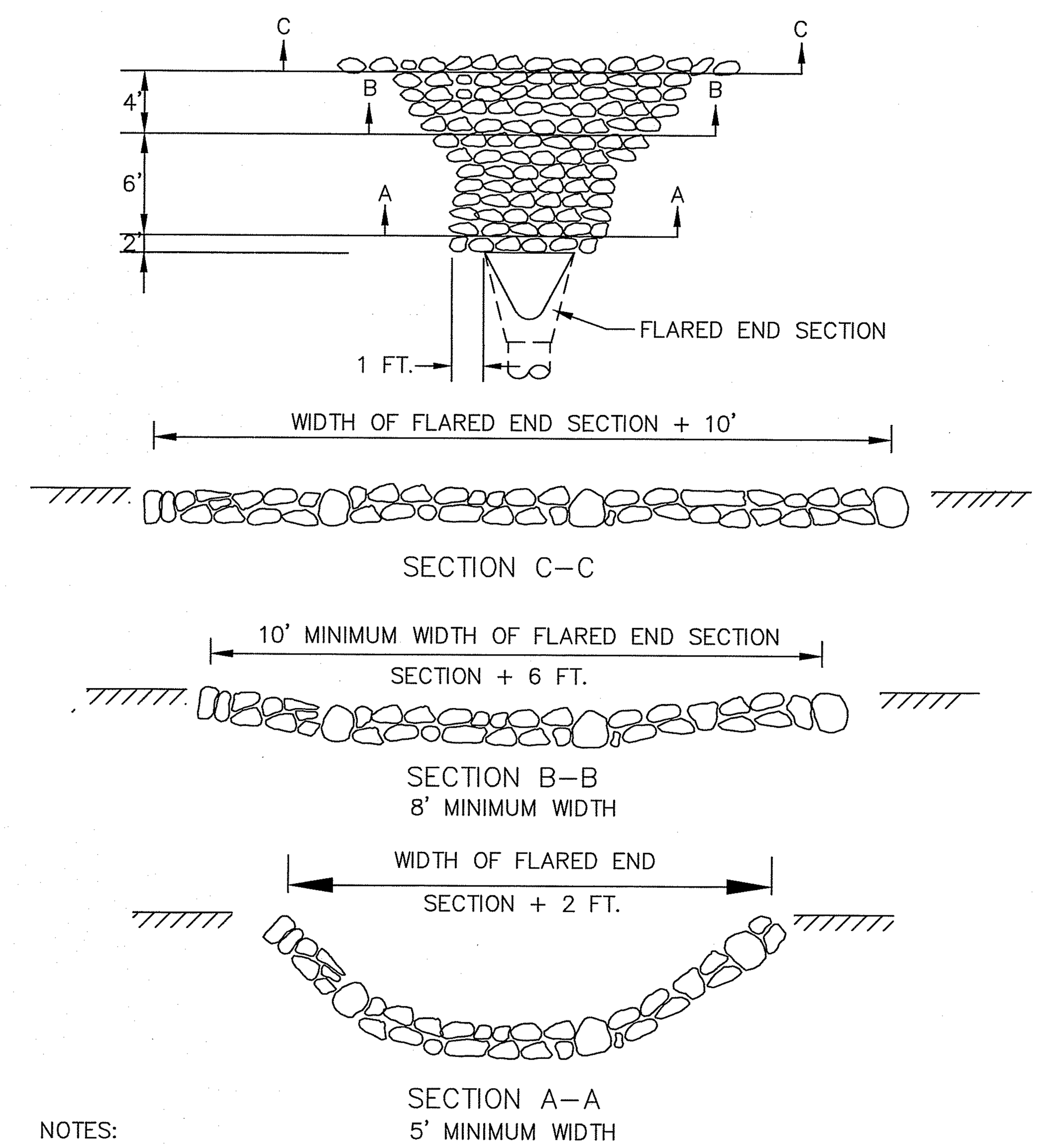
NTS



PIPE DIAMETER (INCHES)						
DIAMETER	10/12	15	18	24	30	36
A	42	41	49	59.5	88	88
B	14.5	19	22	28	36	43
C	33	34	43	48	63.5	66.5
D	6	6	6	6	6	6

HDPE PIPE END FLARED END SECTION

NOT TO SCALE



NOTES:

1. CLASS OF RIP–RAP AND BEDDING TO BE SPECIFIED IN CONTRACT DOCUMENTS.
2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS
3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP–RAP SHALL BE USED.

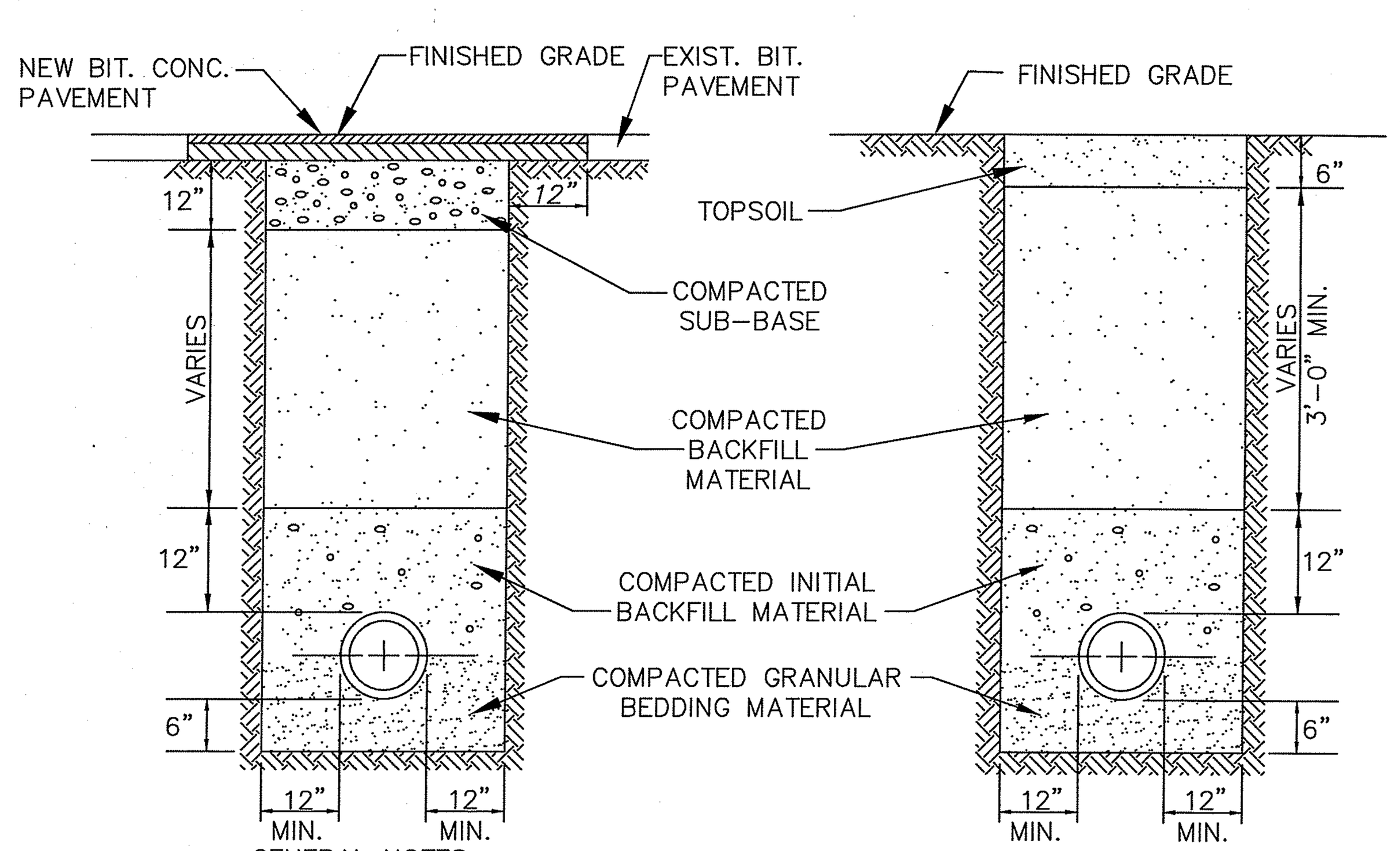
ROCK FILL RIP–RAP @ FLARED END SECTIONS

NOT TO SCALE

RIP–RAP TABLE

STONE	BEDDING
STONE / DEPTH	SIZE / DEPTH
M02.02.4 / 12"	1"STONE / 4"

M02.02.4 = 8" – 95 / 100%,
4" – 0 / 25%
2½" – 0 / 5%



GENERAL NOTES:

1. REFER TO SPECIFICATIONS REGARDING BACKFILL MATERIALS.
2. REFER TO SPECIFICATIONS AND DETAILS REGARDING PAVEMENT AND SURFACE RESTORATION.

TYPICAL DRAIN TRENCH DETAIL

NOTES:

COAT PIPE AT COLLAR LOCATION WITH BUTYL RUBBER PATH CEMENT SEALER OR OTHER BUTYL RUBBER SEALER. (DO NOT USE ASPHALT ROOF PATCH) COMPLETED INSTALLATION MUST BE WATERTIGHT

FORCE BUTYL RUBBER SHEET OVER UPSTREAM END OF PIPE AND OVER BUTYL ROOF SEALER.

INSTALL A 1–1/4" WIDE STAINLESS STEEL STRAP. CLAMP AROUND PIPE OVER BUTYL RUBBER SHEET AND TIGHTEN UNTIL SEALER IS FORCED OUT.

STAPLE BUTYL RUBBER SHEET TO LUMBER FRAME.

