



**COMMUNITY DEVELOPMENT
DEPARTMENT**

ENGINEERING DIVISION

1601 NW 136th AVENUE - BLDG A

SUNRISE, FLORIDA

PHONE 954-746-3285

FAX 954-746-3287

**STANDARD
PAVING & DRAINAGE
DETAILS**

*FIRST EDITION
SEPTEMBER, 2011*

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**CALL 48 HOURS
BEFORE YOU DIG**



**IT'S THE LAW!
DIAL 811**

**Know what's below.
Call before you dig.**

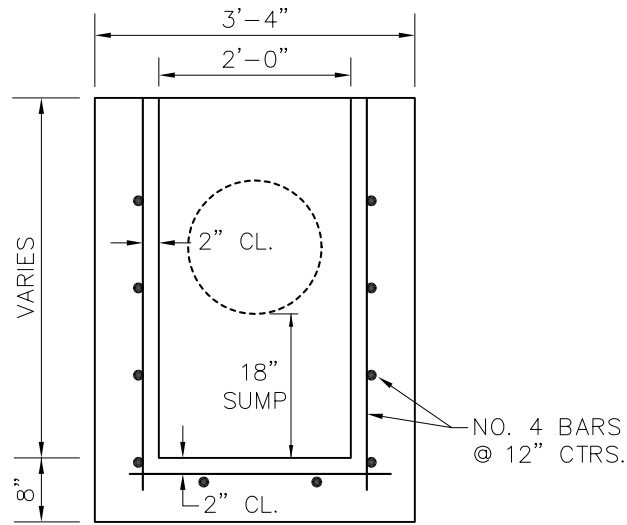
SUNSHINE STATE ONE CALL OF FLORIDA, INC.



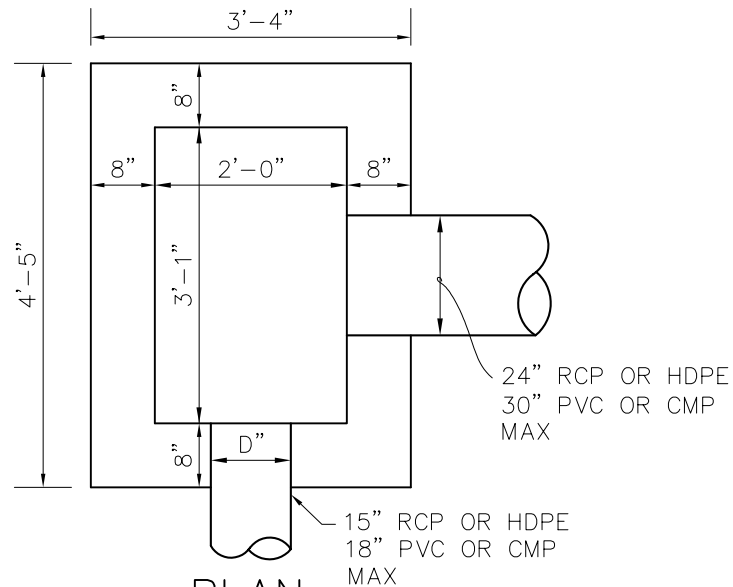
CONSULTANT PLANS SHALL INCLUDE "SUNSHINE STATE ONE CALL" 811 PHONE
NOTICE FOR LOCATION OF UNDERGROUND UTILITIES

GENERAL DRAINAGE STRUCTURES NOTES:

1. WALLS OF CIRCULAR STRUCTURES [ALTERNATE "A"] OR RECTANGULAR STRUCTURES [ALTERNATE "B"] SHALL BE CONSTRUCTED OF PRECAST CONCRETE. USE OF CAST IN PLACE STRUCTURES WILL BE APPROVED ON A CASE BY CASE BASIS.
2. WALL REINFORCEMENT AND THICKNESS ARE FOR EITHER CAST-IN-PLACE OR PRECAST CONCRETE UNITS EXCEPT THAT THE MANUFACTURER MAY FURNISH PRECAST CIRCULAR UNITS IN ACCORDANCE WITH A.S.T.M. SPECIFICATION C-478 UP TO 96" IN DIA. OR PRECAST CIRCULAR UNITS A.S.T.M. SPECIFICATION C-76, TABLE III, FOR "B" WALL CONCRETE PIPE WITH 6" MINIMUM WALL THICKNESS.
3. TOP AND FLOOR SLAB THICKNESS AND REINFORCEMENT ARE FOR ALL TYPES OF CONSTRUCTION.
4. ELLIPTICAL STEEL, A.S.T.M. SPECIFICATION C-76 TABLE III, "B" WALL, IS MODIFIED TO USE A CIRCULAR CAGE OF STEEL AREA EQUAL TO THAT OF THE ELLIPTICAL CAGE AND PLACED IN THE CENTER ONE-THIRD OF THE WALL. THIS MODIFICATION IS FOR PRECAST CIRCULAR UNITS PRODUCED IN ACCORDANCE WITH A.S.T.M. C-76.
5. RECTANGULAR STRUCTURES MAY BE ROTATED AS DIRECTED BY THE ENGINEER IN ORDER TO FACILITATE CONNECTIONS BETWEEN THE STRUCTURE WALLS AND THE STORM SEWER PIPES.
6. EMBEDMENT HOOKS IN THE TOP AND BOTTOM SLABS MAY BE REPLACED WITH STRAIGHT EMBEDMENTS.
7. ALL STEEL BARS SHALL HAVE 2" MINIMUM COVER UNLESS OTHERWISE SHOWN. HORIZONTAL STEEL IN RECTANGULAR STRUCTURES SHALL BE LAPPED A MINIMUM OF 24 BAR DIAMETERS AT CORNERS.
8. INLET THROATS, RISERS OR MANHOLE TOPS SHALL BE SECURED TO STRUCTURES WITH A KEYWAY UNLESS OTHERWISE PERMITTED BY THE CITY OF SUNRISE ENGINEERING DIVISION.
9. RINGS AND COVERS AND GRATE AND FRAMES FOR MANHOLES AND CATCH BASINS SHALL BE TRAFFIC BEARING DESIGN, AND COMPLY WITH CITY OF SUNRISE STANDARDS. PLACEMENT OF MANHOLE RINGS AND INLET GRATES REQUIRES A MINIMUM OF ONE AND A MAXIMUM OF FOUR COURSES OF MORTARED BRICK SUPPORT BETWEEN THE CASTING AND THE CONCRETE STRUCTURE.

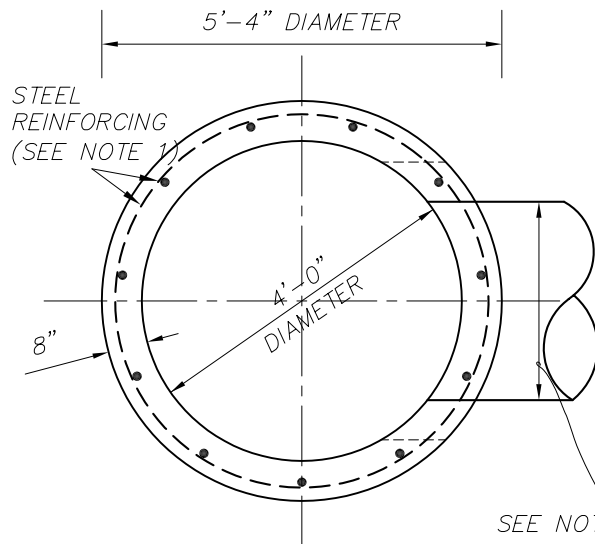


SECTION

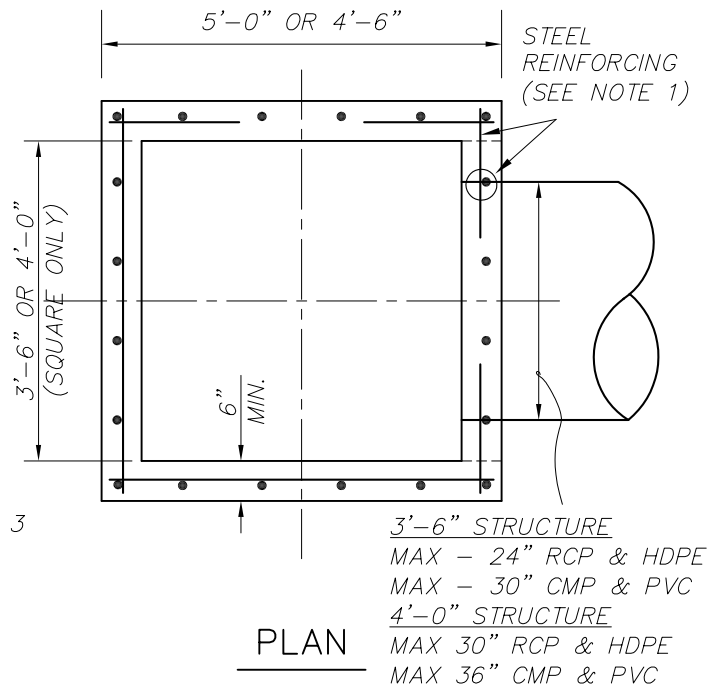


PLAN

REQUIRED INLET FRAME AND GRATE
 STANDARD INLET – U.S. FOUNDRY 4155-6209 OR APPROVED EQUAL
 CURB INLET – U.S. FOUNDRY 5130-6168 OR APPROVED EQUAL
 VALLEY GUTTER INLET – U.S. FOUNDRY 5113-6194 OR APPROVED EQUAL
 (NOTE: NO BAFFLES OR WEIRS PERMITTED IN TYPE C STRUCTURES)



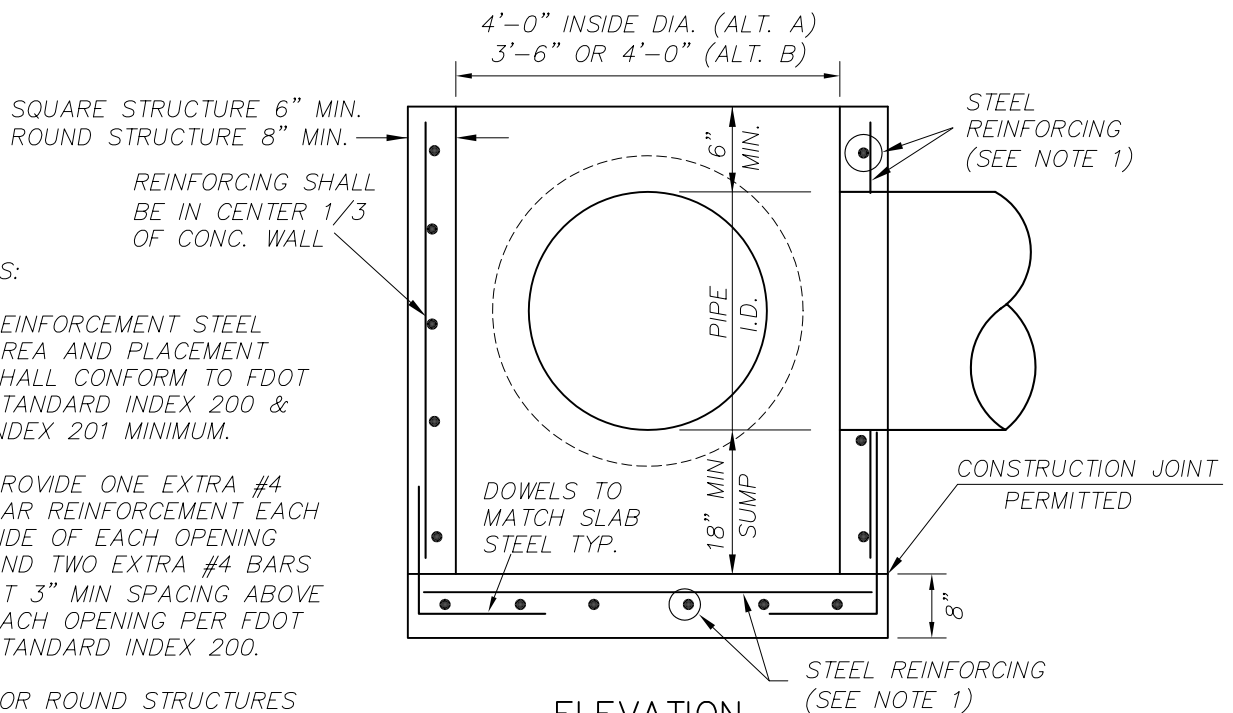
PLAN
ALTERNATE A



PLAN
ALTERNATE B

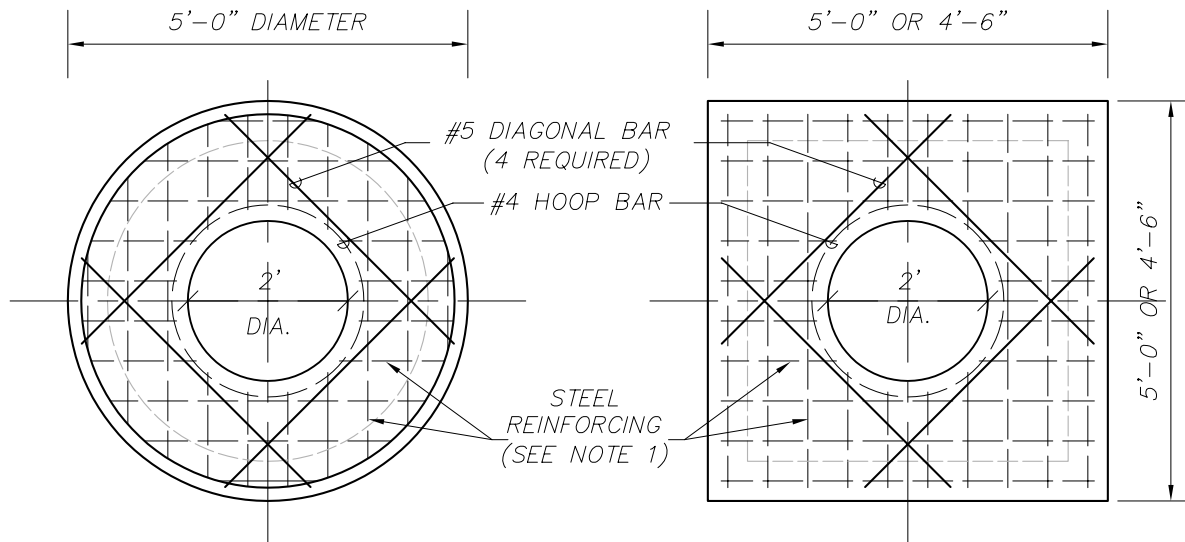
NOTES:

1. REINFORCEMENT STEEL AREA AND PLACEMENT SHALL CONFORM TO FDOT STANDARD INDEX 200 & INDEX 201 MINIMUM.
2. PROVIDE ONE EXTRA #4 BAR REINFORCEMENT EACH SIDE OF EACH OPENING AND TWO EXTRA #4 BARS AT 3" MIN SPACING ABOVE EACH OPENING PER FDOT STANDARD INDEX 200.
3. FOR ROUND STRUCTURES ENGINEER SHALL CHECK PIPE SIZES AND ENTRY ANGLES (SEE FDOT INDEX 200, 3 OF 5)



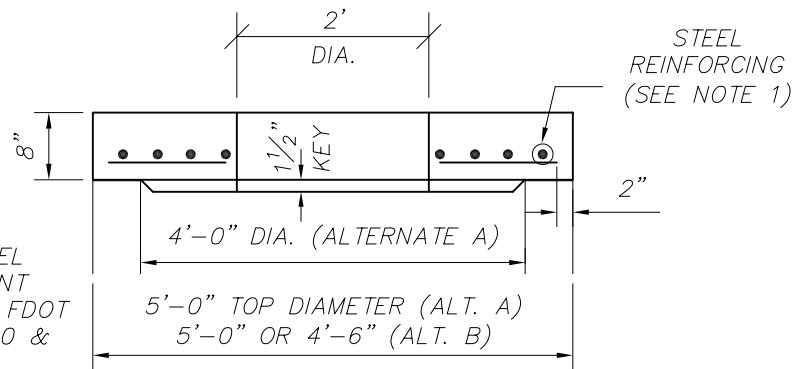
ELEVATION

NOTE:
MANHOLE OPENING MAY BE
ECCENTRIC AS REQUIRED.



