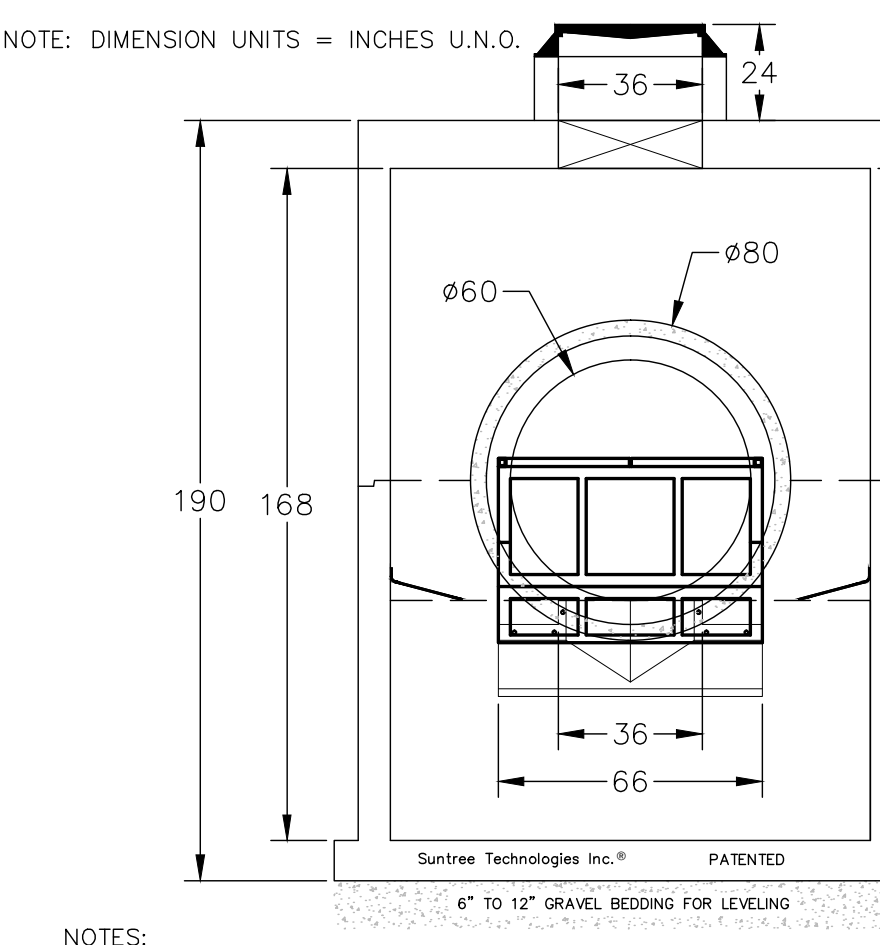