FOR PIPE DIAMETERS OF LESS THAN 6" CUT A HOLE (CENTERED) IN BUTYL RUBBER SHEET, APPROX. 1/2" DIA.: AND FOR PIPE DIAMETERS 6" TO 15" CUT A HOLE 3" SMALLER THAN DIAMETER OF PIPE AND FORCE BUTYL RUBBER SHEET OVER UPSTREAM END OF PIPE AND OVER BUTYL ROOF SEALER.
THE WOOD FRAME SHALL BE CONSTRUCTED FROM EITHER 1"x4" OR 2"x2" LUMBER AND SHALL BE RIGID ENOUGH TO WITHSTAND BACKFILL OPERATIONS. 1/6" THICKNESS SHEET OF NON–REINFORCED BUTYL RUBBER MEMBRANE AS SUPPLIED BY WATERSAVER COMPANY INC., 5870 EAST 56TH AVE. COMMERCE CITY, COLO. 80022 OR EQUAL.

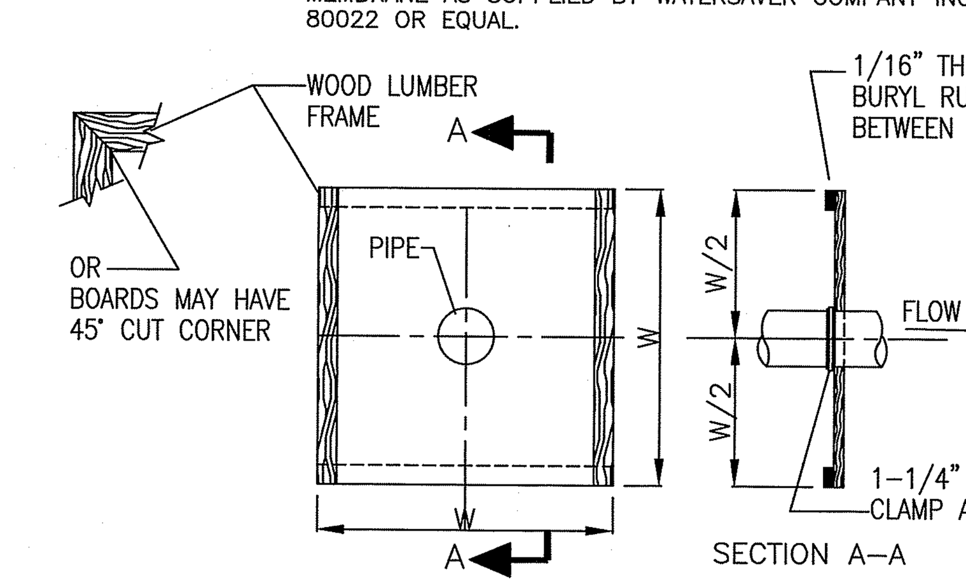
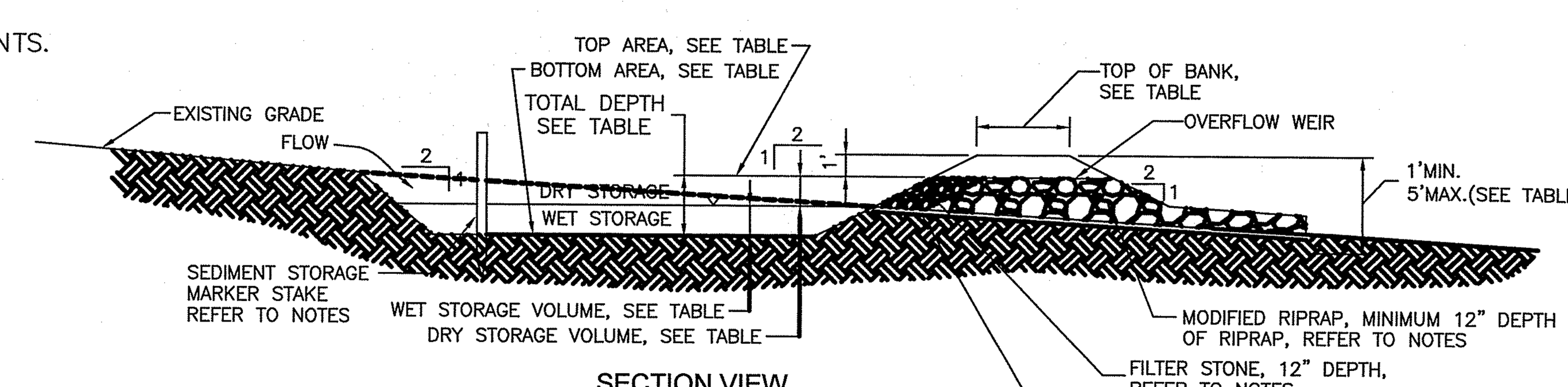


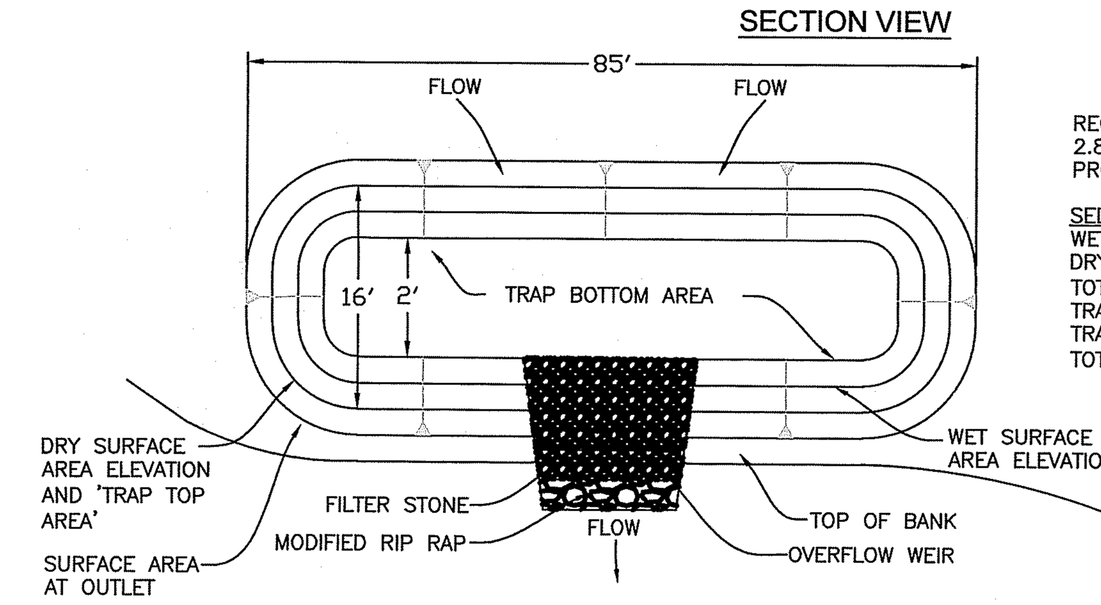
TABLE OF QUANTITIES (PER COLLAR)				
PIPE DIA. INCHES	"W" FEET	BUTYL SHEET SQ. FT.	STAINLESS STEEL STRAP	LUMBER FOR FRAME LIN. FT.
4" TO 8"	2	4	1	8
10" TO 18"	4	16	1	16

ANTI–SEEP COLLAR DETAIL

NOT TO SCALE



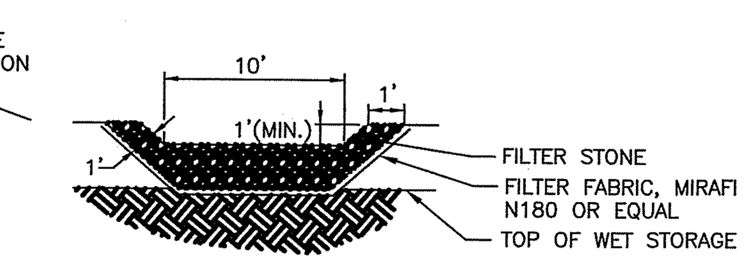
SECTION VIEW



PLAN VIEW

REQUIRED: 134 CU.YDS. PER ACRE OF DISTURBED LAND
2.8 AC. OF DISTURBED LAND REQUIRES 375.2 CU.YDS = 10,130 CU.FT.
PROVIDED: 5 TRAPS = 11,475 CU.FT.

SEDIMENT TRAP DATA:	TRAP
WET STORAGE DEPTH, FT	1.5
DRY STORAGE DEPTH, FT	1.5
TOTAL DEPTH (WET/DRY), FT	3.0
TRAP BOTTOM AREA, SQ. FT.	170
TRAP TOP AREA, SQ. FT.	1,360
TOTAL VOLUME PROVIDED (PER TRAP)	2,295 CU.FT.



OVERFLOW WEIR SECTION

TEMPORARY SEDIMENT TRAP DETAIL

NOT TO SCALE

GENERAL NOTES:

1. THE TEMPORARY SEDIMENT TRAP SHALL MEET ALL REQUIREMENTS FOR TEMPORARY SEDIMENT TRAPS OUTLINED IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST REVISION) SECTION SIX: SEDIMENT CONTROL MEASURES.
2. THE TEMPORARY SEDIMENT TRAP SHALL HAVE AN INITIAL STORAGE VOLUME OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE OUTLET SHALL BE LOCATED AT THE MOST DISTANT HYDRAULIC POINT FROM THE INLET.
5. THE OUTLET CONSISTS OF A PERVIOUS STOKE DIKE WITH A CORE OF MODIFIED RIP RAP AND FACED ON THE UPSTREAM SIDE WITH STONE.
6. TEMPORARY SEDIMENT TRAPS MUST OUTLET ONTO STABILIZED GROUND.
7. MAXIMUM HEIGHT OF A TEMPORARY SEDIMENT TRAP EMBANKMENT IS LIMITED TO FIVE FEET.
8. SIDE SLOPES OF THE EMBANKMENT SHALL BE 2:1 OR FLATTER.
9. MODIFIED RIP RAP SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.10.03.2 AND BE R–4 GRADE RIPRAP.
10. FILTER STONE SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.01.03 TABLE I COLUMN V FILTER STONE.