TOP VIEW
ALTERNATE A

TOP VIEW
ALTERNATE B

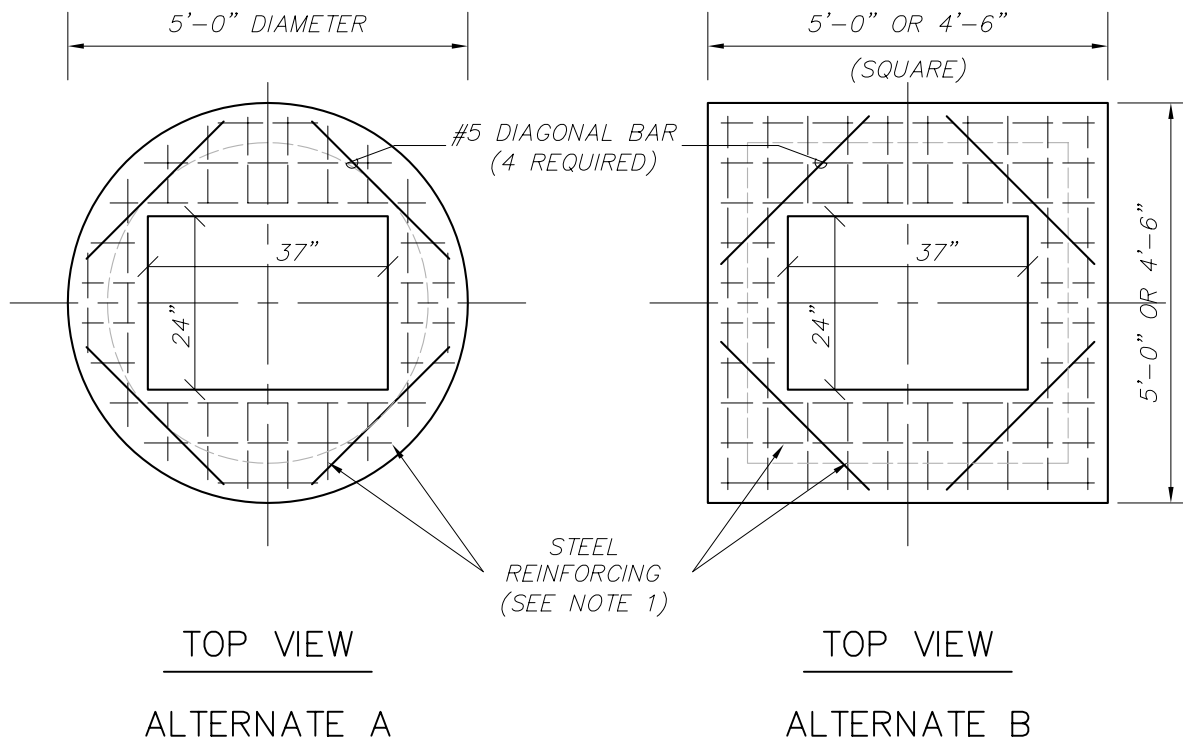


ELEVATION

NOTE:

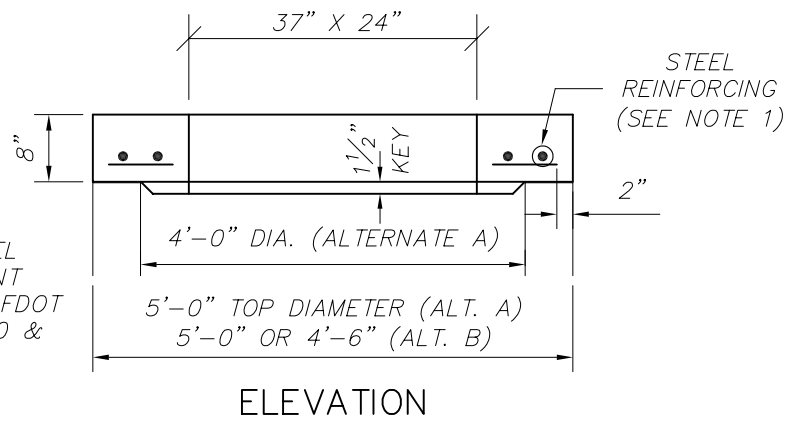
1. REINFORCEMENT STEEL AREA AND PLACEMENT SHALL CONFORM TO FDOT STANDARD INDEX 200 & INDEX 201 MINIMUM.

MANHOLE RING AND COVER – U.S. FOUNDRY
SERIES 420-C OR APPROVED EQUAL

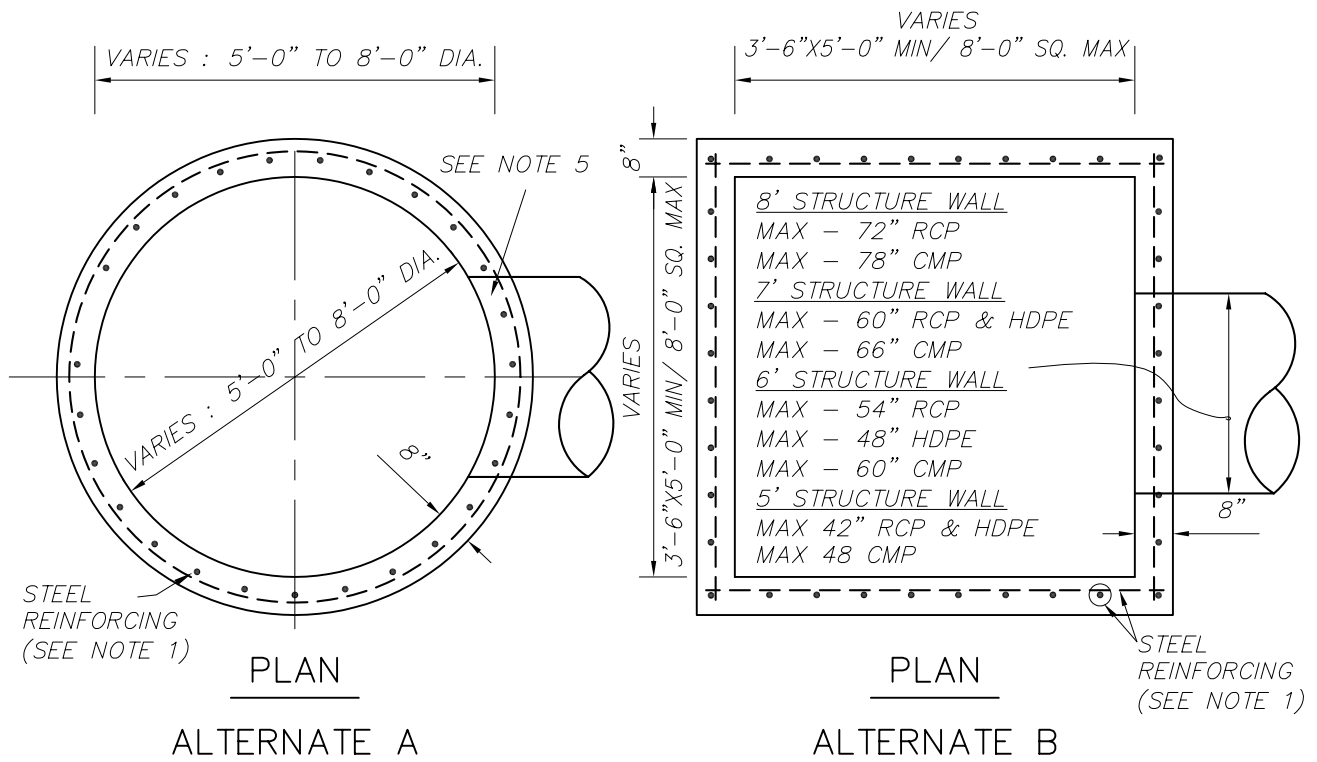


NOTE:

1. REINFORCEMENT STEEL AREA AND PLACEMENT SHALL CONFORM TO FDOT STANDARD INDEX 200 & INDEX 201 MINIMUM.

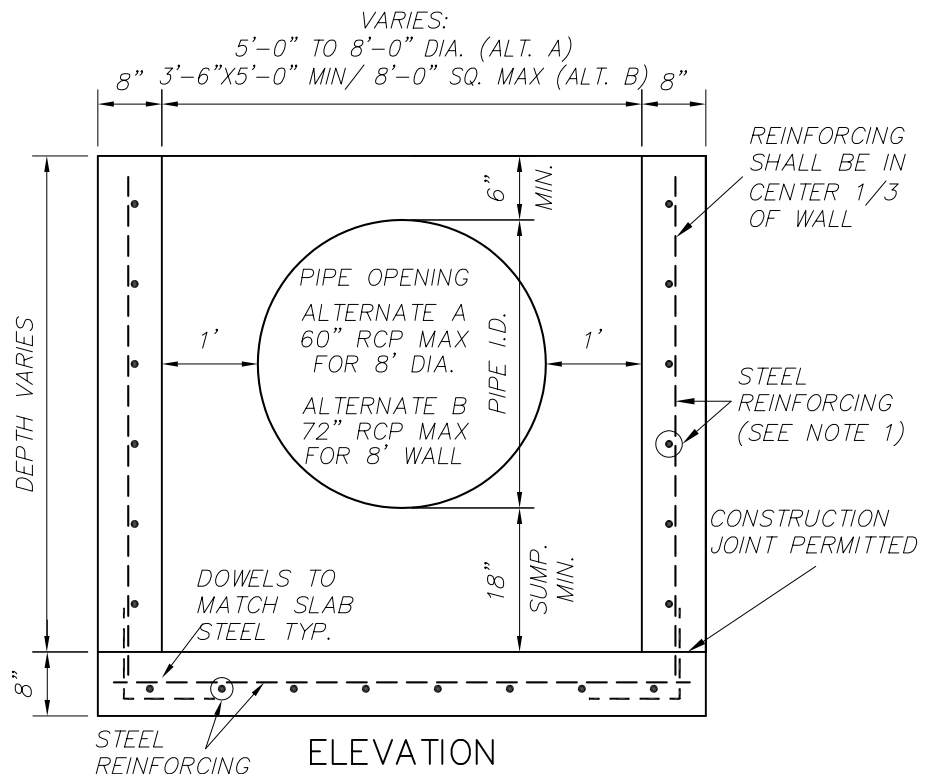


INLET FRAME AND GRATE U.S. FOUNDRY
STANDARD INLET
SERIES 4155-6209 OR APPROVED EQUAL
SERIES 5130-6168 OR APPROVED EQUAL
VALLEY GUTTER INLET - SERIES 5113-6194 OR APPROVED EQUAL

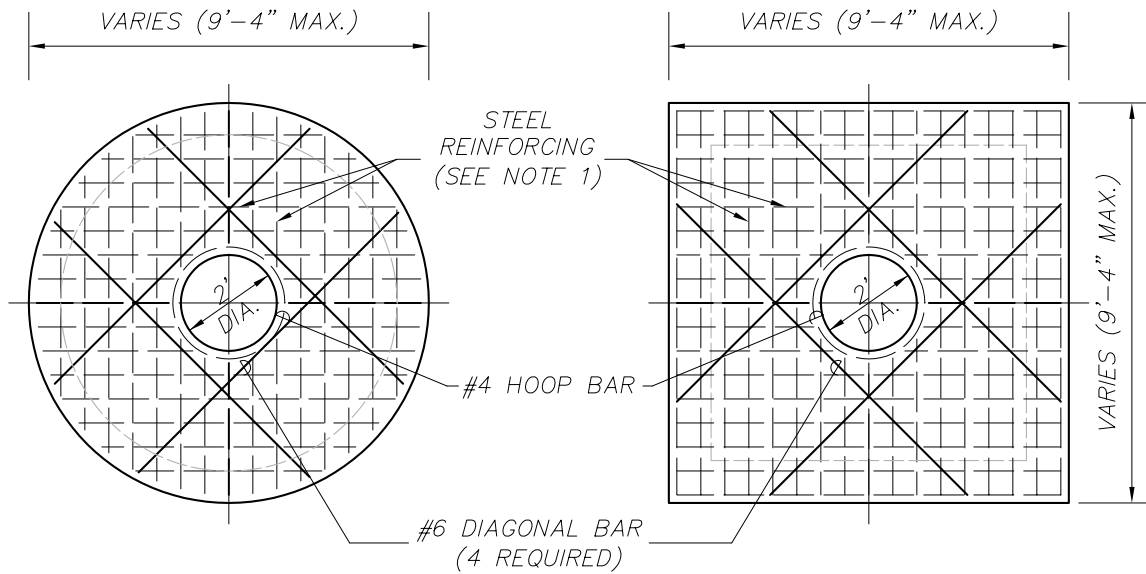


NOTES:

1. REINFORCEMENT STEEL AREA AND PLACEMENT SHALL CONFORM TO FDOT STANDARD INDEX 200 & INDEX 201 MINIMUM.
2. PROVIDE ONE EXTRA #4 BAR REINFORCEMENT EACH SIDE OF EACH OPENING AND TWO EXTRA #4 BARS AT 3" MIN SPACING ABOVE EACH OPENING PER FDOT STANDARD INDEX 200.
3. WALL LENGTH EXCEEDING 6'-0" REQUIRES TWO LAYERS OF REINFORCING WITH 2" COVER
4. STRUCTURES LARGER THAN 8' ROUND OR SQUARE REQUIRE DETAILING BY THE ENGINEER.
5. FOR ROUND STRUCTURES ENGINEER SHALL CHECK PIPE SIZES AND ENTRY ANGLES (SEE FDOT INDEX 200, 3 OF 5)



NOTE:
MANHOLE OPENING MAY BE
ECCENTRIC AS REQUIRED.



TOP VIEW

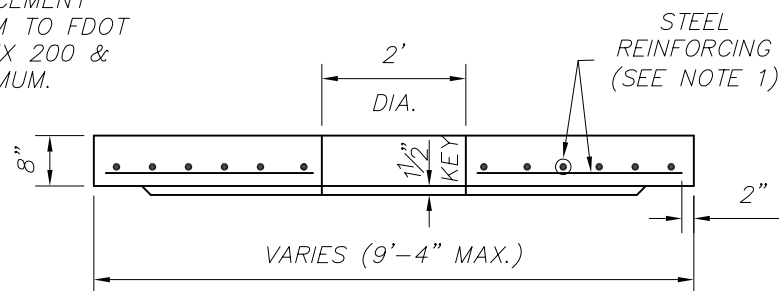
ALTERNATE A

TOP VIEW

ALTERNATE B

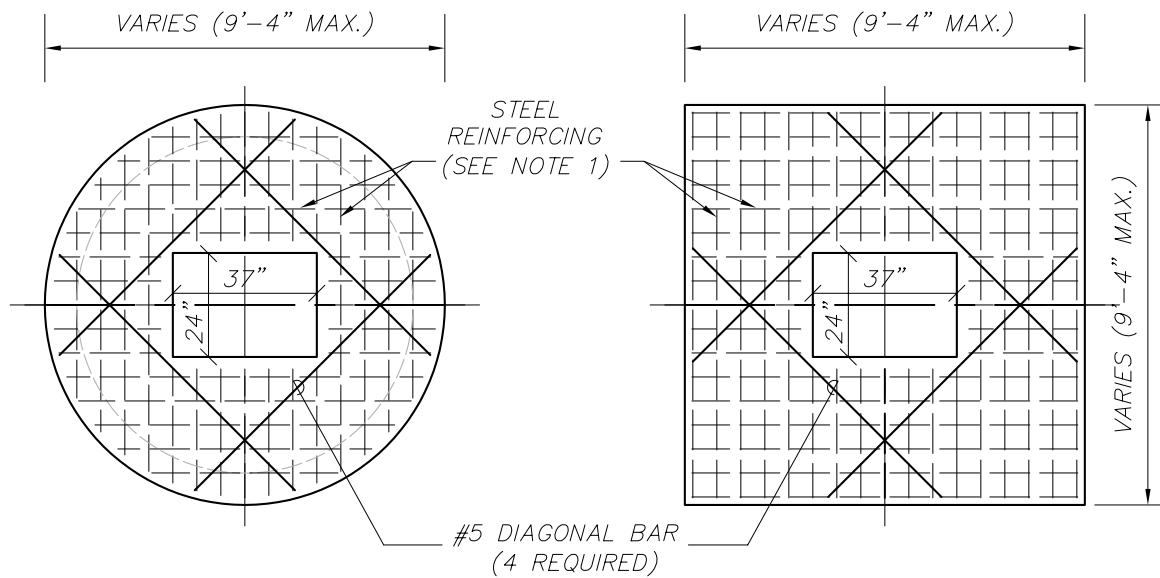
NOTE:

1. REINFORCEMENT STEEL
AREA AND PLACEMENT
SHALL CONFORM TO FDOT
STANDARD INDEX 200 &
INDEX 201 MINIMUM.



ELEVATION

MANHOLE RING AND COVER – U.S. FOUNDRY
SERIES 420-C OR APPROVED EQUAL

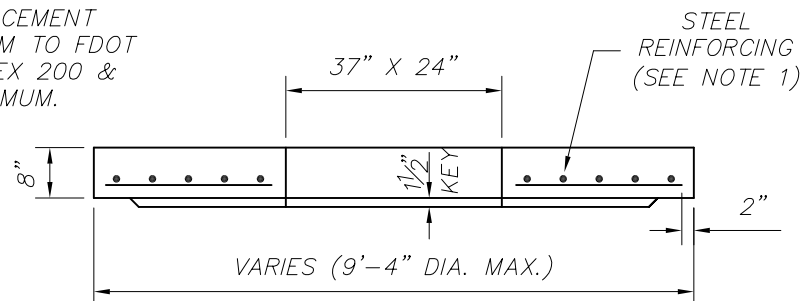


TOP VIEW
ALTERNATE A

TOP VIEW
ALTERNATE B

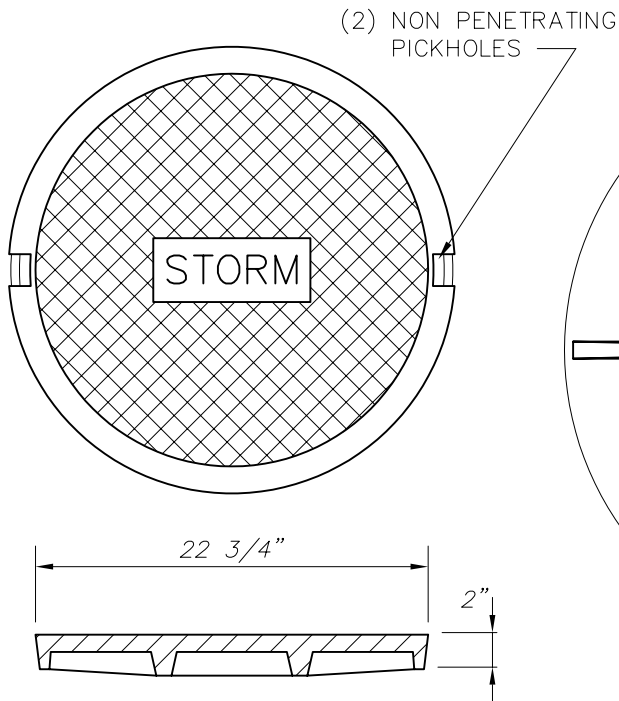
NOTE:

1. REINFORCEMENT STEEL AREA AND PLACEMENT SHALL CONFORM TO FDOT STANDARD INDEX 200 & INDEX 201 MINIMUM.



ELEVATION

REQUIRED INLET FRAME AND GRATE
STANDARD INLET - U.S. FOUNDRY 4155-6209 OR APPROVED EQUAL
CURB INLET - U.S. FOUNDRY 5130-6168 OR APPROVED EQUAL
VALLEY GUTTER INLET - U.S. FOUNDRY 5113-6194 OR APPROVED EQUAL

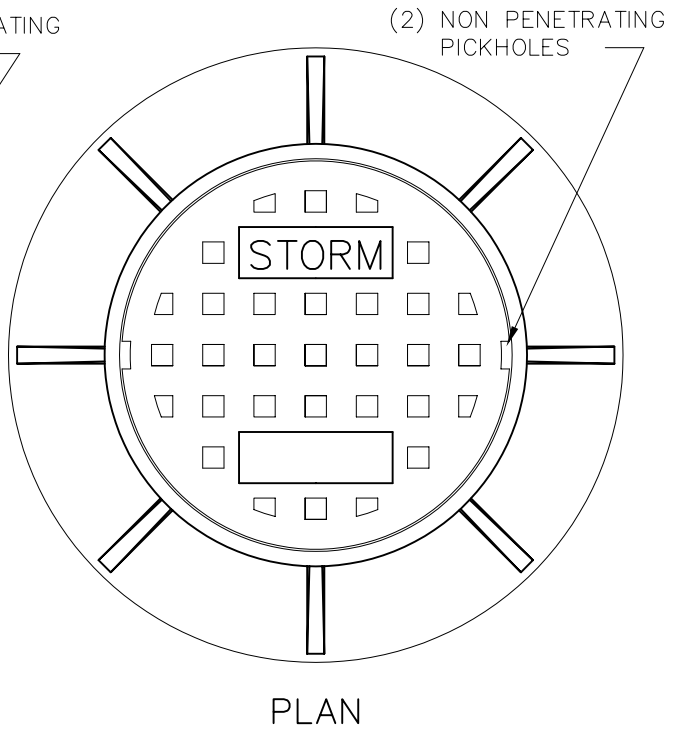


ALTERNATE PEDESTRIAN COVER

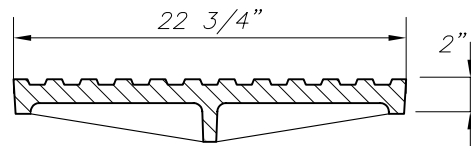
*REQUIRED IN PEDESTRIAN AREAS/
SIDEWALKS*

NOTES:

- 1- MATERIAL: ASTM-A48
CLASS 30B GRAY IRON.
- 2- RING WT: 240 LBS. APP.
- 3- STANDARD COVER (TYPE D)
WT: 160 LBS. APP.
- 4- PEDESTRIAN COVER (TYPE D)
WT: 125 LBS APP.

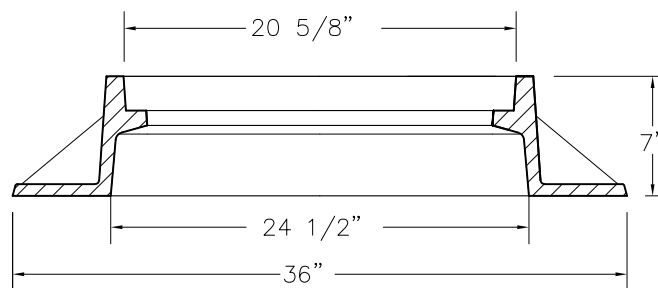


PLAN



TOP

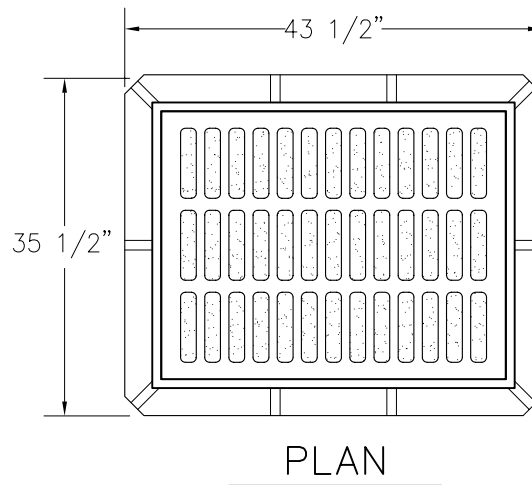
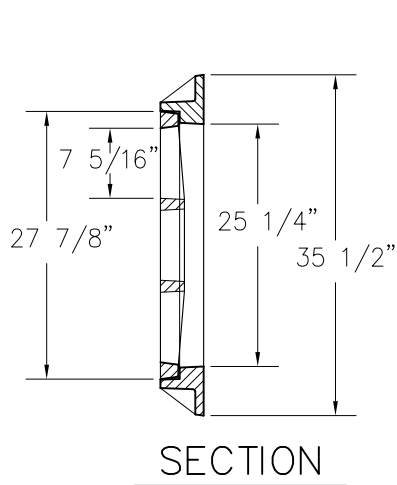
STANDARD COVER



SECTION

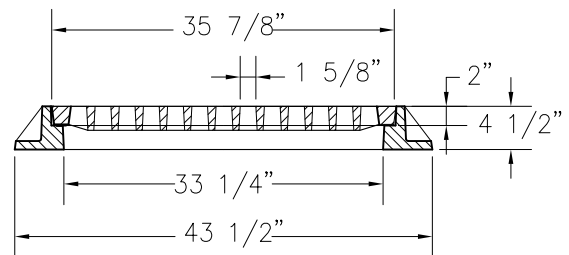
N.T.S.

U.S. FOUNDRY #420-C RING AND COVER OR APPROVED EQUAL



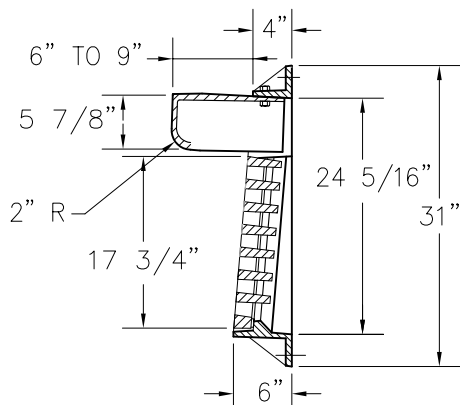
NOTES:

- 1- MATERIAL: ASTM-A48
CLASS 30B GRAY IRON
- 2- FRAME WT: 335 LBS. APP.
- 3- GRATE WT: 265 LBS. APP.

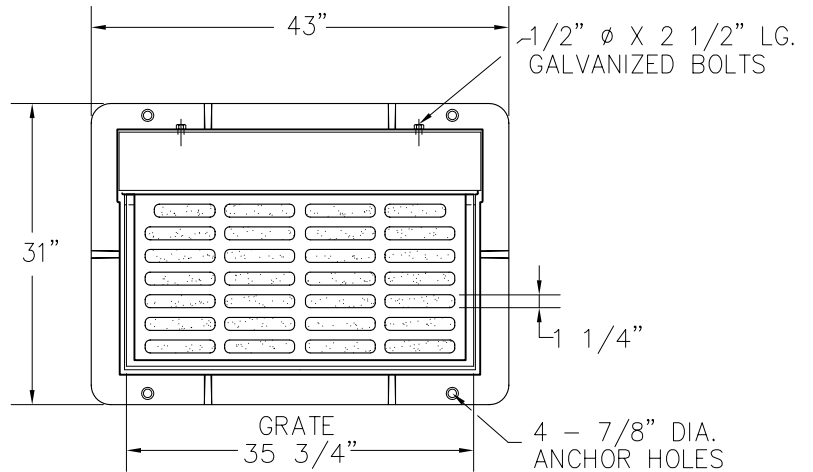


N.T.S.

*U.S. FOUNDRY #4155-6209
FRAME AND GRATE OR APPROVED EQUAL
PEDESTRIAN & BICYCLE COMPATIBLE*



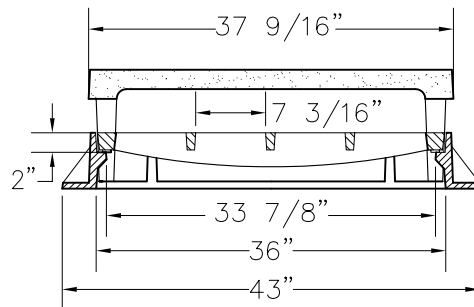
SECTION



PLAN

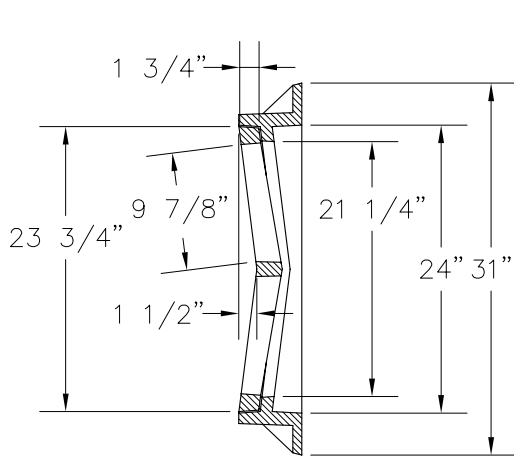
NOTES:

- 1- MATERIAL: ASTM-A48
CLASS 30B GRAY IRON.
- 2- FRAME WT: 195 LBS. APP.
- 3- GRATE WT: 215 LBS. APP.
- 4- HOOD WT: 125 LBS. APP.

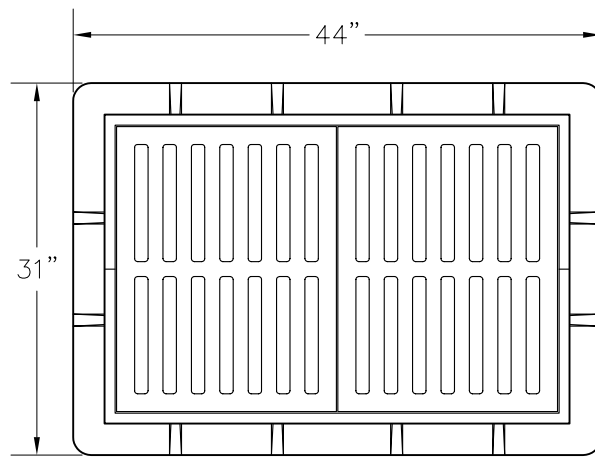


ELEVATION

*U.S. FOUNDRY #5130-6168
FRAME AND GRATE OR APPROVED EQUAL
PEDESTRIAN & BICYCLE COMPITABLE*



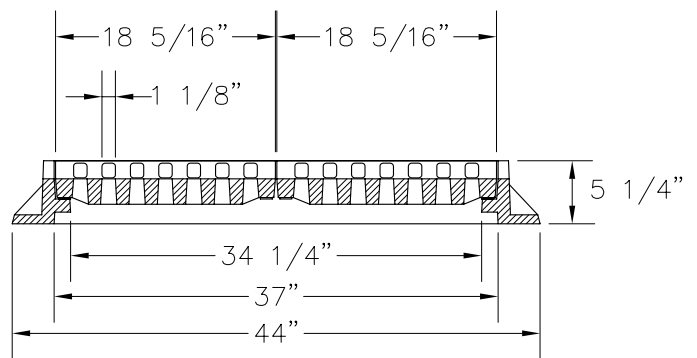
SECTION



PLAN

NOTES:

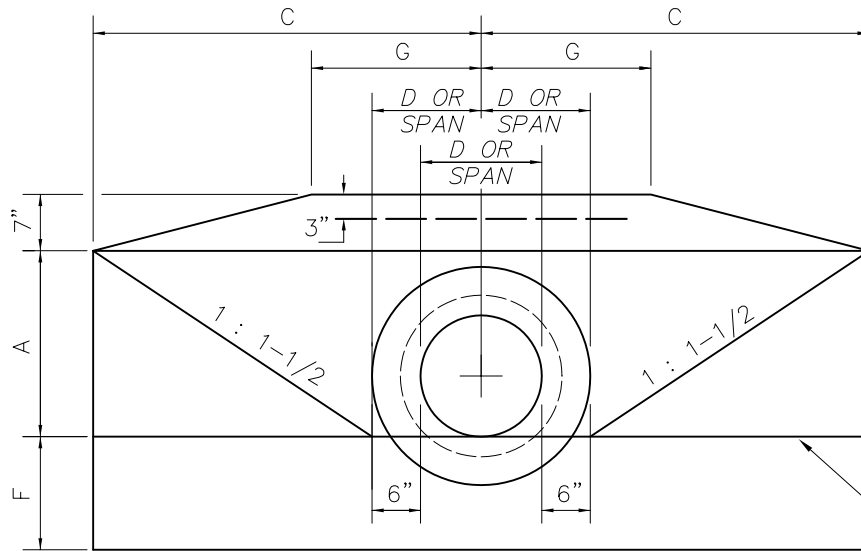
- 1- MATERIAL: ASTM-A48 CLASS 30B GRAY IRON.
- 2- FRAME WT: 290 LBS. APP.
- 3- GRATE WT: 120 LBS. APP. EA.



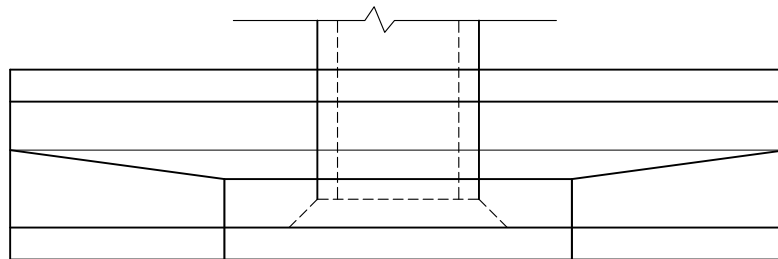
ELEVATION

N.T.S.

*U.S. FOUNDRY #5113-6194 FRAME AND
GRATE OR APPROVED EQUAL
PEDESTRIAN & BICYCLE COMPATIBLE
DO NOT INSTALL THIS GRATE IN CURB RADIUS*



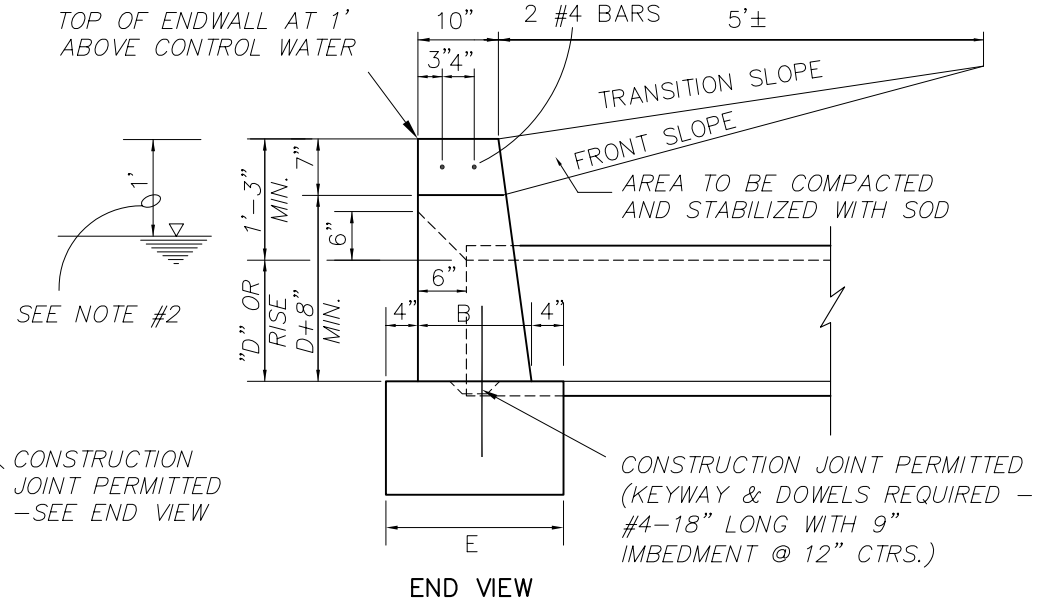
FRONT VIEW



TOP VIEW

NOTES

1. FOR MULTIPLE PIPES OR SKEWED PIPE SEE FDOT INDEX 250 FOR ADDITIONAL DETAILS.
2. TOP OF ENDWALL TO BE SET NO LOWER THAN 12 INCHES ABOVE THE CONTROL WATER ELEVATION. WHERE THE STANDARD ENDWALL DESIGN WILL NOT PERMIT MEETING MINIMUM TOP ELEVATION ENGINEER SHALL PROVIDE MODIFIED ENDWALL DESIGN TO MEET REQUIRED ELEVATION.



