GENERAL AND STREET DETAILS

WATER SYSTEM DETAILS

SEWER SYSTEM DETAILS

STORM SEWER DETAILS

TREE PLANTING DETAILS

STREET LIGHTING DETAILS

GENERAL AND STREET DETAILS

APPROVED FOR CONSTRUCTION

BY: _____ DATE: _____

CITY ENGINEER

BY: _____ DATE: _____

FIRE MARSHALL

The following note must be placed on the title sheet (first sheet) of all improvement plans submitted to the City of Whitefish Public Works Department. Prior to improvement plans being accepted as complete, the signed **RECORD DRAWINGS CERTIFICATE** will be required.

RECORD DRAWINGS CERTIFICATE

ALL INFORMATION SHOWN ON THESE PLANS HAS BEEN PREPARED BY OR UNDER DIRECTION OF, THE UNDERSIGNED ENGINEER. ADJUSTMENTS MADE IN THE FIELD DURING CONSTRUCTION ARE INCLUDED HEREIN AND ARE BASED UPON FIELD OBSERVATIONS MADE UNDER THE DIRECTION OF OR BY THE UNDERSIGNED **AND** CITY OF WHITEFISH WHEN THE ENGINEER IS ADVISED IN WRITING OF SUCH CHANGE. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR CHANGES TO THESE PLANS NOT AUTHORIZED BY THE ENGINEER.

_____ DATE

_____ ENGINEER SIGNATURE
(STAMP OR SEAL)

_____ DATE

_____ CONTRACTOR SIGNATURE

The following must be included in the lower right hand corner of all remaining sheets of a plan set. The date and initials of the responsible engineer shall be completed, as part of the **"RECORD DRAWINGS"** required as noted below.

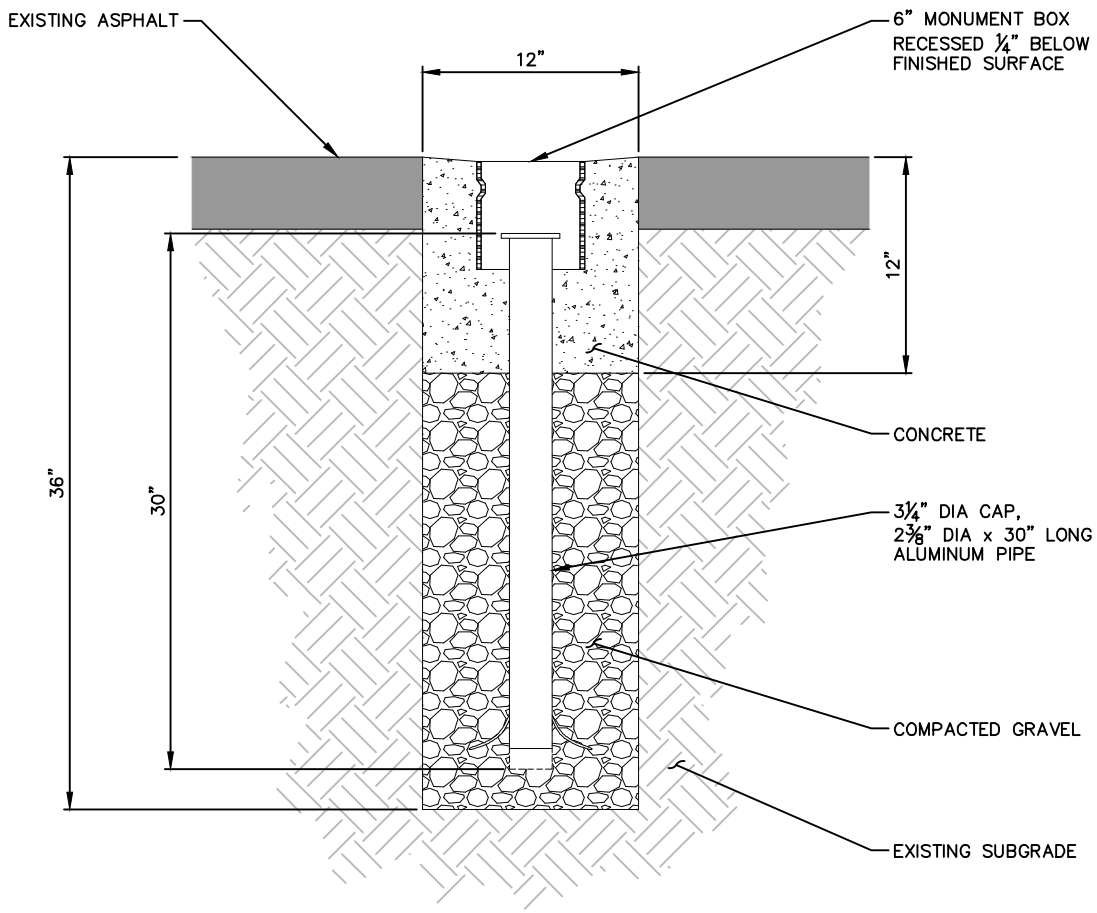
RECORD DRAWINGS

_____ DATE

_____ ENGINEER INITIAL

_____ DATE

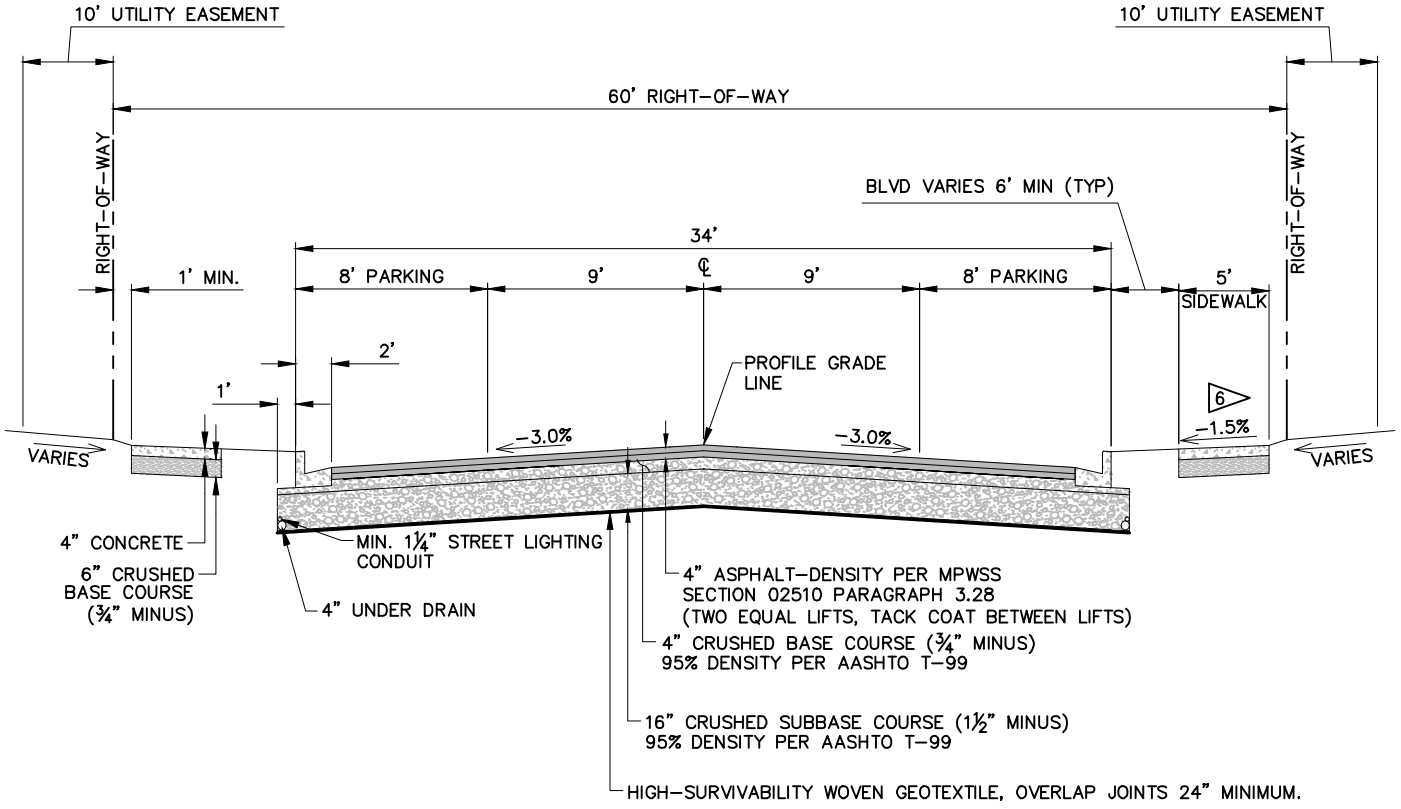
_____ CONTRACTOR INITIAL



SURVEY MONUMENT - PLACED IN ASPHALT
SCALE: NONE

NOTES:

1. MONUMENT BOX COVER SHALL STATE "MON" OR "SURVEY".



34 FT. TYPICAL ROADWAY SECTION

SCALE: NONE

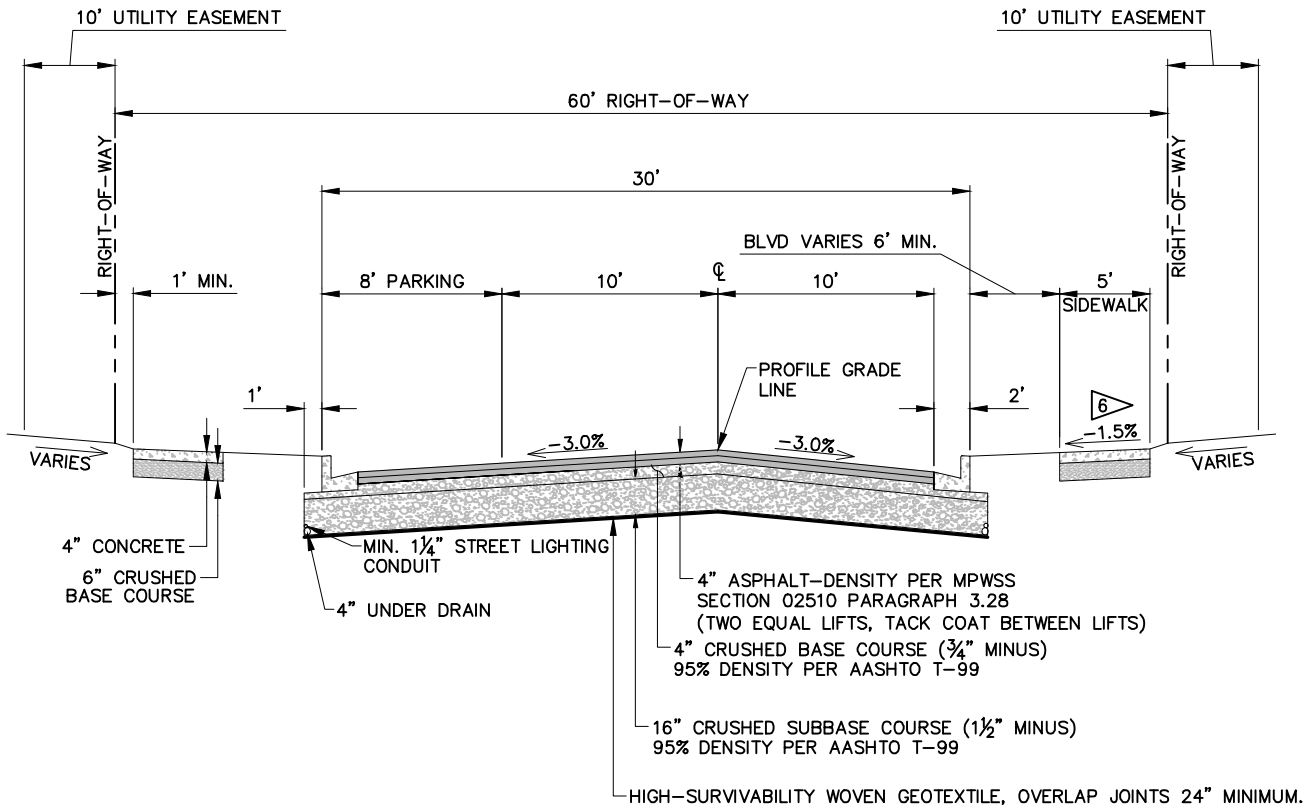
NOTES:

1. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
2. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
3. THE MAXIMUM GRADE SHALL BE 9%.
4. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.
5. UTILITY NOTE: NO UNDERGROUND UTILITIES SHALL BE PLACED IN THE BOULEVARD BETWEEN THE BACK OF CURB AND SIDEWALK, UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER, UNDER DRAIN AND STREET LIGHTING) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

6 -2.0% MAX (TYP).



30 FT. TYPICAL ROADWAY SECTION

SCALE: NONE

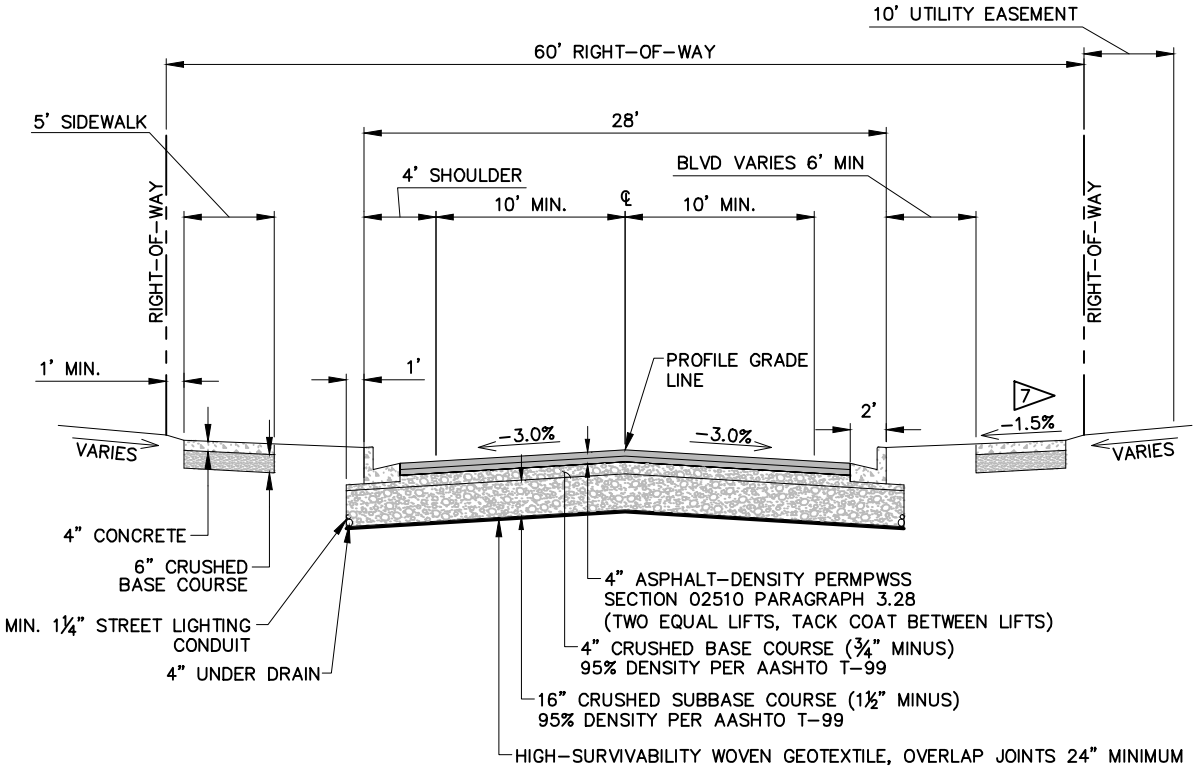
NOTES:

1. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
2. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
3. THE MAXIMUM GRADE SHALL BE 9%.
4. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.
5. UTILITY NOTE: NO UNDERGROUND UTILITIES SHALL BE PLACED IN THE BOULEVARD BETWEEN THE BACK OF CURB AND SIDEWALK, UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER, UNDER DRAIN AND STREET LIGHTING) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

6 -2.0% MAX (TYP).



28 FT. TYPICAL ROADWAY SECTION

SCALE: NONE

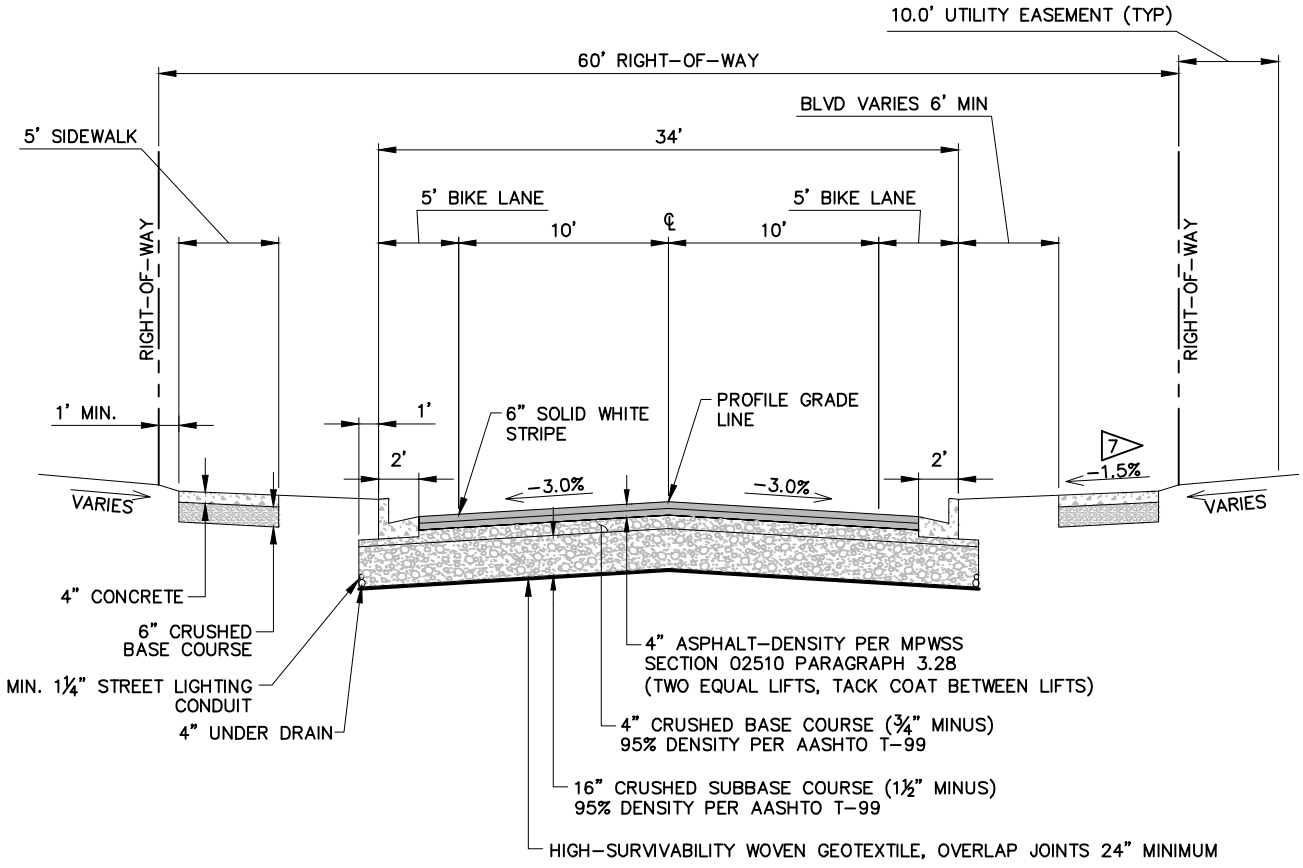
NOTES:

1. THE WIDTH OF PAVEMENT WILL DEPEND ON LOCAL CONDITIONS SUCH AS WIDTH OF EXISTING STREETS IN THE AREA, ANTICIPATED TRAFFIC VOLUME, PARKING REQUIREMENTS, FUTURE EXTENSIONS, ETC.
2. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
3. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
4. THE MAXIMUM GRADE SHALL BE 9%.
5. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.
6. UTILITY NOTE: NO UNDERGROUND UTILITIES SHALL BE PLACED IN THE BOULEVARD BETWEEN THE BACK OF CURB AND SIDEWALK, UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER, UNDER DRAIN AND STREET LIGHTING) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

7 -2.0% MAX (TYP).



34 FT. TYPICAL ROADWAY SECTION

SCALE: NONE

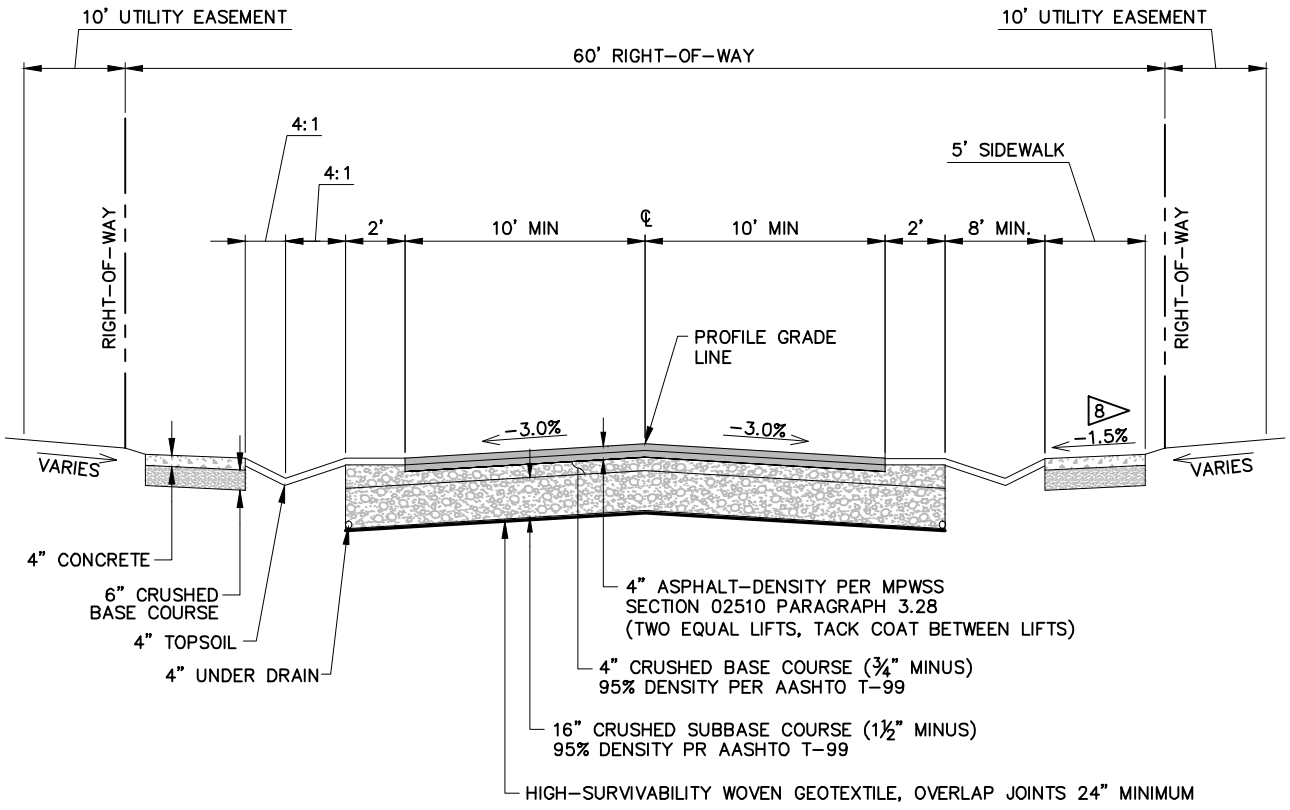
NOTES:

1. THE WIDTH OF PAVEMENT WILL DEPEND ON LOCAL CONDITIONS SUCH AS WIDTH OF EXISTING STREETS IN THE AREA, ANTICIPATED TRAFFIC VOLUME, PARKING REQUIREMENTS, FUTURE EXTENSIONS, ETC.
2. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
3. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
4. THE MAXIMUM GRADE SHALL BE 9%.
5. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.
6. UTILITY NOTE: NO UNDERGROUND UTILITIES SHALL BE PLACED IN THE BOULEVARD BETWEEN THE BACK OF CURB AND SIDEWALK, UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER, UNDER DRAIN AND STREET LIGHTING) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

7 -2.0% MAX (TYP).



24' RURAL ROADWAY SECTION (20' ASPHALT)

SCALE: NONE

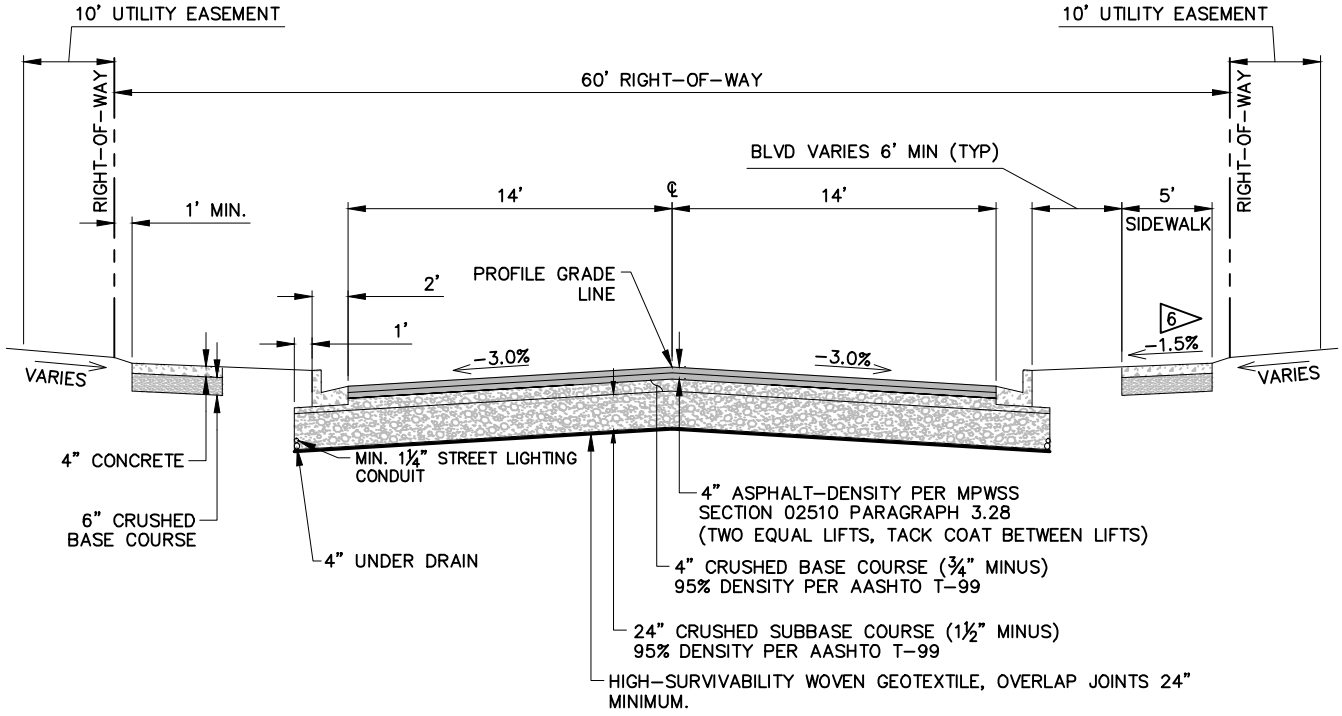
NOTES:

1. THIS CROSS-SECTION MAY BE USED ONLY WHEN THE AREA ADJACENT TO THE PROPOSED DEVELOPMENT DOES NOT HAVE CURBING OR ESTABLISHED STORM DRAINAGE SYSTEMS. THIS CROSS-SECTION MUST BE APPROVED BY THE PUBLIC WORKS DIRECTOR PRIOR TO INCORPORATING INTO THE DRAWINGS.
2. THE ASPHALT EDGE MUST BE THICKENED TO PREVENT CRACKING.
3. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
4. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
5. THE MAXIMUM GRADE SHALL BE 9%.
6. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.
7. UTILITY NOTE: NO UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER AND UNDER DRAIN) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

8 -2.0% MAX.