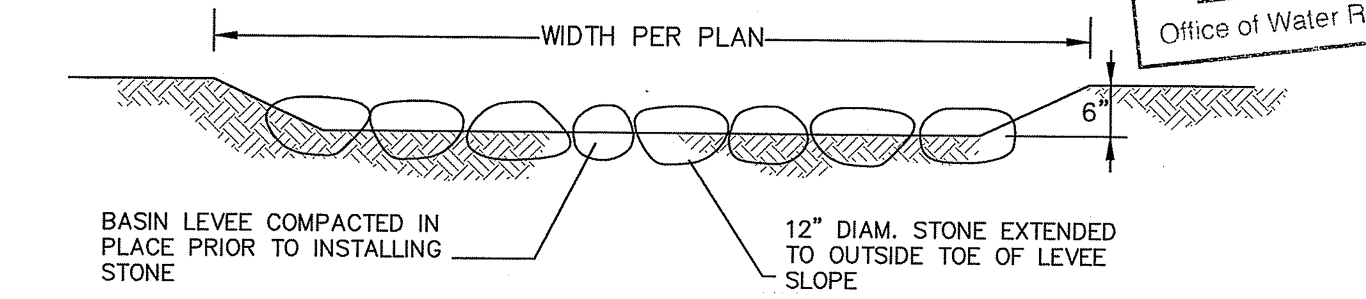
INSPECTION, MAINTENANCE AND REMOVAL REQUIREMENTS:

1. INSTALL SEDIMENT STORAGE STAKE WITH A MARKER AT ONE HALF OF THE WET STORAGE VOLUME.
2. INSPECT THE TEMPORARY SEDIMENT TRAP AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER.
3. CHECK THE OUTLET TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OF CONSTRUCTION EQUIPMENT.
4. CHECK FOR SEDIMENT ACCUMULATION AND FILTRATION PERFORMANCE.
5. WHEN SEDIMENTS HAVE ACCUMULATED TO ONE HALF THE MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATER THE TRAP AS NEEDED, REMOVE SEDIMENTS AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS.
6. DISPOSE OF THE SEDIMENT REMOVED FROM THE BASIN IN A SUITABLE AREA.
7. THE TEMPORARY SEDIMENT TRAP MAY BE REMOVED AFTER THE CONTRIBUTING DRAINAGE AREA IS STABILIZED.

INSTALLATION NOTES:

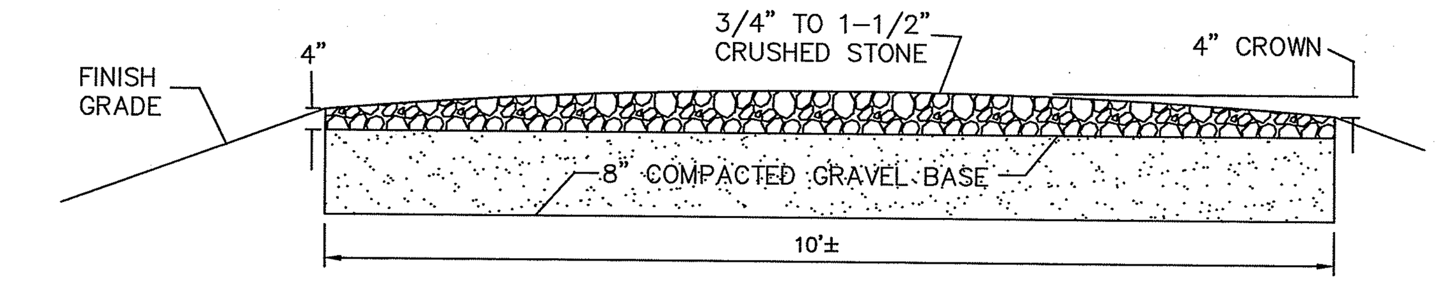
1. CLEAR GRUB AND STRIP ANY VEGETATION AND ROOT MAT FROM ANY PROPOSED EMBANKMENT AND OUTLET AREA.
2. REMOVE STONES AND ROCKS WHOSE DIAMETER IS GREATER THAN 3 INCHES AND OTHER DEBRIS.
3. EXCAVATE WET STORAGE AND CONSTRUCT THE EMBANKMENT AND/OR OUTLET AS NEEDED TO ATTAIN THE NECESSARY STORAGE REQUIREMENTS.
4. USE ONLY FILL MATERIAL FOR THE EMBANKMENT THAT IS FREE FROM EXCESSIVE ORGANICS, DEBRIS, LARGE ROCKS (OVER SIX INCHES) OR OTHER UNSUITABLE MATERIALS. COMPACT THE EMBANKMENT IN 9 INCH LAYERS BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
5. STABILIZE THE EARTHEN EMBANKMENT USING ANY OF THE FOLLOWING MEASURES, SEEDING FOR TEMPORARY VEGETATION COVER, SEEDING FOR PERMANENT VEGETATIVE COVER, OR SLOPE PROTECTION, IMMEDIATELY AFTER INSTALLATION.

Environmental Management
APR 12 2021
Office of Water Resources



STORMWATER BASIN OVERFLOW CHANNEL

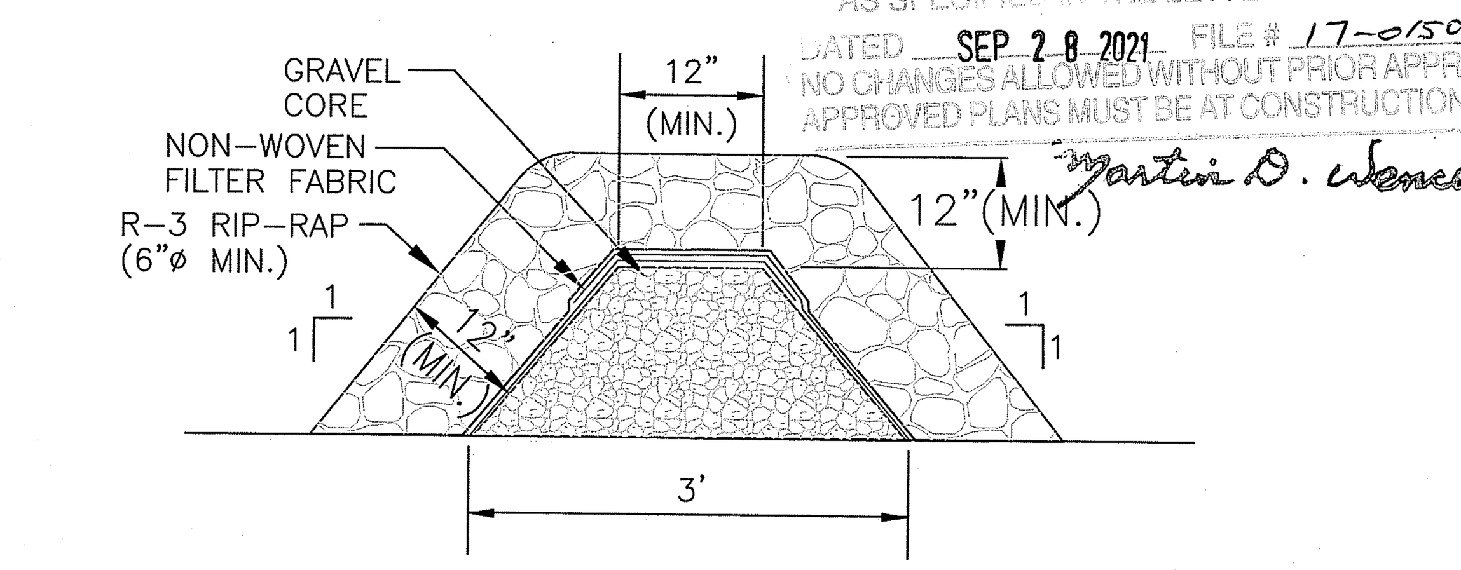
NOT TO SCALE



GRAVEL ACCESS ROAD TYPICAL CROSS SECTION DETAIL

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wencek



DETENTION BASIN SEDIMENT FOREBAY BARRIER DETAIL

NOT TO SCALE

DRAINAGE AND UTILITY NOTES:

1. UTILITY LOCATION VERIFICATION IS TO INCLUDE TEST HOLES AS NEEDED.

2. WATER MAINS AND APPURTENANCES, INCLUDING SERVICE CONNECTIONS SHALL BE INSTALLED IN CONFORMITY WITH THE SPECIFICATIONS OF THE ONSET WATER DEPARTMENT AND IN ACCORDANCE WITH THE TOWN'S MASTER OR STUDY WATER PLAN.

3. THE CONTRACTOR IS REQUIRED TO SCHEDULE AND COORDINATE WATER SERVICE INSTALLATIONS, SHUT DOWNS AND DISRUPTIONS WHICH AFFECT THE SITE AND SITE ADJACENT USERS WITH THE LOCAL WATER AUTHORITY AND THE LOCAL FIRE DEPARTMENT.

4. UNDERGROUND UTILITIES, ELECTRIC, TELEPHONE, FIRE ALARM CABLE, TELEVISION AND GAS SERVICES SHALL BE INSTALLED PER THE REQUIREMENTS OF THE APPLICABLE SITE UTILITY PROVIDER

5. METALLIC WARNING TAPE SHALL BE INSTALLED 12" ABOVE ALL STORM DRAIN AND OTHER UTILITIES.

6. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES AND ABUTTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.