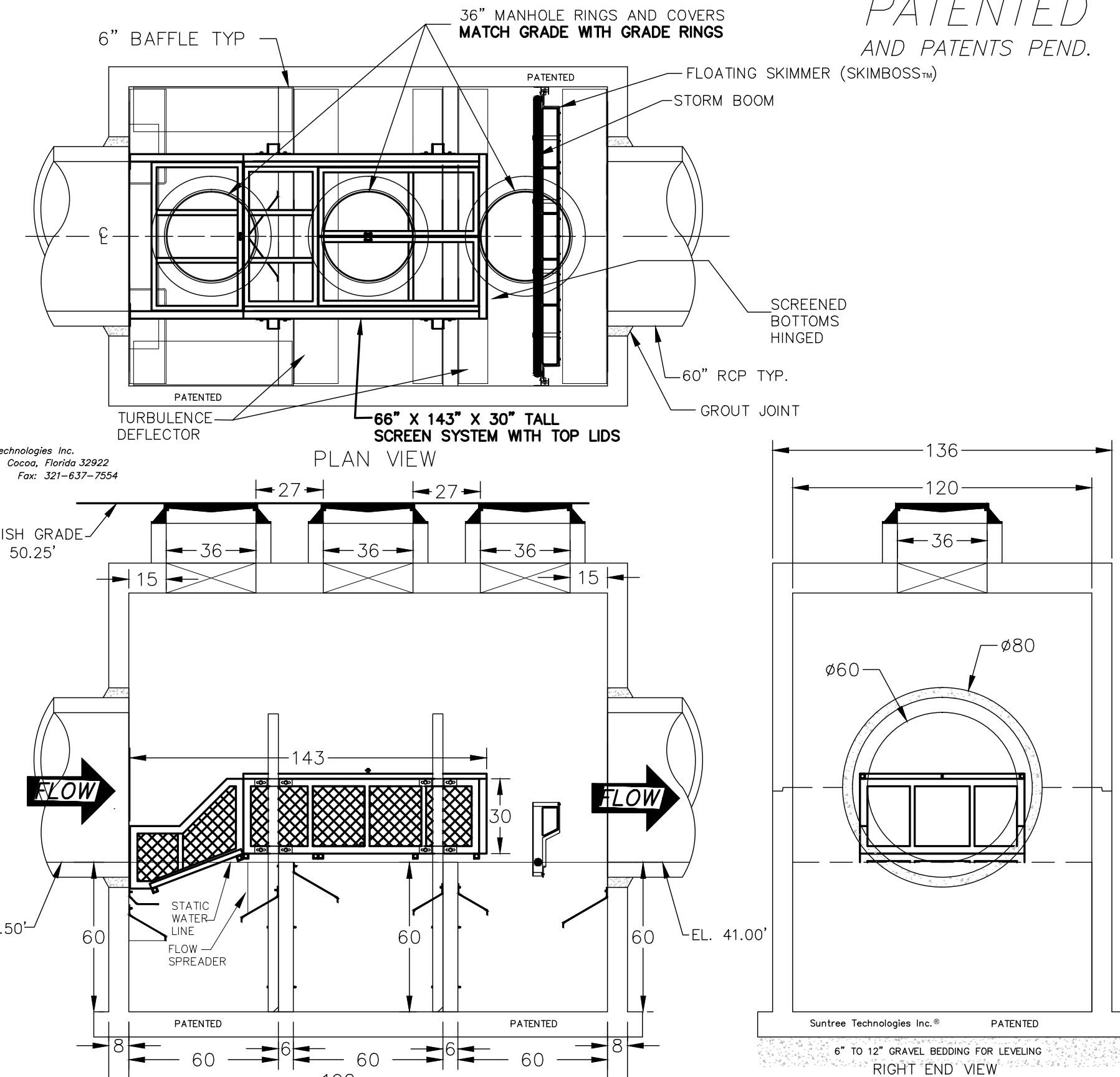