32 FT. TYPICAL ROADWAY SECTION

SCALE: NONE

NOTES:

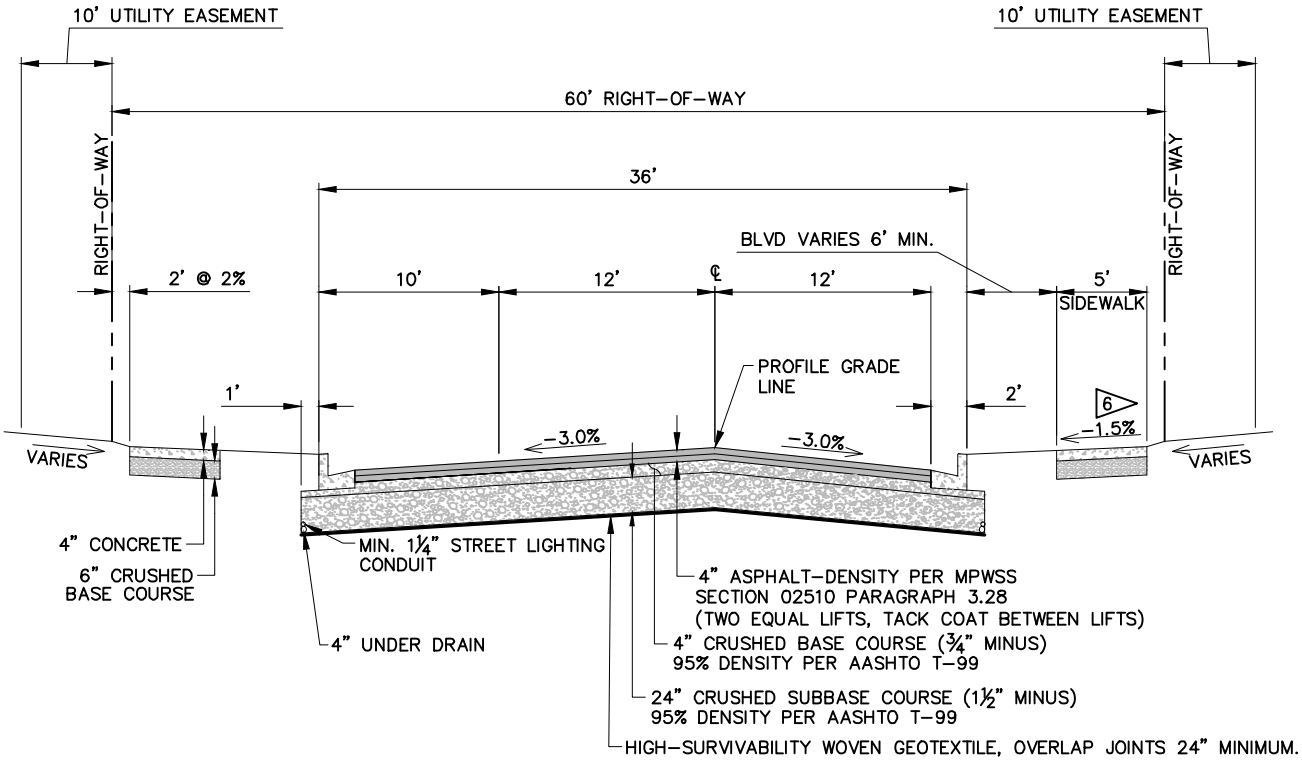
1. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
2. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
3. THE MAXIMUM GRADE SHALL BE 8%.
4. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.

5. UTILITY NOTE: NO UNDERGROUND UTILITIES SHALL BE PLACED IN THE BOULEVARD BETWEEN THE BACK OF CURB AND SIDEWALK, UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER, UNDER DRAIN AND STREET LIGHTING) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

6 -2.0% MAX.



36 FT. TYPICAL ROADWAY SECTION

SCALE: NONE

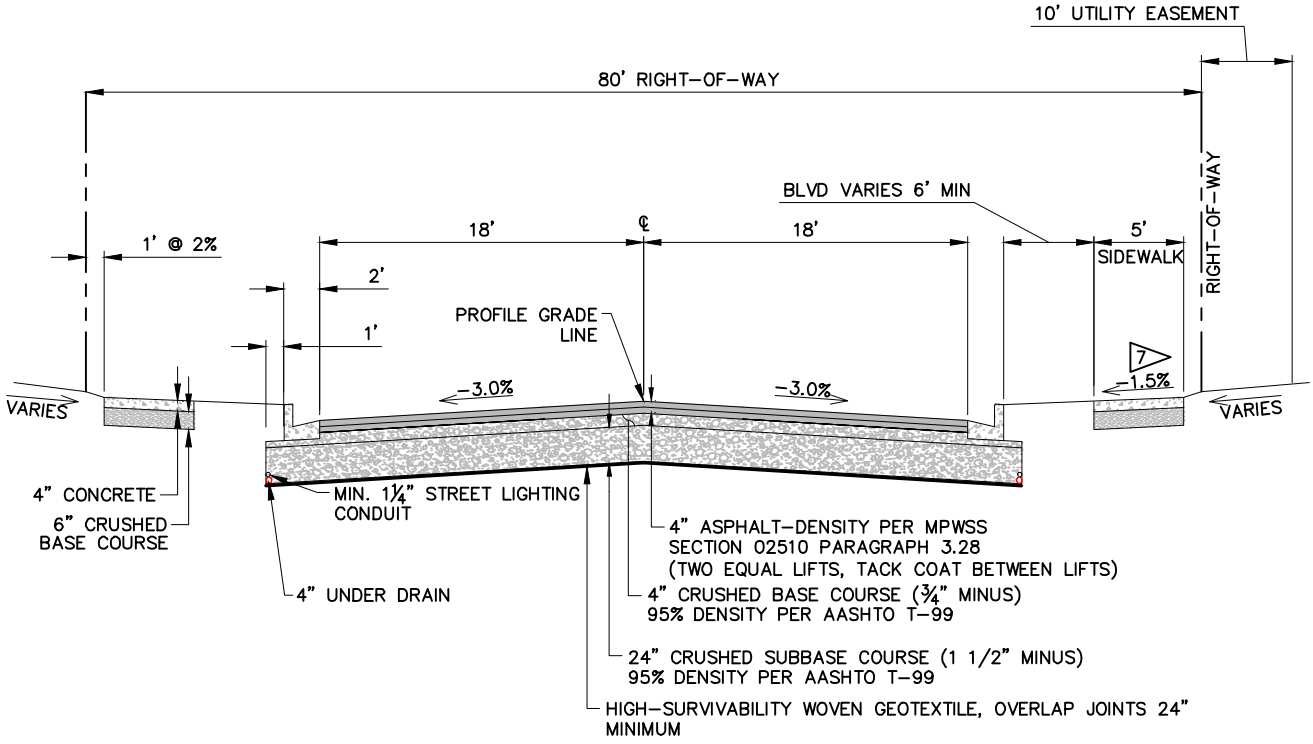
NOTES:

1. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
2. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
3. THE MAXIMUM GRADE SHALL BE 8%.
4. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.
5. UTILITY NOTE: NO UNDERGROUND UTILITIES SHALL BE PLACED IN THE BOULEVARD BETWEEN THE BACK OF CURB AND SIDEWALK, UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER, UNDER DRAIN AND STREET LIGHTING) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

6 -2.0% MAX.



40' ARTERIAL TYPICAL ROADWAY SECTION

SCALE: NONE

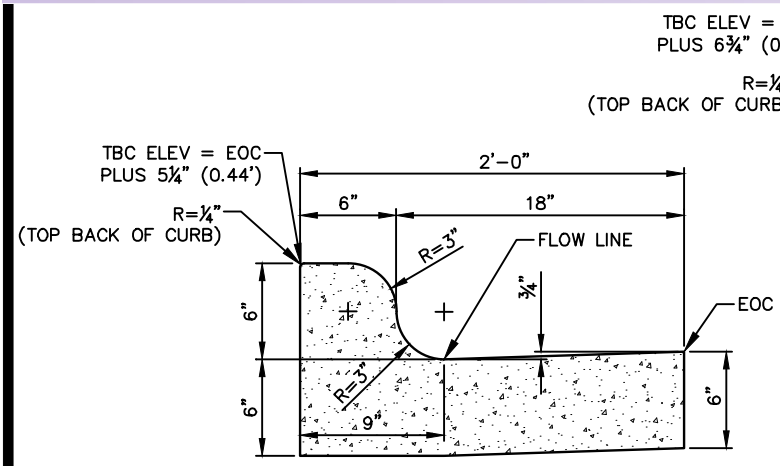
NOTES:

1. THE WIDTH OF THE RIGHT OF WAY MAY HAVE TO BE INCREASED DUE TO ROAD SLOPES, UTILITIES, TRAFFIC VOLUME OR OTHER REQUIREMENTS.
2. ALL TOPSOILED AREAS TO BE SEEDED OR SODDED.
3. THE MAXIMUM GRADE SHALL BE 6%.
4. THE CITY ENGINEER MAY REQUIRE THAT TRAFFIC LOAD AND SOIL ANALYSIS BE DONE AS PART OF STREET DESIGN PREPARED BY A PROFESSIONAL ENGINEER.
5. GEOTEXTILE SHALL BE MIRAFI 500x OR APPROVED EQUAL.

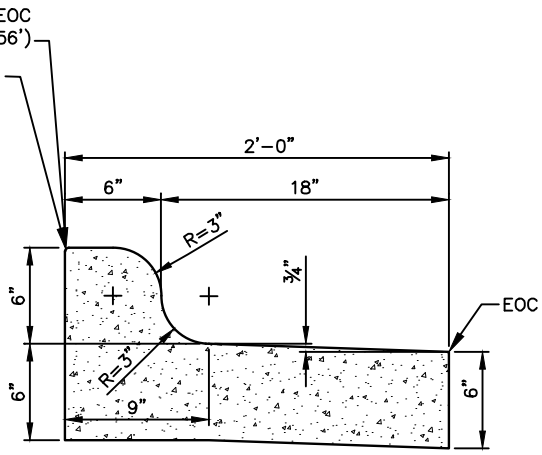
   GEOTEXTILE INSTALLATION:

   A. COMPACT SUBGRADE TO 95% PROCTOR.
   B. REMOVE ALL WRINKLES.
   C. DO NOT DRIVE OR OPERATE EQUIPMENT ON FABRIC.
6. UTILITY NOTE: NO UNDERGROUND UTILITIES SHALL BE PLACED IN THE BOULEVARD BETWEEN THE BACK OF CURB AND SIDEWALK, UNDERGROUND UTILITIES (OTHER THAN SEWER, WATER, STORM SEWER, UNDER DRAIN AND STREET LIGHTING) SHALL BE LOCATED BETWEEN BACK OF SIDEWALK AND THE EASEMENT LINE.

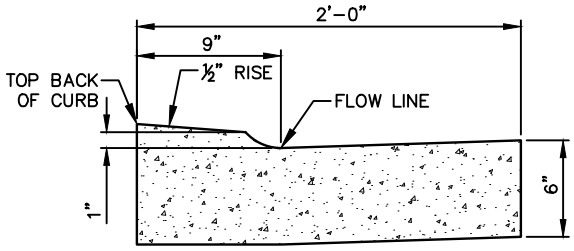
7 -2.0% MAX.



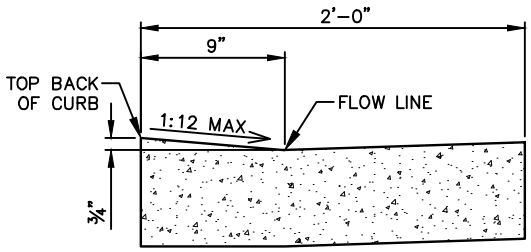
STANDARD "CATCH" CURB



STANDARD "SPILL" CURB



STANDARD DRIVEWAY LAYDOWN



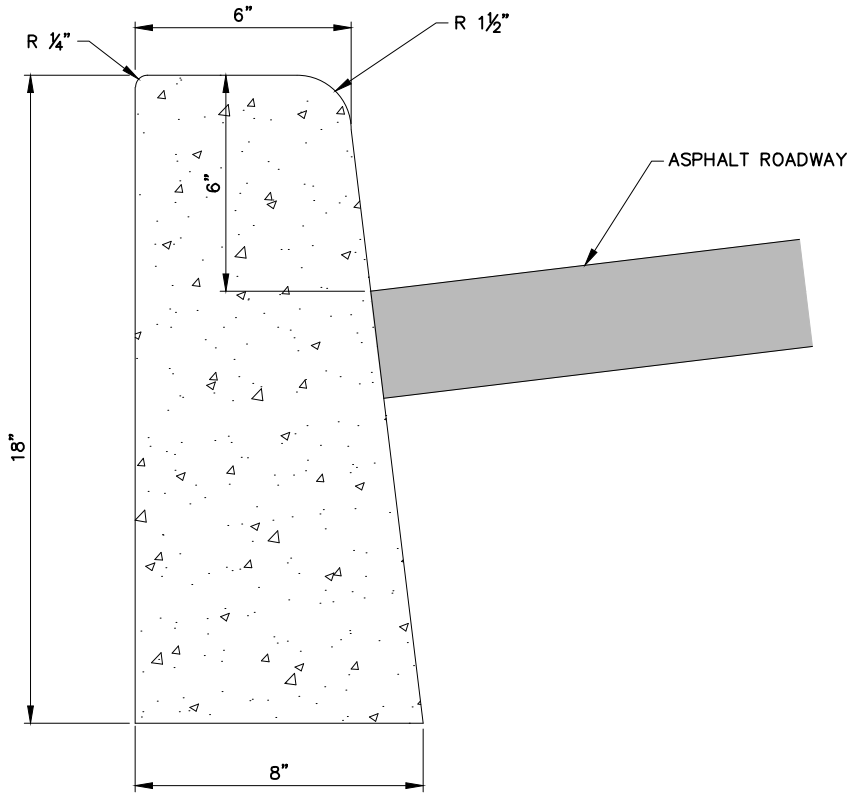
STANDARD ACCESSIBLE RAMP LAYDOWN

STANDARD CURB AND GUTTER

SCALE: NONE

NOTES:

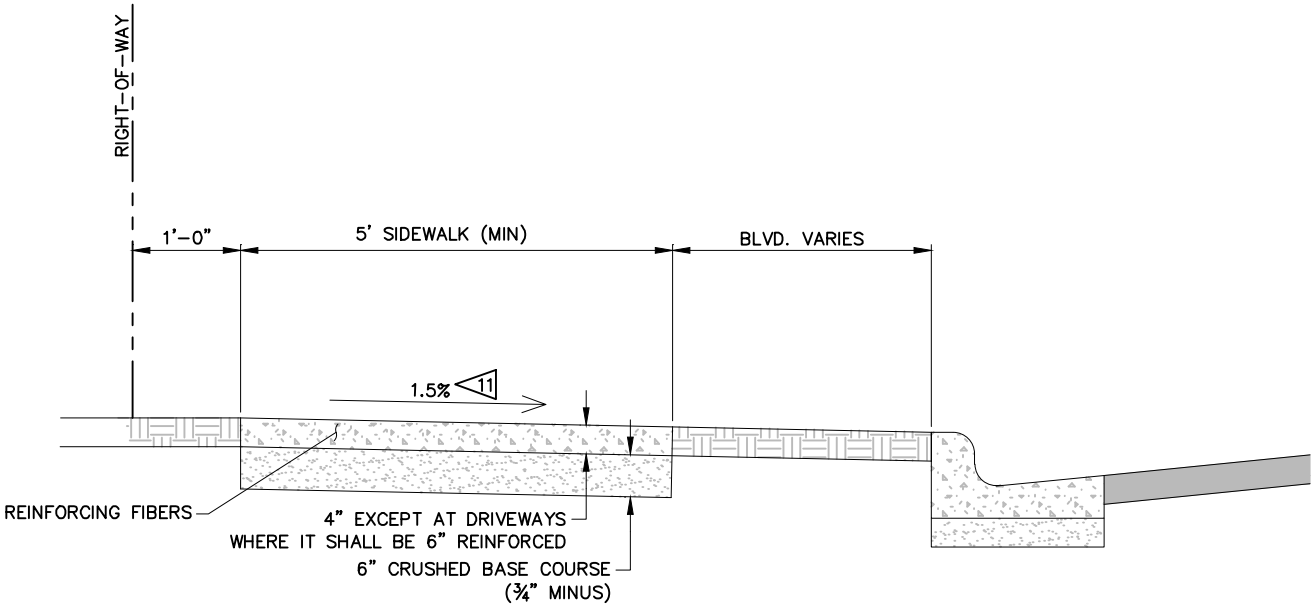
1. EXPANSION AND CONTRACTION JOINTS SHALL BE PLACED IN ACCORDANCE WITH MPWSS 02528.
2. ½" EXPANSION JOINT MATERIAL SHALL BE PLACED AT THE P.C.
3. CONTRACTION JOINT SHALL BE PLACED AT EVERY 15' OF CURB LENGTH AND SHALL HAVE A MINIMUM DEPTH OF ¾" AND MINIMUM WIDTH OF ⅛". CONTRACTION JOINTS SHALL BE CONSTRUCTED BY SAWING OR SCORING. A TOOL SHALL BE USED WHICH WILL LEAVE CORNERS ROUNDED AND DESTROY AGGREGATE INTERLOCK FOR THE SPECIFIED MINIMUM DEPTH.
4. VISIBLE EDGES SHALL BE FINISHED TO A RADIUS OF ¼", UNLESS OTHERWISE NOTED.
5. GRADE, ALIGNMENT AND FORMS SHALL BE INSPECTED BY THE CITY PRIOR TO POURING.
6. CONCRETE SHALL BE M-4000 WITH ¾" MAXIMUM AGGREGATE AND A 28-DAY STRENGTH OF 4000 PSI, 5% TO 8% AIR CONTENT WITH A MAXIMUM SLUMP OF 4".
7. CONCRETE SHALL INCLUDE THE USE OF FIBER MESH (0.75 POUNDS PER CUBIC YARD OF CONCRETE).
8. INDIVIDUAL CONTRACTORS FORMS MAY VARY SLIGHTLY FROM THIS PATTERN. PATTERNS WHICH ACHIEVE ESSENTIALLY THE SAME RESULT AS THE ABOVE PATTERN MAY BE APPROVED BY THE CITY.
9. FOUR INCHES OF BASE MATERIAL IS REQUIRED. BASE MATERIAL SHALL BE ¾" CRUSHED BASE COURSE COMPACTED TO 95% PER AASHTO T-99.



STRAIGHT CURB
SCALE: NONE

NOTES:

1. ½" EXPANSION JOINT MATERIAL SHALL BE PLACED AT THE P.C.
2. CONTRACTION JOINT SHALL BE PLACED AT EVERY 15' OF CURB LENGTH AND SHALL HAVE A MINIMUM DEPTH OF ¾" AND MINIMUM WIDTH OF ⅛". CONTRACTION JOINTS SHALL BE CONSTRUCTED BY SAWING OR SCORING. A TOOL SHALL BE USED WHICH WILL LEAVE CORNERS ROUNDED AND DESTROY AGGREGATE INTERLOCK FOR THE SPECIFIED MINIMUM DEPTH.
3. GRADE, ALIGNMENT AND FORMS SHALL BE INSPECTED BY THE CITY PRIOR TO POURING.
4. CONCRETE SHALL BE M–4000 WITH ¾" MAXIMUM AGGREGATE AND A 28–DAY STRENGTH OF 4000 PSI, 5% TO 8% AIR CONTENT WITH A MAXIMUM SLUMP OF FOUR (4) INCHES.
5. CONCRETE SHALL INCLUDE THE USE OF FIBER MESH (0.75 POUNDS PER CUBIC YARD OF CONCRETE).
6. INDIVIDUAL CONTRACTORS FORMS MAY VARY SLIGHTLY FROM THIS PATTERN. PATTERNS WHICH ACHIEVE ESSENTIALLY THE SAME RESULT AS THE ABOVE PATTERN MAY BE APPROVED BY THE CITY.
7. FOUR INCHES OF CRUSHED BASE COURSE MATERIAL IS REQUIRED. BASE MATERIAL SHALL BE ¾" CRUSHED GRAVEL COMPACTED TO 95% PER AASHTO T–99.
8. USE OF STRAIGHT CURB IS RESTRICTED TO SPECIFIC APPLICATION AND SHALL REQUIRE PRIOR APPROVAL FROM THE CITY ENGINEER.



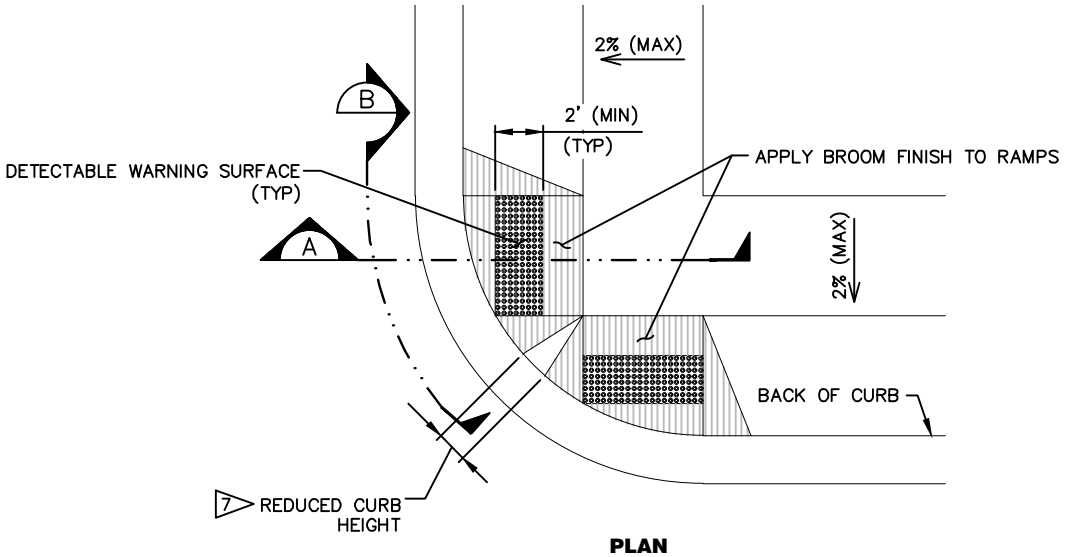
STANDARD SIDEWALK

SCALE: NONE

NOTES:

1. CONCRETE SHALL BE M-4000 WITH ¾" MAXIMUM AGGREGATE AND A 28-DAY STRENGTH OF 4000 PSI, 5% TO 8% AIR CONTENT WITH A MAXIMUM SLUMP OF FOUR (4) INCHES.
2. CONCRETE SHALL INCLUDE 0.75 POUNDS OF REINFORCING FIBERS PER CUBIC YARD.
3. CONTRACTION JOINTS SHALL BE SPACED THE SAME DIMENSION AS THE WIDTH BUT NOT EXCEED 6 FEET EACH WAY. CONTRACTION JOINTS SHALL BE CONSTRUCTED BY SAWING OR SCORING. A TOOL SHALL BE USED WHICH WILL LEAVE CORNERS ROUNDED AND DESTROY AGGREGATE INTERLOCK FOR THE SPECIFIED MINIMUM DEPTH. CONTRACTION JOINTS SHALL BE A MINIMUM OF ¼ OF THE TOTAL DEPTH OF THE CONCRETE.
4. ALL SIDEWALKS GREATER THAN SIX FEET IN WIDTH SHALL BE SAWCUT LENGTHWISE DOWN THE CENTER A MINIMUM OF ¼ THE TOTAL DEPTH OF THE CONCRETE.
5. EXPANSION JOINTS, USING ½" MATERIAL SHALL BE SPACED AT INTERVALS OF 45' MAXIMUM.
6. ALL EDGES AND JOINTS SHALL BE ROUNDED WITH AN EDGING TOOL OF A MINIMUM ¼" RADIUS.
7. SIX INCHES OF BASE MATERIAL IS REQUIRED. BASE MATERIAL SHALL BE ¾" CRUSHED BASE COURSE COMPACTED TO 95% PER AASHTO, T-99, OR SAND THOROUGHLY COMPACTED IN PLACE.
8. GRADE, ALIGNMENT AND FORMS SHALL BE INSPECTED BY THE CITY OR THEIR DESIGNATED INSPECTOR PRIOR TO POURING.
9. ALL CONCRETE DRIVEWAY SECTIONS SHALL BE 6" THICK WITH REINFORCEMENT. (SEE DRIVEWAY APPROACH DETAIL SD-15)
10. ALL COLD JOINTS SHALL HAVE SMOOTH DOWEL BARS PLACED IN BOTTOM ⅓ OF CONCRETE AT 18" O.C. EACH WAY AND 6" FROM EDGES, OR KEY WAYS INSTALLED TO PREVENT VERTICAL SEPARATION.