CONSTRUCTION DETAILS 4

Thomas J. Principe, III
REGISTERED PROFESSIONAL ENGINEER

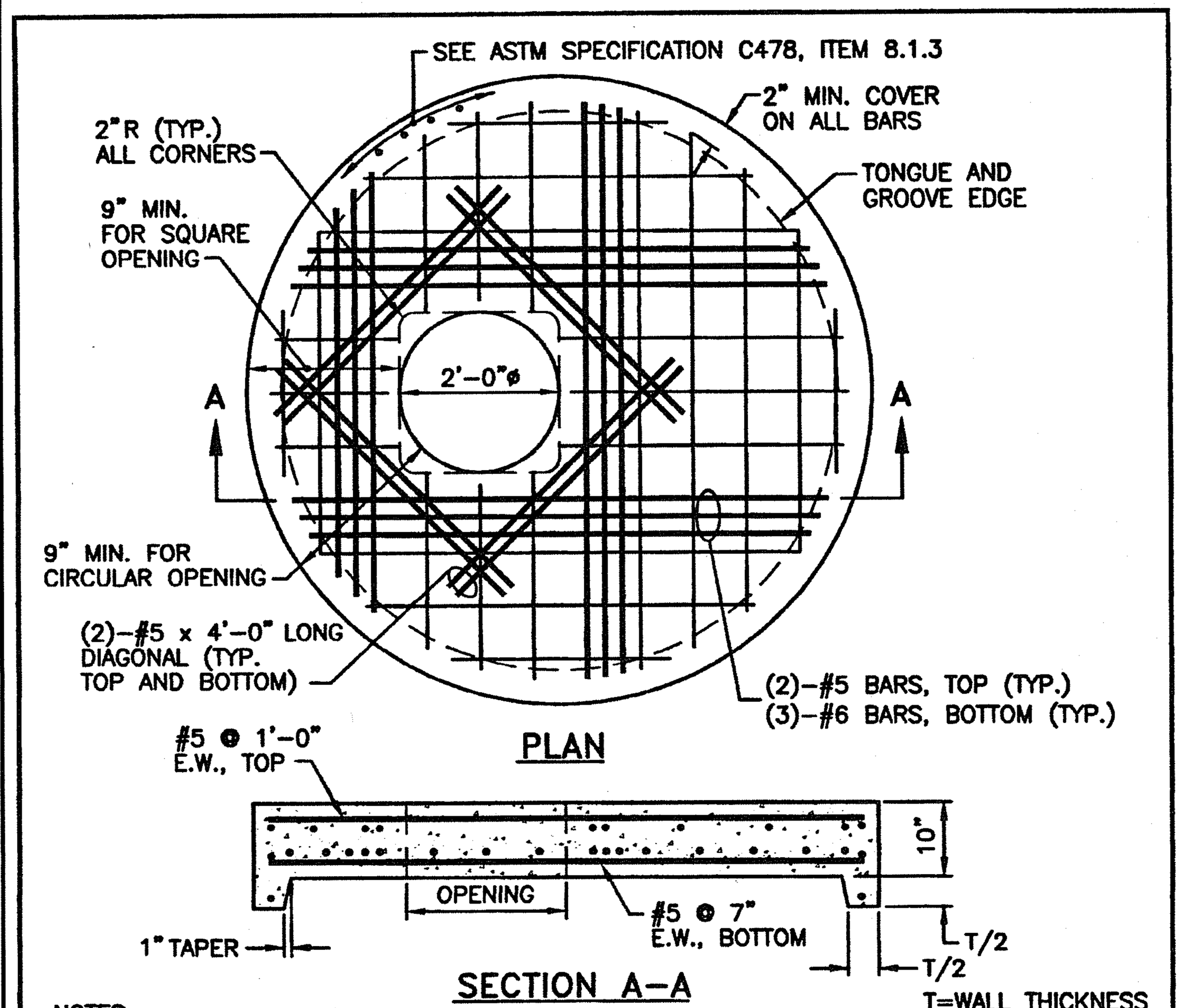
PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
PO BOX 298
TIVERTON, RI 02878
401.816.5385
PRINCIPEENGINEERING@GMAIL.COM
ESTABLISHED IN 1981

REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 30 OF 32
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21		PROJECT NO.: 2015–10



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
3. THE CENTER LINE OF THE OPENING MUST BE WITHIN 2" FROM THE STEPS.
4. ALTERNATE TOP COVER IS STEEL REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
5. ALL REBAR SHALL HAVE A MINIMUM OF 2" CLEARANCE FROM OPENING.
6. ALL REBARS IN THE BOTTOM MAT ARE #5 @ 2", BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (3)-#6 SHOWN WITH A HEAVIER LINE FOR CLARITY). REBARS IN THE TOP MAT ARE #5 @ 1'-0", BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (2)-#5 BARS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REVISIONS: NO. | BY | DATE
ALTERNATE TOP COVER FOR ROUND PRECAST MANHOLES AND CATCH BASINS
CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION
JUNE 15, 1998 ISSUE DATE
R.I. STANDARD 4.7.2