END VIEW

| D | OPENING AREA (S.F.) | DIMENSIONS | | | | | |
|-----|---------------------|------------|--------|--------|--------|-------|-------|
| | | A | B | C | E | F | G |
| 15" | 1.23 | 1'-11" | 1'-2" | 4'-0" | 1'-10" | 1'-2" | 0'-6" |
| 18" | 1.77 | 2'-2" | 1'-3" | 4'-6" | 1'-11" | 1'-3" | 1'-0" |
| 21" | 2.41 | 2'-5" | 1'-4" | 5'-0" | 2'-0" | 1'-4" | 1'-6" |
| 24" | 3.14 | 2'-8" | 1'-4" | 5'-6" | 2'-0" | 1'-4" | 2'-0" |
| 27" | 3.98 | 2'-11" | 1'-5" | 6'-0" | 2'-1" | 1'-5" | 2'-6" |
| 30" | 4.91 | 3'-2" | 1'-6" | 6'-6" | 2'-2" | 1'-6" | 3'-0" |
| 36" | 7.07 | 3'-8" | 1'-8" | 7'-6" | 2'-4" | 1'-8" | 4'-0" |
| 42" | 9.62 | 4'-2" | 1'-10" | 8'-6" | 2'-6" | 2'-0" | 5'-0" |
| 48" | 12.57 | 4'-8" | 2'-1" | 9'-6" | 2'-9" | 2'-0" | 6'-0" |
| 54" | 15.90 | 5'-2" | 2'-6" | 10'-6" | 3'-2" | 2'-3" | 7'-0" |

CONCRETE PIPE TABLE

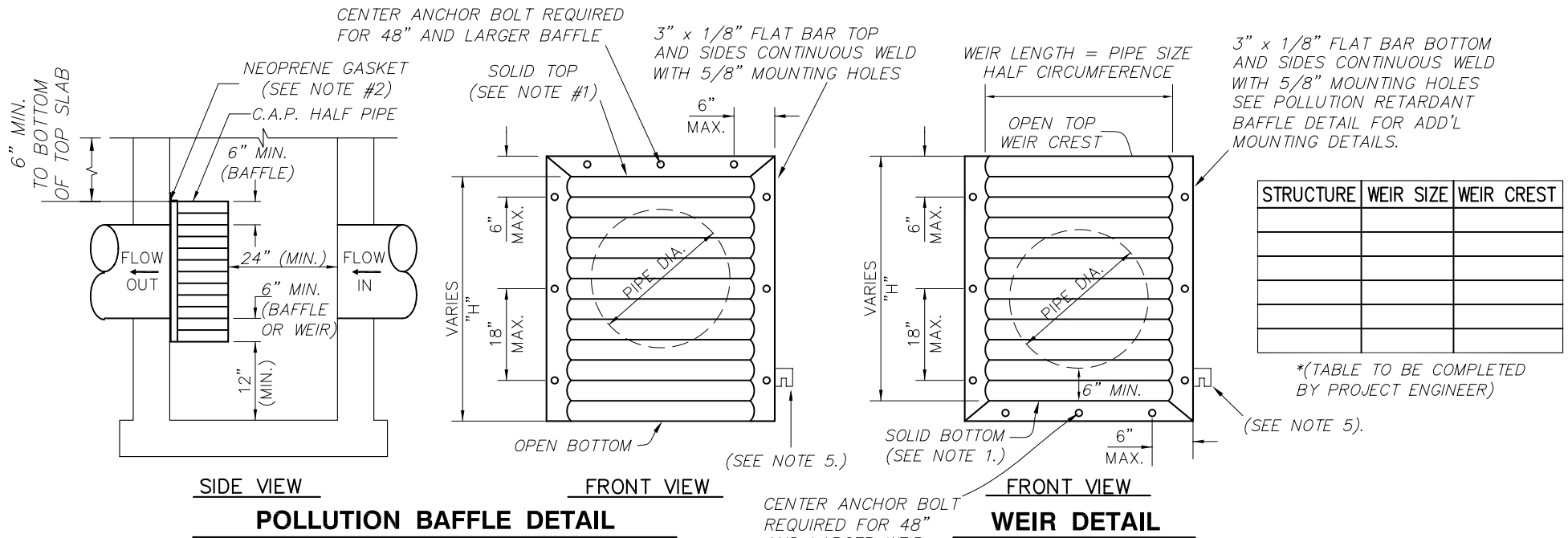
COMMUNITY DEVELOPMENT DEPARTMENT – ENGINEERING DIVISION
STANDARD PAVING & DRAINAGE DETAILS

DATE: 9/11

DETAIL NO.

STRAIGHT CONCRETE ENDWALL

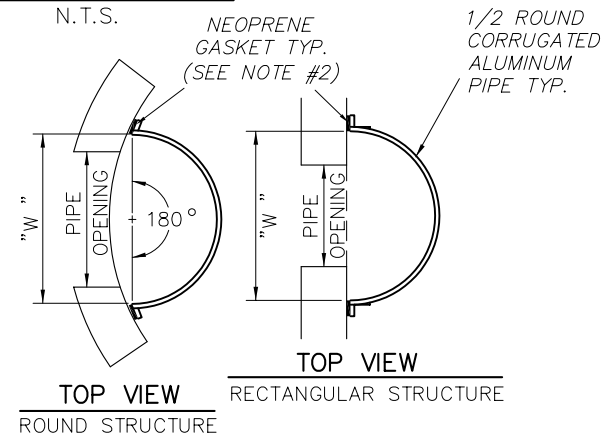
D-09



N.T.S.

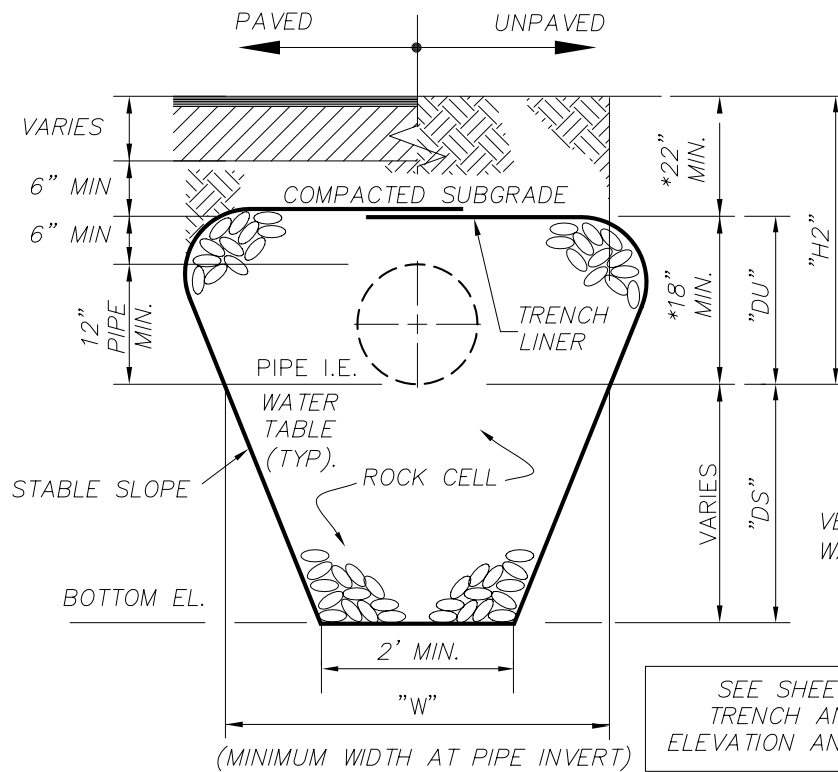
NOTES:

1. ALUMINUM SHEET OF SAME THICKNESS (GAUGE) AS PIPE SHALL BE WELDED TO CLOSE OPENING AT THE TOP OR BOTTOM.
2. NEOPRENE ADHESIVE BACKED GASKET, OR APPROVED EQUAL (1" x 2") SHALL BE INSTALLED ON THE SIDES AND TOP OF OF ALL BAFFLES AND BOTTOM OF ALL WEIRS.
3. POLLUTION RETARDANT BAFFLE AND WEIR TO BE FASTENED IN PLACE WITH 1/2" x 4" STAINLESS STEEL "RED HEAD" ANCHORS, OR APPROVED EQUAL. ALL MOUNTING HARDWARE TO BE STAINLESS STEEL.
4. FIBERGLASS BAFFLES ARE NOT PERMITTED.
5. BRACKETS MAY BE ADDED TO FLAT BARS TO EASE INSTALLATION IN ROUND STRUCTURES. SPACING TO MATCH HOLES IN FLAT BARS.
6. PIPE CORRUGATION SHALL BE ANNULAR.



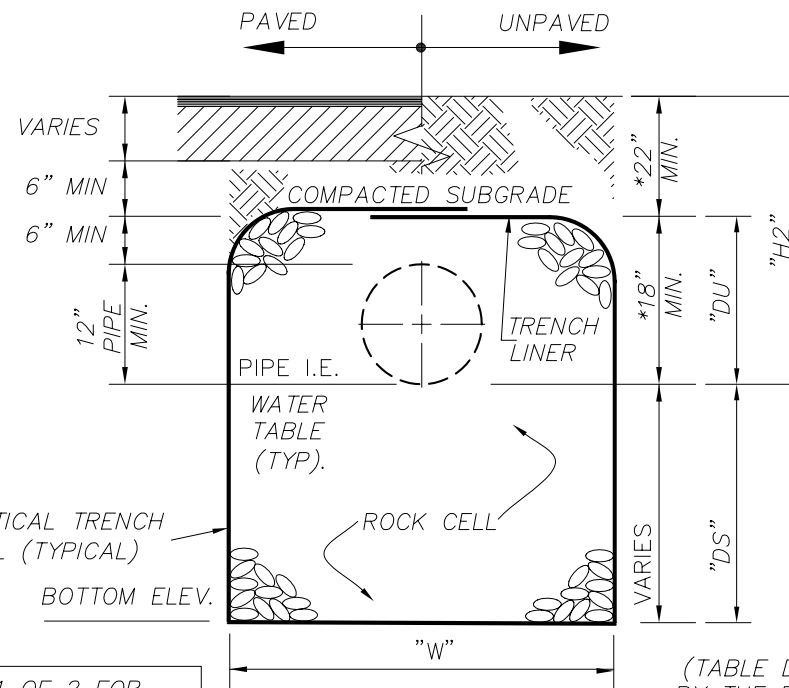
| PIPE DIA. | W (IN) | T (GAUGE) | H (IN) |
|-----------|--------|-----------|--------|
| 15" | 21" | 16 | VARIES |
| 18" | 24" | 16 | VARIES |
| 21" | 30" | 16 | VARIES |
| 24" | 36" | 16 | VARIES |
| 30" | 42" | 14 | VARIES |
| 36" | 48" | 14 | VARIES |
| 42" | 54" | 14 | VARIES |
| 48" | 60" | 14 | VARIES |
| 54" | 66" | 14 | VARIES |
| 60" | 72" | 14 | VARIES |

RECTANGULAR OR ROUND STRUCTURE



TRENCH SECTION IN SANDY SOIL

(SEE NOTE 5)



TRENCH SECTION IN ROCK

N.T.S.

* CASE BY CASE APPROVAL FOR LESS

(TABLE DATA TO BE PROVIDED BY THE PROJECT ENGINEER FOR DESIGN & CONTRACTOR USE)

| TRENCH PARAMETER | PROJECT DATA |
|------------------------------|--------------|
| WATER TABLE ELEVATION | |
| AVG. GROUND ELEVATION | |
| PIPE FLOW LINE ELEVATION | |
| TRENCH WIDTH "W" | |
| TRENCH BOTTOM ELEVATION | |
| UNSATURATED TRENCH "Du" | |
| SATURATED TRENCH "Ds" | |
| DISTANCE TO WATER TABLE "H2" | |

NOTES

- EXFILTRATION TRENCH PARAMETERS FOR DESIGN

"W" = TRENCH WIDTH

"Ds" = SATURATED TRENCH BELOW WATER TABLE (FROM WATER CONTROL ELEVATION TO BOTTOM OF TRENCH)

"Du" = UNSATURATED TRENCH ABOVE WATER TABLE (FROM WATER CONTROL ELEVATION TO TOP OF TRENCH)

"H2" = DISTANCE OF GROUND SURFACE TO WATER TABLE

- NOTE THAT FOR EXFILTRATION TRENCHES THAT DISCHARGE TO A CONTROL WEIR H2 AND Du WILL BE LIMITED IN THE DESIGN TO THE DISTANCE FROM THE CREST OF THE WEIR TO THE WATER TABLE.
- FOR DESIGN OF TRENCH SEE SOUTH FLORIDA WATER MANAGEMENT DISTRICT "PERMIT INFORMATION MANUAL VOLUME IV," SURFACE WATER DESIGN AIDS SECTION, FIGURE "F-4"
- NO CONFLICT PIPES WILL BE PERMITTED WITHIN THE EXFILTRATION TRENCH ROCK. FOR ALL UTILITY CONFLICT CROSSINGS FOR EXFILTRATION TRENCH PROVIDE A 15' GAP IN THE TRENCH AND PROVIDE NON-PERFORATED DRAINAGE PIPE. CENTER CONFLICTING UTILITY PIPE CROSSING IN THE NON-PERFORATED PIPE SECTION.
- AVERAGE CROSS SECTIONAL AREA FOR TRENCH CONSTRUCTION IN SAND CONDITIONS SHALL AT MINIMUM MATCH IDEAL VERTICAL SIDE TRENCH AREA CROSS SECTIONAL AREA.

COMMUNITY DEVELOPMENT DEPARTMENT – ENGINEERING DIVISION
STANDARD PAVING & DRAINAGE DETAILS

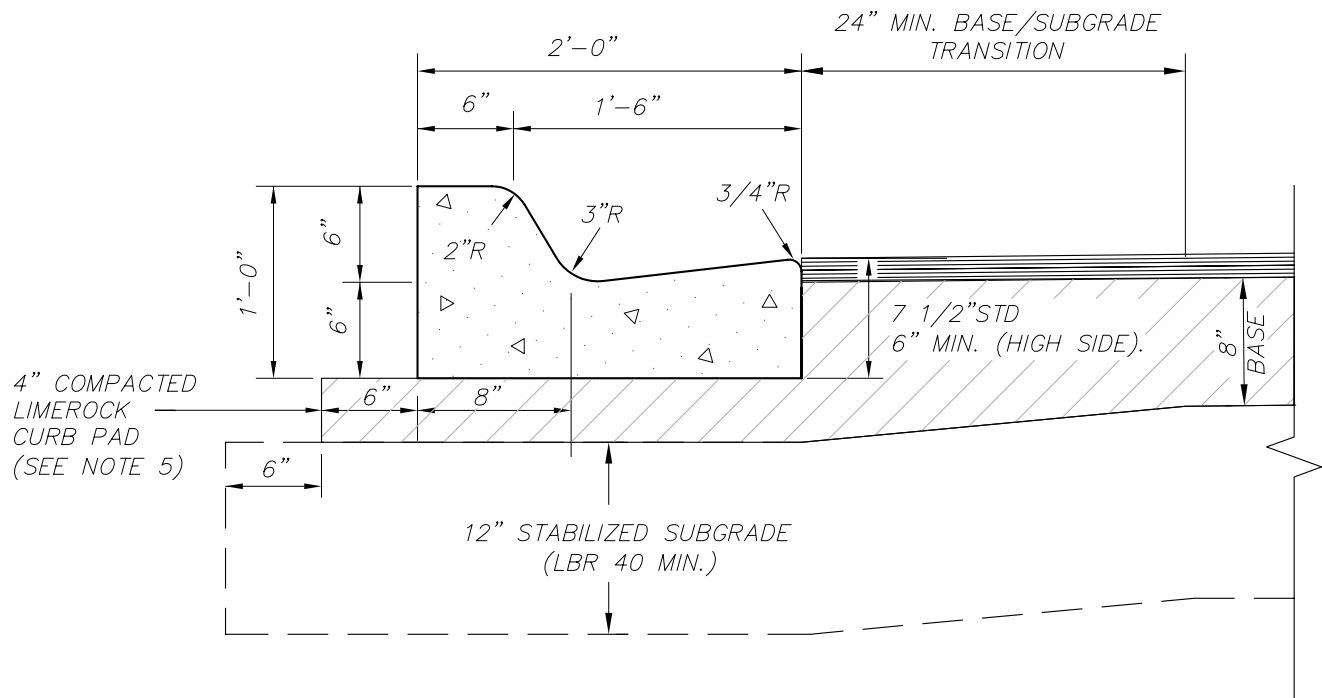
EXFILTRATION TRENCH CONSTRUCTION DETAILS SHEET 2 OF 2



DATE: 9/11

DETAIL NO.