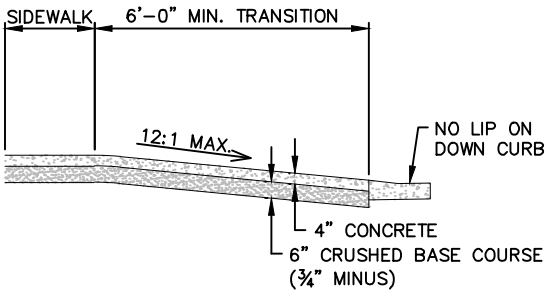
11 2.0% MAX.



PLAN

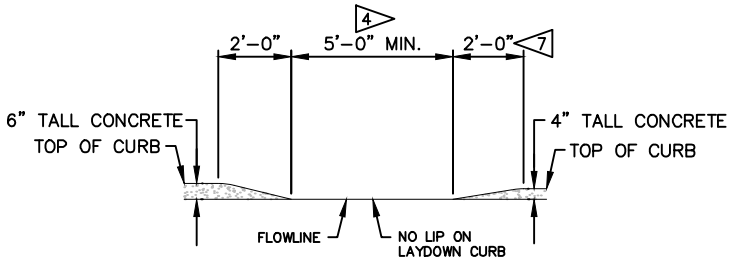
PEDESTRIAN RAMPS

SCALE: NONE



SECTION "A"

SCALE: NONE



SECTION "B"

SCALE: NONE

NOTES:

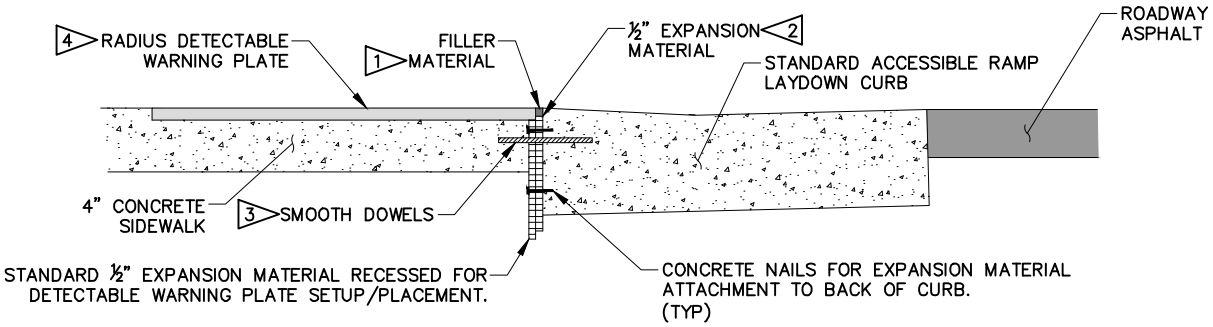
1. RAMP SLOPE SHALL NOT BE STEEPER THAN 12:1.
2. SIDEWALK CROSS-SLOPES SHALL NOT EXCEED 2%.
3. BEGIN RAMP SLOPE AT FLOWLINE OF GUTTER.

4 VARIES WITH CURB RETURN RADIUS.

5. APPLY BROOM FINISH TO RAMPS AS SHOWN ABOVE
6. SEE MPWSS 02529 FOR JOINT REQUIREMENTS.

7 TRANSITION TO 4" TALL CURB BETWEEN PEDESTRIAN RAMPS, UNLESS INLET IS INSTALLED.

8. CURB RAMPS MUST HAVE A DETECTABLE WARNING FEATURE EXTENDING THE FULL WIDTH OF THE RAMP. THE DETECTABLE SURFACE MUST CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES, A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES AND BE AT LEAST 2' IN WIDTH. THE TEXTURE AND COLOR OF THE DETECTABLE WARNING FEATURE MUST CONTRAST WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON DARK OR DARK-ON-LIGHT).

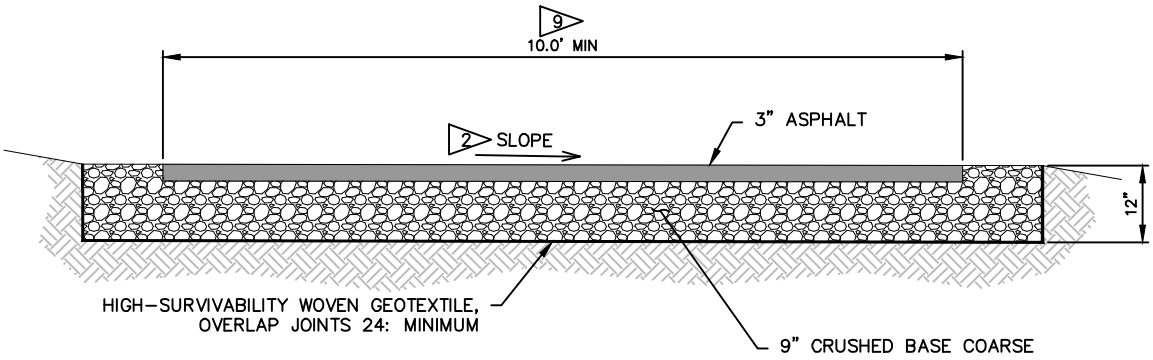


RADIUS DETECTABLE WARNING INSTALLATION

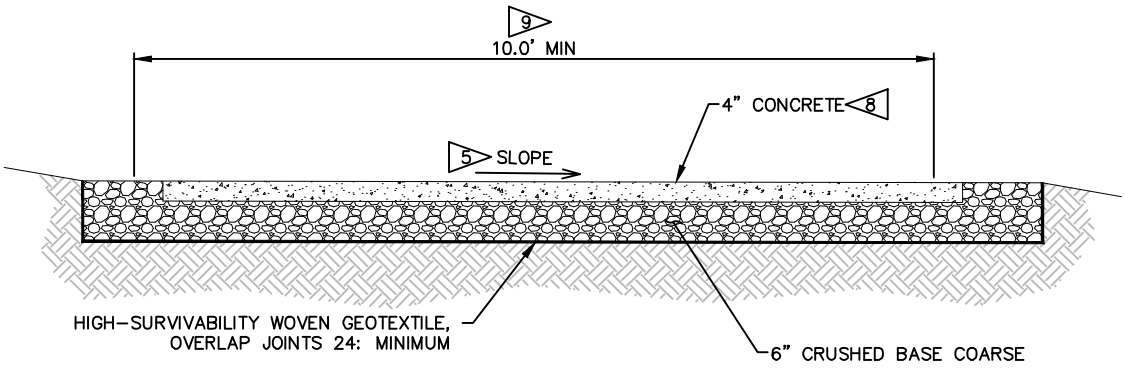
SCALE: NONE

NOTES:

1. CONTRACTOR SHALL FILL WITH BASF, SONOLASTIC NP1, GUN GRADE POLYURETHANE SEALANT, OR APPROVED EQUAL.
2. ½" EXPANSION MATERIAL SHALL BE "POLYFOAM–LIGHTWIGHT FLEXIBLE FOAM EXPANSION JOINT", OR APPROVED EQUAL. TOP ½" PORTION OF THE JOINT MATERIAL SHALL BE REMOVABLE.
3. INSTALL 12" LONG SMOOTH BAR DOWELS (½" DIA) AT CONCRETE CONNECTION (2' OC).
4. EAST JORDAN IRON WORKS, DURACAST RADIAL DETECTABLE WARNING PLATE, GRAY IRON, OR APPROVED EQUAL.



ASPHALT



CONCRETE

BIKE PATH

SCALE: NONE

NOTES:

1. BIKE PATHS SHALL BE DESIGNED TO SUPPORT A MINIMUM 12,500 POUNDS.

2. ASPHALT PATHS SHALL BE A MINIMUM OF 10 FEET WITH A CROSS SLOPE OF 1.5% (2.0% MAX) AND A 1 FOOT WIDE GRAVEL BORDER ALONG EACH EDGE.

3. PATH BED SHALL CONSIST OF A MINIMUM 9 INCHES OF CRUSHED GRAVEL COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T99, UNLESS OTHERWISE DICTATED BY SUB-SOIL TYPE MATERIALS BEING COMPACTED TO ROAD STANDARD.

4. THE OVERLAY SHALL CONSIST OF 3 INCHES OF ASPHALT COMPACTED TO 93% OF MAXIMUM DENSITY, AS DETERMINED BY ASTM D-2041. CONSTRUCTION SEAL SHALL BE APPLIED AT 0.08 GALLONS/SQUARE YARD AFTER INSTALLATION.

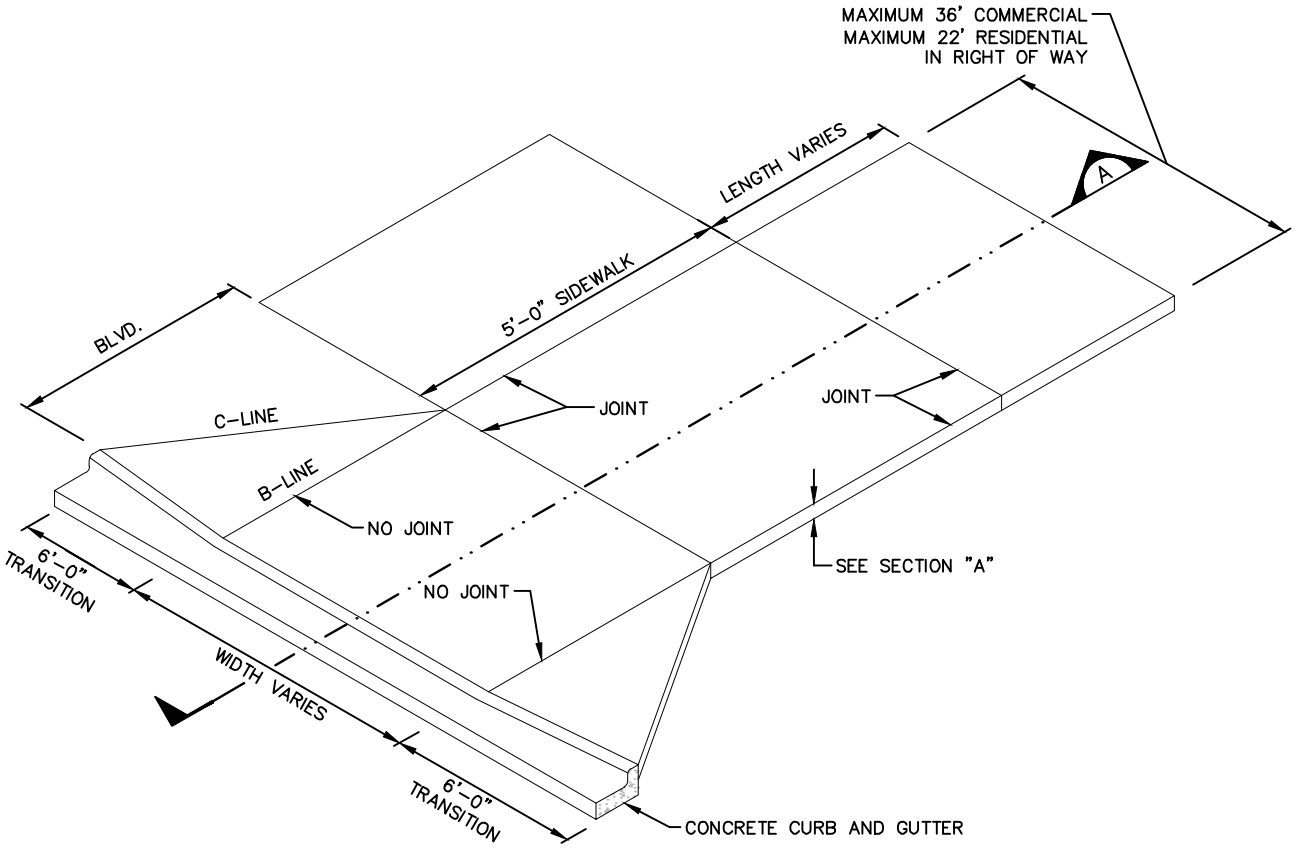
5. CONCRETE PATHS SHALL BE A MINIMUM OF 10 FEET WITH A CROSS SLOPE OF 1.5% (2.0% MAX).

6. PATH BASE SHALL CONSIST OF A MINIMUM OF 6 INCHES OF CRUSHED GRAVEL COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99. CONCRETE SHALL BE A MINIMUM OF 4 INCHES OF M4000 REINFORCED WITH 1.5 lbs. PER CUBIC YARD OF FIBER MESH.

7. WHERE TERRAIN ALLOWS, SLOPE OF THE PATH SHOULD NOT EXCEED 12:1.

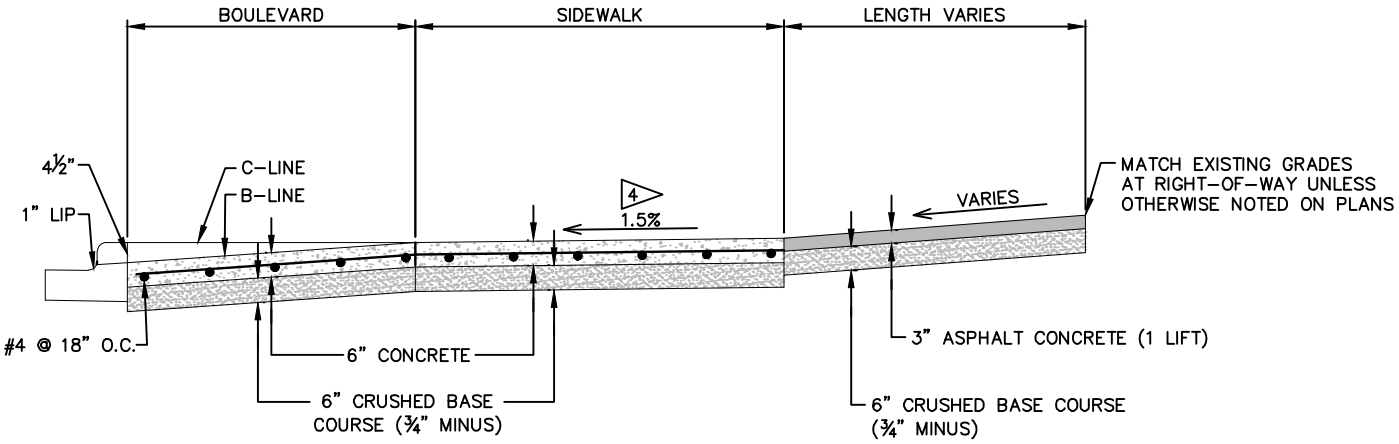
8. PROVIDE 6 INCHES OF CONCRETE WITH REINFORCEMENT AT DRIVEWAY APPROACH.

9. WHEN CONSTRUCTED THROUGH WATER QUALITY PROTECTION AREA THE MINIMUM WIDTH MAY BE REDUCED TO 8 FEET.



DRIVEWAY APPROACH

SCALE: NONE



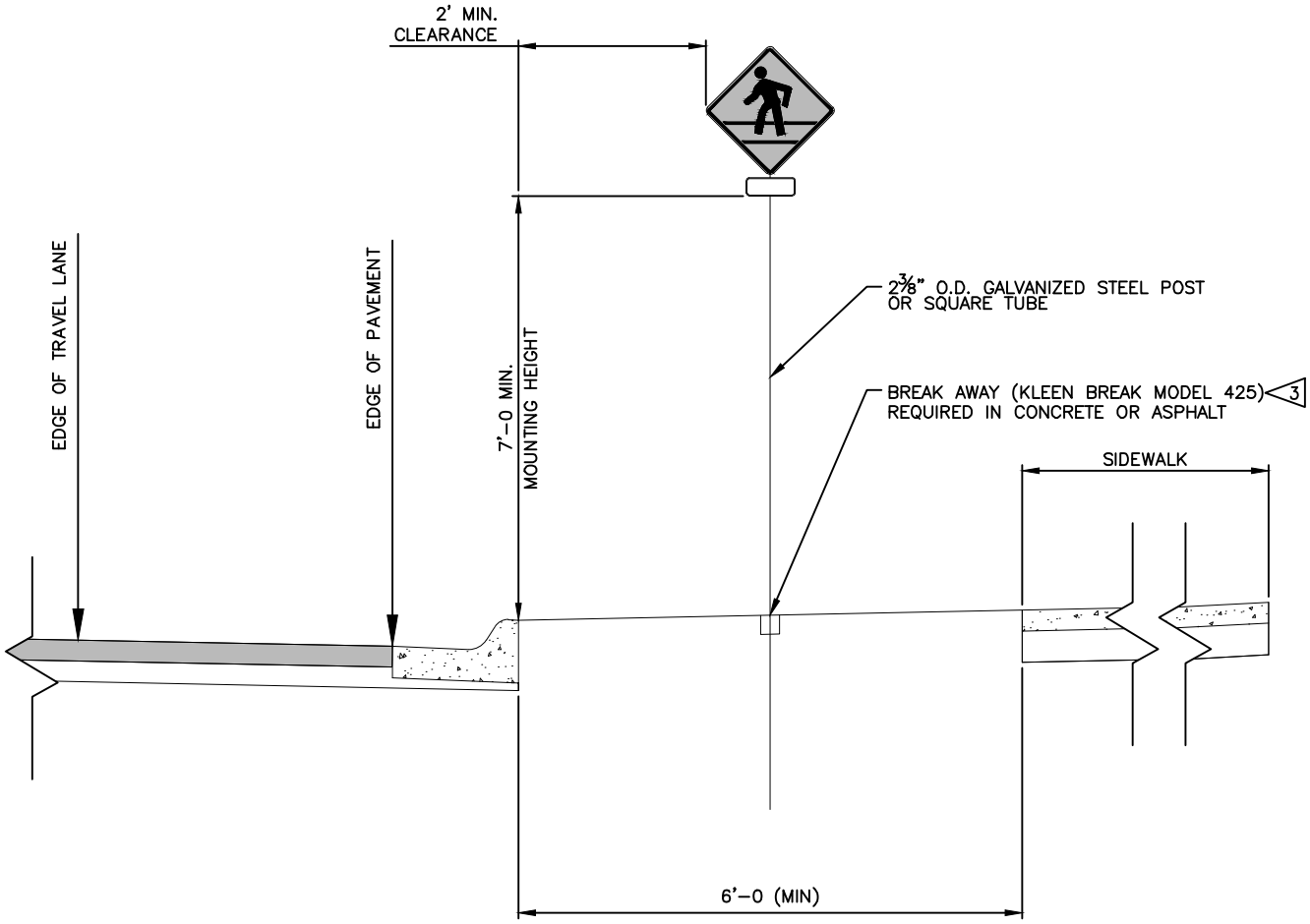
SECTION "A"

SCALE: NONE

NOTES:

1. PLACE #4 REBAR @ 18" O.C. SUPPORTED BY 2" TALL CHAIRS IN ALL 6" CONCRETE.
2. SEE MPWSS 02529 FOR JOINT REQUIREMENTS.
3. CONCRETE SHALL INCLUDE THE USE OF FIBER MESH (0.75 POUNDS PER CUBIC YARD OF CONCRETE).

4 > 2.0% MAX.



TYPICAL SIGN PLACEMENT

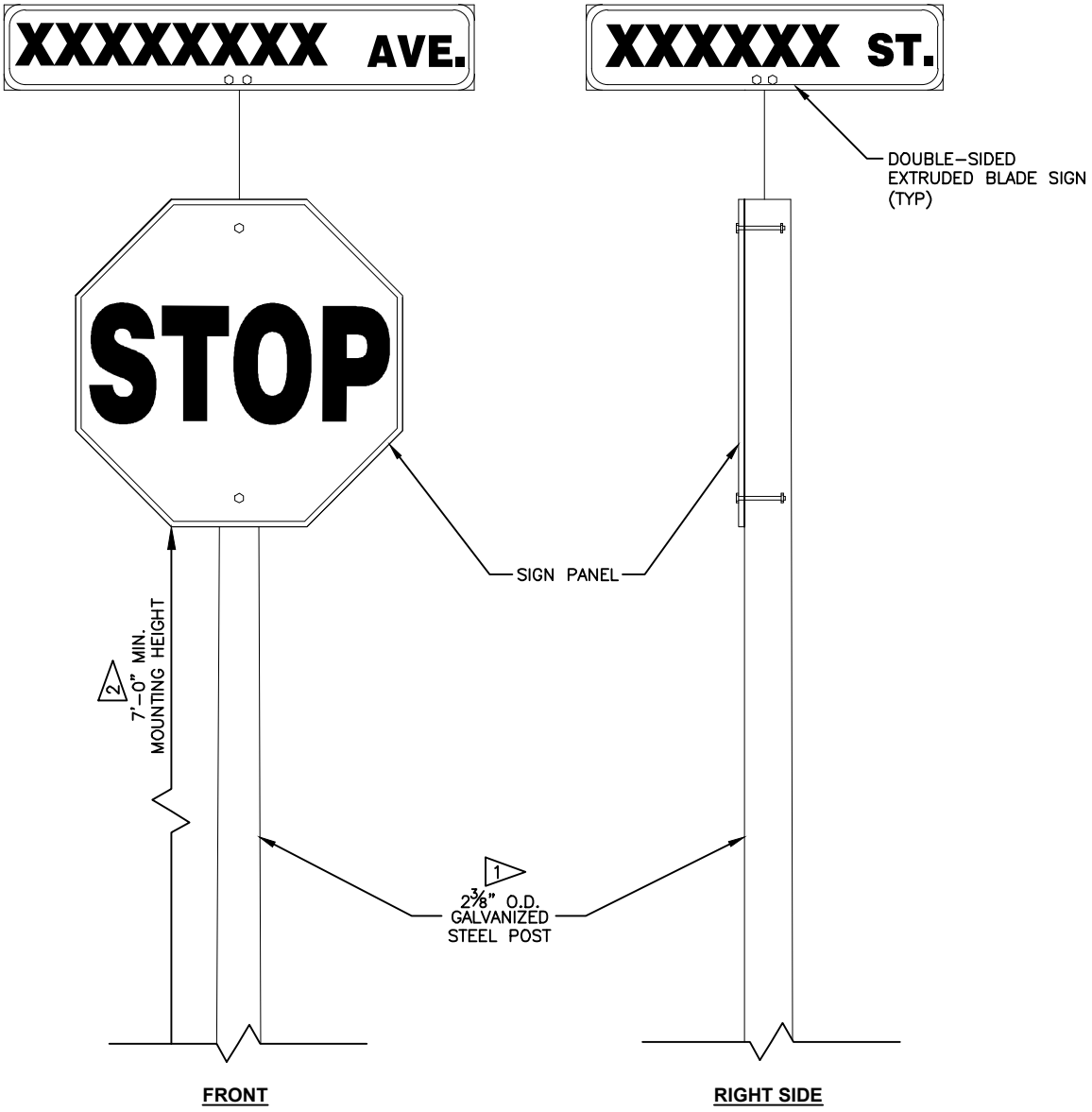
SCALE: NONE

NOTES:

1. PLACE STOP SIGNS ADJACENT TO STOP BARS.
2. PLACE ALL SIGNS AT SPECIFIED CLEARANCES.

3 WHEN STEEL POST IS INSTALLED IN DIRT CONTRACTOR SHALL USE V-LOC 23-VR4 (034-00113), OR APPROVED EQUAL. WHEN STEEL POST IS INSTALLED IN CONCRETE CONTRACTOR SHALL USE V-LOC 20-VR1, OR APPROVED EQUAL. INSTALL PER MANUFACTURE'S RECOMMENDATIONS.

1. ALL SIGN BLANKS SHALL BE .080 GAUGE FLAT ALUMINUM STOCK.
2. STOP SIGN FACES SHALL BE 3M HIGH INTENSITY GRADE REFLECTIVE SHEETING, OR APPROVED EQUAL.
3. ALL SIGN MATERIALS AND CONSTRUCTION PROCEDURES SHALL CONFORM TO THE 'STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION,' 1995 EDITION, DISTRIBUTED BY THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT).
4. UNIFORM MANUAL NUMBERS ARE REFERENCED TO THE 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' BY THE FEDERAL HIGHWAYS ADMINISTRATION.