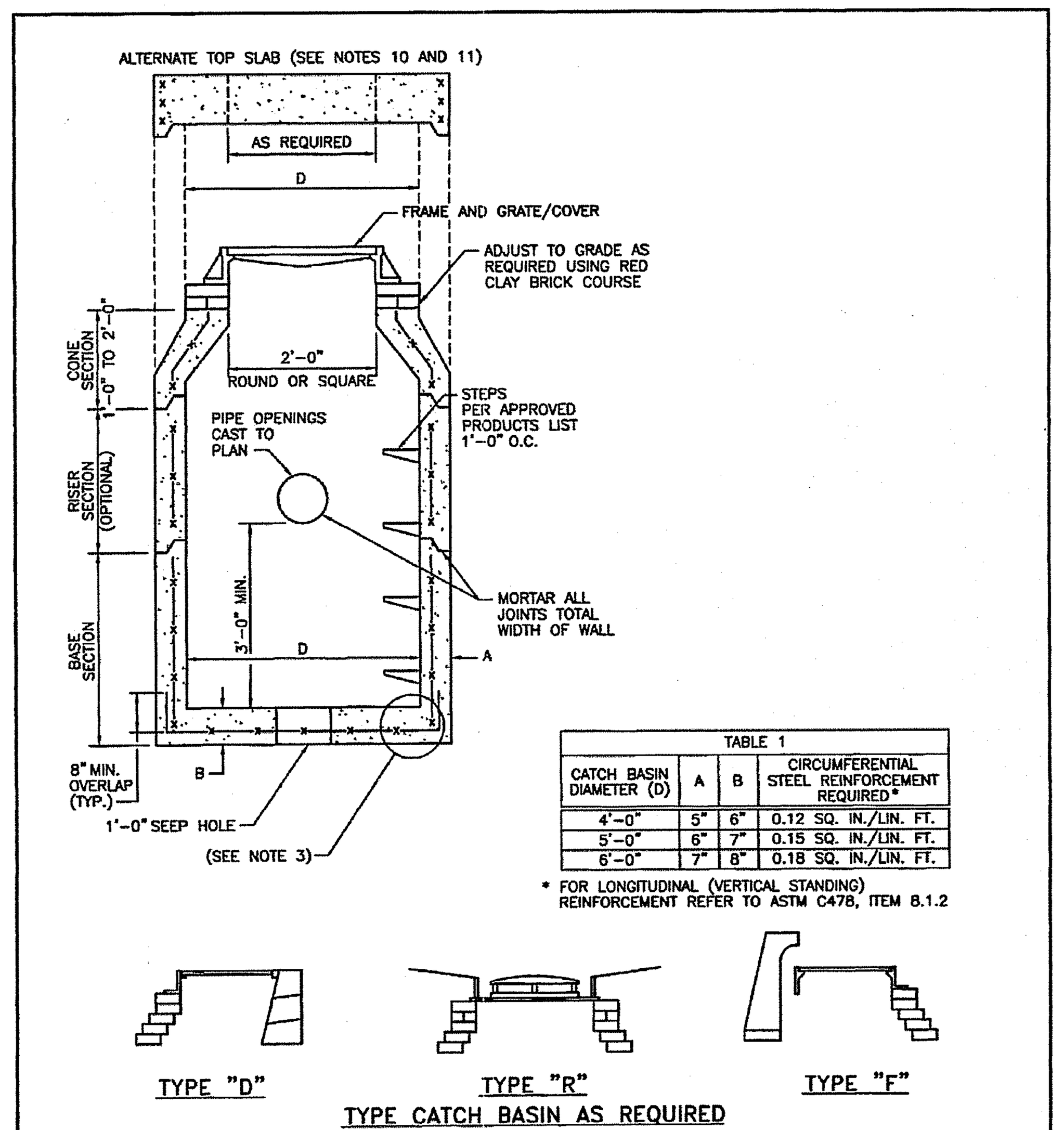


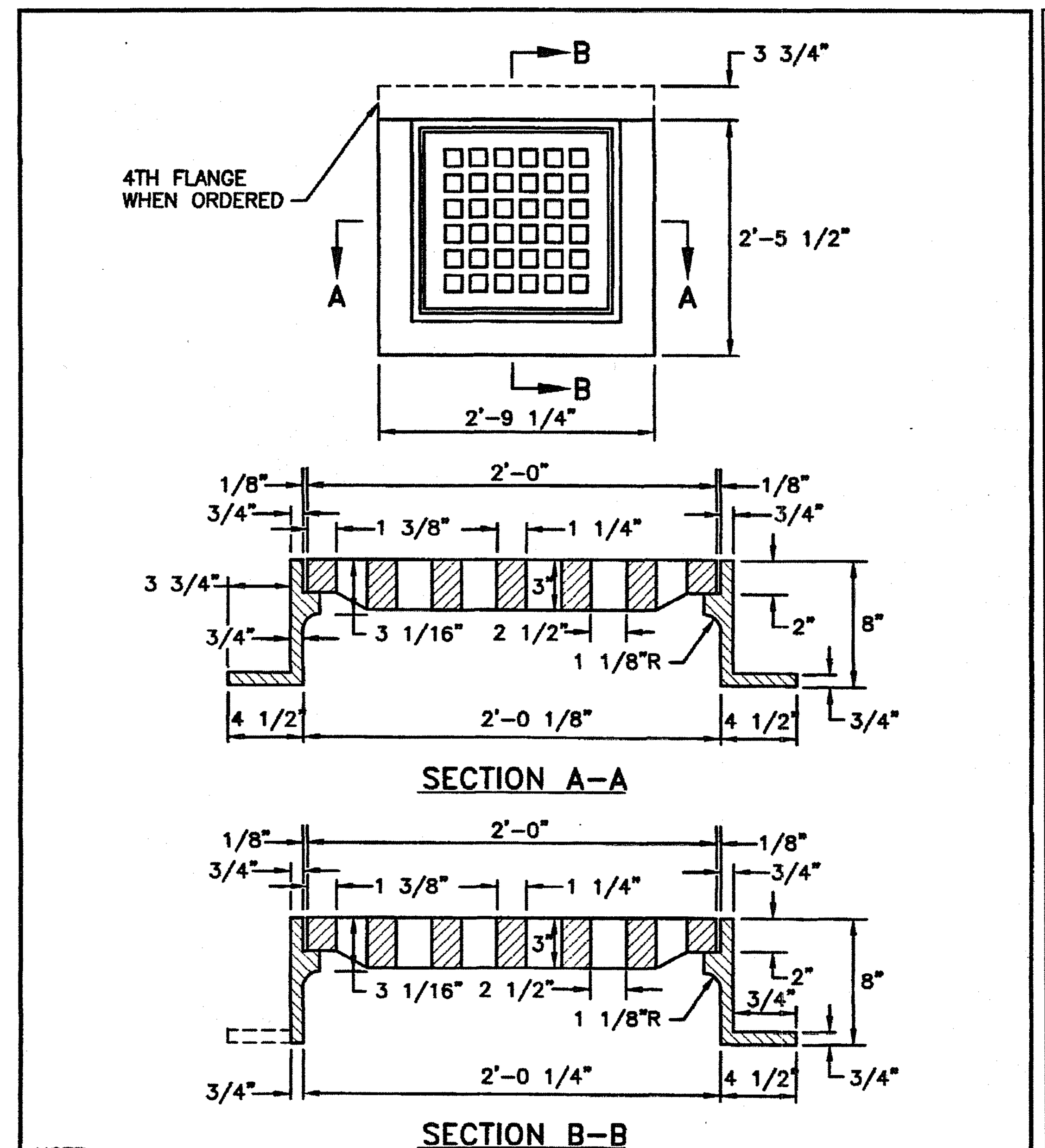
TABLE 1

CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED*
4'-0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'-0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'-0"	7"	8"	0.18 SQ. IN./LIN. FT.

* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

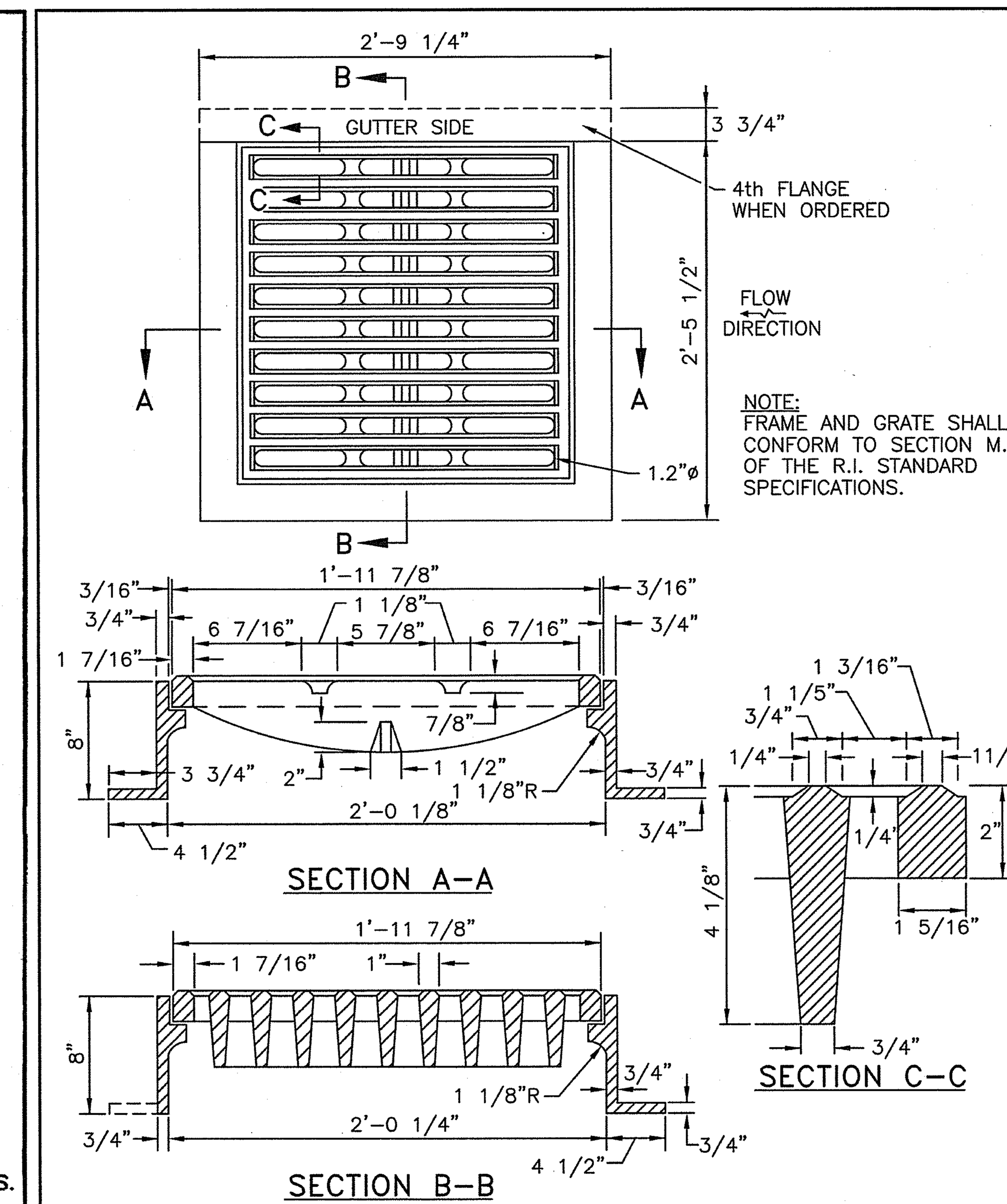
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
5. ONE POUR MONOLITHIC BASE SECTION.
6. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
7. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE 4'-0" CATCH BASIN ONLY.
8. FOR CATCH BASIN TYPES "D" AND "F" STEPS MUST BE INSTALLED ON THE CURB SIDE OF THE STRUCTURE.
9. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
10. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
11. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
12. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REVISIONS: NO. | BY | DATE
PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN
CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION
JUNE 15, 1998 ISSUE DATE
R.I. STANDARD 4.4.0



NOTE:
FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REVISIONS: NO. | BY | DATE
SQUARE FRAME AND GRATE
CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION
JUNE 15, 1998 ISSUE DATE
R.I. STANDARD 6.3.0

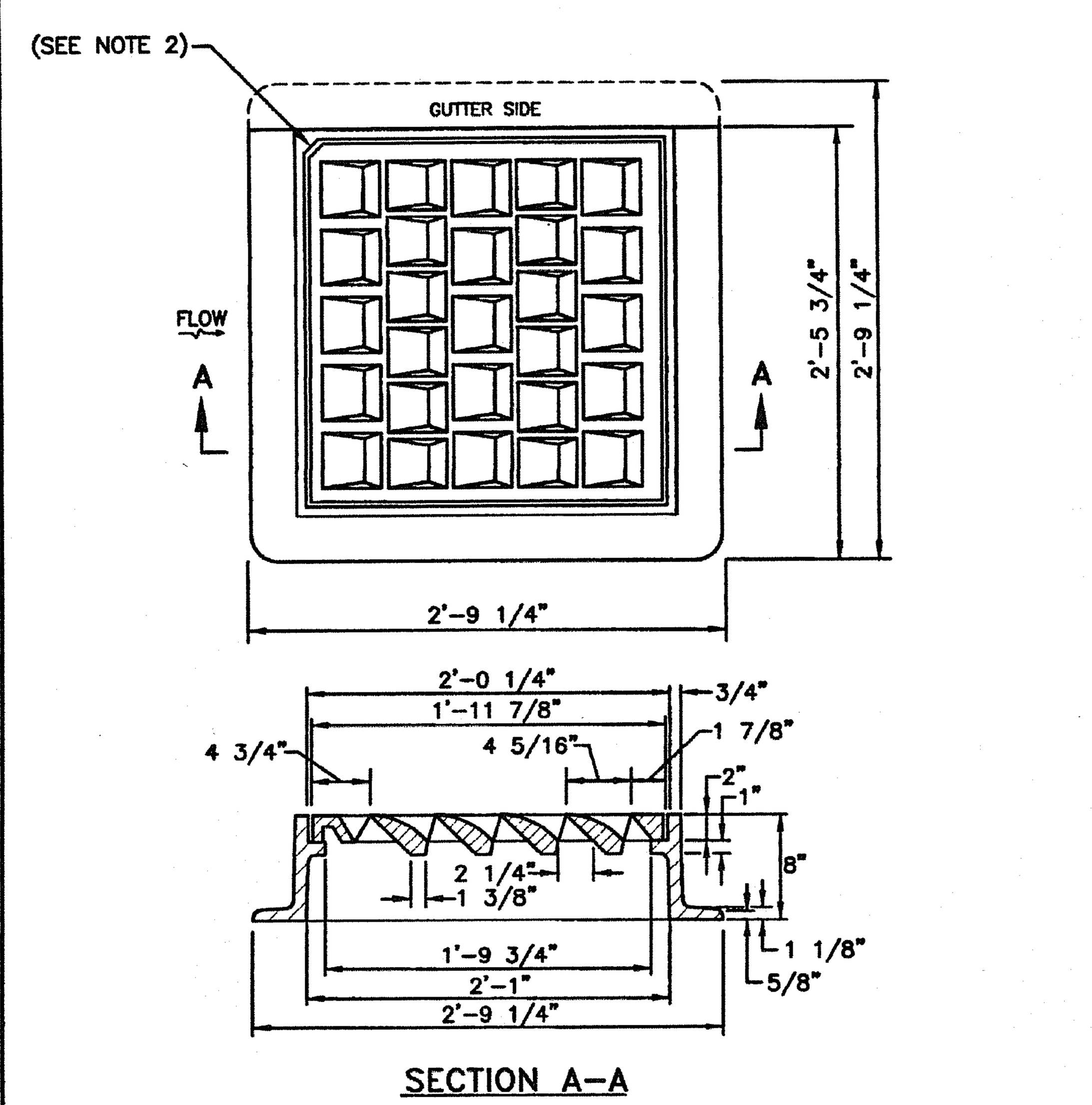


NOTE:
FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REVISIONS: NO. | BY | DATE — 1 | MLP | 7/21/06
SQUARE FRAME AND GRATE (BICYCLE SAFE)
TRANSPORTATION
JUNE 15, 1998 ISSUE DATE
R.I. STANDARD 6.3.2