**SUNTREE TECHNOLOGIES INC.®**  
 FLOW & BY-PASS SPECIFICATIONS FOR BIOMASS SEPARATING  
 SCREEN SYSTEM, SEDIMENT COLLECTION CHAMBERS, AND  
 SKIMMER SPECIFICATIONS

- Pipe inflow area (Drawn as 60" RCP) — 19.63 sq.ft.
- SCREEN SPECIFICATIONS:
- Open orifice area in screen system — 62.53 sq.ft.
- Open orifice area in screen system with 50% blockage — 31.27 sq.ft.
- Open orifice area in screen system with 75% blockage — 15.63 sq.ft.
- Minimum by-pass through screen system below the top surface of the pipe — 28.44 sq.ft.
- Minimum by-pass around screen system below the top surface of the pipe — 21.65 sq.ft.
- Screen system storage volume — 141.46 cu.ft.
- SEDIMENT STORAGE:
- Volume of first sediment chamber — 250 cu.ft.
- Volume of second sediment chamber — 250 cu.ft.
- Volume of third sediment chamber — 250 cu.ft.
- Total sediment volume — 750 cu.ft.
- SKIMMER SPECIFICATIONS:
- Flow area under skimmer — 19.58 sq.ft.
- Area of pipe in line with skimmer — 11.95 sq.ft.
- Area between the skimmer and the outfall pipe parallel with the surface of the pipe — 34.01 sq.ft.