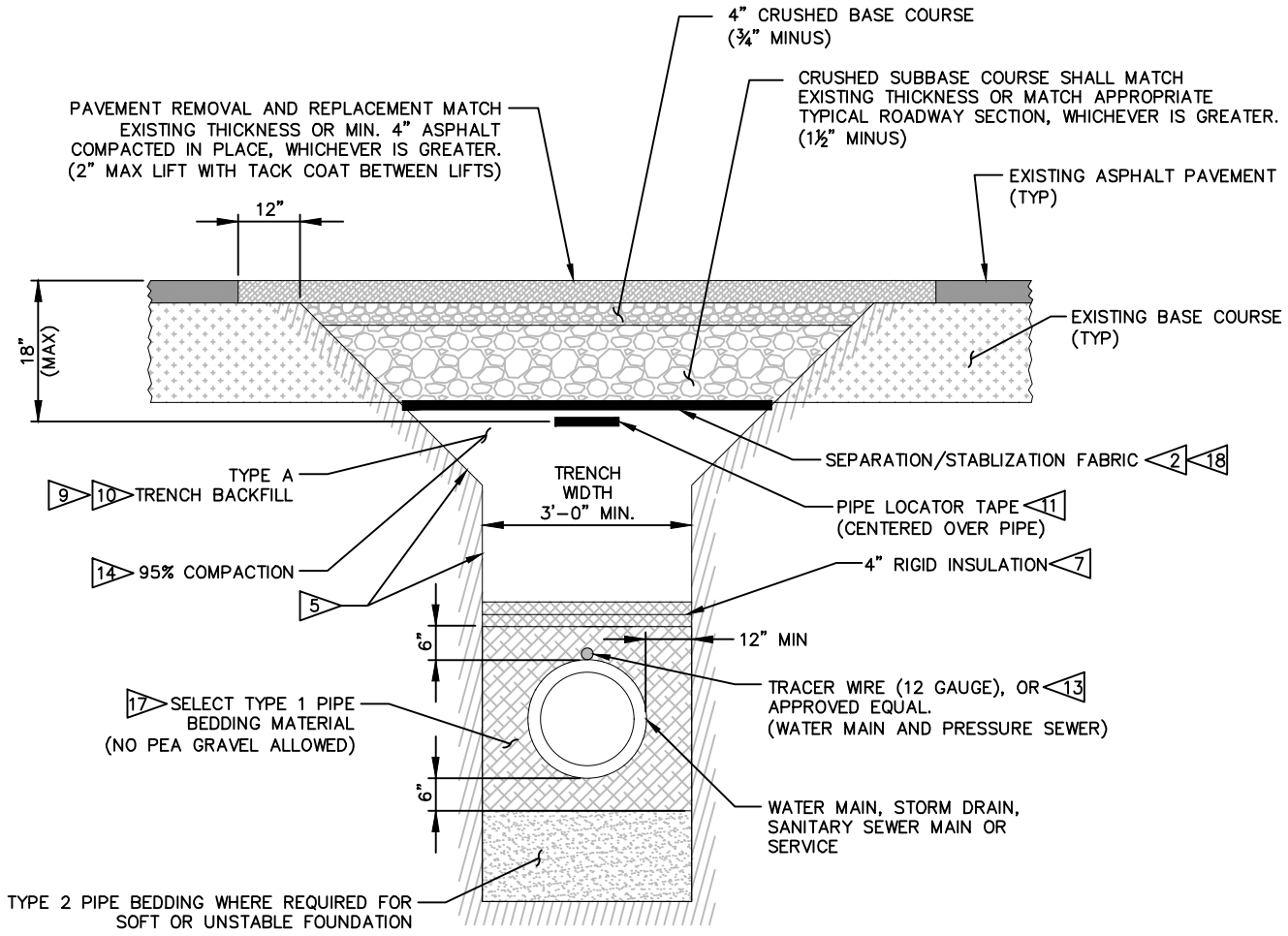


TYPICAL D-3 SIGN MOUNTING

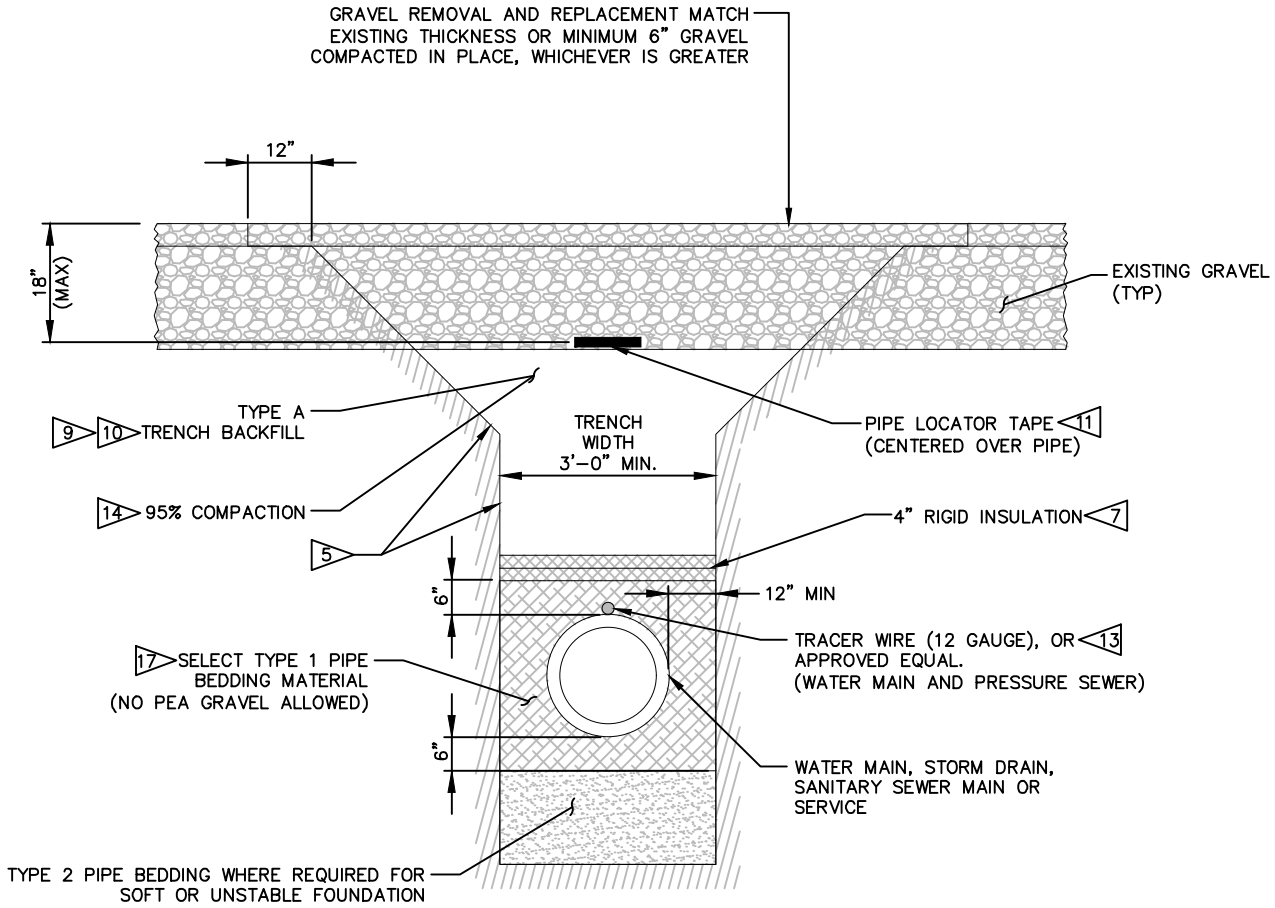
SCALE: NONE

SIGN SPECIFICATIONS:

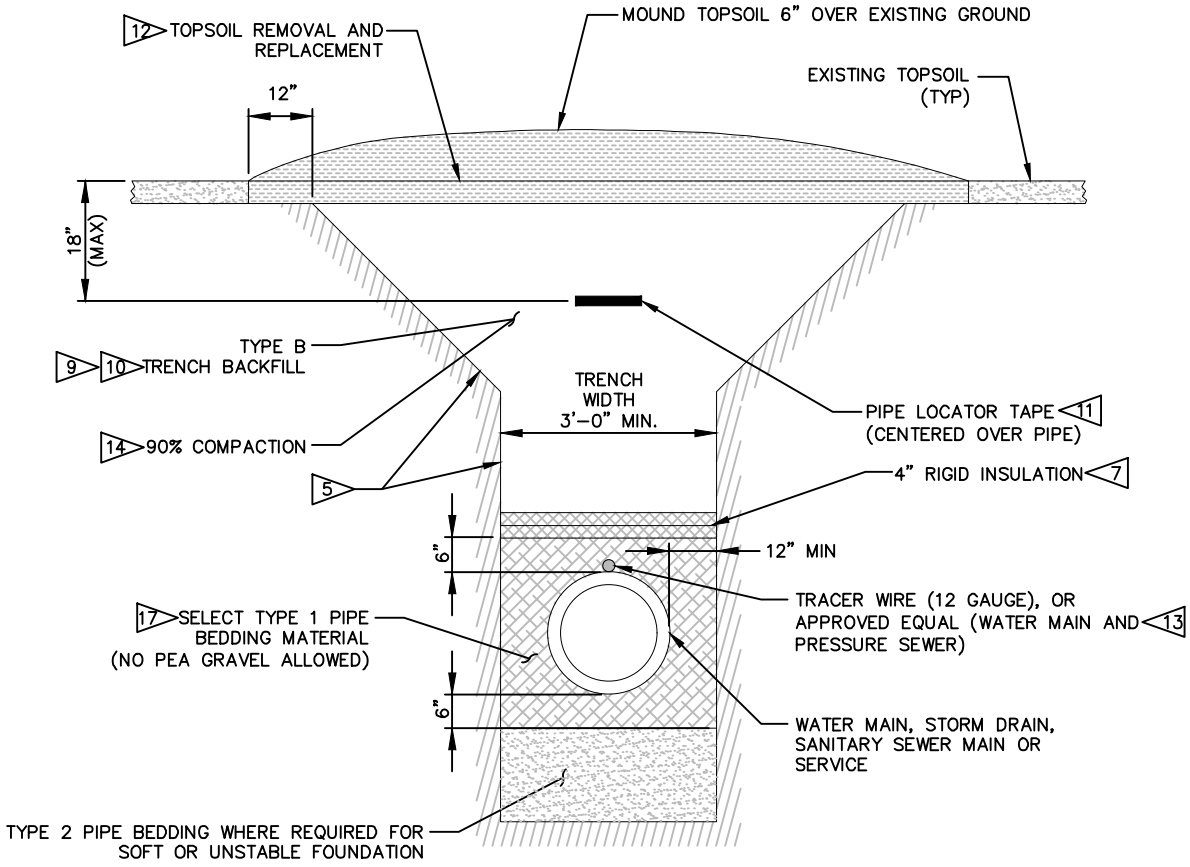
1. THESE POSTS SHALL INCLUDE 3⅛" WIDE RED/FLORESCENT YELLOW-GREEN POST REFLECTORS AS REQUIRED.
2. BOTTTOM OF SIGN PER MUTCD. (7'-0" MIN.)
3. STREET NAME SIGN BACKING SHALL BE 3M GREEN 3277 HIGH GRADE.
4. STREET NAME SIGN LETTERING SHALL BE 3M WHITE 3290 HIGH GRADE REFLECTIVE SHEETING, OR APPROVED EQUAL. LETTERING SHALL BE 6" HIGH IN CAPITAL LETTERS.
5. STREET NAME SIGN SHALL BE ATTACHED TO THE TOP OF THE SIGN POST WITH A ROUND CAP SIGN HOLDER WITH A 6" LONG MOUNTING BRACKET. A 6" LONG 90 CROSS PIECE SHALL BE USED FOR DUAL SIGN APPLICATIONS.



1 **PAVED SURFACE**
SCALE: NONE



3 **GRAVELED SURFACE**
SCALE: NONE



4 **UNIMPROVED SURFACE**
SCALE: NONE

CONSTRUCTION STANDARDS CITY OF WHITEFISH	PVC TRENCH BEDDING AND BACKFILL (UNIMPROVED SURFACE)	SD-23

CONSTRUCTION NOTES:

1> WHERE TRENCH PASSES THROUGH EXISTING PAVEMENT:
THE PAVEMENT SHALL BE CUT ALONG A NEAT VERTICAL LINE A MINIMUM OF 12" FROM THE EDGE OF THE TRENCH OPENING.

2> WHERE TRENCH PASSES THROUGH EXISTING PAVEMENT:
SAWCUT THE ASPHALT ALONG A NEAT VERTICAL LINE PER LIMITS SHOWN ON THE PLANS. WHERE SUITABLE TRENCH BACKFILL IS NOT USED, SEPARATION/STABILIZATION FABRIC AMOCO 2006 OR CONTECH C-300 GEOTEXTILE FABRIC, OR APPROVED EQUAL WILL BE USED.

3> WHERE TRENCH PASSES THROUGH EXISTING GRAVEL:
THE GRAVEL SHALL BE REMOVED AND REPLACED A MINIMUM OF 12" FROM THE EDGE OF THE TRENCH OPENING.

4> WHERE TRENCH PASSES THROUGH EXISTING UNIMPROVED SOIL:
THE TOPSOIL SHALL BE REMOVED AND REPLACED A MINIMUM OF 12" FROM THE EDGE OF THE TRENCH OPENING.

5> TRENCH SHALL BE CONSTRUCTED TO OSHA SPECIFICATIONS FOR EXCAVATION. DRAWINGS DO NOT SHOW TRENCH DIMENSIONS OR BACKSLOPES THAT MAY BE REQUIRED. CONTRACTOR REQUIRED TO DETERMINE WHICH OSHA SPECIFICATIONS ARE APPLICABLE. CONTRACTOR SHALL BE RESPONSIBLE FOR TRENCH EXCAVATION AND SAFETY PER OSHA SPECIFICATIONS.

6. ALL SPOILS SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION.

7> INSTALL 4" OF WATER RESISTANT RIGID INSULATION THE FULL WIDTH OF THE TRENCH WHEN BURY TO TOP OF PIPE IS LESS THAN 6'-0" FOR WATER, 4'-0" FOR SEWER. (SHALL BE APPROVED BY CITY ENGINEER)

8. ALL ROCKS GREATER THAN 12" IN ANY DIMENSION SHALL BE HAULED OFF SITE AND DISPOSED OF PROPERLY.

9> NO ROCKS OR LUMPS LARGER THAN 2" IN ANY DIMENSION SHALL BE ALLOWED WITHIN 6" OF THE PIPE.

10> USE SUITABLE NATIVE MATERIAL FOR BACKFILL:
WITH PRIOR APPROVAL OF THE CITY AND THE ENGINEER, ON-SITE EXCAVATED SOIL MAY BE USED TO BACKFILL WATER MAINS, WATER SERVICES, FIRE HYDRANT LEADS, SEWER MAINS AND SEWER SERVICES. BLOCKY OR PLATY CLAY, AND SATURATED OR NEAR SATURATED SOILS, WILL NOT BE PERMITTED FOR USE AS BACKFILL MATERIAL. BACKFILL MATERIAL SHALL BE PLACED IN 12-INCH MAXIMUM LOOSE LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MATERIAL'S MAXIMUM DRY DENSITY, AS DETERMINED BY AASHTO T-99 OR ASTM D698. NO ROCKS LARGER THAN 3", ANY DIMENSION, WILL BE PERMITTED IN FIRST LIFT OF BACKFILL. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A PROCTOR (MOISTURE-DENSITY RELATIONSHIP) FOR THE BACKFILL MATERIAL.

11> USE LABELED AND COLOR-CODED TAPE FOR THE APPROPRIATE UTILITY PIPE.

12> SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS WHICH ARE NOT PAVED, CONCRETED, GRAVELED, OR SODDED PER SPECIFICATIONS.

13> FOR WATER MAINS AND PRESSURE SEWERS; TRACER WIRE (12 GAUGE MIN.), OR APPROVED EQUAL, SHALL BE TAPED TO TOP OF ALL PLASTIC PIPE (PVC OR POLYETHYLENE) AND BROUGHT UP IN "SNAKE PIT" BEHIND FIRE HYDRANT AND COILED AT END OF SERVICE.

14> COMPACTION REFERS TO PERCENT OF MAXIMUM DENSITY DETERMINED BY A STANDARD PROCTOR. AASHTO T-99 OR AASHTO T-99.

15. FINISHED GRADE MUST MATCH THE ORIGINAL EXISTING GRADE WHERE PIPE IS INSTALLED UNLESS OTHERWISE NOTED.

16. VERIFY THAT COMPACTION METHODS ARE COMPATIBLE WITH PIPE MANUFACTURER'S RECOMMENDATIONS. ANY DAMAGE TO THE PIPE WILL BE THE CONTRACTOR'S RESPONSIBILITY.

17> SELECT TYPE 1 PIPE BEDDING MATERIAL SHALL BE ¾" MINUS CRUSHED PER MPW 55 SECTION 02235.2.3.A WITH THE FOLLOWING GRADATION:

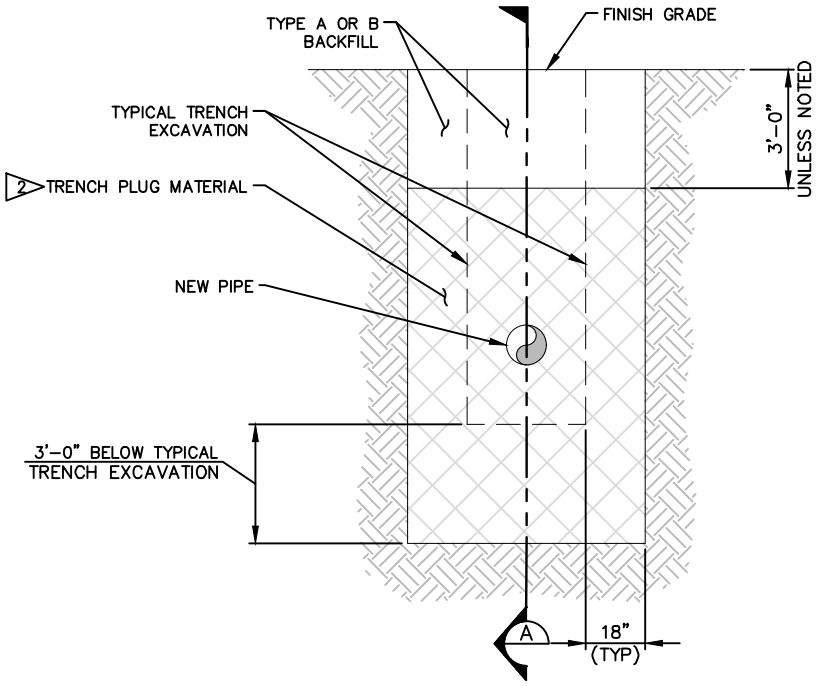
SIEVE NO.	PERCENT PASSING (BY WEIGHT)
¾"	100
#4	40-70
#10	25-55
#200	2-10

18> GEOTEXTILE REPLACEMENT:

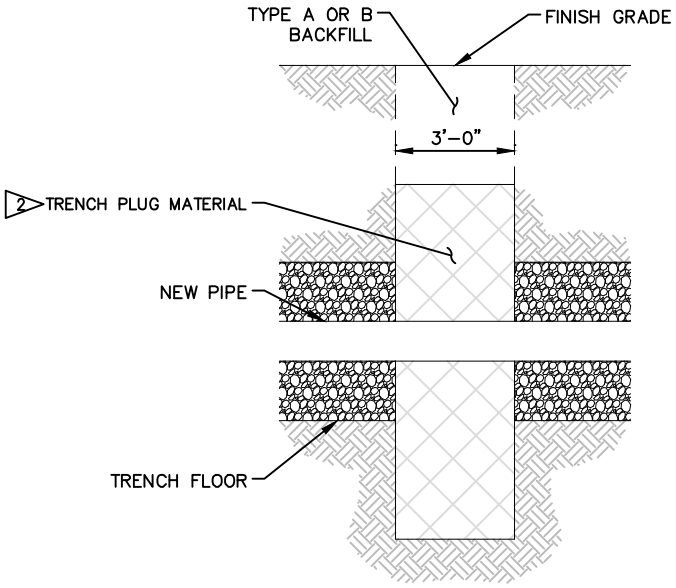
THE CONTRACTOR SHALL EXCAVATE TO STREET SUBGRADE AND EXPOSE THE GEOTEXTILE FABRIC WITHOUT DISTURBING IT. THE FABRIC SHALL BE CUT AND ROLLED BACK INTACT. A MINIMUM TWO FEET OF FABRIC SHALL BE EXPOSED ON EITHER SIDE OF THE CUT. THE FABRIC CUTS SHALL BE MADE WITH A SHARP KNIFE OR SCISSORS, RIPPING WITH A BACKHOE OR OTHER MACHINE IS NOT ACCEPTABLE. AFTER PIPE BACKFILL, THE FABRIC SHALL BE PATCHED BY THE FOLLOWING METHOD:

A. CONTRACTOR SHALL INSTALL NEW FABRIC WITH A MINIMUM OVERLAP OF TWO FEET BEYOND ANY CUT MADE TO THE EXISTING FABRIC.

THE PATCHING OF THE GEOTEXTILE FABRIC MUST BE INSPECTED BY THE CITY OF WHITEFISH PRIOR TO BACKFILLING.



TRENCH PLUG
SCALE: NONE



SECTION "A"
SCALE: NONE

TRENCH PLUG NOTES:

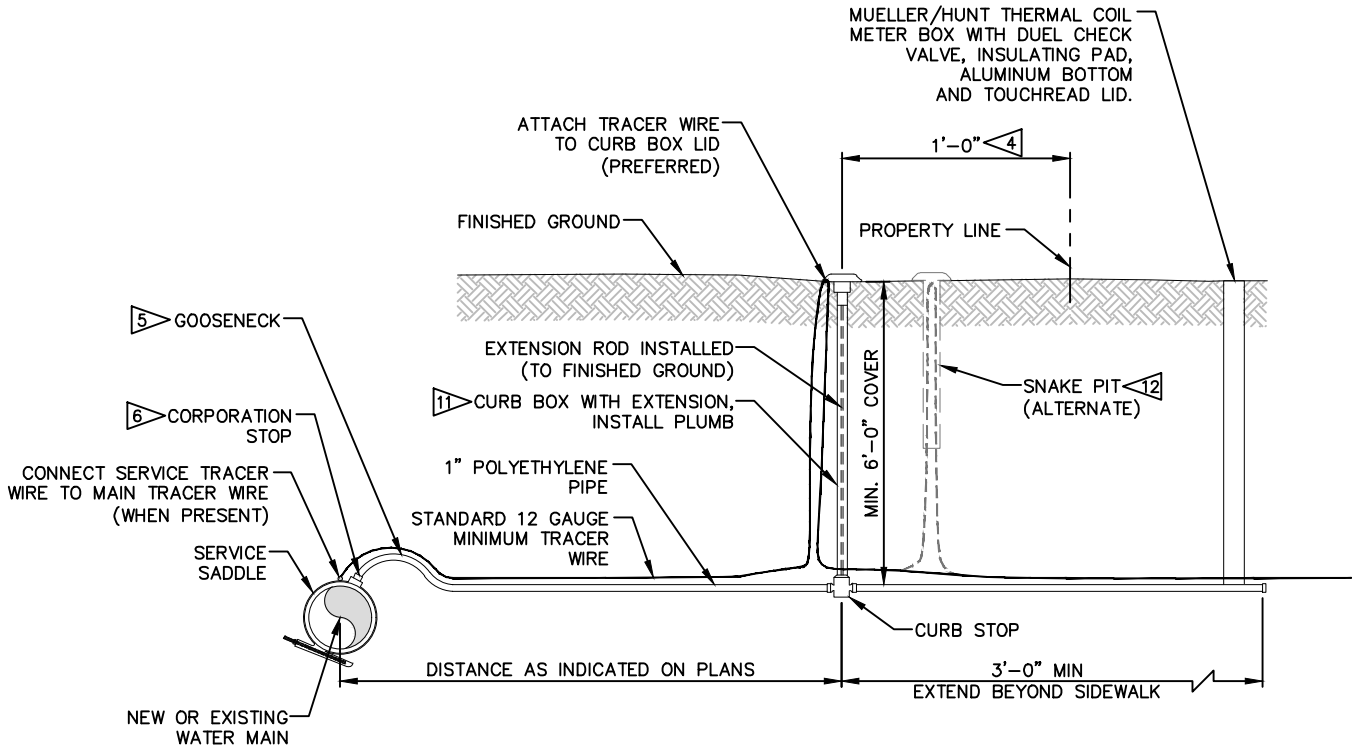
1. THE PURPOSE OF THE TRENCH PLUG IS TO PREVENT TYPE 1 & TYPE 2 BEDDING FROM BECOMING A CONDUIT FOR GROUNDWATER.

2. PER MPWSS SECTION 02222.2.1.A OR FLOWABLE FILL.

3. TRENCH PLUGS SHALL BE INSTALLED AT A MINIMUM OF 100'-0" APART, OR CROSSING OF STREAMS, DITCHES OR OTHER SOURCES OF GROUNDWATER. TRENCH PLUGS SHALL BE INSTALLED WITHIN 10'-0" UPSTREAM OF ALL SANITARY SEWER MANHOLES. WHEN DIRECTED BY THE ENGINEER, TRENCH PLUGS SHALL ALSO BE INSTALLED ALONG SERVICE UTILITY TRENCHES.

4. TRENCH PLUGS ARE REQUIRED ON ALL SANITARY SEWER MAINS.

WATER SYSTEM DETAILS

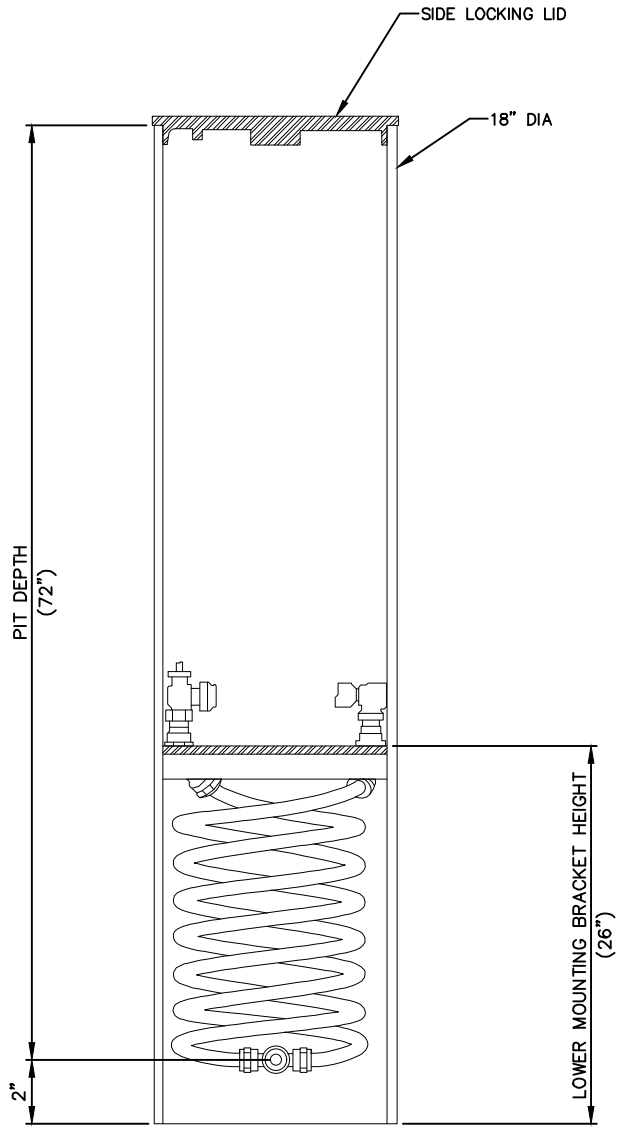


WATER SERVICE

SCALE: NONE

NOTES:

1. THIS DETAIL APPLIES TO SERVICES THAT ARE 2" IN DIAMETER OR SMALLER. SERVICE LINES OVER 2" ARE INSTALLED SIMILAR TO WATER MAINS.
2. WATER SERVICE LINES SHALL BE CONNECTED/INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED.
3. BEDDING MATERIAL WITHIN 6-INCHES OF THE SERVICE LINE SHALL BE TYPE 1 PIPE BEDDING.
4. THE CURB BOX SHALL BE INSTALLED 1'-0" FROM THE PROPERTY LINE OR WHERE SHOWN ON THE DRAWINGS. WHERE A SIDEWALK IS ADJACENT TO THE PROPERTY LINE, INSTALL CURB BOX IN THE CENTER OF THE BOULEVARD.
5. THE GOOSENECK IN THE SERVICE LINE AT THE CONNECTION TO THE CORPORATION STOP SHALL BE MADE IN THE HORIZONTAL PLANE WHEN POSSIBLE.
6. THE CORPORATION SHALL BE TAPPED AT 45° VERTICAL ANGLE ON THE PIPE (MEASURED FROM THE HORIZONTAL).
7. CONCRETE AND/OR PAVEMENT REMOVAL AND REPLACEMENT SHALL BE PROVIDED AS NECESSARY.
8. MINIMUM 6'-0" COVER SHALL BE MAINTAINED ALONG THE ENTIRE SERVICE LINE.
9. WHEN A 'WATER SERVICE' IS CALLED OUT THE CONTRACTOR SHALL PLACE THE ENTIRE SERVICE, FROM THE MAIN TO THE PROPOSED CURB STOP LOCATION. THIS INSTALLATION INCLUDES NEW CORPORATION STOP, SERVICE SADDLE, TUBING, CURB STOP, TRACER WIRE, CURB STOP BOX, TRACER WIRE AND EXTENSION ROD.
10. WIRE CONNECTOR WILL BE LUG TYPE WITH SILICON. MAIN LINE WIRE SHALL NOT BE CUT. TYPE: DRYCON OR EQUAL.
11. CURB STOP BOX SHALL BE MUELLER H-10334, McDONALD 5607LTW, OR FORD EA2-65-40-TW.
12. SNAKE PIT SHALL BE COPPERHEAD INDUSTRIES MODEL LD14TP, LD14TP-ADJ, OR APPROVED EQUAL.