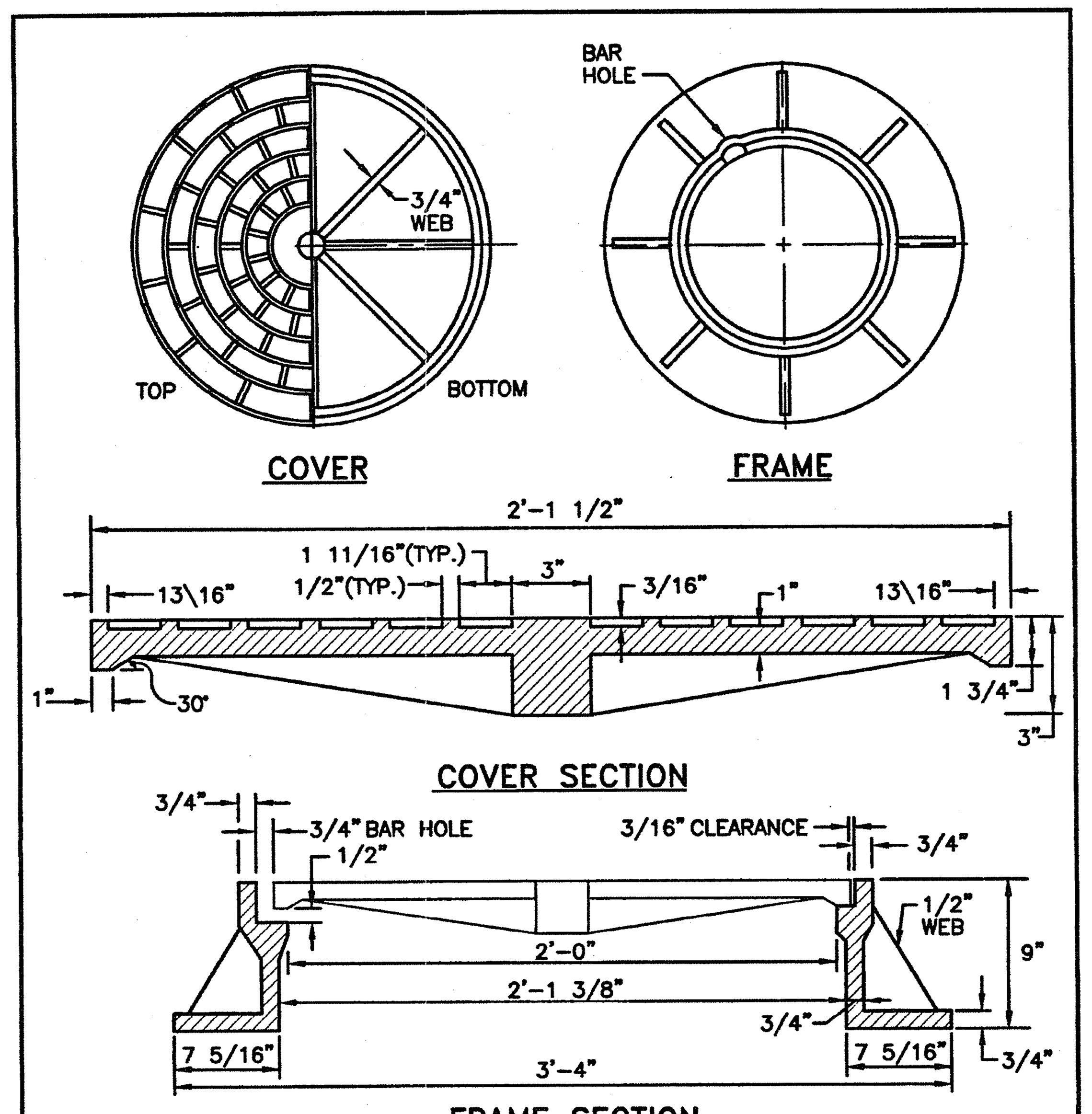
Environmental Management
APR 12 2021
Office of Water Resources

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 28 2021 FILE # 17-0150
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin C. Wencek



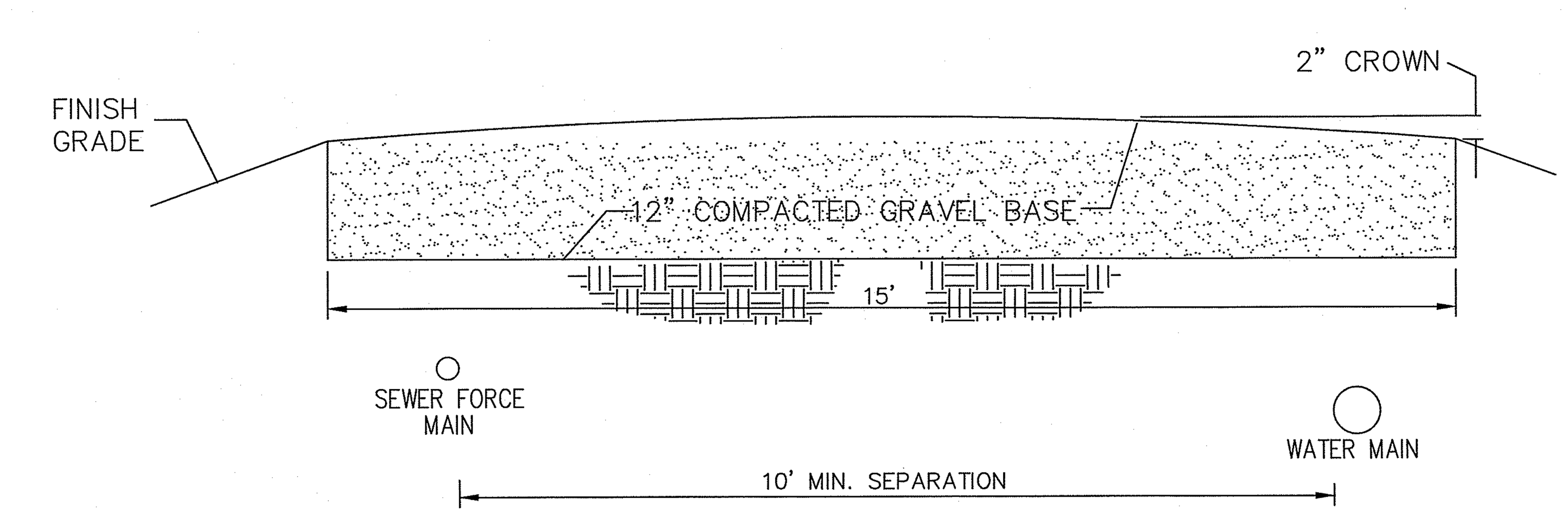
NOTES:
1. FRAME AND COVER SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS CORNER LEFT FOR "LEFT" GRATE, DIAGONALLY OPPOSITE CORNER FOR "RIGHT" GRATE TO FIT IN KEYED FRAME.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REVISIONS: NO. | BY | DATE
HIGH CAPACITY FRAME AND GRATE (BICYCLE SAFE)
CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION
JUNE 15, 1998 ISSUE DATE
R.I. STANDARD 6.3.4



NOTES:
1. FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. FRAME AND COVER SEATS MUST HAVE MACHINE FINISH.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
REVISIONS: NO. | BY | DATE
HEAVY-DUTY ROUND FRAME AND COVER
CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION
JUNE 15, 1998 ISSUE DATE
R.I. STANDARD 6.2.1



EMERGENCY VEHICLE ACCESS ROAD
ROAD A TO ROAD I
TYPICAL CROSS SECTION DETAIL
NOT TO SCALE

CONSTRUCTION DETAILS 5

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ESTABLISHED IN 1910

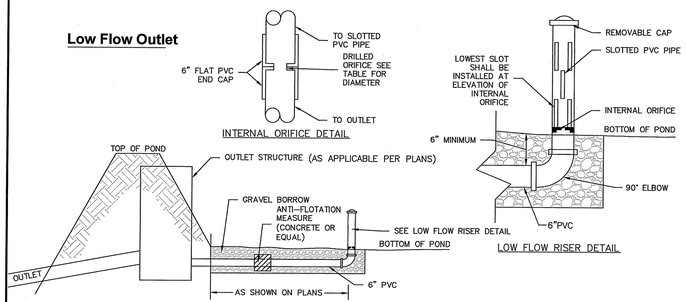
REVISIONS

No.	DATE	DRWN	CHKD

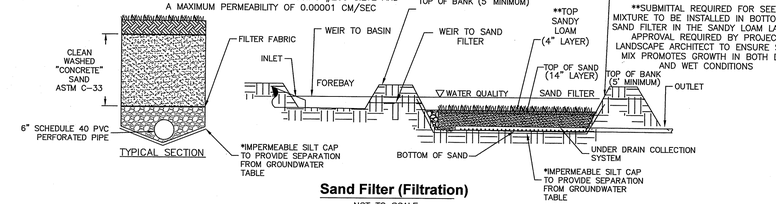
PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
TIVERTON, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 31 OF 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
DATE: 3/18/21	PROJECT NO.: 2015-10	