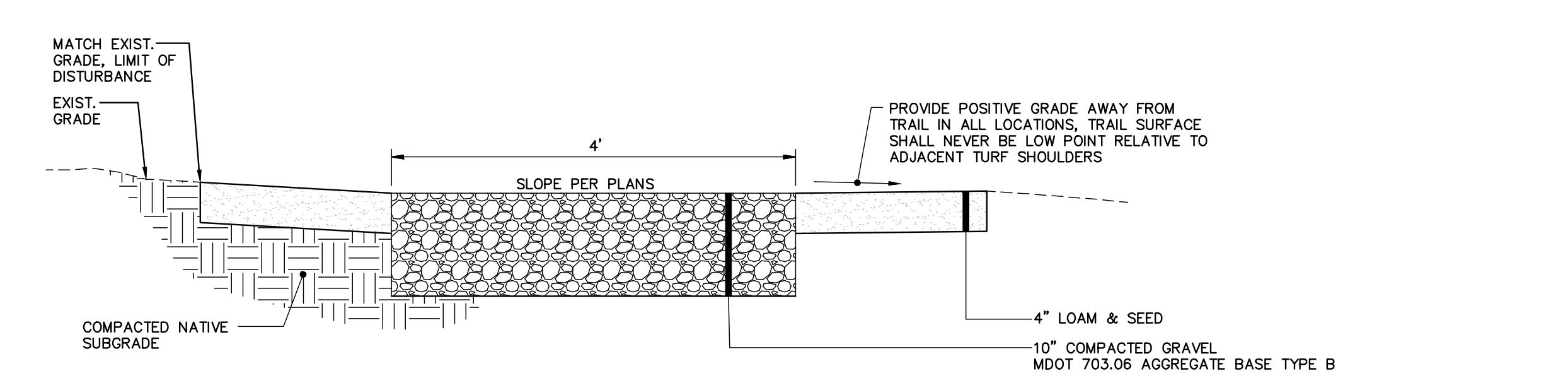
**NUTRIENT SEPARATING BAFFLE BOX™** MODEL NO: NSBB-10-16-168-ROCKLAND OUTFALL  
**PATENTED**  
 AND PATENTS PEND.



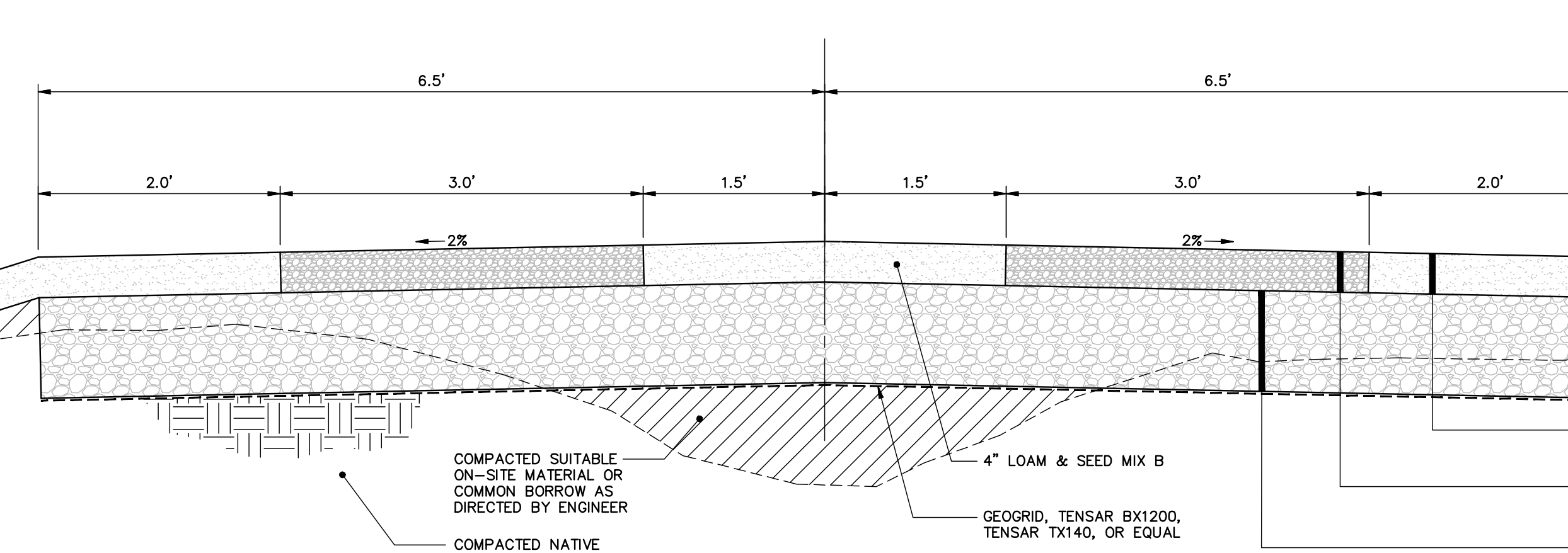
SUNTREE TECHNOLOGIES INC.® 798 CLEARLAKE RD., SUITE #2 COCOA, FL. 32922 DATE: 03/20/13 DRAFTER: T.H.2.	PROJECT: ROCKLAND OUTFALL-PORTLAND, MAINE DRAWING #: FILE NAME: REVISIONS: DATE: REVISIONS: DATE:
--	---