D-11B

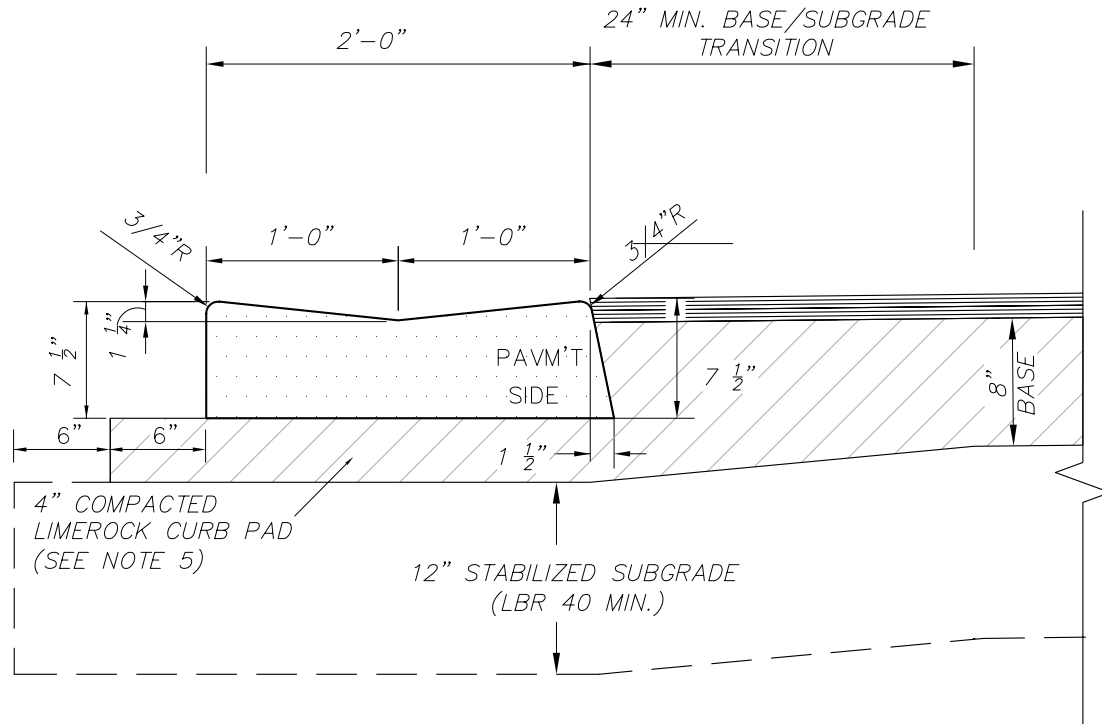


TYPE "F" CURB AND GUTTER

N.T.S.

CURB NOTES:

1. WHEN USED ON THE HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF TYPE "F" GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT.
2. PROVIDE 1/4" WIDE CONTRACTION JOINT A MINIMUM OF 1-1/2" DEEP AND AT 10' SPACING MAXIMUM FOR ALL CURBS.
3. CONCRETE SHALL BE 3000 P.S.I. MIN. @ 28 DAYS.
4. FOR COMMUNITY DEVELOPMENT DEPARTMENT CAPITAL PROJECT DIVISION PROJECTS COST OF CURB PAD TO BE INCLUDED IN COST OF CURB.
5. COMPACT CURB PAD TO A DENSITY OF 98% OF AASHTO T-180 SPECIFICATION.

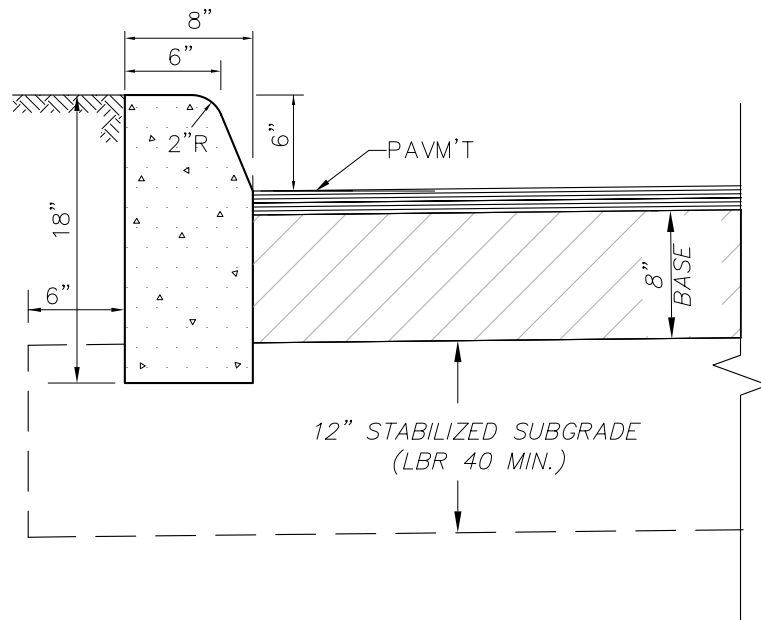


2' VALLEY GUTTER CURB

N.T.S.

CURB NOTES:

1. PROVIDE 1/4" WIDE CONTRACTION JOINT A MINIMUM OF 1-1/2" DEEP AND AT 10' SPACING MAXIMUM FOR ALL CURBS.
2. CONCRETE SHALL BE 3000 P.S.I. MIN. @ 28 DAYS.
3. FOR COMMUNITY DEVELOPMENT DEPARTMENT CAPITAL PROJECT DIVISION PROJECTS COST OF CURB PAD TO BE INCLUDED IN COST OF CURB.
4. SEE PAVEMENT MINIMUM PAVEMENT DESIGN SECTION FOR COMPACTION REQUIREMENTS.
5. COMPACT CURB PAD TO A DENSITY OF 98% OF AASHTO T-180 SPECIFICATION.

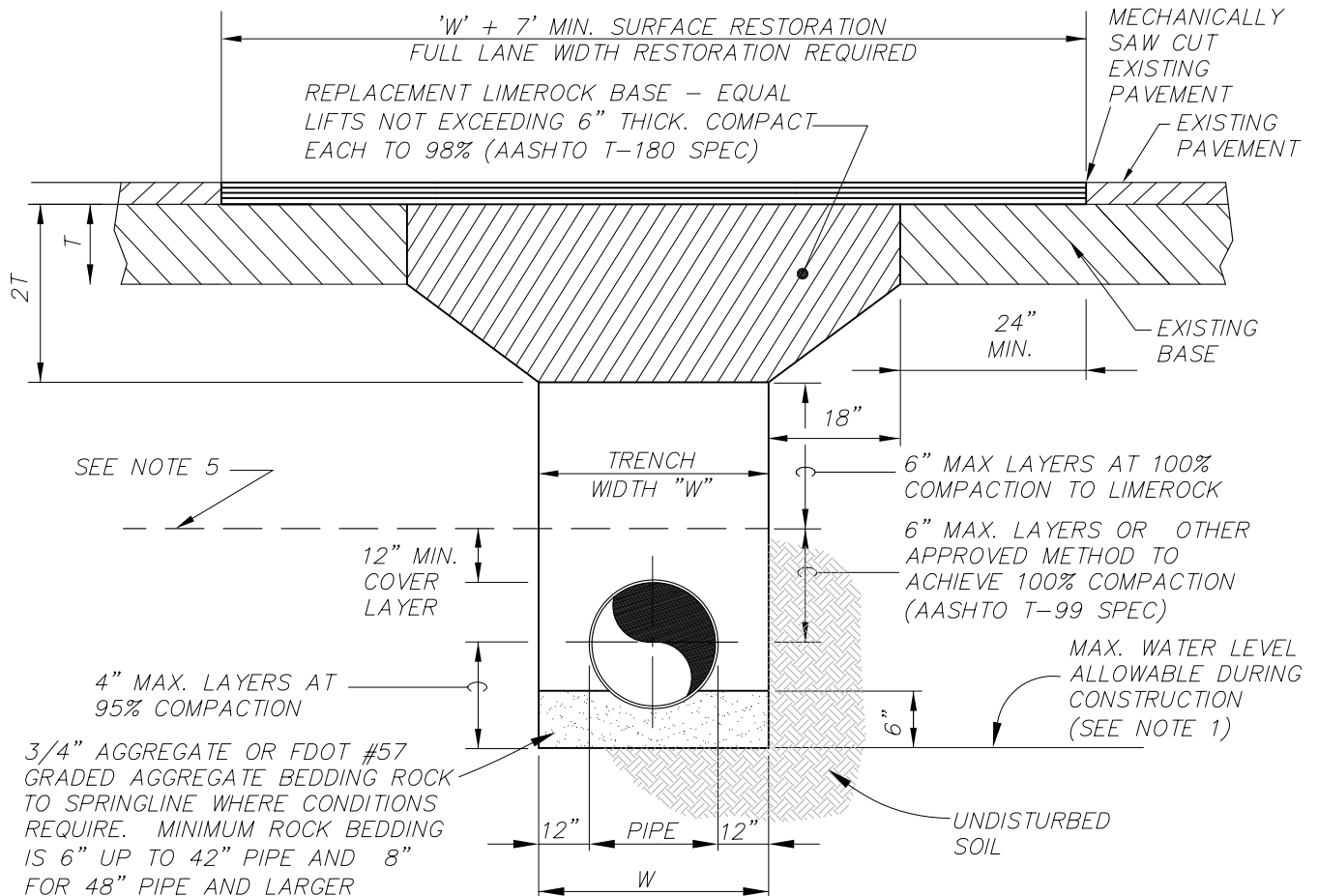


TYPE "D" CURB

N.T.S.

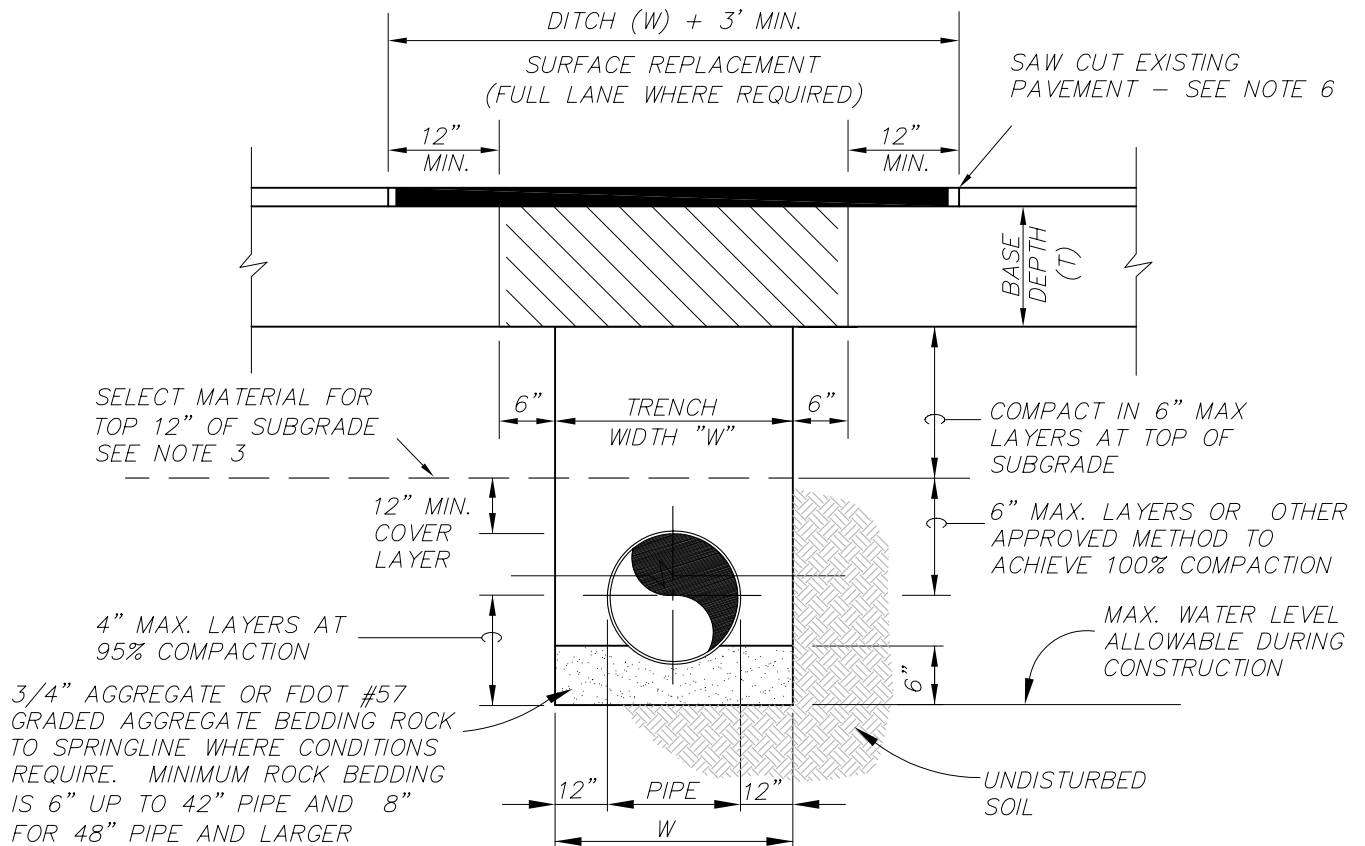
CURB NOTES:

1. PROVIDE 1/4" WIDE CONTRACTION JOINT A MINIMUM OF 1-1/2" DEEP AND AT 10' SPACING MAXIMUM FOR ALL CURBS.
2. CONCRETE SHALL BE 3000 P.S.I. MIN. @ 28 DAYS.
3. TYPE "D" CURB FOR PARKING LOTS MAY BE INSTALLED AS "TRENCHED" D CURB WITH EXTRUDED TOP AT THE CONTRACTOR'S OPTION. TRENCHED CURB REQUIRES CITY TRENCH INSPECTION AND APPROVAL. EXTRUDED CURB MUST BE PLACED WITHIN 15 MINUTES OF PLACEMENT OF TRENCH CONCRETE. EXTRUDED CURB AND TRENCH CONCRETE SHALL BE MONOLITHIC.