Low Flow Outlet



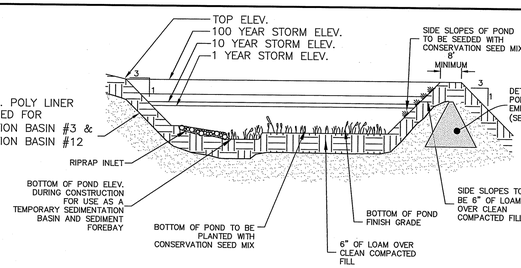
DETENTION BASIN	INTERNAL ORIFICE SIZE	ORIFICE ELEVATION	BOTTOM OF POND ELEVATION
BASIN 3	2"	230.0	230.0
BASIN 5A	2"	229.5	229.5
BASIN 12	2"	201.0	201.0



Sand Filter (Filtration)

NOT TO SCALE

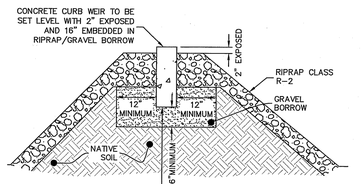
SAND FILTER ID	TOP BERM	TOP LOAM	TOP SAND	BOTTOM SAND	WQV EL.	DEVICE IN (FROM FOREBAY)	DEVICE OUT
SAND FILTER 3	236	232	231.67	230.5	232.37	4" DIA. PVC ORIFICE INV.=233.0	6" DIA. PVC, INV.=230.50, 120' TO BASIN 3, S=0.004'/'
SAND FILTER 5A	234	232	231.67	230.5	231.74	(2) 4" DIA. PVC ORIFICE INV.=232.0	6" DIA. PVC, INV.=230.50, 24' TO DMH, S=0.005'/'
SAND FILTER 12	206	203	202.67	201.5	202.99	(2) 2" DIA. PVC ORIFICE INV.=203.25	6" DIA. PVC, INV.=201.50, 40' TO BASIN 12, S=0.005'/'



Detention Pond Typical Cross Section

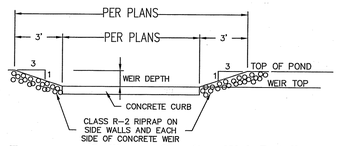
NOT TO SCALE

	DET#3	DET#5A	DET#12
TOP ELEV.	238'	232'	206'
BOT. ELEV.	230'	229.5'	201'



Curb Outlet Weir Cross Section

NOT TO SCALE



Emergency Spillway / Overflow Weir Detail

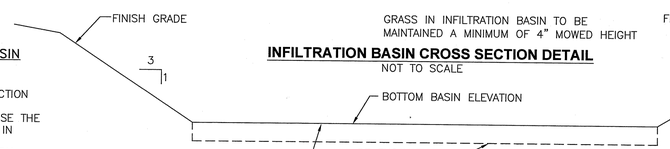
NOT TO SCALE

BASIN	TOP OF BASIN EL.	TOP OF WEIR EL.	CONC. CURB WEIR LENGTH
INFILTRATION 1A	226	225.75	15'
INFILTRATION 1B	220	219.75	15'
INFILTRATION 2	228	227.75	10'
DETENTION 3	238	N/A	N/A
INFILTRATION 4	240	239.50	10'
DETENTION 5A	232	231.75	10'
INFILTRATION 5B —NO BASIN 6 & 7—	224	223.67	40'
INFILTRATION 8	226	225.5	15'
INFILTRATION 9	227	N/A	N/A
INFILTRATION 10	222	221.25	20'
INFILTRATION 11	218	217.5	15'
DETENTION 12	206	205.75	10'

INFILTRATION BASIN NOTES:

1)DURING CONSTRUCTION HEAVY EQUIPMENT SHALL NOT TRAVERSE THE INFILTRATION AREA IN ORDER TO PREVENT DETRIMENTAL COMPACTION.

2)SHOP DRAWING SUBMITTAL AND APPROVAL BY DESIGN ENGINEER REQUIRED FOR EACH INFILTRATION BASIN PRIOR TO CONSTRUCTION.

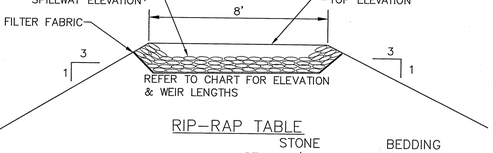


GRASS IN INFILTRATION BASIN TO BE MAINTAINED A MINIMUM OF 4" MOWED HEIGHT

INFILTRATION BASIN CROSS SECTION DETAIL

NOT TO SCALE

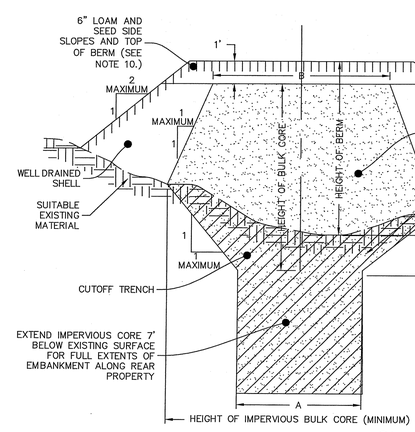
	INFIL#1A	INFIL#1B	INFIL#2	INFIL#4	INFIL#5B	INFIL#8	INFIL#9	INFIL#10	INFIL#11
TOP ELEV.	226'	220'	228'	240'	224'	226'	227'	222'	218'
BOT. ELEV.	223'	217'	225'	238'	222'	222'	222'	218'	214'
GWT. OR LEDGE	219'	213'	221'	234'	218'	217'	218'	214'	210'
LIMIT OF EXCAVATION (BELOW EX. GRADE)	42"	42"	46"	46"	46"	32"		32"	32"



RIP-RAP TABLE

	STONE	STONE / DEPTH	BEDDING	BEDDING SIZE / DEPTH
BASIN INLET PIPES	M02.02.4	/ 12"	1"STONE	/ 4"
BASIN SPILLWAYS	M02.02.4	/ 12"	1"STONE	/ 4"

M02.02.4 = 8" - 95 / 100%,
4" - 0 / 25%
2½" - 0 / 5%

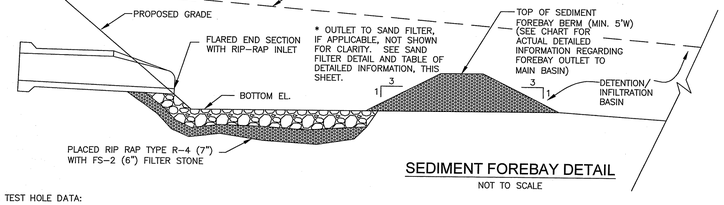


BERM HEIGHT (FT)	TOP WIDTH OF CORE - B (FT)
0-6.5	8.2
6.6-9.8	9.2
9.9-13.1	9.8
13.2-16.4	10.8
16.5-19.7	11.5

NOTES:
1. IMPERVIOUS SOIL CORE TO BE PROVIDED FOR ALL DETENTION POND EMBANKMENTS.
2. IMPERVIOUS SOIL CORE TO BE CONSTRUCTED OF MATERIAL CONSISTING OF SILT OR <200 SOIL.
3. WELL DRAINED SHELL TO BE CONSTRUCTED OF GRAVEL AND/OR SAND WITH LESS THAN 5% PASSING THE #200 SIEVE.
4. MINIMUM DEPTH OF CUTOFF TRENCH (H) SHALL BE 3/4 OF THE TOTAL BERM HEIGHT.
5. THE IMPERVIOUS CORE AT A MINIMUM SHALL EXTEND UP BOTH ABUTMENTS TO THE EMERGENCY SPILLWAY ELEVATION.
6. THE MINIMUM BOTTOM WIDTH (A) SHALL BE 5'-8', AND WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT.
7. SIDE SLOPES OF THE TRENCH SHALL BE NO STEEPER THAN 1:1.
8. IF BEDROCK IS ENCOUNTERED BELOW THE DAM THE CUT OFF TRENCH CAN BE REDUCED TO 1'x1' (AxH)
9. COMPACTION REQUIREMENTS FOR THE SHELL AND IMPERVIOUS CORE TO BE 95% OF THE MODIFIED PROCTOR PER ASTM D1557. ALL FILL TO BE PLACED IN LIFTS NOT EXCEEDING 12".
10. SIDE SLOPE OF DETENTION POND EMBANKMENT TO BE 2:1 MAXIMUM. IF SIDE SLOPES ARE STEEPER THAN 3:1, SLOPE PROTECTION MUST BE UTILIZED ON POND EMBANKMENT. THIS INCLUDES, BUT NOT LIMITED TO, RIPRAP AND EROSION CONTROL MATS.
11. THE IMPERVIOUS CORE SHALL BE KEPT FREE FROM STANDING WATER DURING THE BACKFILL OPERATION.
12. ALL EMBANKMENTS TO BE DESIGNED BY A GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION. ALL EMBANKMENT INSTALLATIONS TO BE SUPERVISED BY A GEOTECHNICAL ENGINEER.