- NOTE: DIMENSION UNITS = INCHES U.N.O.
- CONCRETE 28 DAY COMPRESSIVE STRENGTH FC=5000 PSI
  - REINFORCING: ASTM A-615 GRADE 60
  - SUPPORTS AN H20 LOADING AS INDICATED BY AASHTO.
  - JOINT SEALANT: BUTYL RUBBER SS-5-00210
  - ALL WALLS TO BE 8" THICK, BOTTOM TO BE 10" THICK, AND TOP TO BE 12" THICK.
  - TREATMENT DESIGN FLOW FOR 98% REMOVAL EFFICIENCY OF TSS IS 45 CFS.
  - INFLOW AND OUTFLOW PIPES ARE TO BE FLUSH WITH THE INSIDE SURFACE OF THE CONCRETE STRUCTURE. (CAN NOT INTRUDE BEYOND FLUSH)
  - BAFFLES ARE TO BE SEALED WITH GROUT TO FORM 3 WATER TIGHT CHAMBERS.
  - STRUCTURAL ROCK EXCAVATION (PAY ITEM 206.07) OR EARTH EXCAVATION (OVER DEPTH) (PAY ITEM 206.061) BELOW ESTABLISHED TRENCH PROFILE AS REQUIRED.

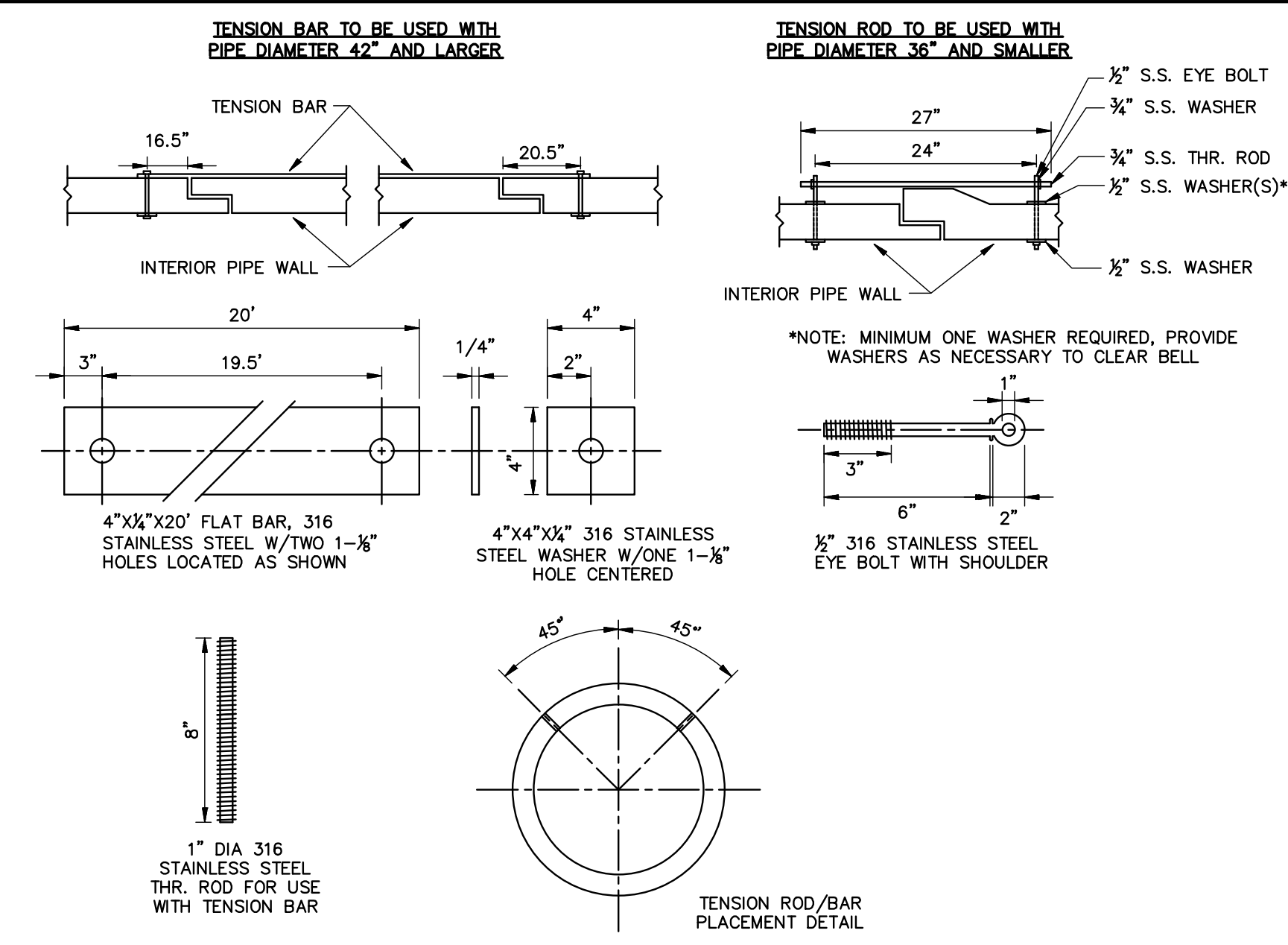
**SUNTREE STORMWATER QUALITY TREATMENT UNIT**  
 SCALE AS INDICATED



**TYPICAL GRAVEL TRAIL SECTION**  
 N.T.S.



**REINFORCED MAINTENANCE ACCESS**  
 N.T.S.



- NOTES:
- 316 S.S. RODS, BARS, BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F593 AND ASTM F594.
  - BOLT LENGTH PROTRUDING MORE THAN 1 INCH BEYOND TIGHTENED NUT SHALL BE CUT OFF FLUSH WITH NUT.