METER PIT

SCALE: NONE

ORDERING INFORMATION:

SETTING TYPE: STANDARD COIL PIT SETTER

INLET VALVE TYPE: FULL PORT ANGLE BALL VALVE

OUTLET VALVE TYPE: CASCADING ANGLE DUEL CHECK VALVE (ASSE)

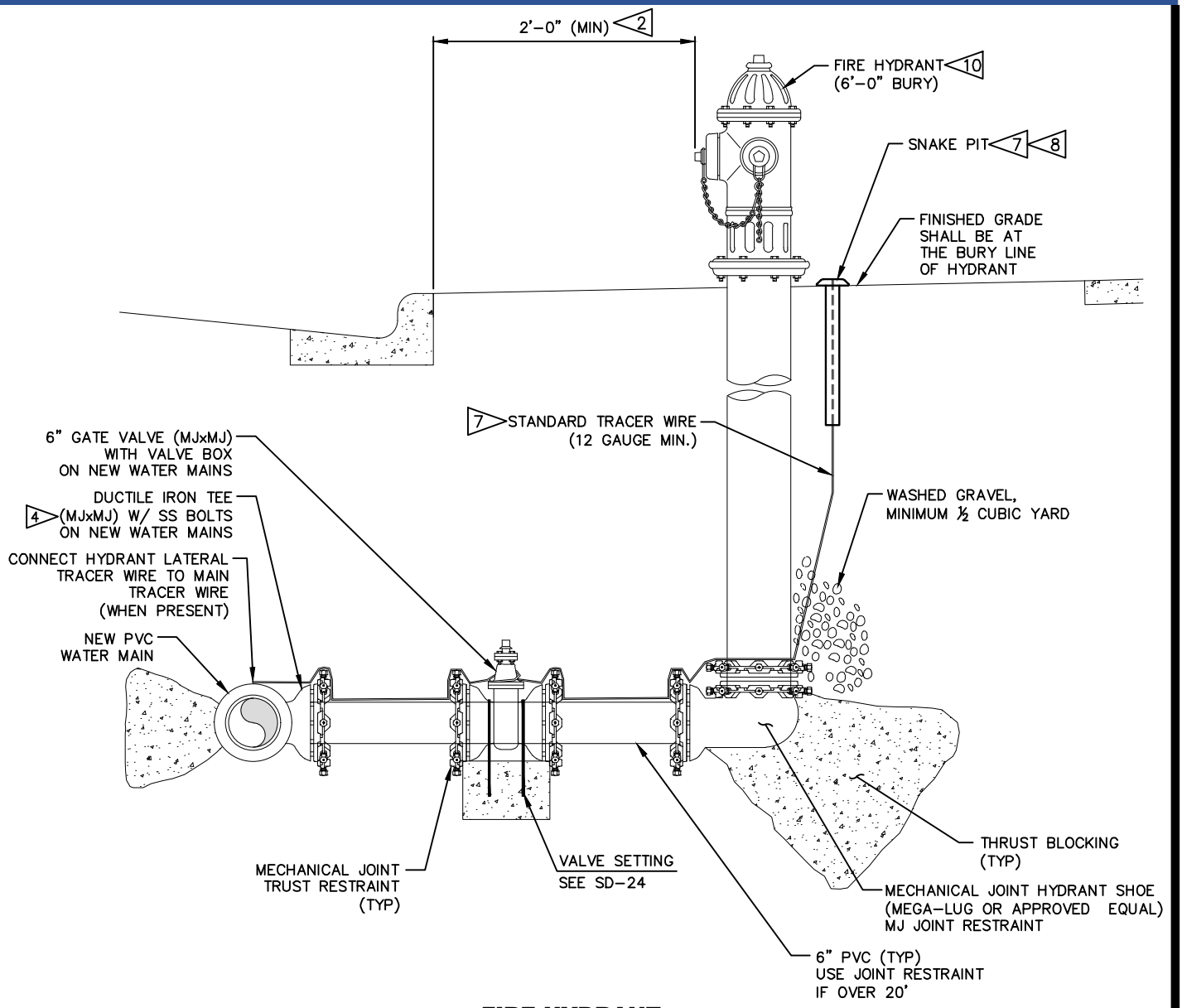
METER SIZE: 1"

TYPE OF INLET/OUTLET CONNECTION: 1"(MIP) x 1"(MIP)

ACCESSORIES:

INSULATING FOAM DISC FOR 18" (1½" THICK, VALUE OF R4/IN)

ELECTRONIC METER READING LID (2" HOLE)



FIRE HYDRANT

SCALE: NONE

NOTES:

1. INSTALL HYDRANT WITH PUMPER NOZZLE FACING STREET UNLESS OTHERWISE DIRECTED BY FIELD ENGINEER.

2. HYDRANTS SHALL BE PLACED IN THE CENTER OF BOULEVARDS, WHERE APPLICABLE OR A MINIMUM OF EITHER 2'-0" FROM TBC OR 5'-0" FROM EDGE OF PAVEMENT WHERE THERE IS NO CURB AND GUTTER.

3. PROVIDE BOTH MECHANICAL JOINT THRUST RESTRAINT AND CONCRETE THRUST BLOCKING ON THE TEE, VALVE AND HYDRANT.

4. ON EXISTING WATER MAINS TAP EXISTING MAIN WITH 6" TAPPING SLEEVE AND FLANGE CONNECTED VALVE.

5. WRAP ALL DIRECT BURY CAST IRON OR DUCTILE IRON PIPE AND FITTINGS INCLUDING HYDRANTS, VALVE BOXES, CURB BOXES AND ALL OTHER METAL PARTS AND SURFACES, IN POLYETHYLENE ENCASEMENT.

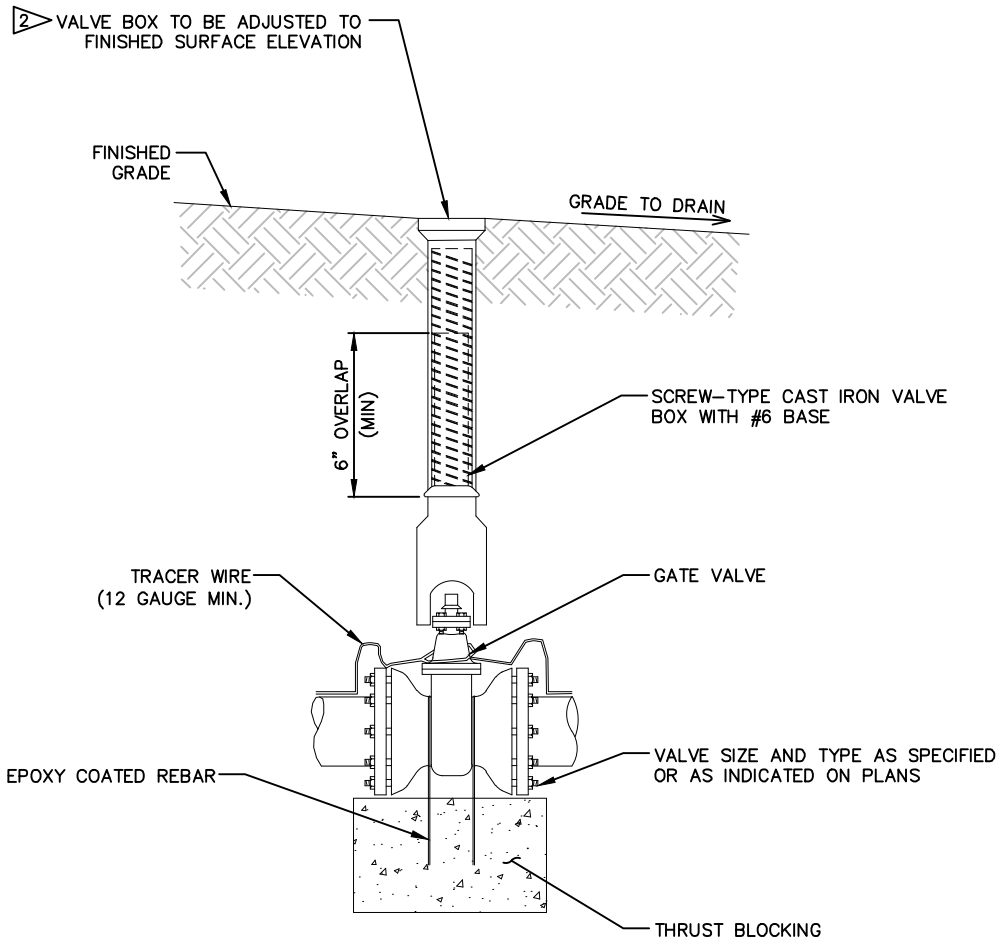
6. STANDARD TRACER WIRE (12 GAUGE MIN.), SHALL BE TAPED TO TOP OF ALL PIPE AND BROUGHT UP SNAKE PIT AS SHOWN.

7. TRACER WIRE WILL BE RUN UP BACK OF THE HYDRANT INSTALLED IN SNAKE PIT. WIRE WILL ALSO GO TO THE CURB BOX. TRACER WIRE SHALL NOT BE RUN UP THE MAIN VALVE, CAN BOX OR AUXILIARY VALVE BOXES.

8. SNAKE PIT SHALL BE COPPERHEAD INDUSTRIES MODEL LD14TP, LD14TP-ADJ OR APPROVED EQUAL.

9. WIRE CONNECTOR WILL BE LUG TYPE WITH SILICON. MAIN LINE WIRE SHALL NOT BE CUT. TYPE: DRYCON OR EQUAL.

10. INSTALL 4-FOOT TALL HYDRANT FLAG. HYDRANT FLAG SHALL BE NEW CONCEPT TOOLS, HYDRANT SPRING FLAG WITH REFLECTIVE BANDS, BONNET BOLT MOUNTED, OR APPROVED EQUAL.



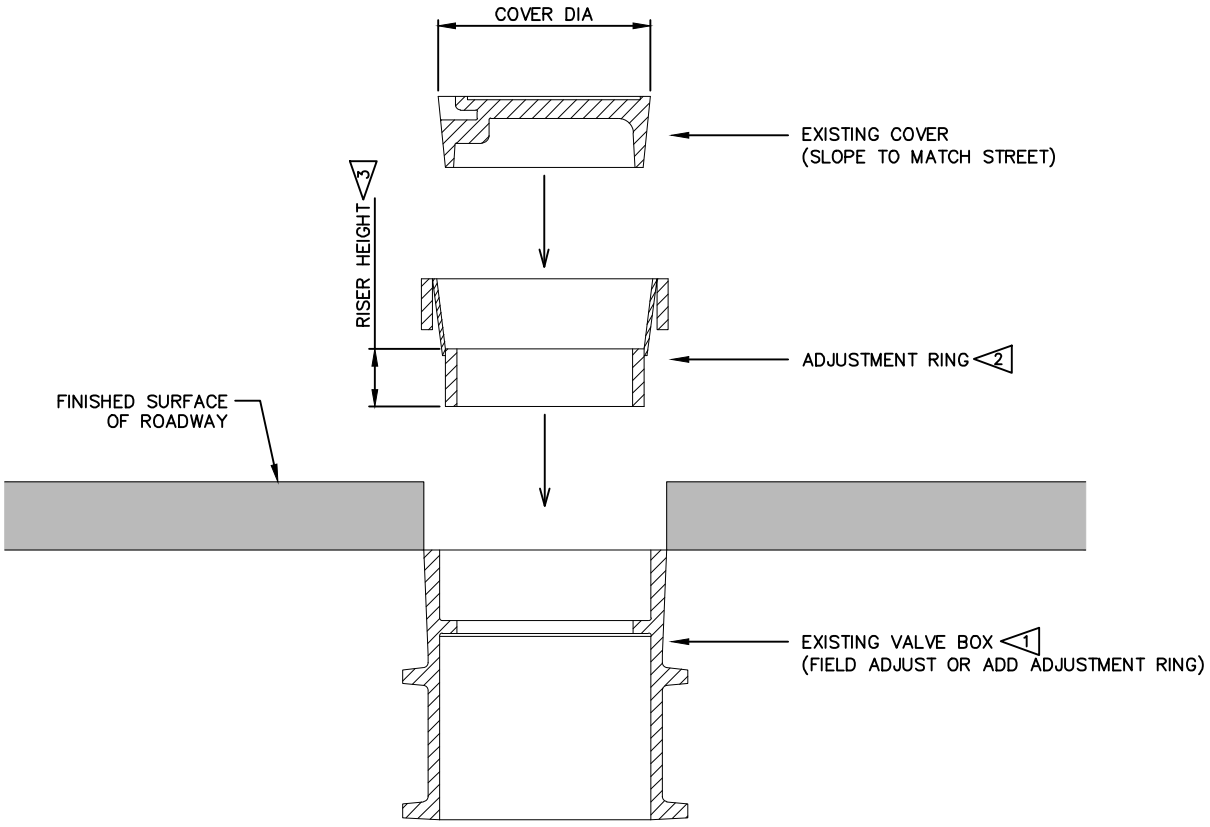
VALVE SETTING

SCALE: NONE

NOTES:

1. THIS DETAIL APPLIES TO ALL BURIED VALVES.

2 ADJUST VALVE BOX TO BE ¼", ±⅛", BELOW FINISHED PAVEMENT/CONCRETE SURFACE. MAKE FINAL ADJUSTMENTS PRIOR TO PAVING.

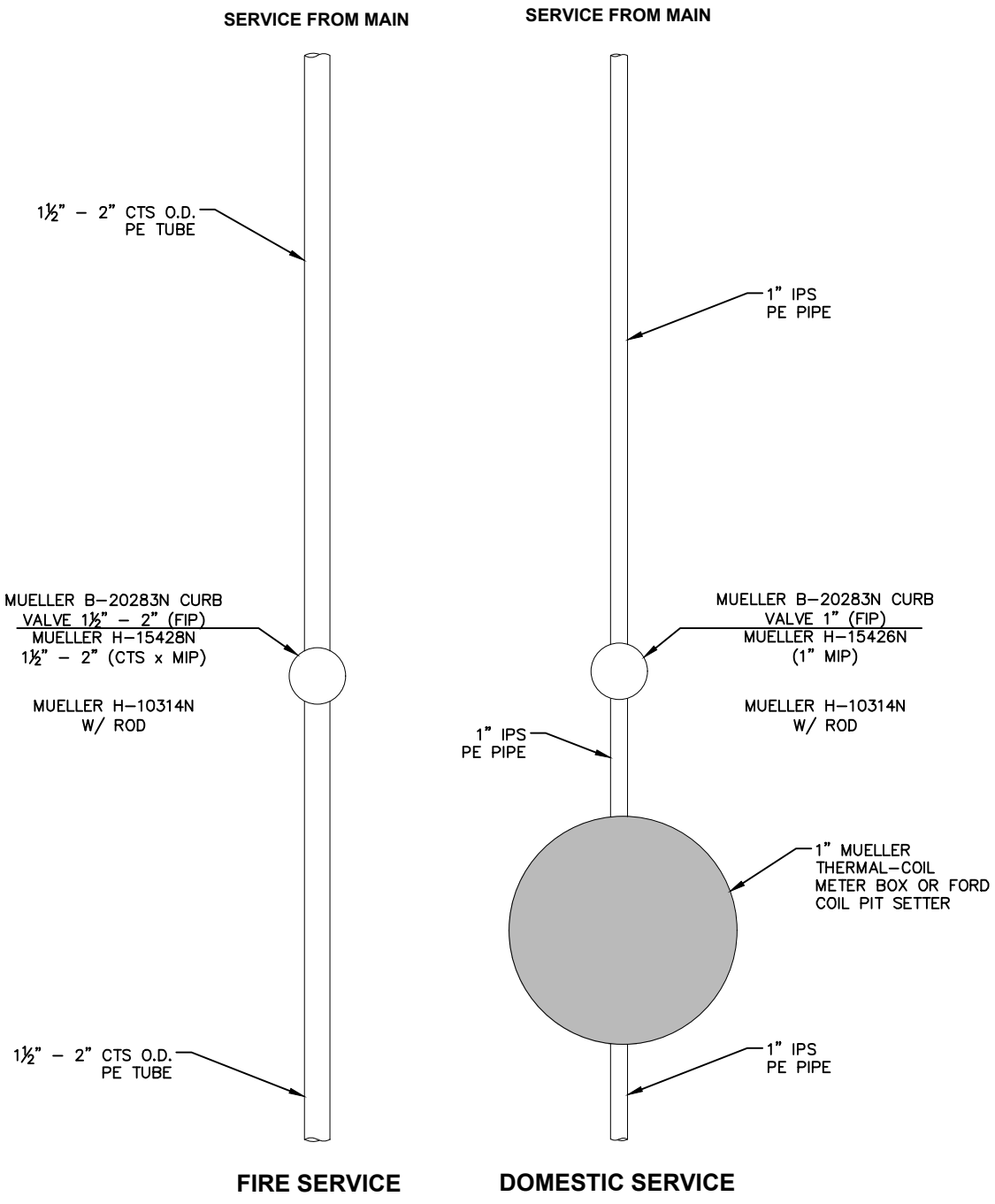


VALVE BOX ADJUSTMENT

SCALE: NONE

NOTES:

1. THE PREFERRED METHOD FOR FIELD ADJUSTMENT IS BY 'SCREWING' VALVE BOX. IF CONTRACTOR IS UNABLE TO ADJUST BY 'SCREWING' VALVE BOX AN ADJUSTMENT RING WILL BE REQUIRED.
2. ADJUSTMENT RING SIZE/THICKNESS SHALL BE VERIFIED BY CONTRACTOR PRIOR TO ORDERING.
3. RISER HEIGHT 6" MAXIMUM FOR SLIP TYPE.
4. FINISHED VALVE BOX COVER SHALL BE ⅛" TO ¼" (MAXIMUM) LOWER THAN FINISHED SURFACE.

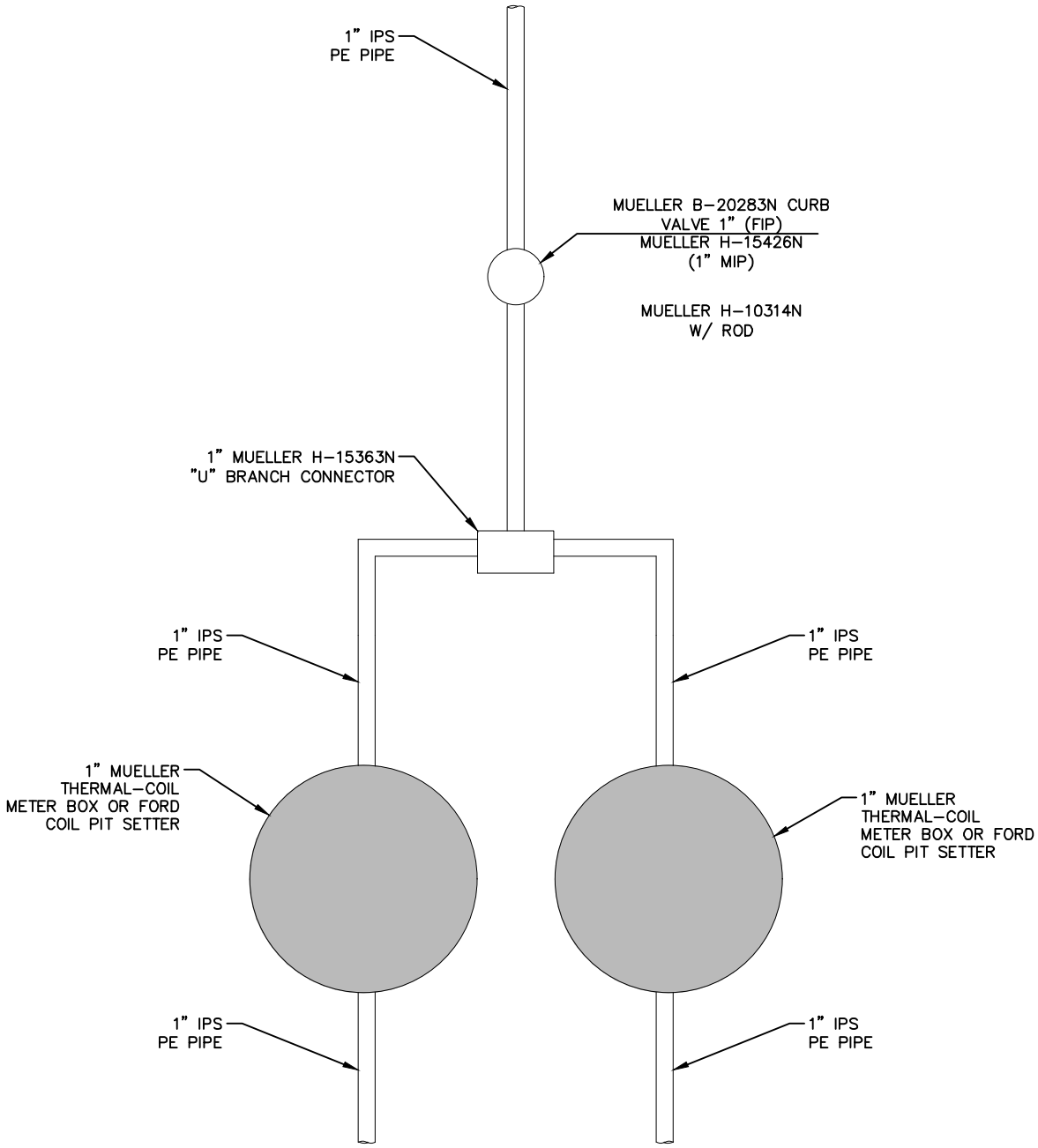


TYPICAL METER BOX SPECIFICATION:

LOCKING FULL PORT ANGLE BALL VALVE INLET
ASSE DUAL CHECK VALVE OUTLET
ATTACHED ALUMINUM BASE
SIDE LOCKING LID
72" DEPTH
INSULATING PAD

*USE MUELLER H-10334 FOR PLACEMENT IN CONCRETE FOR DRIVEWAYS.