TRENCH & RESTORATION NOTES:

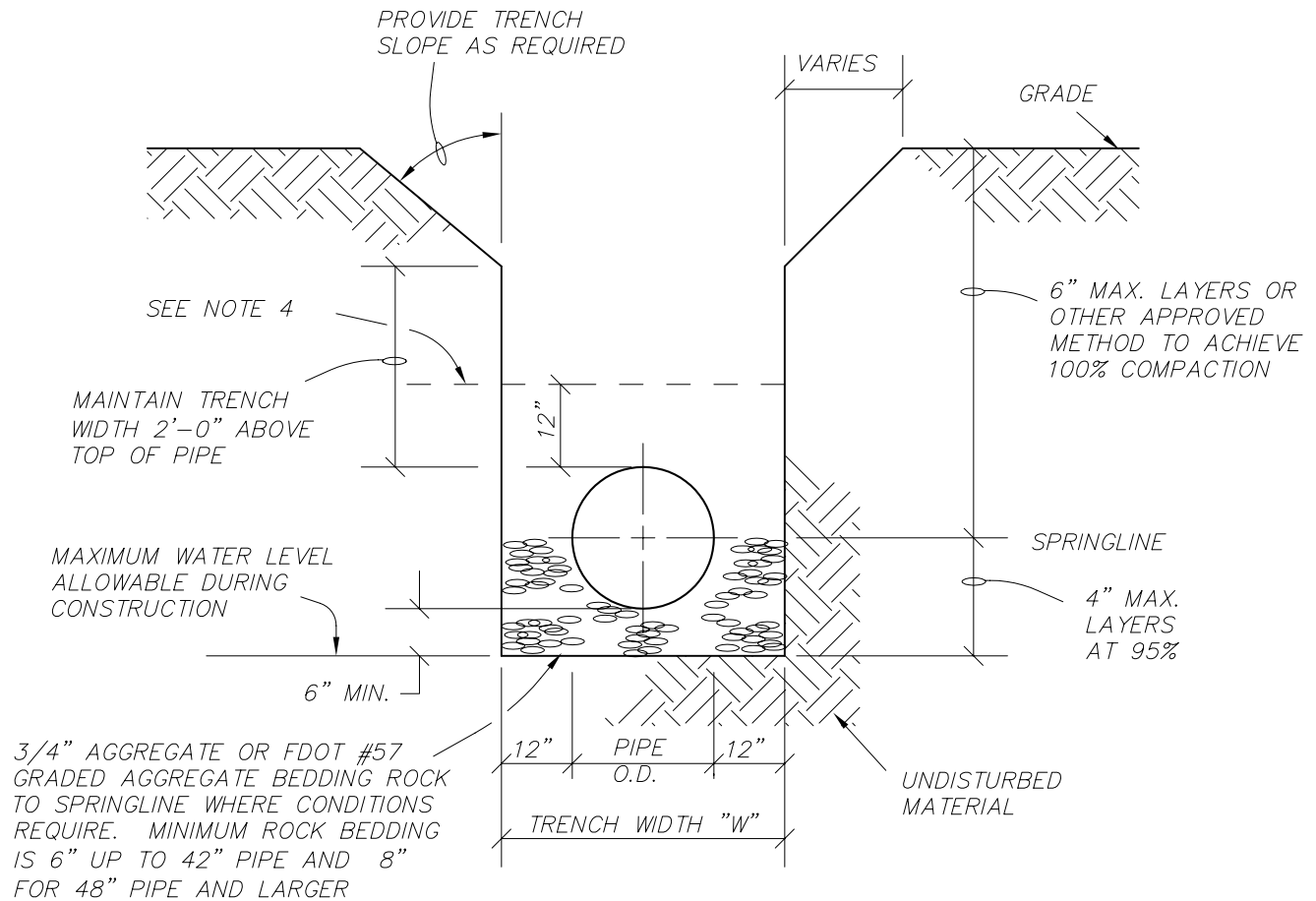
1. WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED AND FEATHERED JOINTS. (2" MIN. THICKNESS)
4. ALL ROADWAY RESTORATION SHALL COMPLY WITH THE CITY OF SUNRISE REQUIREMENTS OR OTHER JURISDICTIONAL AUTHORITIES WHERE APPLICABLE.
5. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LINE.
6. BACKFILL COMPACTION SHALL BE IN ACCORDANCE WITH CITY OF SUNRISE STANDARDS. COMPACTION PERCENTAGES FOR BACKFILL REFER TO AASHTO T-99 STANDARD PROCTOR. COMPACTION PERCENTAGES FOR ROCK BASE REFER TO AASHTO T-180 MODIFIED PROCTOR SPEC.
7. SURFACE RESTORATION WIDTH MAY BE ADJUSTED BY THE CITY.
8. FULL LANE RESTORATION REQUIRED. EXISTING PAVEMENT TO BE MILLED 1" MINIMUM OR REMOVED TO BASE ROCK OUTSIDE THE TRENCH AREA.
9. MAINTAIN TRENCH WALL PER OSHA REQUIREMENTS AND STATE OF FLORIDA TRENCH SAFETY ACT.



USE OF THIS DETAIL IS LIMITED TO PARKING LOTS AND OTHER LOW TRAFFIC VOLUME PAVEMENTS OUTSIDE OF RIGHT-OF-WAYS WHICH ARE NOT SUBJECT TO TRUCK TRAFFIC OR TO NON-TRAFFIC PAVEMENTS (BIKEPATHS, ETC.). CITY MAY LIMIT THE USE OF THIS PAVEMENT REPLACEMENT.

NOTES:

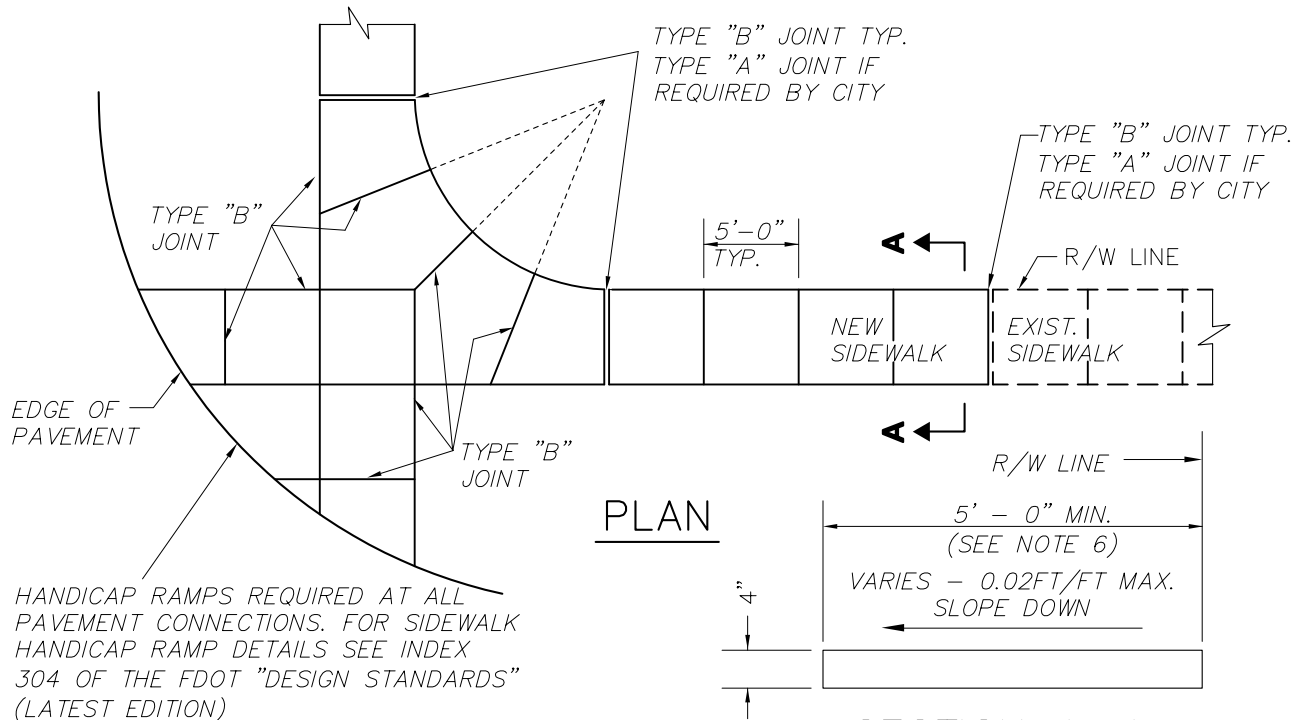
1. BASE MATERIAL EXCEEDING 8" THICK SHALL BE PLACED IN MULTIPLE EQUAL LIFTS NOT EXCEEDING 6" IN THICKNESS AND SHALL MATCH EXISTING BASE THICKNESS. COMPACT BASE THOROUGHLY BY ROLLING OR TAMPING TO A MINIMUM DENSITY OF 98% PER AASHTO T-180 MODIFIED PROCTOR SPEC.
2. THE TOP 12" OF THE SUBGRADE SHALL BE SELECT STABILIZED MATERIAL WITH A MINIMUM LBR OF 40. AN ADDITIONAL 6" LAYER OF LIMEROCK MAY BE USED IN PLACE OF THE STABILIZED MATERIAL IF THE AVAILABLE MATERIALS DO NOT MEET THE MINIMUM LBR-40 REQUIREMENTS.
3. BACKFILL COMPACTION SHALL BE IN ACCORDANCE WITH CITY OF SUNRISE STANDARDS. COMPACTION PERCENTAGES FOR BACKFILL REFER TO AASHTO T-99 STANDARD PROCTOR.
4. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE. (1" MIN. THICKNESS) SURFACE RESTORATION WIDTH MAY BE ADJUSTED BY THE CITY.
5. PAVEMENT SURFACE SHALL BE REMOVED A MINIMUM OF 12" ON EACH SIDE OF THE TRENCH BEYOND UNDISTURBED BASE. RESTORE FULL LANE WHERE REQUIRED. FOR FULL LANE RESTORATION EXISTING PAVEMENT TO BE MILLED 1" MINIMUM OR REMOVED TO BASE ROCK OUTSIDE THE TRENCH AREA.
6. EXISTING ASPHALT PAVEMENT SHALL BE SAW CUT AT EXPOSED EDGES. ALL ASPHALT JOINTS SHALL BE MECHANICALLY SAWED
7. MAINTAIN TRENCH WALL PER OSHA REQUIREMENTS AND STATE OF FLORIDA TRENCH SAFETY ACT.



TRENCH DETAIL

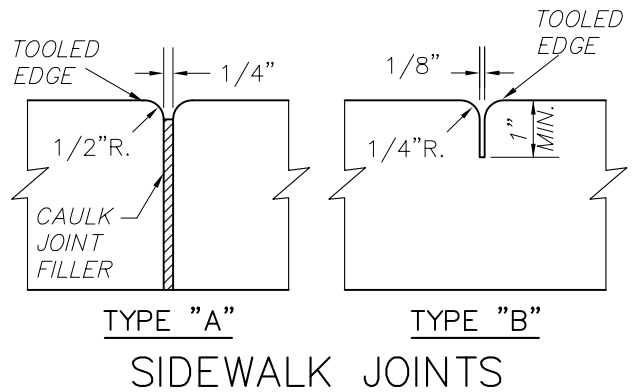
TRENCH CONSTRUCTION NOTES

1. WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE THE CONTRACTOR SHALL PROVIDE HIS ALTERNATE PLAN FOR TRENCH CONSTRUCTION TO THE ENGINEER OF RECORD AND THE CITY FOR APPROVAL.
2. SHEETING REQUIREMENTS WILL BE DETERMINED IN THE FIELD. SEE PROJECT SPECIFICATIONS.
3. COMPACTION PERCENTAGES REFER TO AASHTO T-99 STANDARD PROCTOR.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW 12" ABOVE THE PIPE.
5. PVC AND HDPE PIPE TO HAVE ROCK BACKFILL TO PIPE SPRINGLINE AND SAND OR AGGREGATE BEDDING AND/OR ENVELOPE AS REQUIRED IN AREAS WHERE TRENCH BACKFILL IS NOT SUITABLE DUE TO ROCK. ENVELOPE TO BE MIN. 12 INCHES AROUND THE PIPE.
6. MAINTAIN TRENCH WALL PER OSHA REQUIREMENTS AND STATE OF FLORIDA TRENCH SAFETY ACT.

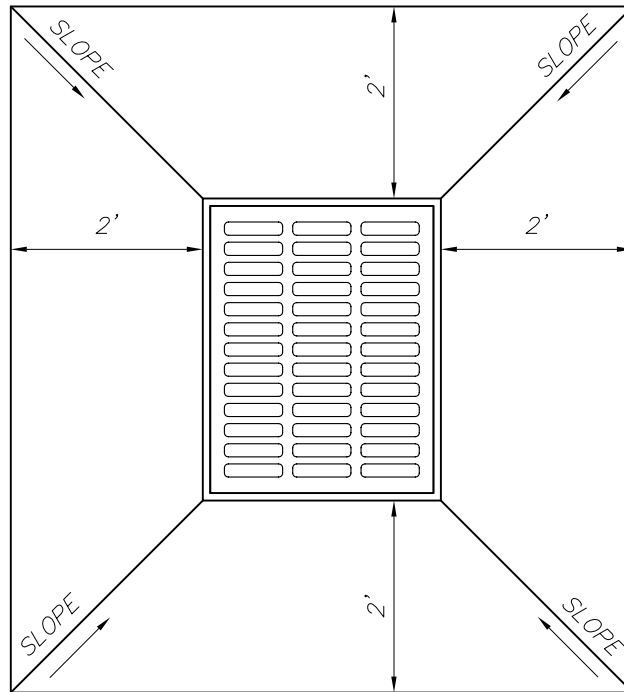


NOTES:

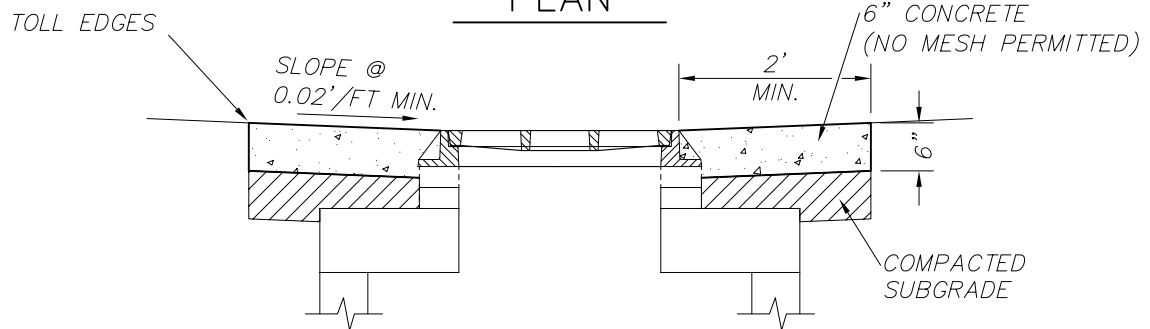
1. FOR NEW SIDEWALK LOCATIONS SUBGRADE BELOW SIDEWALK SHALL BE A MIN. L.B.R.-40 COMPACTED TO 98% OF MAX. DENSITY PER A.A.S.H.T.O. T-180.
2. CONCRETE TO BE 3,000 P.S.I. @ 28 DAYS
3. ALL JOINTS AND EDGES OF NEW SIDEWALK SHALL BE TOOLED. NO SAWCUT JOINTS ARE PERMITTED IN NEW SIDEWALK.
4. THE USE OF WIRE MESH REINFORCEMENT IN SIDEWALK WILL NOT BE PERMITTED
5. SIDEWALK SLOPES SHALL MEET THE REQUIREMENTS OF THE "AMERICAN WITH DISABILITIES ACT". CROSS SLOPES SHALL NOT EXCEED 0.02'/FT (2.0%).
6. ALL SIDEWALKS SHALL BE 4" THICK EXCEPT AT DRIVEWAY CROSSINGS AND OTHER VEHICULAR CROSSING AREAS WHERE THE SIDEWALK SHALL BE A MINIMUM OF 6" THICK.
7. MINIMUM WIDTH OF SIDEWALK PLACED AT BACK OF CURB IS 6'-0".
8. FOR TYPE "A" EXPANSION JOINTS PRE-MOULDED EXPANSION MATERIAL IS NOT PERMITTED. EXPANSION JOINTS TO BE USED ONLY IF APPROVED BY THE ENGINEERING DIVISION AND SHALL BE SEALED WITH APPROVED FLEXIBLE RUBBERIZED CAULK.
9. SIDEWALKS SHALL HAVE A LIGHT BROOM FINISH.



| TABLE OF SIDEWALK JOINTS | |
|--------------------------|--|
| TYPE | LOCATION |
| "A" | ONLY WHERE DIRECTED BY THE CITY |
| "B" | 5'-0" MINIMUM CENTER TO CENTER ON SIDEWALK |



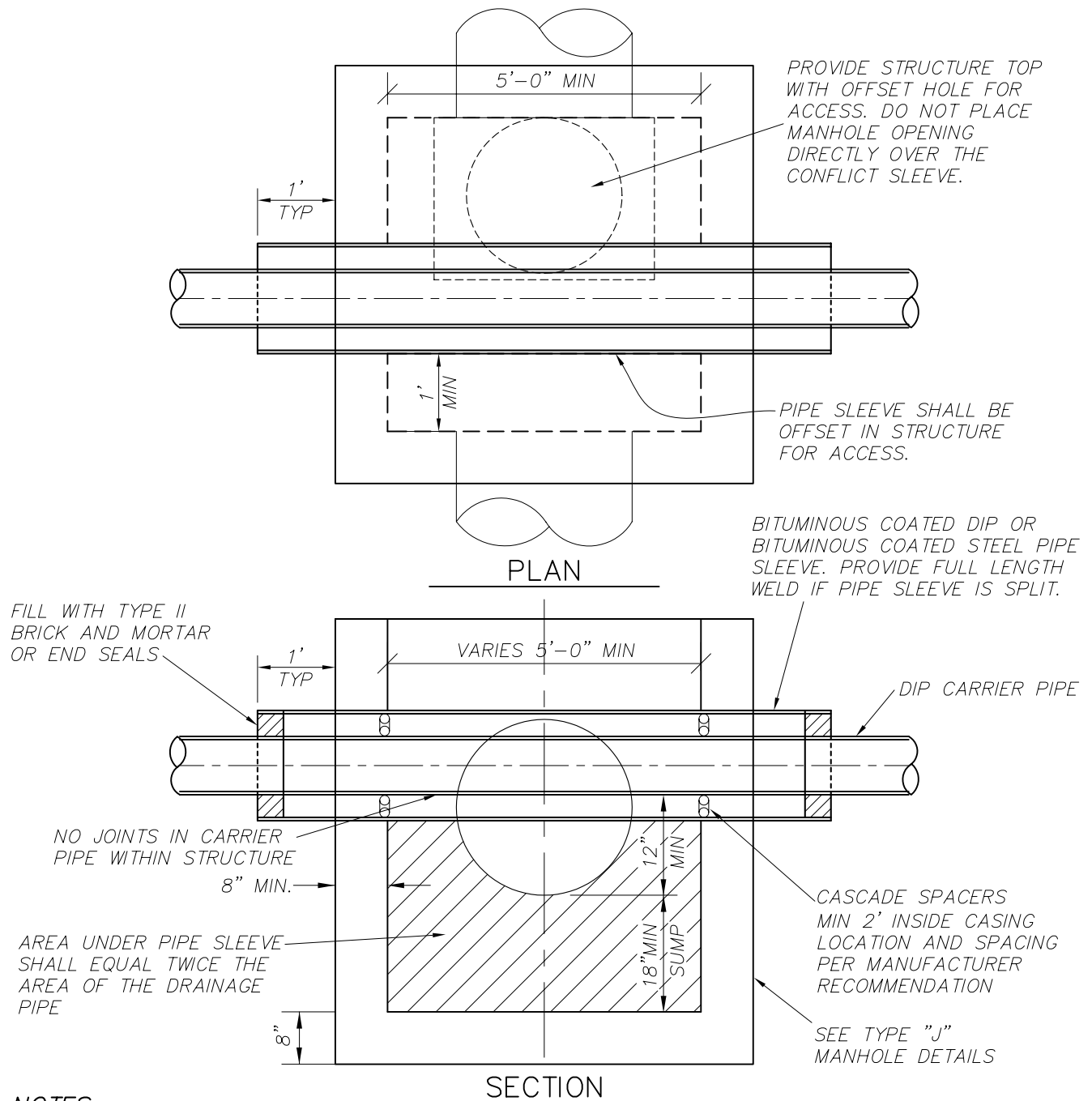
PLAN



SECTION

NOTES:

1. CONSTRUCT 2' WIDE (MIN.) APRON AROUND INLET (4 SIDES).
2. APRON AROUND CATCH BASIN SHALL BE 6" THICK CONCRETE ON COMPACTED SUBGRADE.
3. CONCRETE SHALL BE 3000 P.S.I. MIN.. @ 28 DAYS.
4. SLOPE OF APRON SHALL MATCH EXISTING GROUND SLOPE OR 2% MINIMUM.
5. PROVIDE LIGHT BROOM FINISH ON CONCRETE SURFACE AND TOOL ALL EXPOSED EDGES.