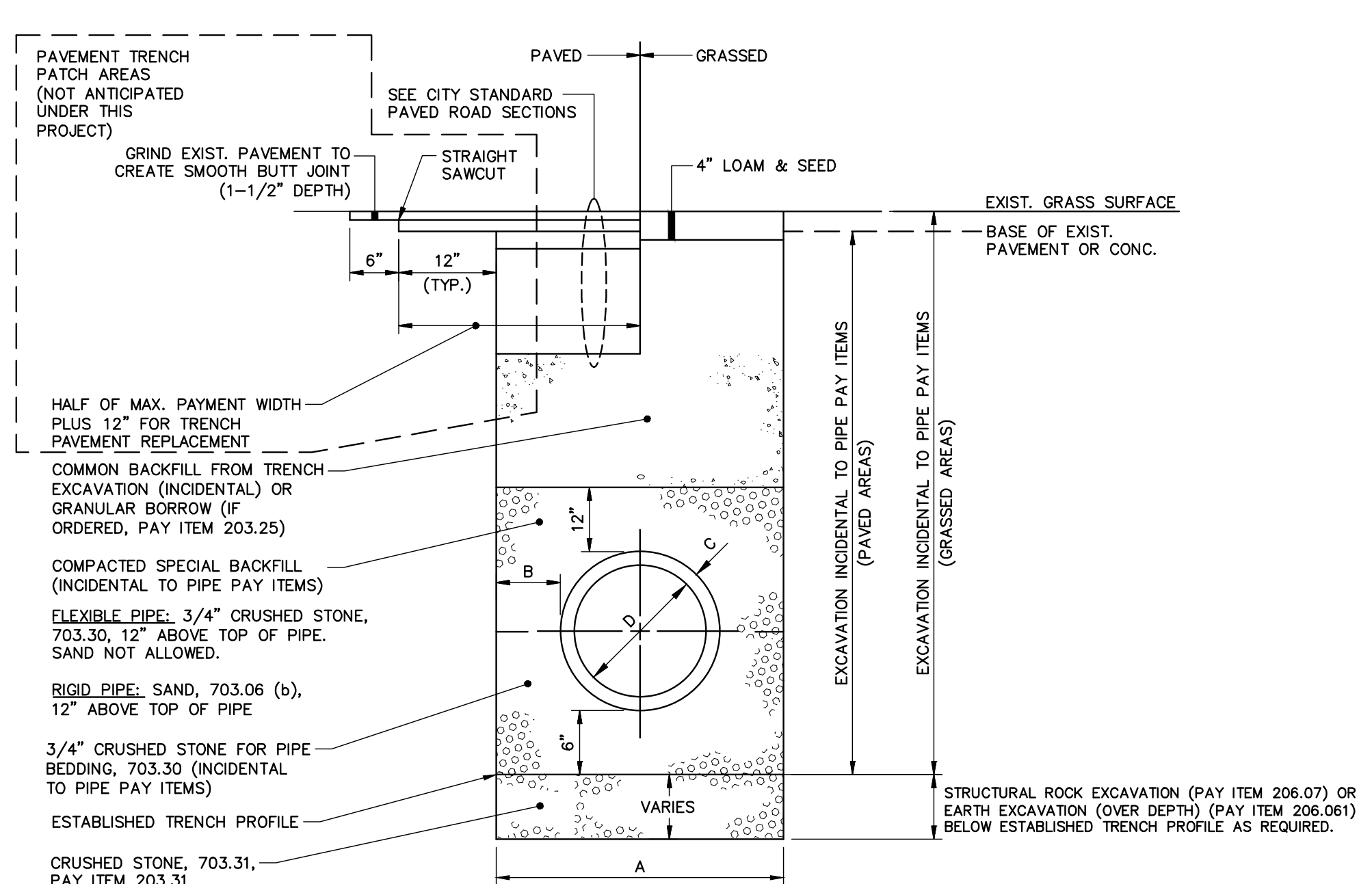
**TENSION ROD/BAR ASSEMBLY**  
 N.T.S.

**PIPE INSTALLATION DETAIL - NOTES**

- ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
- IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
- DIMENSION "B" SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES "B" SHALL BE AT LEAST 9".
- DIMENSION "A" IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER ITEMS 206.07 STRUCTURAL ROCK EXCAVATION. DIMENSION "A" SHALL BE BASED ON PIPE DIAMETER, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, "D" (INCHES)	MAX. TRENCH WIDTH, "A" (FEET)
6	4.0
8	4.0
10	4.0
12	4.0
15	4.0
18	4.0
21	5.0
24	5.5
27	6.0
30	6.0
36	7.0
42	8.0
48	8.0
54	8.0
60	9.0

- NOTES:
- ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.



**PIPE INSTALLATION DETAIL**  
 N.T.S.

41 HUTCHINS DRIVE  
 PORTLAND, MAINE 04102  
 800.426.4262 | www.woodardcurran.com

**WOODARD & CURRAN**

COMMITMENT & INTEGRITY DRIVE RESULTS

LDD PROJECT NAME:  
 N/A

DRAWING NAME:  
 225672.77 C20X 24x36.DWG

FIELD BOOK USED:  
 N/A

DESIGNED BY:  
 BCM/LJS

DRAWN BY:  
 BCM

CHECKED BY:  
 DAS

SCALE:  
 AS NOTED

DATE:  
 JULY 9, 2014

REFERENCES:  
 BearingsL\_2012.dwg

ROCKLAND AVENUE OUTFALL

SITE DETAILS - 2

CITY OF PORTLAND, MAINE  
 PUBLIC SERVICES DEPARTMENT  
 ENGINEERING SECTION



SHEET #  
 6 OF 8

PLAN NUMBER  
 C-301

\\PORTLAND\Projects\225672 - Portland-Cen Eng Svcs\Wp 77 Capalic Pond Ph III Drawings\Design Drawings\225672.77 C20X 24x36.dwg, Jul 09, 2014 - 3:15pm