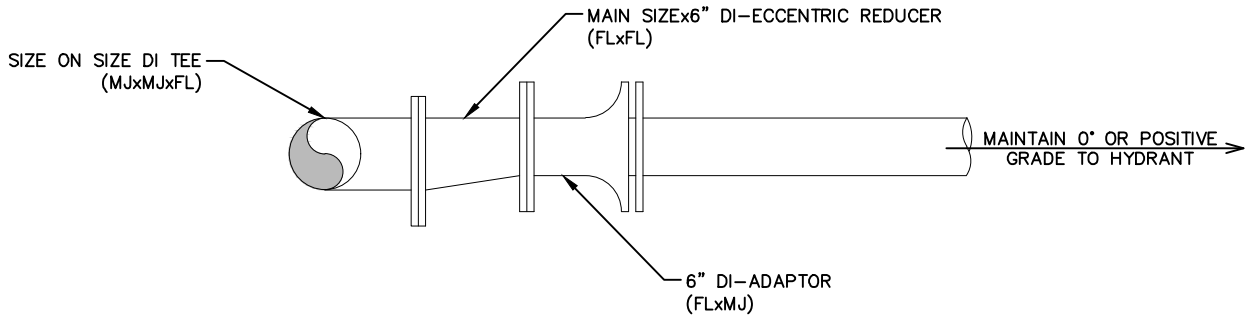
SERVICE FROM MAIN



IRRIGATION SERVICE **DOMESTIC SERVICE**

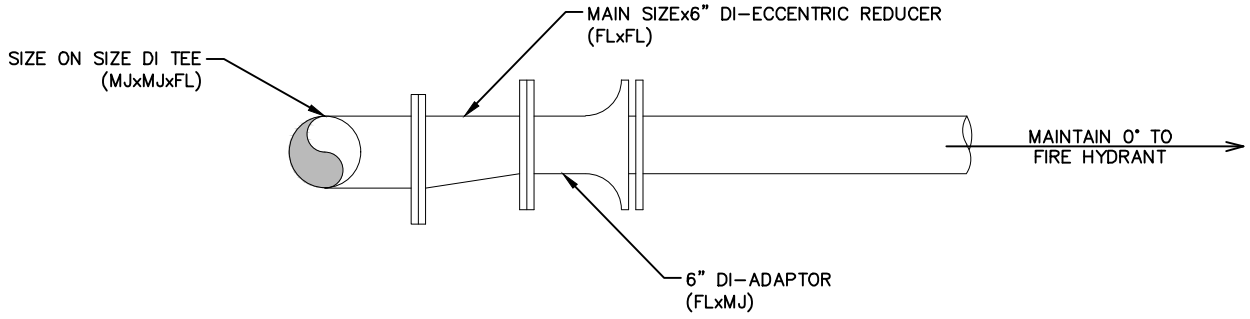
TYPICAL METER BOX SPECIFICATION:

LOCKING FULL PORT ANGLE BALL VALVE INLET
ASSE DUAL CHECK VALVE OUTLET
ATTACHED ALUMINUM BASE
SIDE LOCKING LID
72" DEPTH
INSULATING PAD



AIR RELEASE HYDRANT FITTINGS ELEVATION VIEW

SCALE: NONE

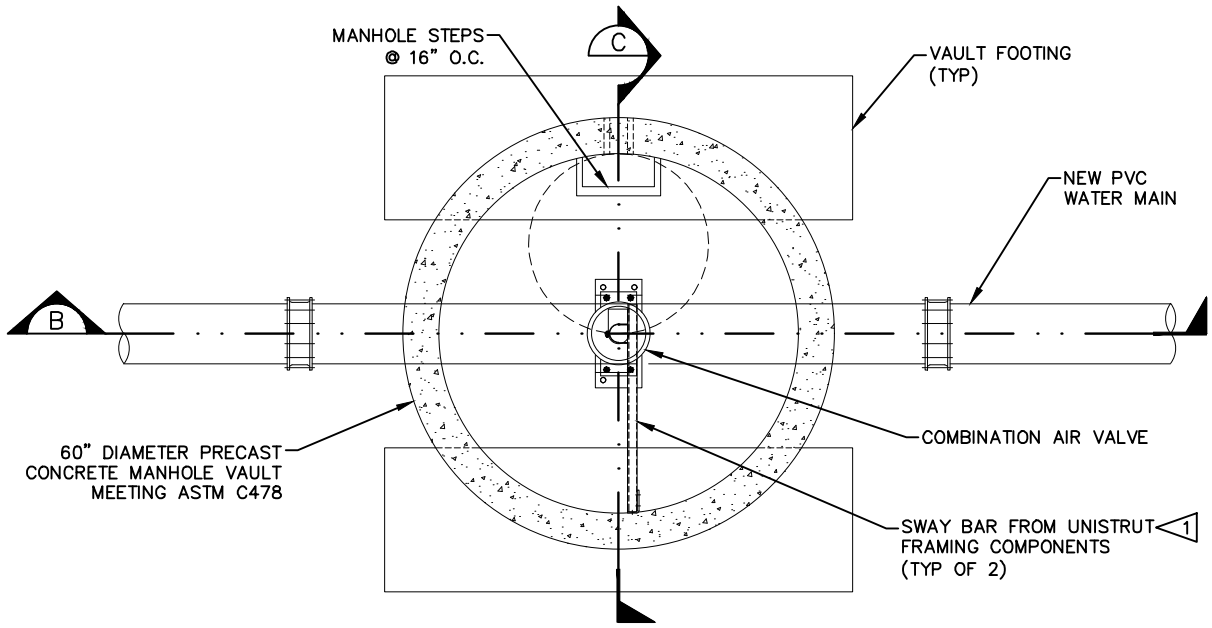


BLOWOFF FIRE HYDRANT ELEVATION VIEW

SCALE: NONE

NOTES:

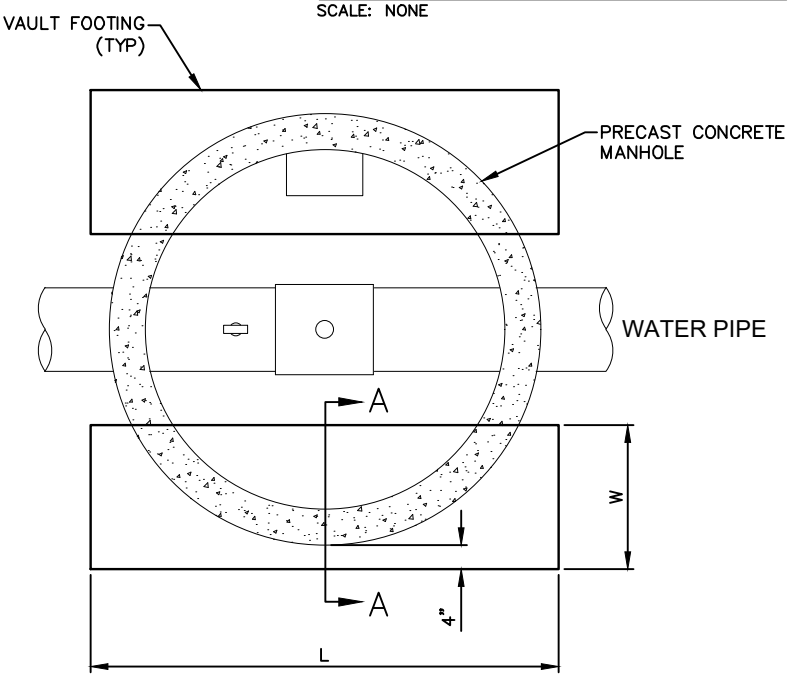
1. SWAY BRACE PRODUCT NUMBERS ARE UNISTRUT. USE UNISTRUT, KINLINE OR EQUAL. SECURE SCAV INLET PIPING TO SWAY BRACE USING SERIES 1100 PIPE BRACKET, SIZED FOR INLET PIPING. PAINT ALL GALV. ITEMS BEFORE INSTALLATION (SEE SPECS).
2. MANHOLE, RISER, AND LID SHALL BE PRECAST CONCRETE PER ASTM C478 AND SHALL BE MINIMUM HS-20 TRAFFIC RATED.



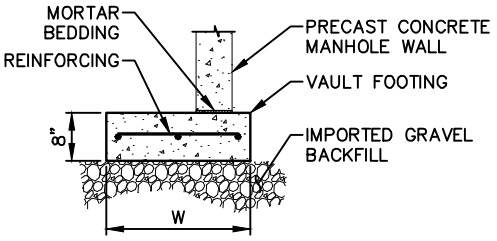
PLAN

AIR/VACUUM RELIEF VALVE VAULT

SCALE: NONE



PLAN



SECTION A-A

SCALE: NONE

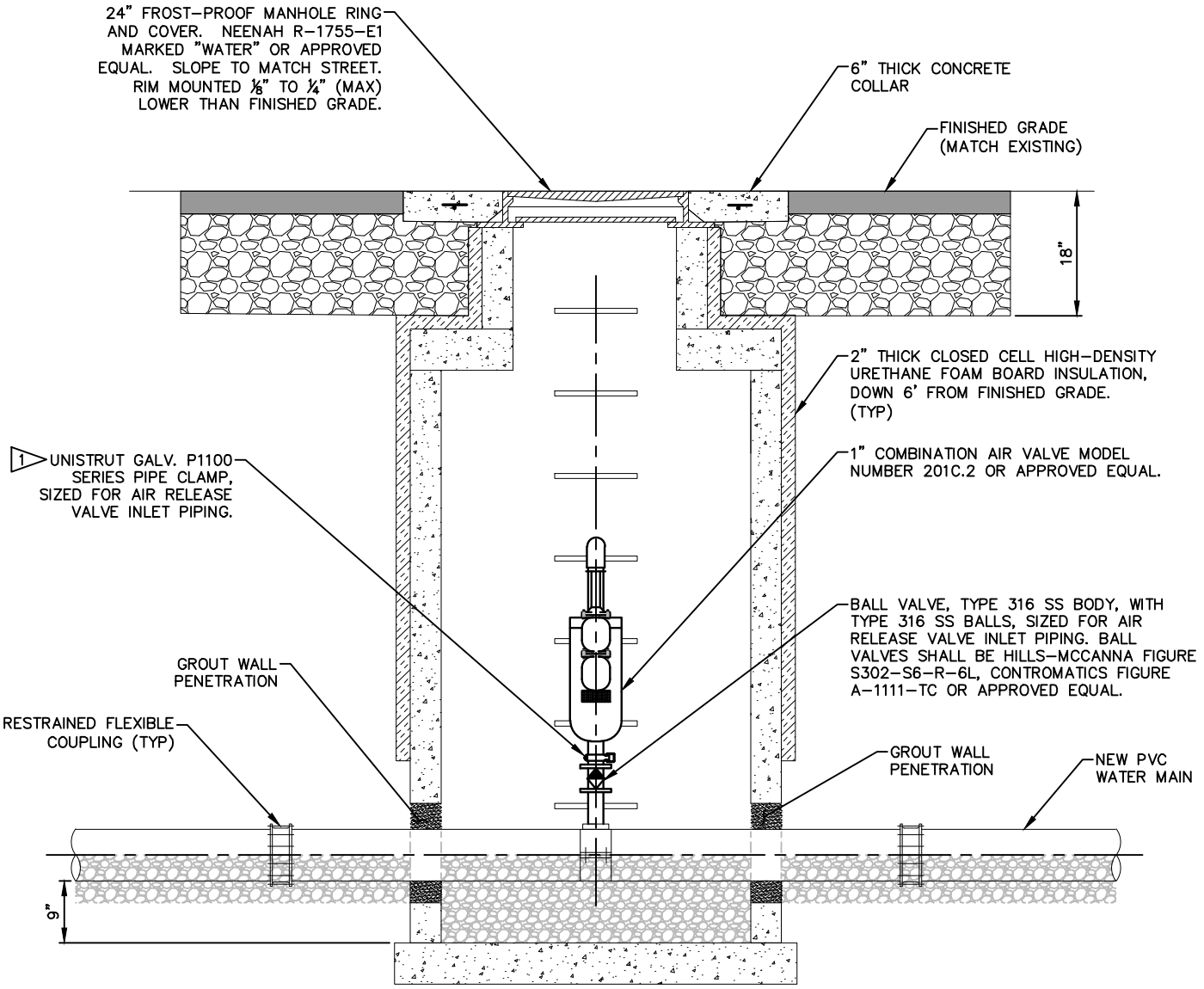
VAULT FOOTING

SCALE: NONE

MANHOLE SIZE	L	W	REINFORCING
48" MANHOLE (58" O.D.)	6'-4"	2'-0"	W/3~#4 LONG, 4~#4 TRANS. (SHORT)
60" MANHOLE (72" O.D.)	6'-6"	2'-0"	W/3~#4 LONG, 4~#4 TRANS. (SHORT)
84" MANHOLE (100" O.D.)	8'-10"	3'-8"	W/4~#4 LONG, 6~#4 TRANS. (SHORT)
90" MANHOLE (107" O.D.)	9'-4"	3'-8"	W/4~#4 LONG, 6~#4 TRANS. (SHORT)
96" MANHOLE (114" O.D.)	10'-0"	3'-8"	W/4~#4 LONG, 6~#4 TRANS. (SHORT)

NOTES:

1. SWAY BRACE PRODUCT NUMBERS ARE UNISTRUT. USE UNISTRUT, KINLINE OR EQUAL. SECURE SCAV INLET PIPING TO SWAY BRACE USING SERIES 1100 PIPE BRACKET, SIZED FOR INLET PIPING. PAINT ALL GALV. ITEMS BEFORE INSTALLATION (SEE SPECS).
2. MANHOLE, RISER, AND LID SHALL BE PRECAST CONCRETE PER ASTM C478 AND SHALL BE MINIMUM HS-20 TRAFFIC RATED.



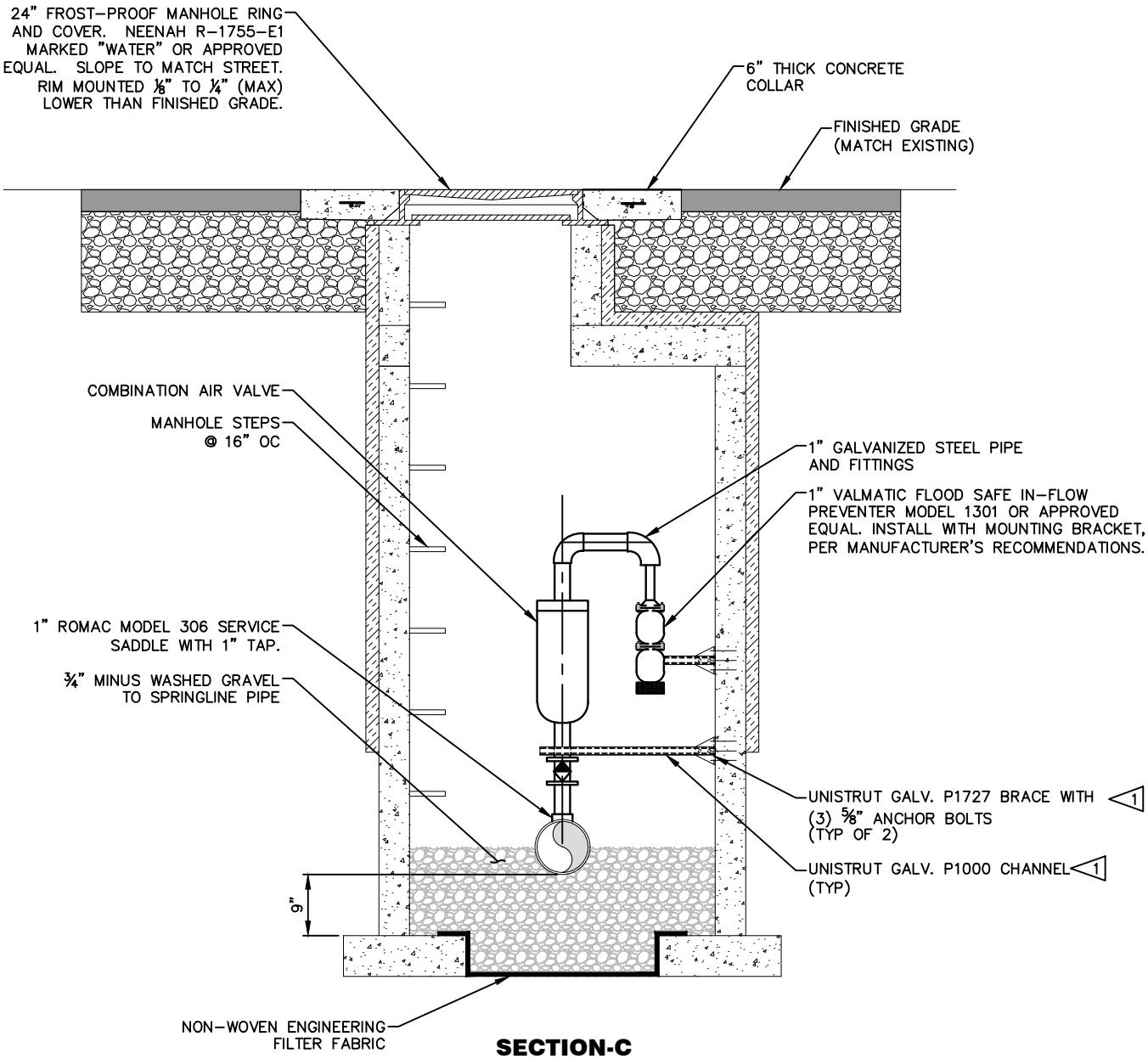
SECTION-B

AIR/VACUUM RELIEF VALVE VAULT

SCALE: NONE

NOTES:

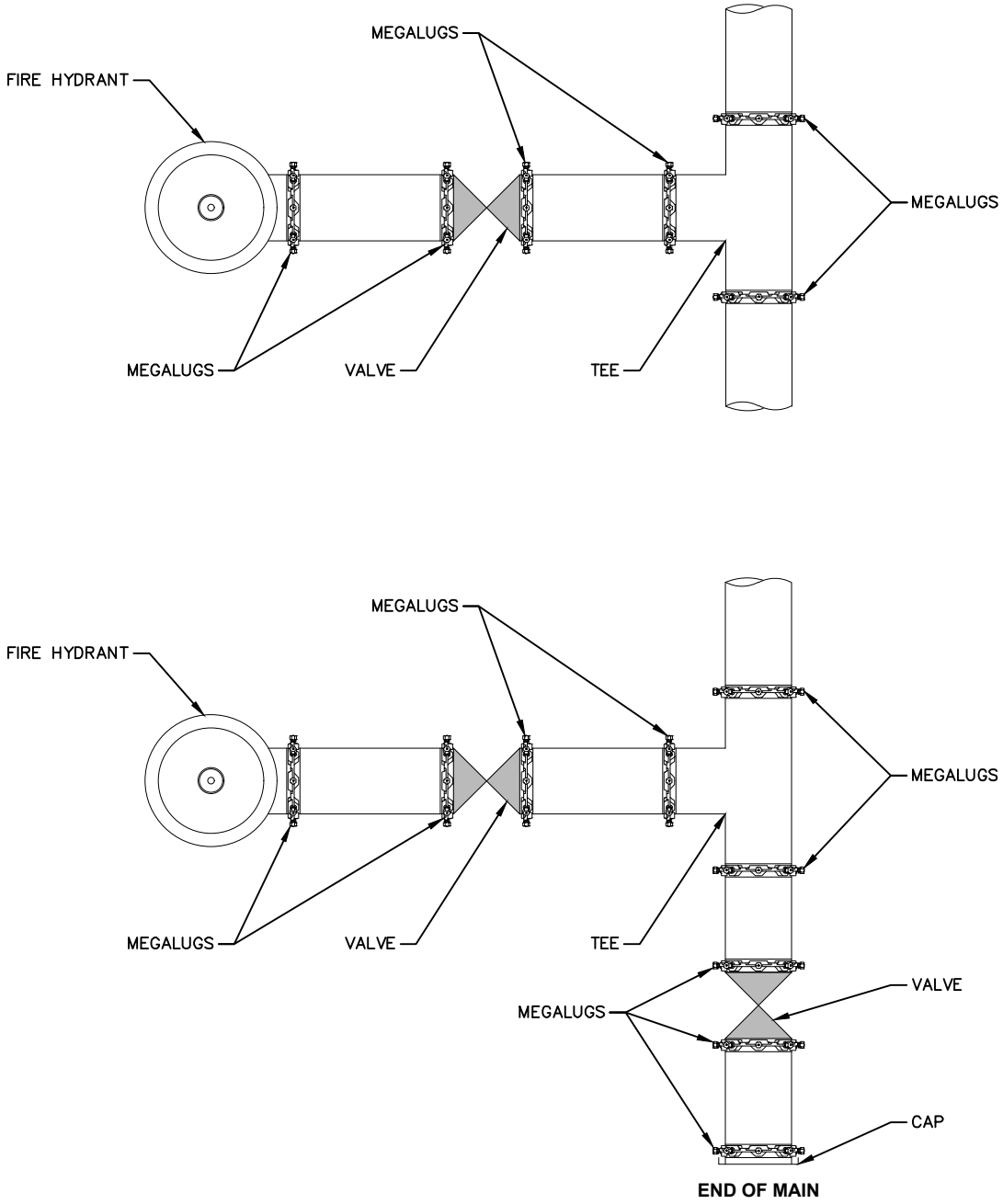
1. SWAY BRACE PRODUCT NUMBERS ARE UNISTRUT. USE UNISTRUT, KINLINE OR EQUAL. SECURE SCAV INLET PIPING TO SWAY BRACE USING SERIES 1100 PIPE BRACKET, SIZED FOR INLET PIPING. PAINT ALL GALV. ITEMS BEFORE INSTALLATION (SEE SPECS).
2. MANHOLE, RISER, AND LID SHALL BE PRECAST CONCRETE PER ASTM C478 AND SHALL BE MINIMUM HS–20 TRAFFIC RATED.



SECTION-C

AIR/VACUUM RELIEF VALVE VAULT

SCALE: NONE



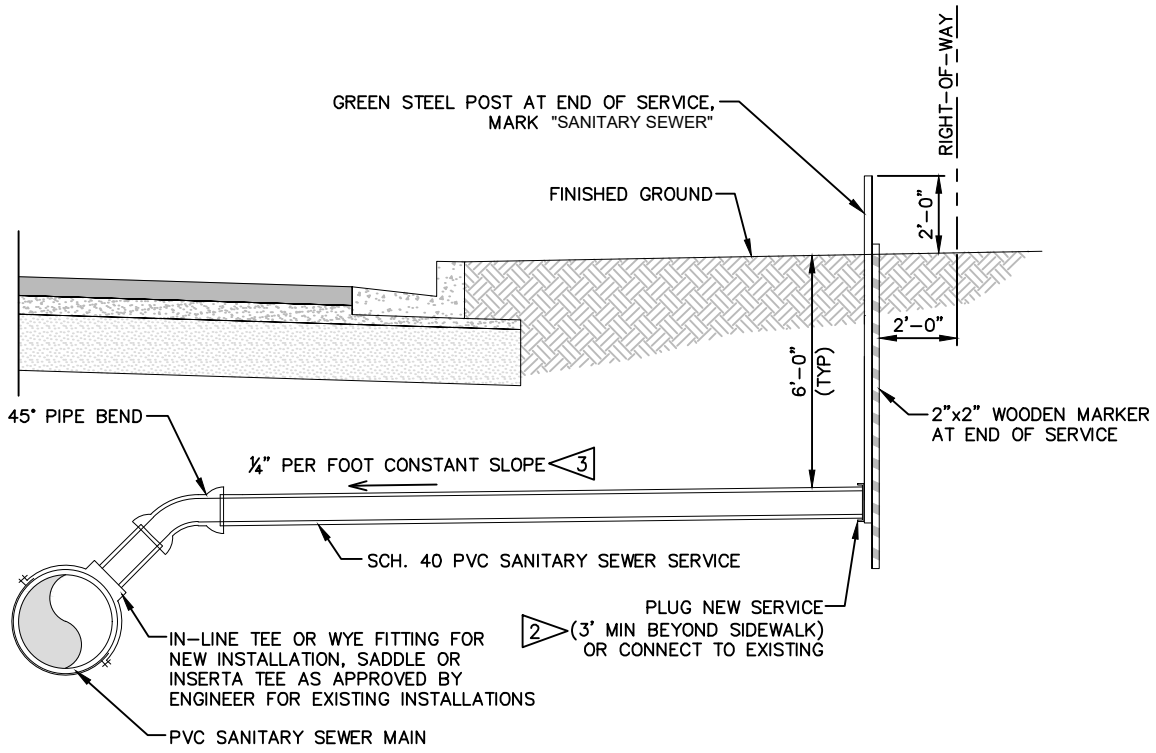
JOINT RESTRAINTS

SCALE: NONE

NOTES:

1. THRUST BLOCKS ARE REQUIRED FOR JOINT RESTRAINTS. MEGALUGS ARE REQUIRED AS SHOWN ABOVE.
2. PIPE LENGTHS BETWEEN FITTINGS AND VALVES PER MANUFACTURER'S RECOMMENDATIONS.

SANITARY SEWER DETAILS



SANITARY SEWER SERVICE

SCALE: NONE

CONSTRUCTION NOTES:

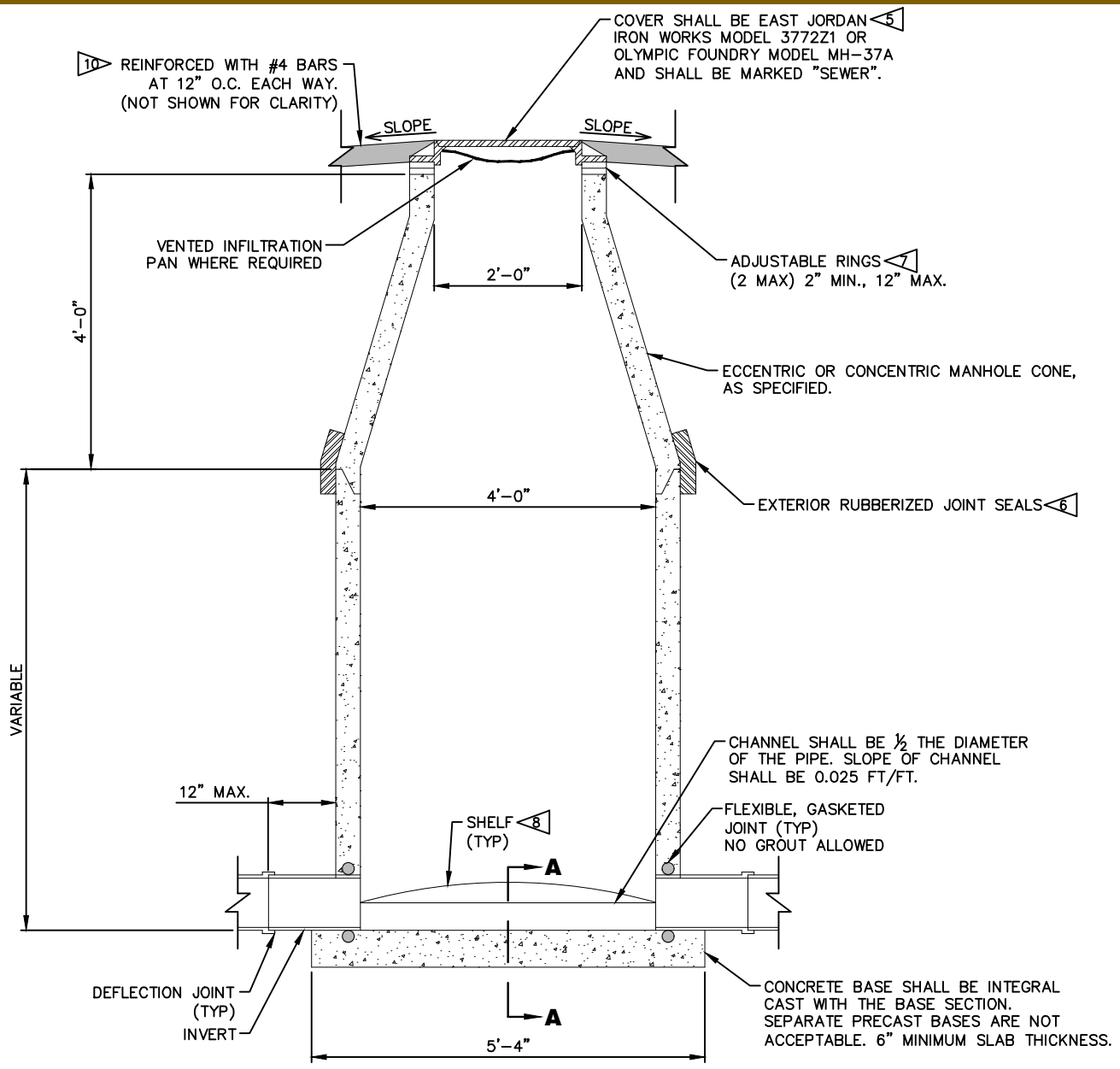
1. ACTUAL DEPTH OF BURY FOR EACH SERVICE VARIES.