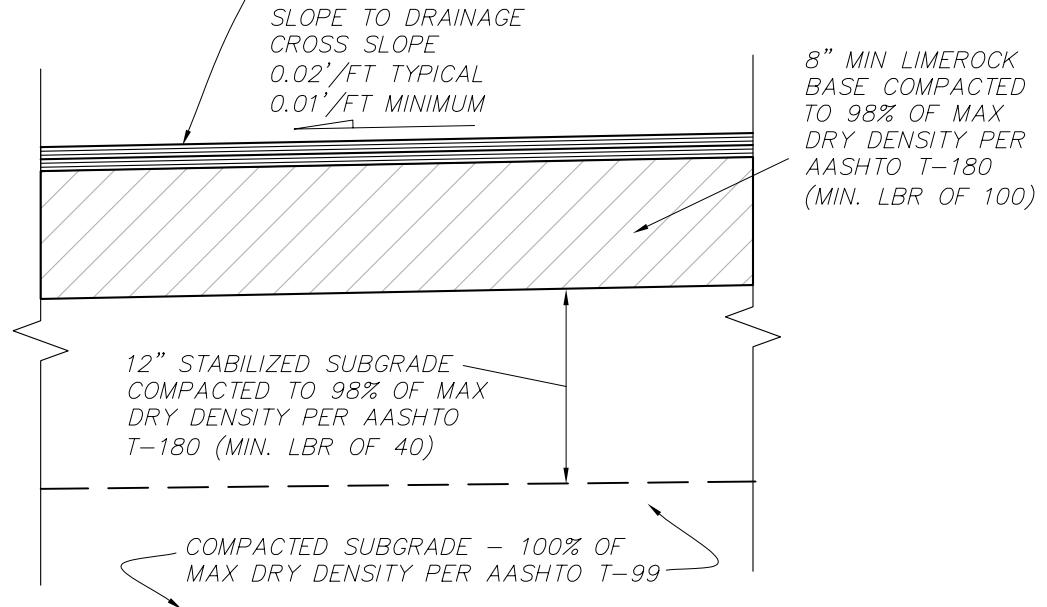
NOTES:

1. THIS DETAIL IS FOR WATER MAINS PASSING THROUGH DRAINAGE STRUCTURES AND IS SUBJECT TO THE APPROVAL OF THE CITY OF SUNRISE ENGINEERING DIVISION. WATER MAIN CONFLICTS REQUIRE THAT CONFLICT MANHOLES BE INDIVIDUALLY PERMITTED BY THE BROWARD COUNTY HEALTH DEPARTMENT.
2. THE CARRIER PIPE SHALL BE CENTERED WITHIN THE PIPE SLEEVE.
3. PIPE SLEEVE SHALL BE A MINIMUM OF 3" LARGER IN INSIDE DIAMETER THAN THE OUTSIDE PIPE BELL DIAMETER OF THE CARRIER PIPE. THE ENGINEER OF RECORD SHALL VERIFY THE CARRIER PIPE BELL CLEARANCE.

1-1/2" MIN. THICKNESS TYPE S* ASPHALTIC CONCRETE PLACED IN (2) LIFTS. SECOND LIFT TO BE INSTALLED AFTER FINAL LANDSCAPING AND IRRIGATION INSPECTIONS.

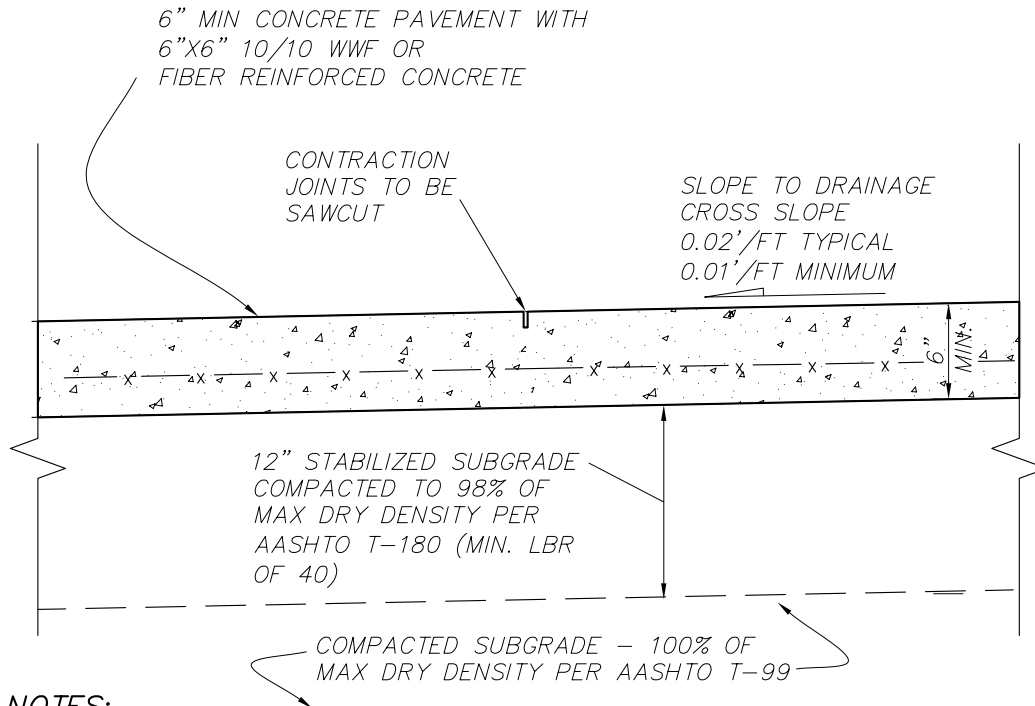
***ASPHALTIC CONCRETE PAVEMENT NOTE**

TYPE S-3 LIFT THICKNESS 3/4" MIN. TO 1" MAX.
TYPE S-1 LIFT THICKNESS 1-1/4" MIN. TO 2" MAX.
FOR MINIMUM PAVEMENT THICKNESS OF 1-1/2" USE TWO 3/4" LIFTS OF TYPE S-3 A.C.



NOTES:

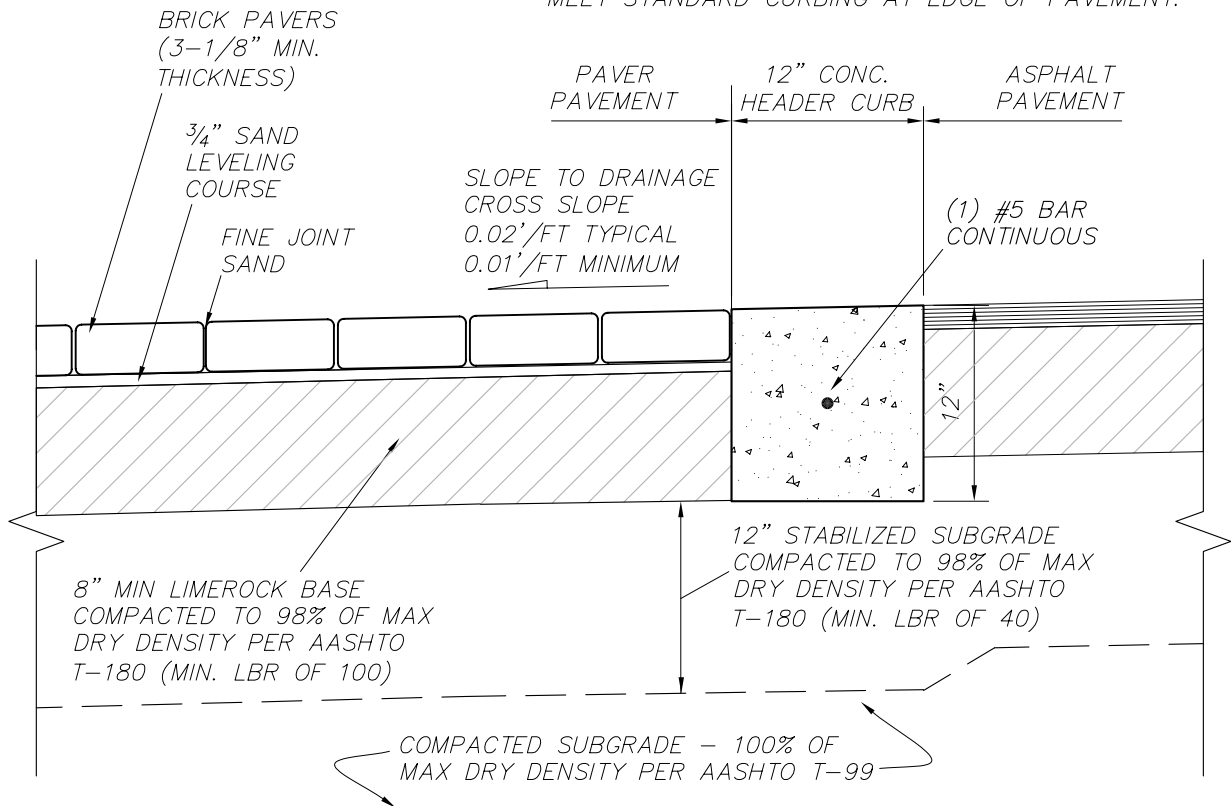
1. STABILIZED SUBGRADE SHALL HAVE A MINIMUM LIMEROCK BEARING RATIO (LBR) OF 40 AND IS REQUIRED FOR ALL NEW PAVEMENT CONSTRUCTION. ALL STABILIZED SUBGRADE SHALL BE STRING LINED FOR GRADE AND PASS ALL REQUIRED DENSITY TESTING PRIOR TO PLACEMENT OF LIMEROCK BASE. AREAS BELOW DESIGN GRADE MAY BE CORRECTED BY PLACEMENT OF ADDITIONAL LIMEROCK MATERIAL. AREAS ABOVE DESIGN GRADE MUST BE CORRECTED AND REINSPECTED PRIOR TO LIMEROCK PLACEMENT.
2. LIMEROCK BASE FOR ROADWAYS AND PARKING LOTS SHALL BE A MINIMUM OF 70% CARBONATES OF CALCIUM AND MAGNESIUM. BASE THICKNESS GREATER THAN 8" SHALL BE PLACED IN EQUAL LIFTS NOT EXCEEDING 6".
3. PRIME COAT SHALL BE APPLIED TO ALL FINISHED LIMEROCK BASE SURFACES AFTER BOARDING AND DENSITY INSPECTIONS. APPLICATION RATES AND MATERIALS SHALL BE IN ACCORDANCE WITH FDOT SPECIFICATIONS.
4. TACK COAT SHALL BE PLACED AS REQUIRED ON EXISTING ASPHALT SURFACES BEFORE APPLICATION OF AN OVERBUILD LAYER AND TO NEW SURFACES BETWEEN LIFTS. APPLICATION RATES AND MATERIALS SHALL BE IN ACCORDANCE WITH FDOT SPECIFICATIONS.
5. FINAL PAVEMENT LIFT CANNOT BE PLACED UNTIL ALL PROJECT LANDSCAPING IS IN PLACE AND THE IRRIGATION SYSTEM IS INSTALLED AND APPROVED.



NOTES:

1. STABILIZED SUBGRADE SHALL HAVE A MINIMUM LIMEROCK BEARING RATIO (LBR) OF 40 AND IS REQUIRED FOR ALL NEW PAVEMENT CONSTRUCTION. ALL STABILIZED SUBGRADE SHALL BE STRING LINED FOR GRADE AND PASS ALL REQUIRED DENSITY TESTING PRIOR TO PLACEMENT OF CONCRETE PAVEMENT. ALL AREAS FOUND TO BE ABOVE OR BELOW THE DESIGN GRADE MUST BE CORRECTED AND REINSPECTED PRIOR TO CONCRETE PAVEMENT CONSTRUCTION
2. CONCRETE PAVEMENT SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
3. DESIGN OF CONSTRUCTION, EXPANSION AND CONTRACTION JOINTS AND LOCATIONS SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER. DESIGN SHALL PROVIDE UNIFORM SPACING AND ACHIEVE CONTROLLED CRACKING. EXPANSION JOINTS ARE REQUIRED WHERE THE CONCRETE PAVEMENT MEETS CURBING.
4. ALL CONCRETE PAVEMENT SHALL BE CURED IN ACCORDANCE WITH FDOT SPECIFICATIONS AND SHALL HAVE A BROOM FINISH.
5. COLORED AND/OR STAMPED CONCRETE PAVEMENT WILL REQUIRE CITY APPROVAL OF BOTH THE COLOR AND STAMP PATTERN.
6. CONCRETE PAVEMENT SHALL BE SAWCUT ALONG ALL CITY OF SUNRISE EASEMENT LINES.
7. USE OF CONCRETE PAVEMENT TO BE APPROVED BY THE CITY OF SUNRISE.

NOTE:
HEADER CURB REQUIRED FOR CONNECTION TO ASPHALTIC CONCRETE PAVEMENT. BRICK PAVERS TO MEET STANDARD CURBING AT EDGE OF PAVEMENT.