Stormwater Basin Earthen Embankment

NOT TO SCALE



SEDIMENT FOREBAY DETAIL

NOT TO SCALE

FOREBAY	TOP EL.	BOT. EL.	INLET (SIZE, INV. EL.)	OUTLET TO BASIN (SIZE, EL.)
FOREBAY 1A	226.0	223.0	12" RCP, 223.5'	BERM 15'L x 5'W, 225.25'
FOREBAY 1B	220.0	217.0	12" RCP, 217.25'	BERM 10'L x 5'W, 219.25'
FOREBAY 2	228.0	225.0	12" RCP, 227.0'	BERM 24'L x 12'W, 226.0'
FOREBAY 3	236.0	232.0	(2)12" RCP, 232.0'	(2)18"DIA. RCP, 233.75'
FOREBAY 4	240.0	235.0	12" RCP, 235.18'	CONC. CURB WEIR 10'L, 239.0'
FOREBAY 5A	234.0	231.0	(2)12" RCP, 232.10'(W) 233.64'(E)	(2)12"DIA. RCP, 232.25'
FOREBAY 5B —NO FOREBAY 6 & 7—	224.0	221.0	12" RCP, 222.80'	CONC. CURB WEIR 10'L, 223.0'
FOREBAY 8 —NO FOREBAY 9—	226.0	222.0	18" RCP, 223.00'	CONC. CURB WEIR 10'L, 224.00'
FOREBAY 10	222.0	218.0	12" RCP, 219.00'	BERM 40'L x 5'W, 220.0'
FOREBAY 11	218.0	215.0	12" RCP, 215.34'	CONC. CURB WEIR 10'L, 217.00'
FOREBAY 12	206.0	202.0	12" RCP, 202.15'	CONC. CURB WEIR 10'L, 203.75'

EXISTING TEST HOLE DATA:

TEST HOLE	GROUND EL.	GW DEPTH (EL.)	LEDGE DEPTH (EL.)	BASIN FLOOR EL.
INFILTRATION BASIN 1A	226.0	7' (219.0)	7' (219.0)	223.0
INFILTRATION BASIN 1B	220.0	7' (213.0)	7' (213.0)	217.0
INFILTRATION BASIN 2 (S)	228.0	7' (221.0)	–	225.0
INFILTRATION BASIN 2 (N)	228.0	7' (221.0)	–	225.0
DETENTION BASIN 3 (N)	245.0	–	3' (242.0)	230.0
INFILTRATION BASIN 4 (E)	242.0	7.5' (234.5)	–	239.0
INFILTRATION BASIN 4 (W)	239.5	5.5' (234.0)	–	238.0
DETENTION BASIN 5A (N)	235.4	3.5' (231.9)	–	232.0
DETENTION BASIN 5A (NW)	236.0	5.5' (230.5)	–	231.0
DETENTION BASIN 5A (S)	228.9	3' (225.9)	–	229.5
INFILTRATION BASIN 5B — NO BASIN 6 & 7 —	222.0	4.0' (218.0)	–	222.0
INFILTRATION BASIN 8 (NW)	220.1	3' (217.1)	3' (217.1)	222.0
INFILTRATION BASIN 8 (SE)	219.9	3' (216.9)	3' (216.9)	222.0
INFILTRATION BASIN 8 (NE)	222.5	6' (216.5)	6' (216.5)	222.0
INFILTRATION BASIN 9 (N)	226.0	8' (218.0)	9' (217.0)	222.0
INFILTRATION BASIN 10 (NE)	222.0	–	8' (214.0)	218.0
INFILTRATION BASIN 10 (S)	221.5	7.5' (214.0)	9' (212.5)	218.0
INFILTRATION BASIN 11 (NE)	217.0	7.0' (210.0)	7' (210.0)	214.0
INFILTRATION BASIN 11 (SW)	214.0	5.5' (208.5)	7' (207.0)	214.0
DETENTION BASIN 12	210.0	7.0' (203.0)	–	201.0

DETENTION BASIN MAINTENANCE SCHEDULE:

1. Side—slopes, embankments, and the upper stage of the basin will be mowed at least once per growing season, to prevent unwanted woody growth. This storm water facility is to be managed for wildlife habitat, therefore, mowings will be conducted after mid August to prevent mortality to ground nesting birds and animals.

2. All trash and litter and other debris will be removed from the storm water facility including inlet and outlet structures. This will be accomplished at least twice per year, preferably spring and fall.

3. Sediments will be removed from the basin immediately following site stabilization and every year thereafter. Accumulated sediments may have to be removed more frequently if the sediment storage capacity of the forebays or sediment storage areas are within the last 10 percent of available capacity. Sediment removal within the basin will restore the original capacity and design depth.

4. If blockage of a basin outlet structure occurs it may be necessary to dewater the pond for access to the blockage. The dewatering flow must be adequately filtered prior to discharge into a receiving water body to remove suspended solids.

5. Pools of stagnant water in detention basins indicates failure due to erosion and scouring of the basin bottom, particularly near an inlet device. This deficiency will be corrected immediately to prevent a nuisance habitat for insects, especially mosquitoes.

6. All outlet structures and outflow channels will be inspected annually. Inspections will be accomplished several times during the first six months of operation, especially after rainfall events to check for clogging or, conversely, too rapid of a release.

7. The grassed areas of the basin will be inspected at least twice per year to check for erosion problems. Problem areas must be reseeded immediately to stabilize exposed soils, thereby preventing erosion and potential clogging of outflow devices.

8. Repairs or replacement of inlet/outlet structures, rip-rap channels, fences, or other elements of the facility will be done within 30 days of deficiency reports. If an emergency situation is imminent then repair/replacement must be done immediately to avert failure or danger to nearby residents.

9. All sediment generated during construction and as a result of maintenance of the drainage system must be disposed of properly. Sediment shall not be disposed of in or near State or Federal regulated waters.

10. Records of the first two years of maintenance following construction shall be submitted to RIDEM Division of Water Resources. Maintenance records for subsequent years shall be kept on file and submitted to RIDEM, Division of Water Resources, upon request.

11. All drainage facilities will be maintained by a Homeowner's Association.

STORM DRAINAGE SYSTEM MAINTENANCE PLAN:

THE FOLLOWING LIST OF MAINTENANCE TASKS AND FREQUENCIES MUST BE ADHERED TO IN ORDER TO INSURE A SUCCESSFUL LONG TERM OPERATION OF THE STORM DRAINAGE SYSTEM.

1. DURING CONSTRUCTION ACTIVITIES ALL EROSION CONTROLS ON THE SITE SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN TWENTY FOUR (24) HOURS AFTER AN EVENT WHICH GENERATES AT LEAST 0.25 INCHES OF RAIN IN A TWENTY FOUR (24) HOUR PERIOD.

2. SEDIMENTS SHALL BE REMOVED FROM ALL BASINS IMMEDIATELY AFTER SITE STABILIZATION.

3. ALL TRASH, LITTER AND OTHER DEBRIS SHALL BE REMOVED FROM ALL STORM WATER INLET AND OUTLET STRUCTURES A MINIMUM OF TWICE PER YEAR. THESE STRUCTURES SHALL ALSO BE INSPECTED TWICE PER YEAR. INSPECTIONS SHALL BE PERFORMED SEVERAL TIMES WITHIN THE FIRST SIX MONTHS OF OPERATION.

4. INSPECTIONS OF ALL CATCH BASINS SHALL OCCUR ON AN ANNUAL BASIS TO CHECK FOR DEBRIS REMOVAL (SEDIMENT AND HYDROCARBONS) AND STRUCTURAL INTEGRITY OR DAMAGE. SUCH DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY.

5. REPAIRS OR REPLACEMENT OF INLET/OUTLET STRUCTURES OR ANY ELEMENT OF THE FACILITY SHALL BE DONE WITHIN THIRTY (30) DAYS OF DEFICIENCY REPORTS. IF AN EMERGENCY SITUATION IS IMMINENT THEN REPAIR/REPLACEMENT SHALL BE DONE IMMEDIATELY TO AVERT FAILURE OR DANGER TO NEARBY RESIDENTS.

6. MAKE REPAIRS IMMEDIATELY USING APPROPRIATE STONE SIZES. DO NOT PLACE STONES ABOVE FINISHED GRADE.

7. ALL REMOVED SEDIMENTS AND DEBRIS SHALL BE DISPOSED OF OFF SITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

8. ALL OUTLET STRUCTURES AND OUTFLOW CHANNELS WILL BE INSPECTED ANNUALLY. INSPECTIONS WILL BE ACCOMPLISHED SEVERAL TIMES DURING THE FIRST SIX MONTHS OF OPERATION, ESPECIALLY AFTER RAINFALL EVENTS TO CHECK FOR CLOGGING OR, CONVERSELY, TOO RAPID OF A RELEASE.

9. REPAIRS OR REPLACEMENT OF INLET/OUTLET STRUCTURES, RIP-RAP CHANNELS, FENCES, OR OTHER ELEMENTS OF THE FACILITY WILL BE DONE WITHIN 30 DAYS OF DEFICIENCY REPORTS. IF AN EMERGENCY SITUATION IS IMMINENT THEN REPAIR/REPLACEMENT MUST BE DONE IMMEDIATELY TO AVERT FAILURE OR DANGER TO NEARBY RESIDENTS.

10. ALL SEDIMENT GENERATED DURING CONSTRUCTION AND AS A RESULT OF MAINTENANCE OF THE DRAINAGE SYSTEM MUST BE DISPOSED OF PROPERLY. SEDIMENT SHALL NOT BE DISPOSED OF IN OR NEAR STATE OR FEDERAL REGULATED WATERS.

11. ADDITIONAL BMP INSPECTION/MAINTENANCE MEASURES OUTLINED WITHIN THE PROJECT STORMWATER POLUTION PREVENTION PLAN SHALL BE ADHERED TO.

CONSTRUCTION DETAILS 6

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ESTABLISHED IN 1991

REVISIONS

No.	DATE	DRWN	CHKD

PRELIMINARY PLAN SUBMISSION
for
TIVERTON HEIGHTS
AP 110 LOT 127
SOUZA ROAD & FISH ROAD
in
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SCALE: AS NOTED	SHEET NO: 32 OF 32	
DRAWN BY: TJP	DESIGN BY: TJP	CHECKED BY: TJP
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