2. CONTRACTOR SHALL PROVIDE ALL FITTINGS AND PIPING AS NECESSARY TO CONNECT TO THE EXISTING SANITARY SEWER LATERALS. CONNECTION SHALL BE MADE WITH AN APPROVED STAINLESS STEEL REINFORCED FLEXIBLE COUPLING.

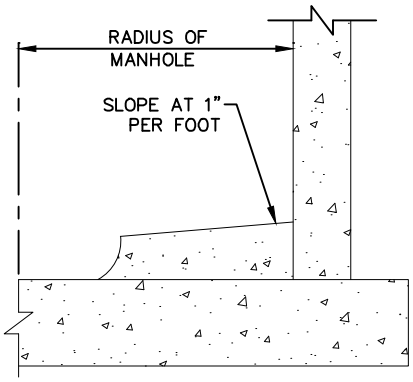
3. MATCH EXISTING SANITARY SEWER SERVICE SLOPE FOR ALL SERVICE CONNECTIONS.

4. ALL BACKFILL SHALL BE TYPE A UNLESS OTHERWISE NOTED.

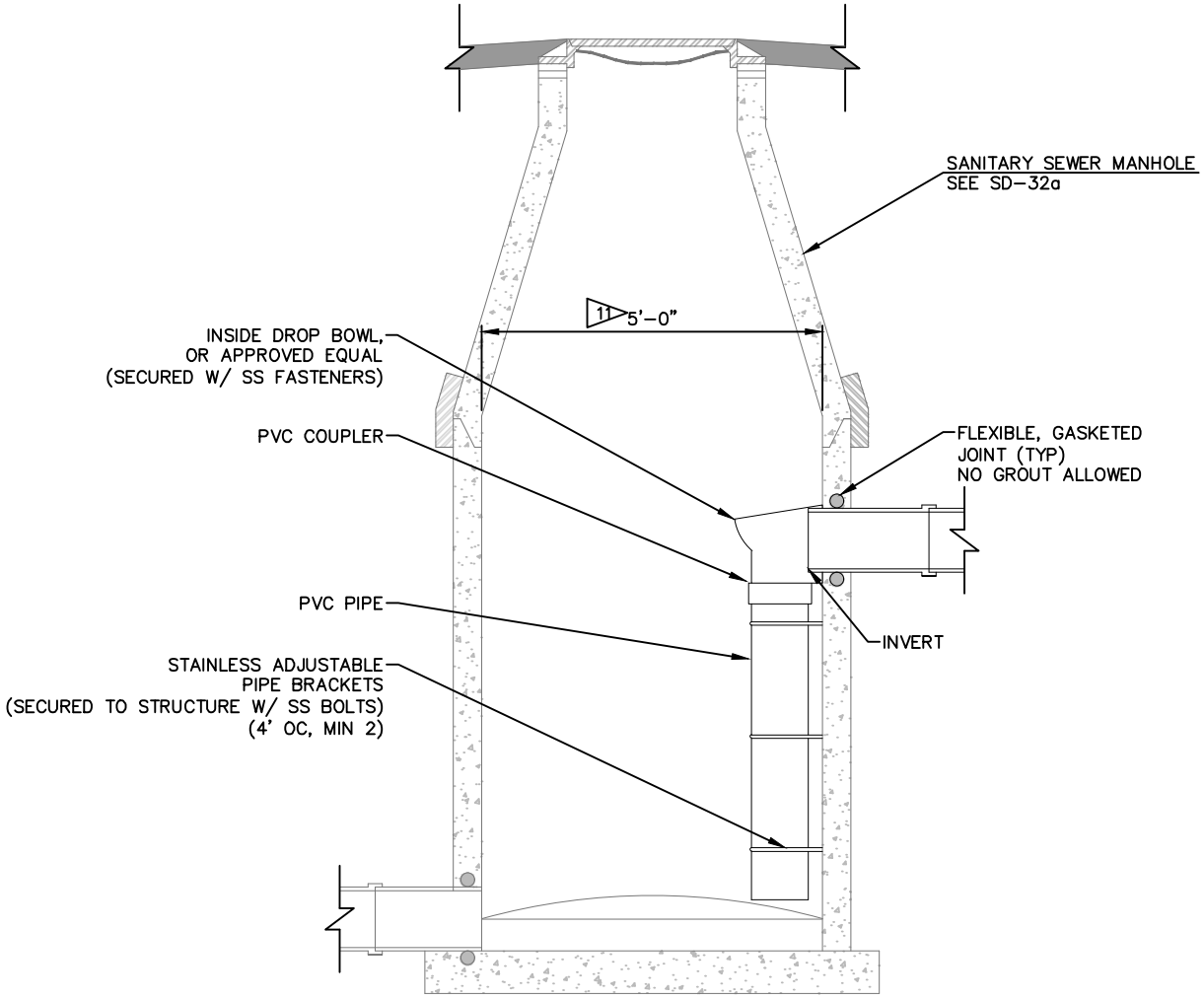
5. SERVICE CONNECTION SHALL MEET ALL REQUIREMENTS OF THE INTERNATIONAL PLUMBING CODE, INCLUDING REQUIRED CLEANOUTS.



SANITARY SEWER MANHOLE
SCALE: NONE



SECTION "A-A"
SCALE: NONE



SANITARY SEWER MANHOLE WITH DROP INLET
SCALE: NONE

MANHOLE NOTES:

1. ALL MANHOLES NOT MANUFACTURED IN ACCORDANCE WITH ASTM C-478M-93 MUST HAVE BITUMINOUS OR COAL TAR EPOXY COAT ON EXTERIOR.
2. PRECAST REINFORCED CONCRETE MANHOLE RISER AND ECCENTRIC CONE TOP PER ASTM C-478.
3. ECCENTRIC MANHOLES REQUIRED ON ALL 4' DIAMETER MANHOLES GREATER THAN 5'-0" IN OVERALL HEIGHT UNLESS SPECIFIED OTHERWISE.
4. ALL JOINTS BETWEEN MANHOLES SECTIONS, ADJUSTING RINGS, MANHOLE RING & TOP SECTION AND AROUND SEWER PIPE INTO MANHOLE SHALL BE WATERTIGHT. JOINTING MATERIAL SHALL BE "RAM-NEK" OR EQUAL FOR ALL JOINTS EXCEPT BETWEEN SEWER PIPE AND MANHOLE WALL.

5. FIELD SET COVER TO GRADE WHEN MANHOLE IS LOCATED WITHIN A STREET OR ALLEY, AND INSTALL INFILTRATION PAN OTHERWISE SET COVER 6" ABOVE GRADE.

6. EXTERIOR RUBBERIZED JOINT SEALS, MEETING ASTM C-877. TYPE II WITH A MINIMUM WIDTH OF 9".

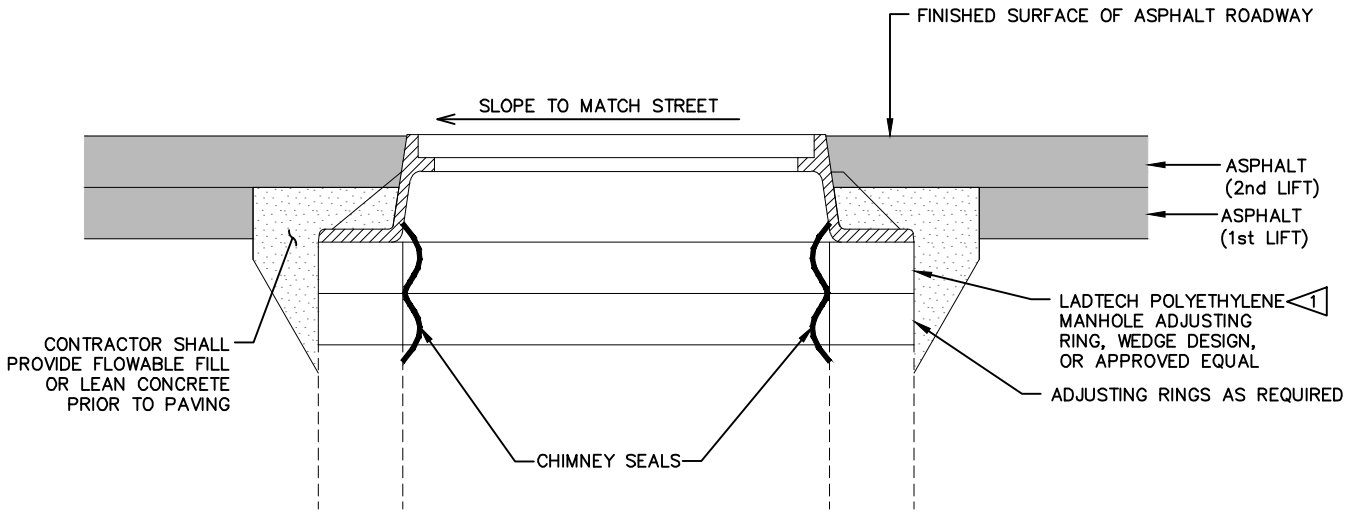
7. RUBBERIZED CHIMNEY SEALS ON ALL MANHOLE COVER FRAMES AND ADJUSTING RING COMBINATIONS, MEETING ASTM C923 WITH A MINIMUM THICKNESS OF $\frac{3}{16}$". 1" TO 6" (ONE GRADE RING MAX) / 6" TO 12" (TWO GRADE RINGS MAX)

8. SHELVES SHALL SLOPE AT 1" PER FOOT TOWARD CHANNEL.

9. FINISHED MANHOLES SHALL BE IN COMPLIANCE WITH LATEST EDITION OF MPW STANDARD SPECIFICATIONS.

10. FOR MANHOLES NOT LOCATED IN STREETS, PROVIDE A 4'-0"x4'-0"x6" CONCRETE PAD. PROVIDE SLOPE THAT DROPS 0.50FT FROM MANHOLE LID TO EDGE OF THE SLAB.

11. UNLESS OTHERWISE SHOWN ON THE PLANS. INTERIOR DROP MANHOLES SHALL BE 5'-0" INSIDE DIAMETER.

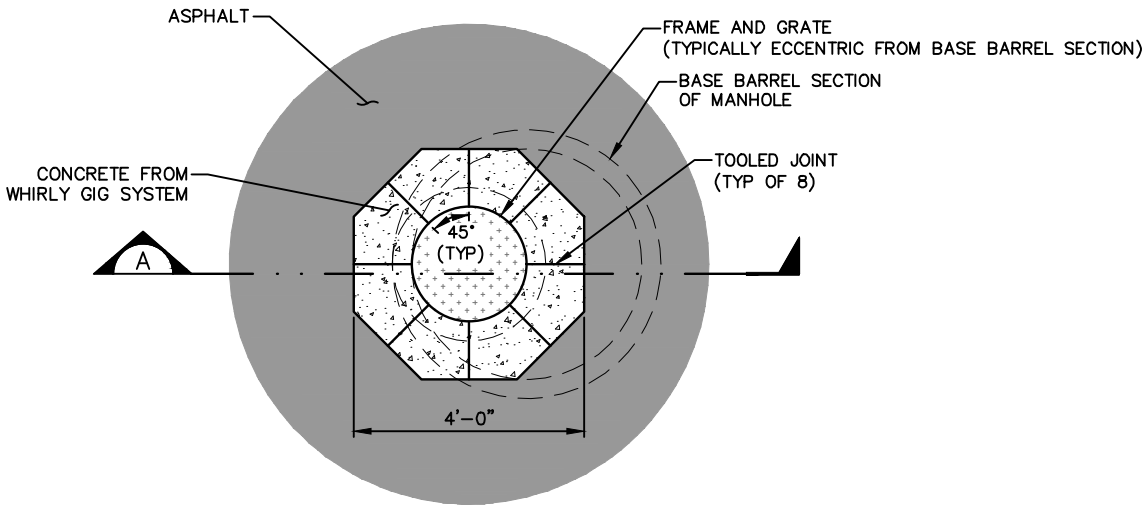


MANHOLE ADJUSTMENT

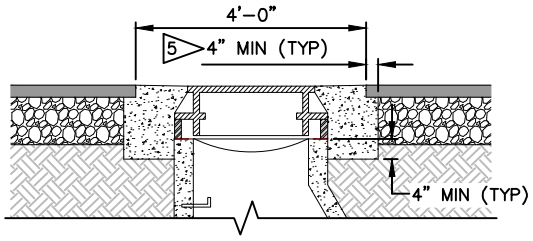
SCALE: NONE

NOTES:

1. ADJUSTMENT RING SIZE/THICKNESS SHALL BE VERIFIED BY CONTRACTOR PRIOR TO ORDERING.
2. ADJUST MANHOLE UPWARD WITH ADJUSTMENT RINGS UNDER FRAME. (MAXIMUM 12" / MAXIMUM 2 RINGS)
3. ADJUST MANHOLE DOWNWARD BY REMOVING A PORTION OF THE MANHOLE RISER AND REBUILDING TO PROPER DIAMETER. SLOPE MANHOLE RING AS REQUIRED TO MATCH LONGITUDINAL AND TRANSVERSE GRADE ON STREET FINAL MANHOLE ADJUSTMENT WILL BE MADE AFTER PAVING.
4. SLOPE MANHOLE FRAME AS REQUIRED TO MATCH SLOPE OF STREET.
5. FINISHED MANHOLE COVER SHALL BE 1/8" TO 1/4" (MAXIMUM) LOWER THAN FINISHED SURFACE.



CONCRETE WHIRLY GIG SYSTEM
SCALE: NONE

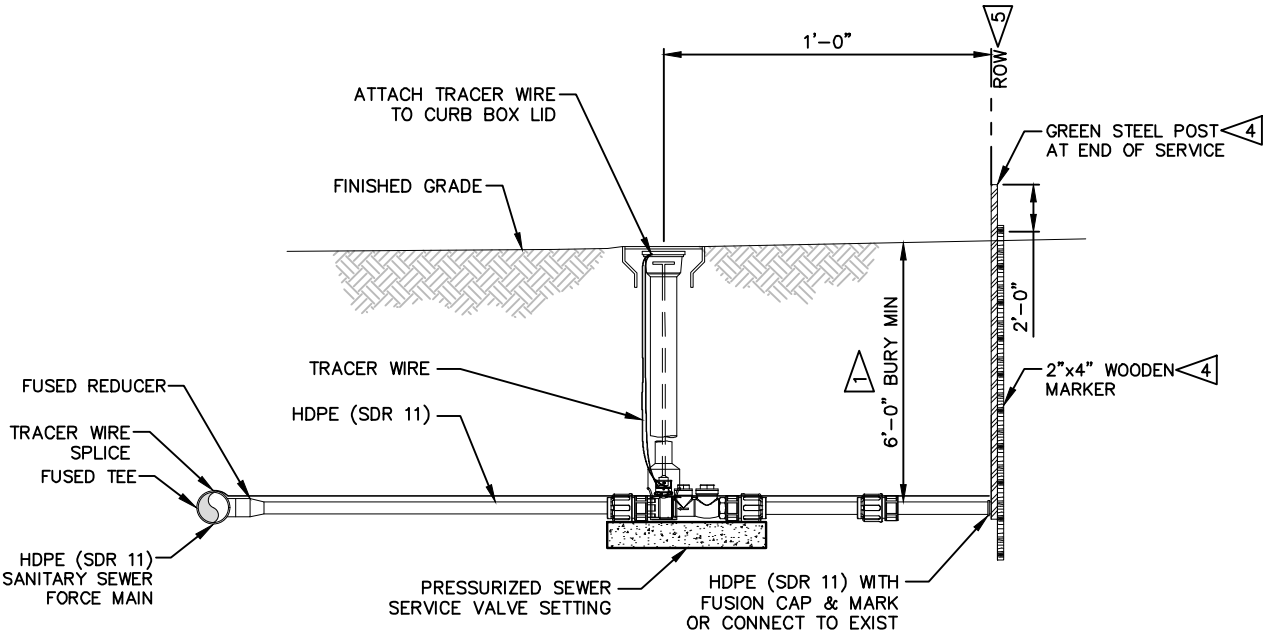


SECTION-A
SCALE: NONE

NOTES:

1. CONCRETE WHIRLY GIG SYSTEM TO ONLY BE IMPLEMENTED UNDER A PUNCH LIST OR WARRANTY SITUATION. (AS DEEMED NECESSARY BY THE ENGINEER)
2. ANY FRAME/GRATE/COVER WITHIN ROADWAY SURFACING THAT FAILS TO MEET THE SPECIFIED SURFACE TOLERANCES WILL BE REQUIRED TO BE RESET USING THE CONCRETE WHIRLY GIG SYSTEM.
3. CONCRETE SHALL INCLUDE THE USE OF FIBER MESH (0.75 POUNDS PER CUBIC YARD OF CONCRETE).
4. FINISHED MANHOLE OR COMBINATION MANHOLE INLET COVER SHALL BE ¼", ±⅛", BELOW FINISHED SURFACE.

5 CONCRETE SHALL BE "KEYED" UNDER ASPHALT TO PREVENT HEAVING.

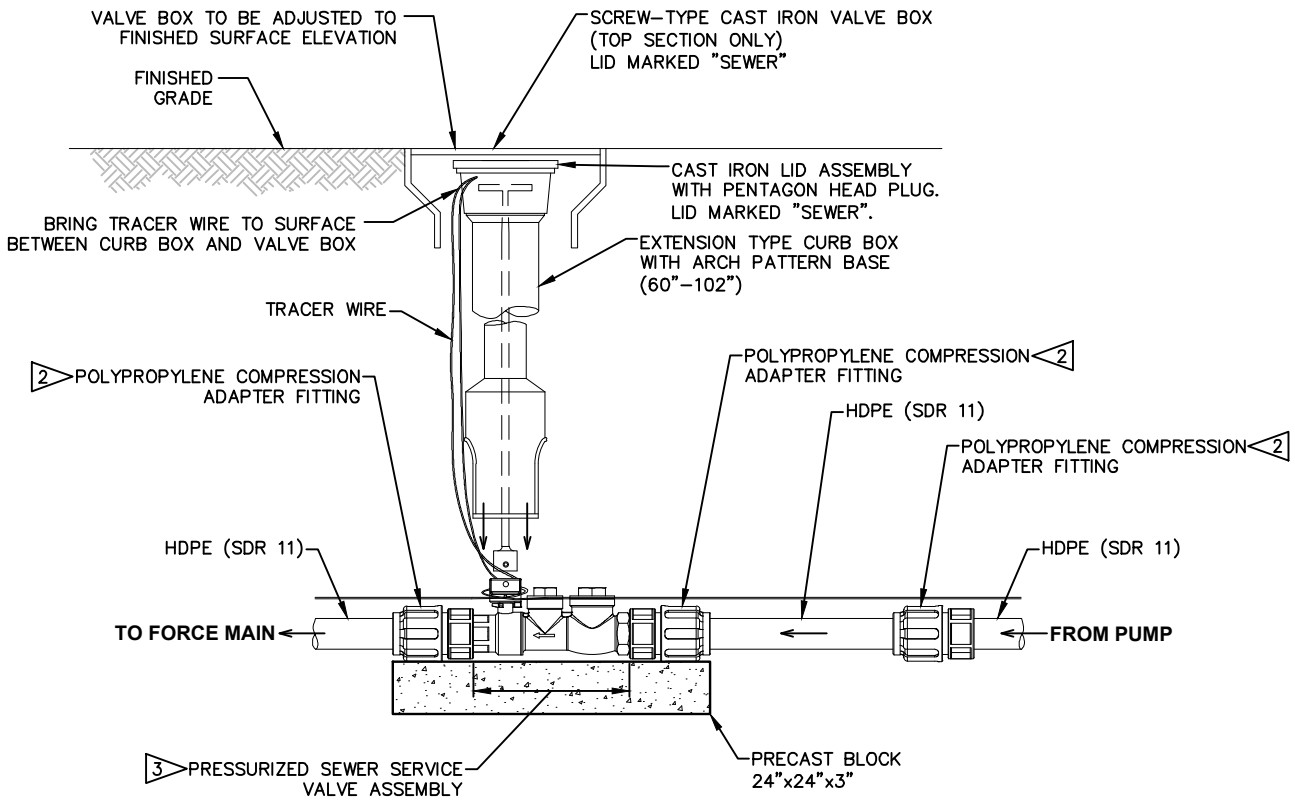


PRESSURIZED SEWER SERVICE

SCALE: NONE

NOTES:

1. ACTUAL DEPTH OF BURY FOR EACH SERVICE VARIES. SERVICES WITH LESS THAN 6'-0" OF BURY SHALL RECEIVE 4" OF RIGID INSULATION THE FULL WIDTH OF THE TRENCH.
2. ALL BACKFILL SHALL BE TYPE A UNLESS OTHERWISE NOTED.
3. SERVICE CONNECTION SHALL MEET ALL REQUIREMENTS OF THE INTERNATIONAL PLUMBING CODE, INCLUDING REQUIRED CLEANOUTS.
4. DO NOT INSTALL WHEN CONNECTION TO EXISTING SERVICE.
5. SERVICE SHALL EXTEND TO THE RIGHT-OF-WAY LINE, UNLESS OTHERWISE SHOWN ON THE PLANS.



PRESSURIZED SEWER SERVICE VALVE SETTING

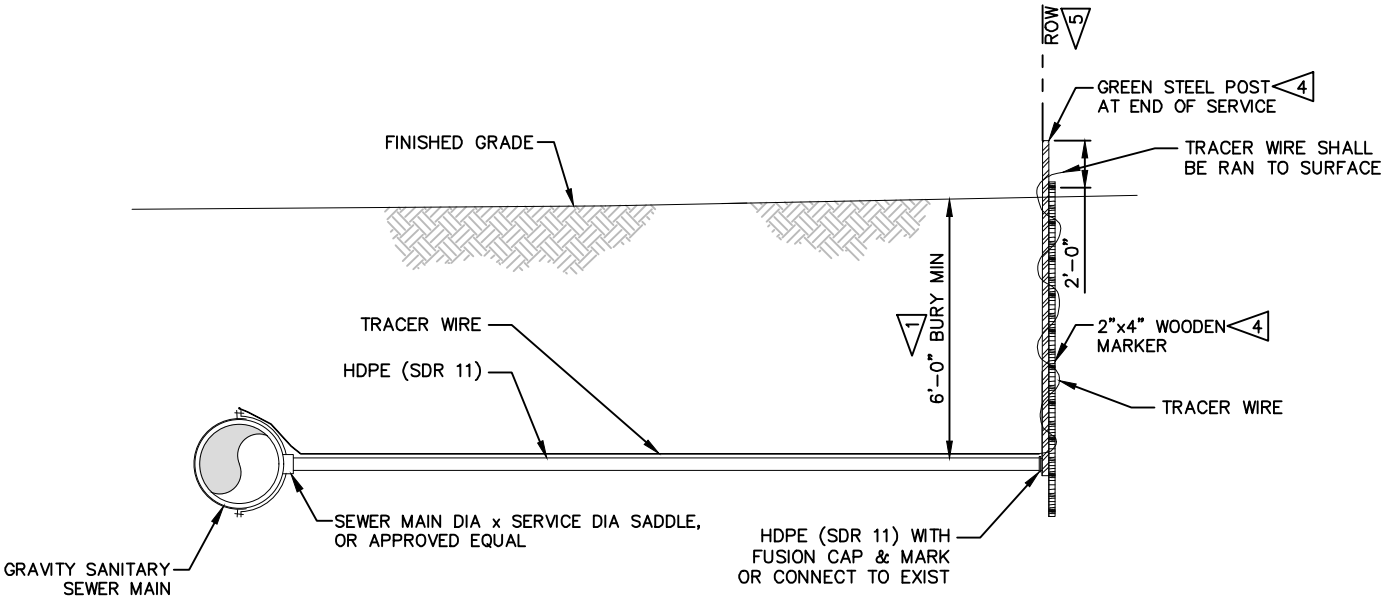
SCALE: NONE

NOTES:

1. NEED TO INSULATE WHERE PIPE IS LESS THAN 6'-0" DEEP. MUST HAVE APPROVAL OF THE PUBLIC WORKS DIRECTOR IF LESS THAN 6-0".

2 TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS.

3 E-ONE STAINLESS STEEL LATERAL KIT (1¼" SDR 11 HDPE PIPE) NA0330P02, OR APPROVED EQUAL.

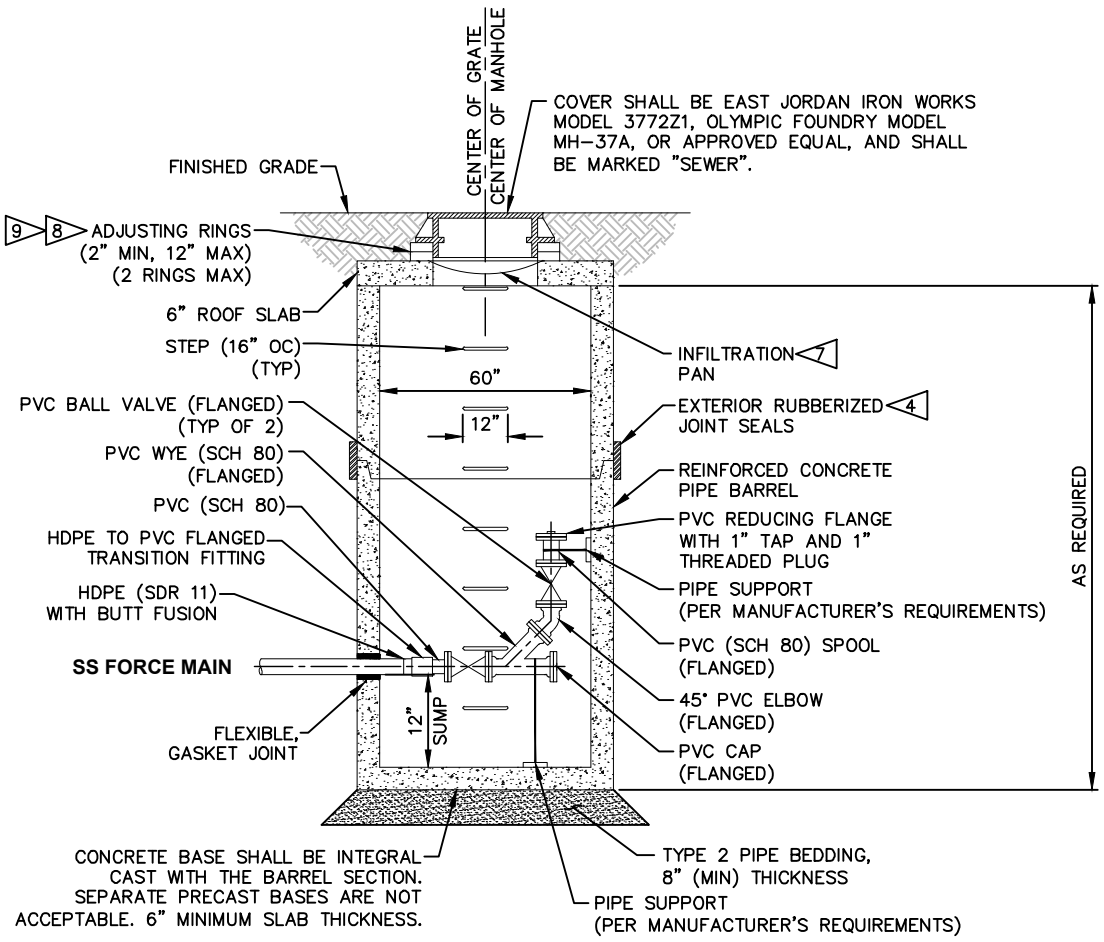


PRESSURIZED SEWER SERVICE

SCALE: NONE

NOTES:

1. ACTUAL DEPTH OF BURY FOR EACH SERVICE VARIES. SERVICES WITH LESS THAN 6'-0" OF BURY SHALL RECEIVE 4" OF RIGID INSULATION THE FULL WIDTH OF THE TRENCH.
2. ALL BACKFILL SHALL BE TYPE A UNLESS OTHERWISE NOTED.
3. SERVICE CONNECTION SHALL MEET ALL REQUIREMENTS OF THE INTERNATIONAL PLUMBING CODE, INCLUDING REQUIRED CLEANOUTS.
4. DO NOT INSTALL WHEN CONNECTING TO EXISTING SERVICE.
5. SERVICE SHALL EXTEND TO THE RIGHT-OF-WAY LINE, UNLESS OTHERWISE SHOWN ON THE PLANS.
6. TRACER WIRE SHALL BE TAPED TO TOP OF ALL PIPE. ALL SPLICES, BREAKS, ETC. TO USE "DRY-CONN" CONNECTORS OR APPROVED EQUAL.