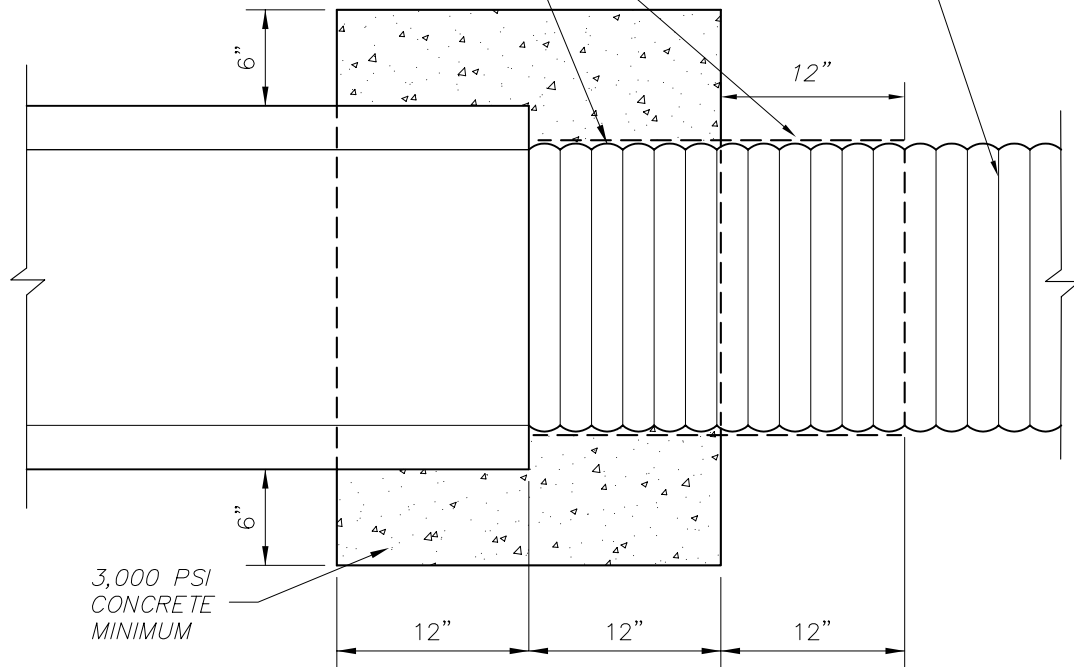


NOTES:

1. STABILIZED SUBGRADE SHALL HAVE A MINIMUM LIMEROCK BEARING RATIO (LBR) OF 40 AND IS REQUIRED FOR ALL NEW PAVEMENT CONSTRUCTION. ALL STABILIZED SUBGRADE SHALL BE STRING LINED FOR GRADE AND PASS ALL REQUIRED DENSITY TESTING PRIOR TO PLACEMENT OF CONCRETE PAVER SYSTEM. ALL AREAS FOUND TO BE ABOVE OR BELOW THE DESIGN GRADE MUST BE CORRECTED AND REINSPECTED PRIOR TO PAVER CONSTRUCTION.
2. LIMEROCK BASE FOR ROADWAYS AND PARKING LOTS SHALL BE A MINIMUM OF 70% CARBONATES OF CALCIUM AND MAGNESIUM. BASE THICKNESS GREATER THAN 8" SHALL BE INSTALLED IN EQUAL LIFTS NOT EXCEEDING 6".
3. BASE PRIME COAT WILL NOT BE REQUIRED FOR BRICK PAVER BASE.
4. SHOP DRAWING AND SUBMITTALS REQUIRED FOR THE PROPOSED PAVER MODULES, PAVER PATTERN, LEVELING SAND AND JOINT SAND MATERIALS. PAVERS SHALL BE LAID LEVEL TO ALL ADJACENT PAVERS AND TO THE FINISH GRADE WITH A TOLERANCE OF 1/4".
5. PAVER PAVEMENT SHALL BE PROTECTED FROM ALL TRAFFIC UNTIL COMPLETED AND APPROVED FOR USE BY THE CITY ENGINEERING DIVISION INSPECTOR.
6. USE OF BRICK PAVER PAVEMENT WILL REQUIRE APPROVAL BY THE CITY. APPROVAL SHALL INCLUDE LOCATION, COLOR AND PAVER PATTERN.

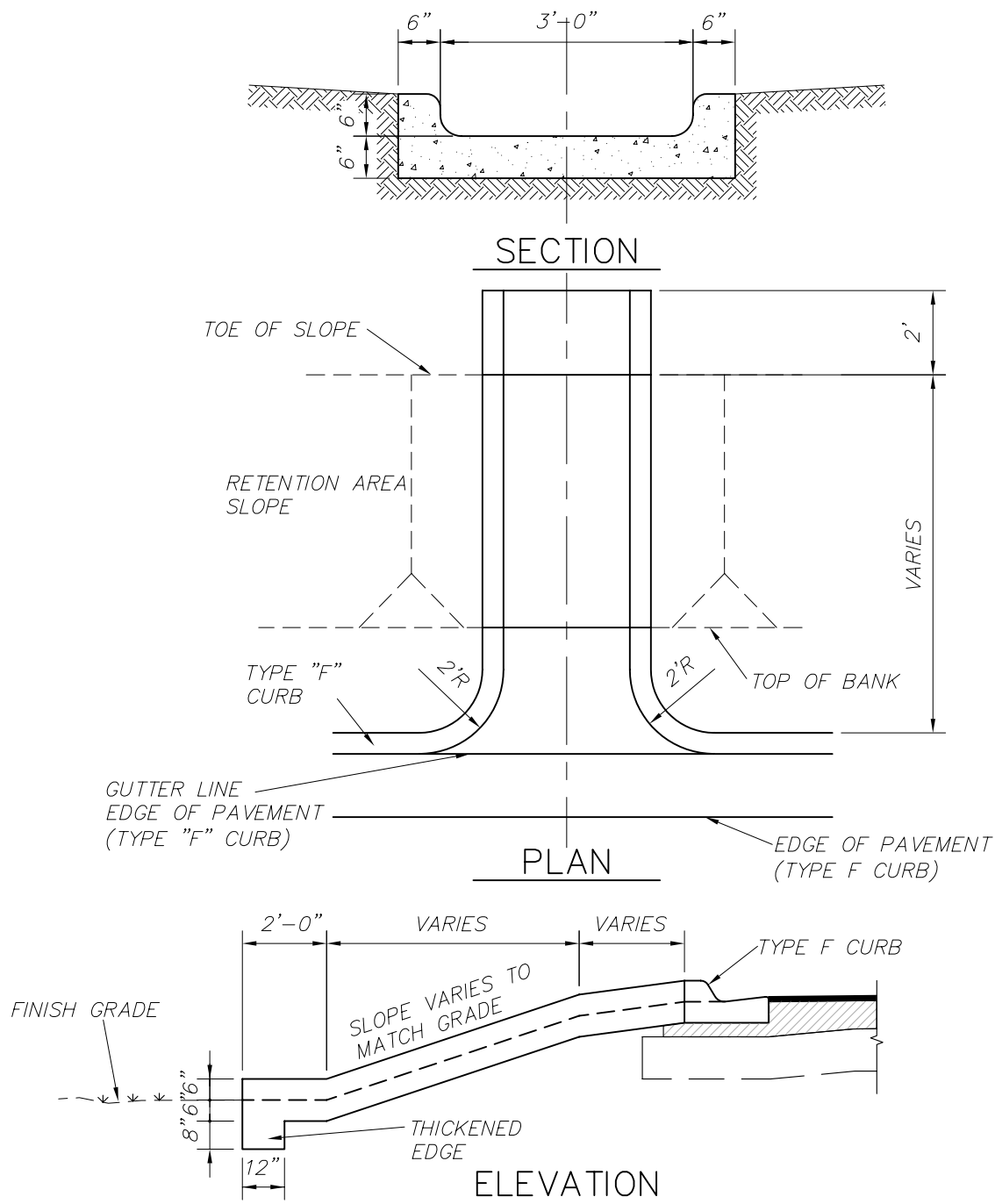
BITUMINOUS COATING REQUIRED FOR CMP
(ANY SUITABLE BITUMINOUS MATERIAL
MAY BE FIELD APPLIED) BITUMINOUS
COATING TO EXTEND 12" BEYOND
CONCRETE COLLAR

FLEXIBLE PIPE
(CORRUGATED STEEL,
CORRUGATED ALUMINUM OR
CORRUGATED POLYETHYLENE,
OR PVC)



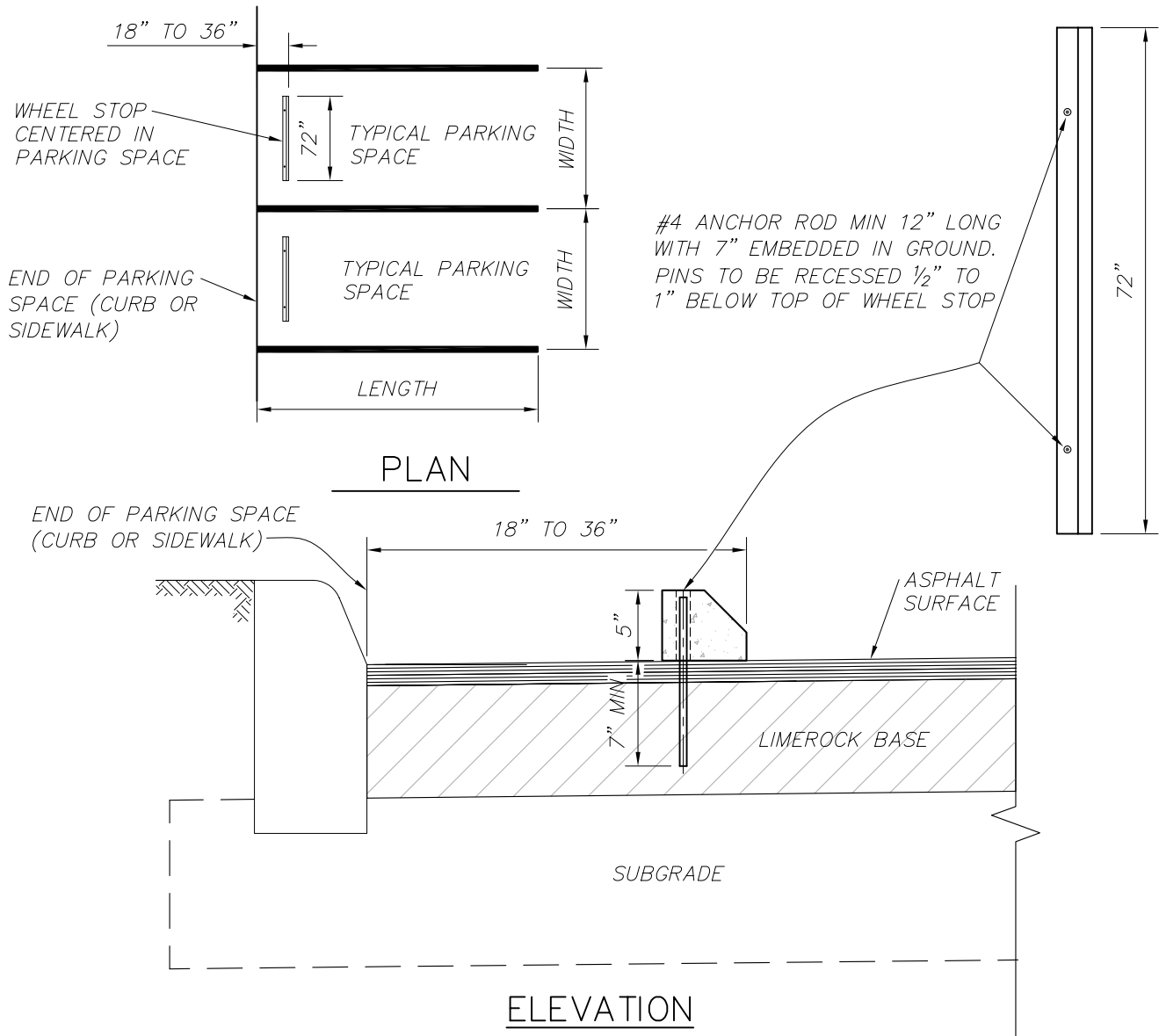
NOTES:

1. A CONCRETE JACKET SHALL NOT BE USED TO JOIN:
 - a) METAL PIPE OF DISSIMILAR MATERIALS.
 - b) FLEXIBLE PIPE WHEN THE MAXIMUM COVER REQUIRED IN ACCORDANCE WITH FDOT INDEX No. 205 CANNOT BE OBTAINED.
2. ALL FORMWORK SHALL BE REMOVED AFTER COMPLETION.
3. PREMANUFACTURED DISSIMILAR PIPE CONNECTIONS MAY BE USED – SHOP DRAWINGS ARE REQUIRED.



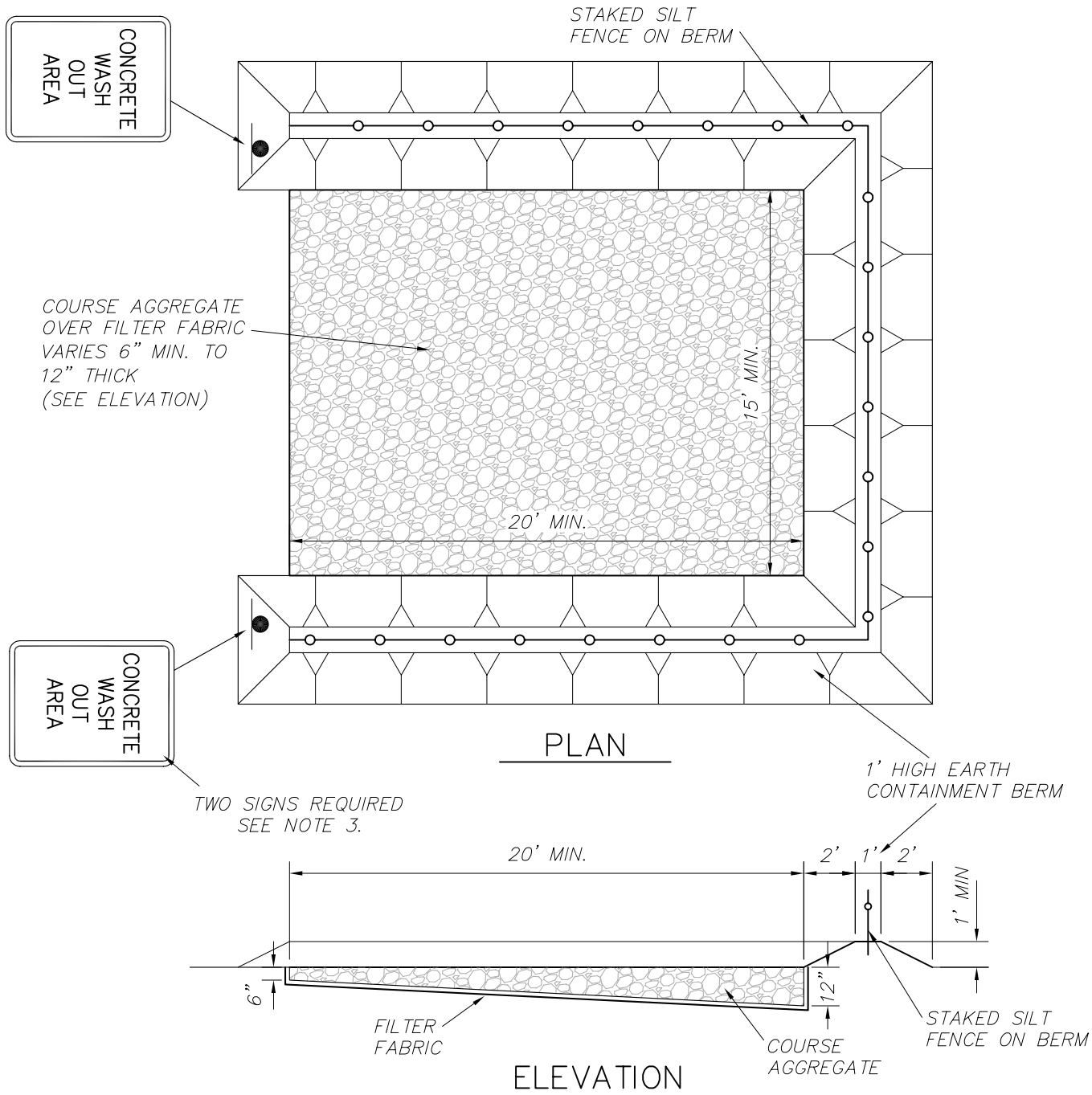
NOTES:

1. CONCRETE SHALL BE 3000 P.S.I. MIN. @ 28 DAYS. BROOM FINISH AND TOOL EDGES.
2. SLOPE OF FLUME SHALL MATCH EXISTING GROUND SLOPE OR 2% MINIMUM.
3. FLUME SHALL BE CONSTRUCTED ON A COMPACTED SUBGRADE.



NOTES:

1. WHEELSTOP SIZES MAY VARY DEPENDING ON MANUFACTURER.
2. WHEELSTOPS SHALL BE UNPAINTED OR PAINTED WHITE OR YELLOW EXCEPT AT HANDICAP SPACES WHICH SHALL IN ALL CASES BE UNPAINTED.
3. ANCHOR RODS SHALL BE MINIMUM OF #4 REBAR, 12" LONG WITH 7" MINIMUM EMBEDMENT.
4. IN PAVER AREAS THE ANCHOR RODS SHALL BE A MINIMUM OF 18" LONG. HOLES SHALL BE PRE-DRILLED.
5. WHEELSTOPS ARE REQUIRED ON ALL ANGLED PARKING SPACES (EXCEPT PARALLEL SPACES) AND ALL PARKING SPACES LESS THAN 20 FEET IN LENGTH.
6. DISTANCE FROM END OF PARKING TO FACE OF WHEELSTOP SHALL BE THE SAME THROUGHOUT THE PROJECT.



NOTES:

1. ALL MATERIAL SHALL BE REMOVED FROM THE SITE AT THE END OF THE PROJECT.
2. AGGREGATE SHALL BE REPLACED AS DIRECTED BY THE ENGINEER OF RECORD AND/OR THE CITY WHEN EXCESSIVE MATERIALS BUILDUP RENDERS THE WASH OUT AREA NO LONGER FUNCTIONAL.
3. SIGNS SHALL BE 18" X 12" MIN. SIZE WITH 2" BLACK LETTERING ON A WHITE BACKGROUND AND MOUNTED A MINIMUM OF 7 FEET ABOVE GRADE FROM THE LOWEST EDGE OF THE SIGN FACE.