PRESSURIZED SEWER CLEANOUT

SCALE: NONE

NOTES:

1. ALL MANHOLES NOT MANUFACTURED IN ACCORDANCE WITH ASTM C-478M-93 MUST HAVE BITUMINOUS OR COAL TAR EPOXY COAT ON EXTERIOR FOR DAMP PROOFING.
2. PRECAST REINFORCED CONCRETE MANHOLE RISER PER ASTM C-478.
3. ALL JOINTS BETWEEN MANHOLES SECTIONS, ADJUSTING RINGS, MANHOLE RING & TOP SECTION, AND AROUND SEWER PIPE INTO MANHOLE SHALL BE WATERTIGHT. JOINTING MATERIAL SHALL BE "RAMNEK" OR EQUAL FOR ALL JOINTS EXCEPT BETWEEN SEWER PIPE AND MANHOLE WALL.

4 EXTERIOR RUBBERIZED JOINT SEALS, MEETING ASTM C-877. TYPE II WITH A MINIMUM WIDTH OF 9".

5. FINISHED MANHOLES SHALL BE IN COMPLIANCE WITH LATEST EDITION OF MPW STANDARD SPECIFICATIONS.
6. ALL MANHOLES SHALL BE TESTED PER THE SPECIFICATIONS.

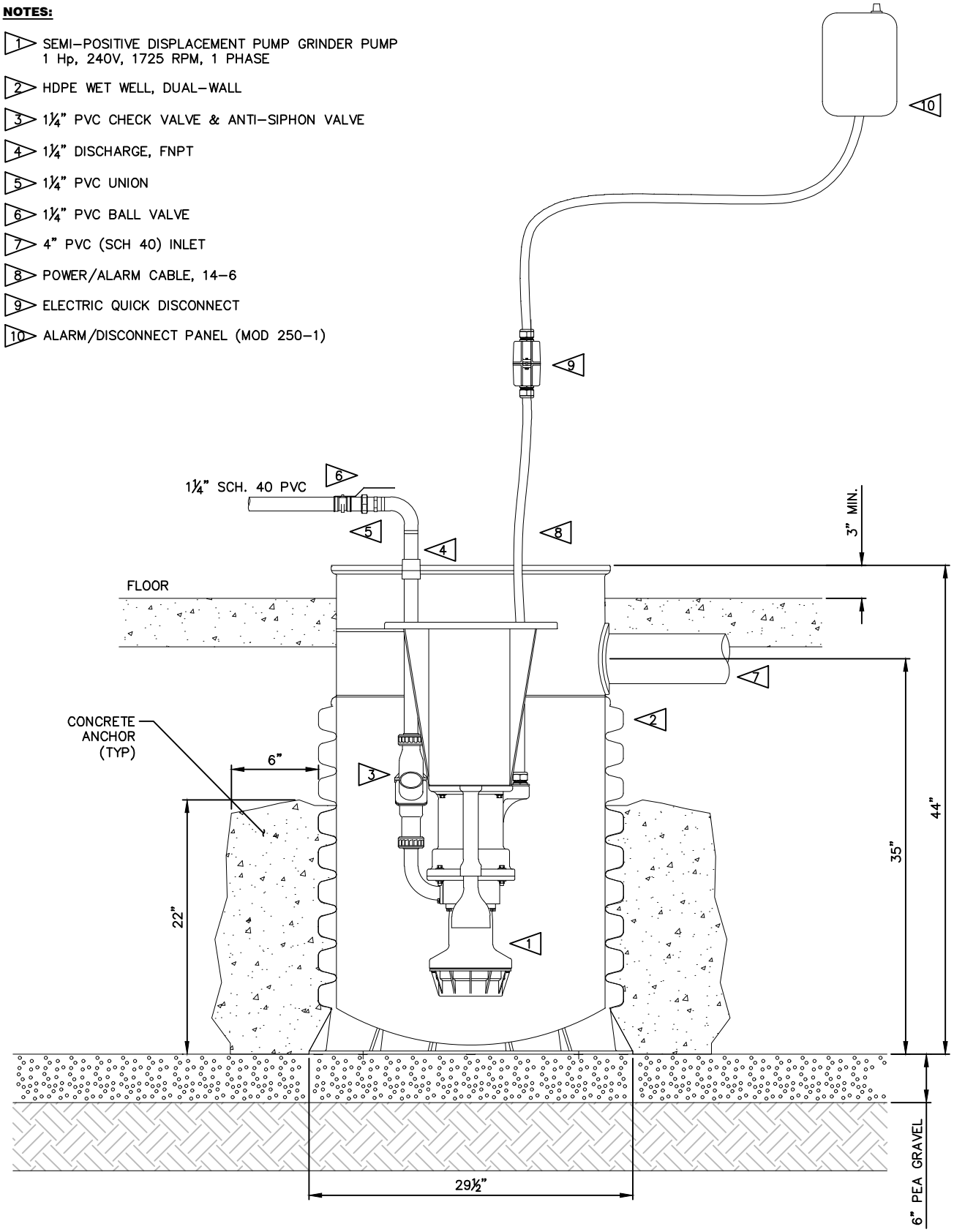
7 INFILTRATION PAN SHALL BE PARSON – HIGH DENSITY POLYETHYLENE, MEETING ASTM D-1248, OR APPROVED EQUAL.

8 SET MANHOLE FRAME AND COVER TO FINISHED GRADE USING LADTECH POLYETHYLENE MANHOLE ADJUSTING RINGS (WEDGE DESIGN) OR APPROVED EQUAL WHEN MANHOLE IS LOCATED WITHIN A STREET, ALLEY OR DRIVEWAY. USE RISER RINGS (2" MIN/12" MAX, 2 RINGS MAX) WHEN NOT WITHIN A STREET, ALLEY OR DRIVEWAY.

9 FINISHED MANHOLE COVER SHALL BE ¼", ±⅛", BELOW FINISHED SURFACE. MAKE FINAL ADJUSTMENTS PRIOR TO PAVING.

NOTES:

1. SEMI-POSITIVE DISPLACEMENT PUMP GRINDER PUMP 1 Hp, 240V, 1725 RPM, 1 PHASE
2. HDPE WET WELL, DUAL-WALL
3. 1¼" PVC CHECK VALVE & ANTI-SIPHON VALVE
4. 1¼" DISCHARGE, FNPT
5. 1¼" PVC UNION
6. 1¼" PVC BALL VALVE
7. 4" PVC (SCH 40) INLET
8. POWER/ALARM CABLE, 14-6
9. ELECTRIC QUICK DISCONNECT
10. ALARM/DISCONNECT PANEL (MOD 250-1)

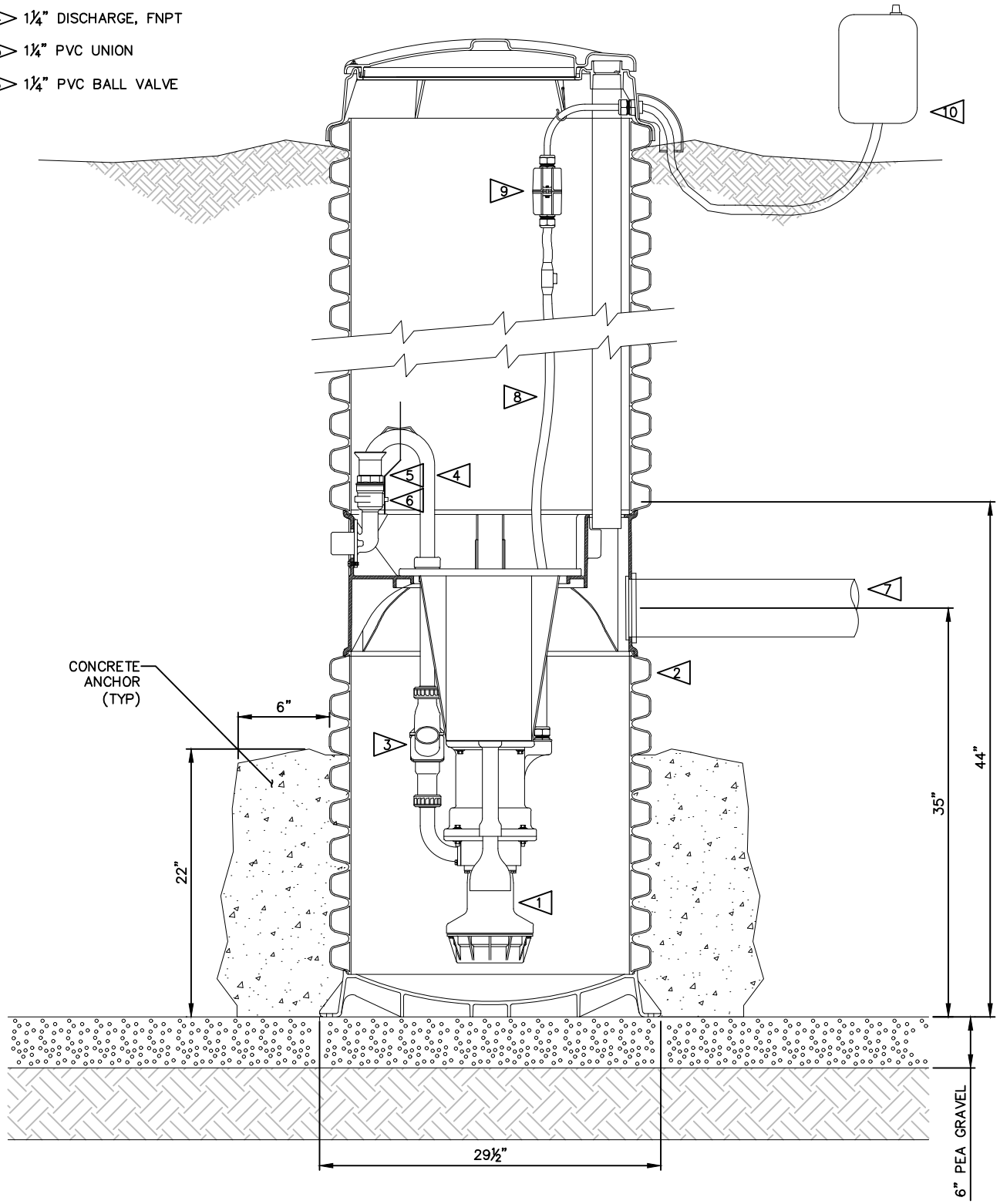


INSIDE GRINDER PUMP

SCALE: NONE

NOTES:

1. SEMI–POSITIVE DISPLACEMENT PUMP GRINDER PUMP 1 Hp, 240V, 1725 RPM, 1 PHASE
2. USE WHEN SINGLE GRINDER PUMP (ONE RESIDENCE) CONNECTED TO CITY GRAVITY SANITARY SEWER MAIN.
3. 1¼" PVC CHECK VALVE & ANTI–SIPHON VALVE
4. 1¼" DISCHARGE, FNPT
5. 1¼" PVC UNION
6. 1¼" PVC BALL VALVE
7. 4" PVC (SCH 40) INLET
8. POWER/ALARM CABLE, 14–6
9. ELECTRIC QUICK DISCONNECT
10. ALARM/DISCONNECT PANEL (MOD 250–1)



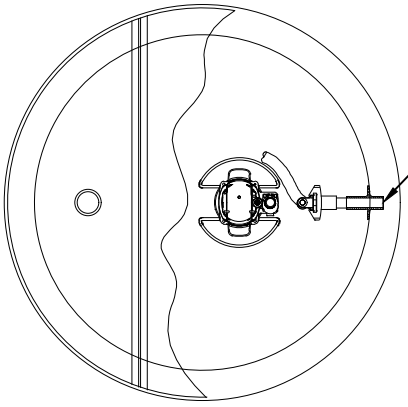
OUTSIDE GRINDER PUMP

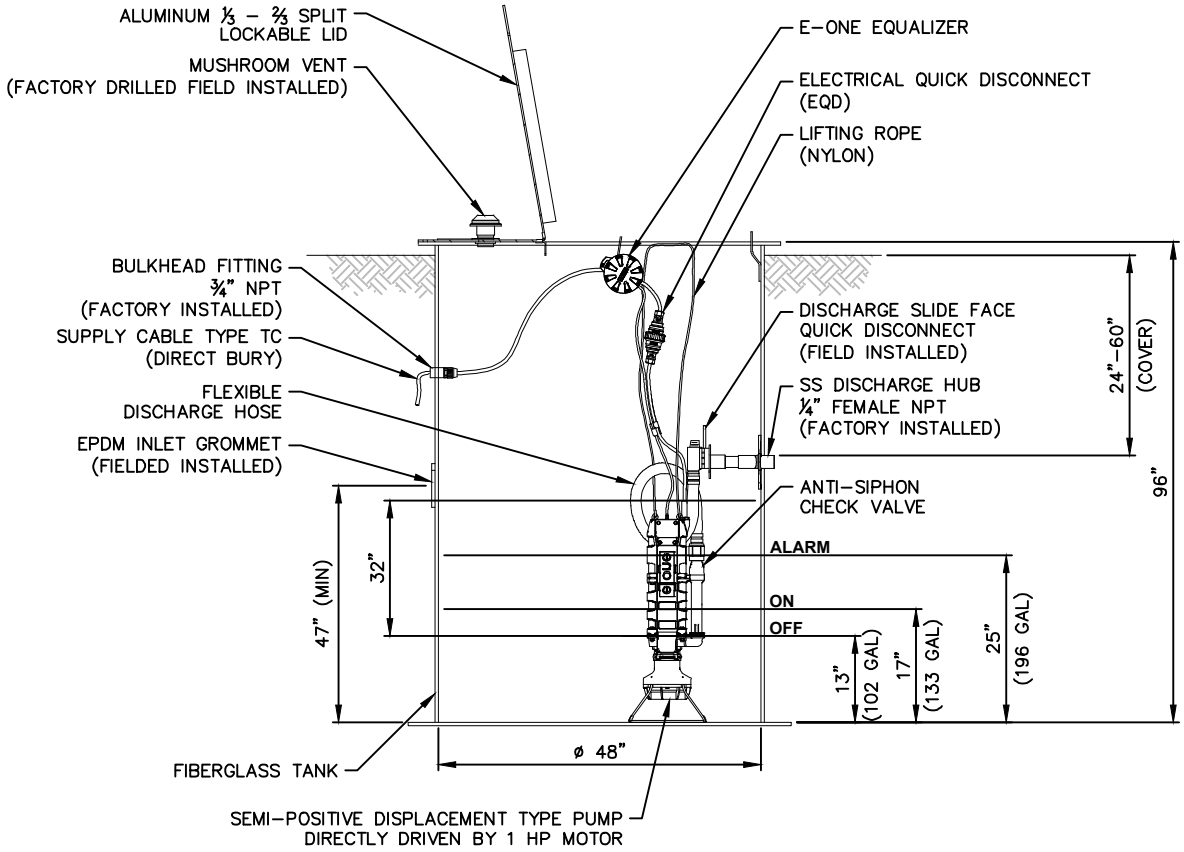
SCALE: NONE

CONSTRUCTION STANDARDS CITY OF WHITEFISH	OUTSIDE GRINDER PUMP	SD–49

NOTES:

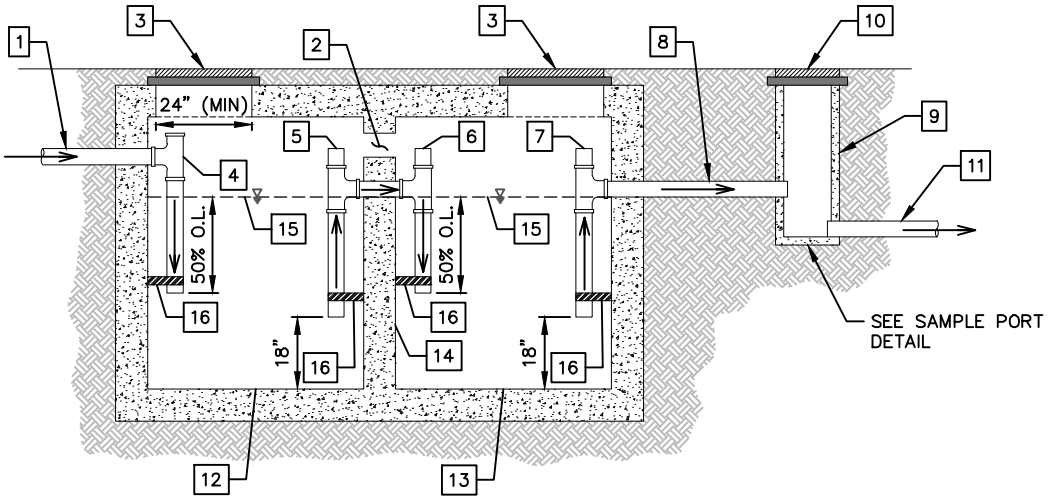
1. STATION TO BE USED WITH (1) SENTRY SIMPLEX PANEL.
2. USE WHEN MULTIPLE GRINDER PUMPS ARE CONNECTED TO SHARED SEWER FORCE MAIN. SIZE PER DEQ CIRCULAR 2, APPENDIX C.





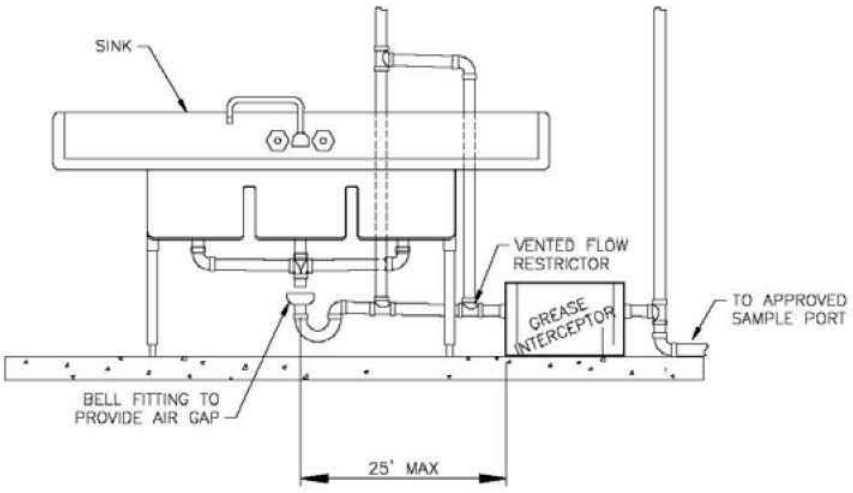
NOTES:

1. INFLUENT LINE
2. 6" DIAMETER VENT SLEEVE
3. MINIMUM 24" OPENING WITH RING AND LID
4. PRIMARY CHAMBER OUTLET PIPING (MUST EXTEND TO 50% OF THE OPERATING LEVEL)
5. PRIMARY CHAMBER OUTLET PIPING (MUST EXTEND TO 18" FROM BOTTOM OF CHAMBER)
6. SECONDARY CHAMBER INLET PIPING (MUST EXTEND TO 50% OF THE OPERATING LEVEL)
7. SECONDARY CHAMBER OUTLET PIPING (MUST EXTEND TO 18" FROM BOTTOM OF CHAMBER)
8. GREASE INTERCEPTOR DISCHARGE LINE
9. SAMPLE PORT
10. SAMPLE PORT RING AND LID
11. SAMPLE PORT DISCHARGE LINE TO CITY'S SANITARY SEWER
12. PRIMARY CHAMBER (2/3 TOTAL VOLUME)
13. SECONDARY CHAMBER (1/3 TOTAL VOLUME)
14. BAFFLE
15. GREASE INTERCEPTOR OPERATING LEVEL
16. PIPE SUPPORT

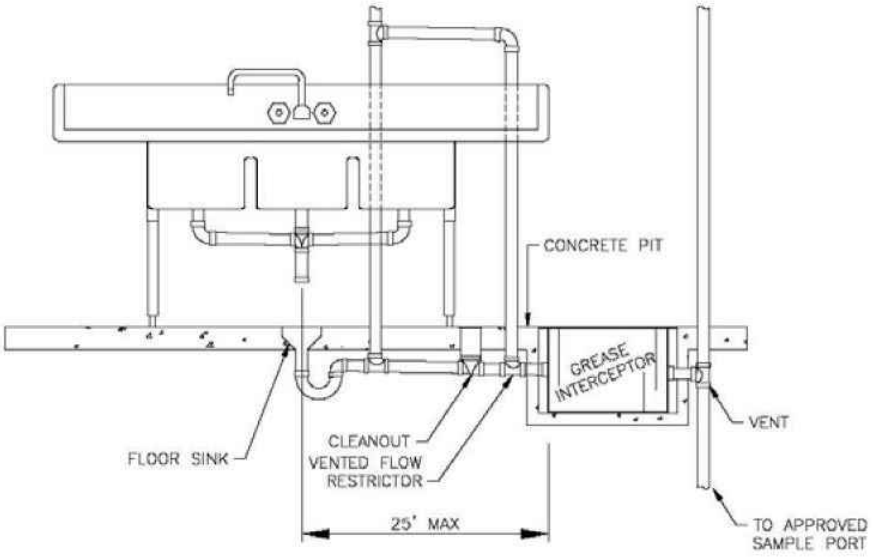


EXTERIOR GREASE INTERCEPTOR

SCALE: NONE



INTERIOR ABOVE GRADE INTERCEPTOR



INTERIOR BELOW GRADE INTERCEPTOR

INTERIOR GREASE INTERCEPTOR

SCALE: NONE

EXTERIOR GREASE, SAND & OIL INTERCEPTOR AND SAMPLE PORT REQUIREMENTS

MATERIALS:

TRAFFIC RATED LOCATIONS:
1. CONCRETE GRADE RINGS – 4,000 PSI MINIMUM
2. REINFORCED CONCRETE PIPE – 4,000 PSI MINIMUM

NON–TRAFFIC RATED LOCATIONS:
1. CONCRETE GRADE RINGS – 4,000 PSI MINIMUM
2. HDPE GRADE RINGS
3. BLACK DOUBLE WALL CORRUGATED HDPE PIPE

GROUT AND SEALANTS:
1. RAMNEK OR APPROVED EQUIVALENT MUST BE USED TO SEAL BETWEEN THE GREASE INTERCEPTOR LID, EACH GRADE RING AND THE MANHOLE RING
2. THE FIRST GRADE RING MUST BE GROUTED TO THE INTERCEPTOR LID.

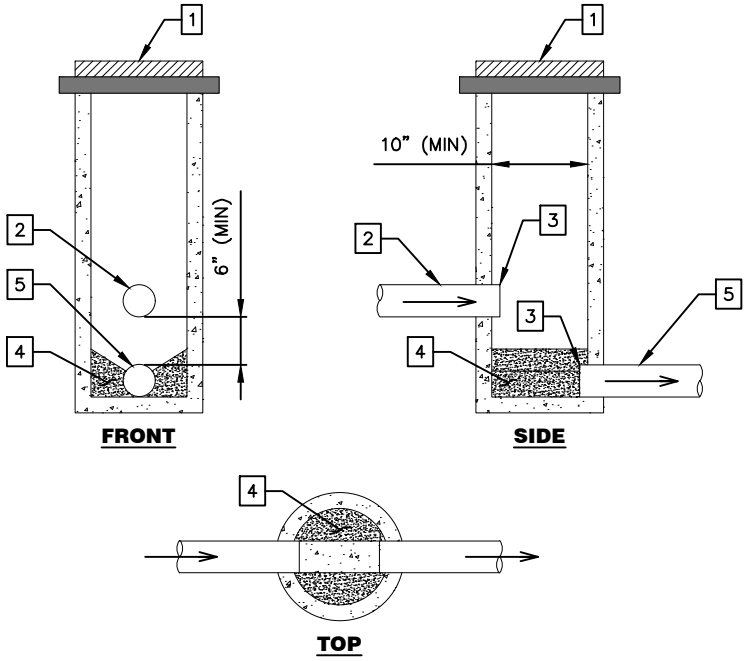
COMPOSITE, POLYETHYLENE AND FIBERGLASS INTERCEPTORS:
1. THESE INTERCEPTORS CAN ONLY USE MANUFACTURER SUPPLIED MANHOLE AND INSPECTION PORT RISERS.
2. IF LOCATED IN TRAFFIC AREAS, MEASURES MUST BE PUT IN PLACE TO MEET HS–20 LOADINGS FOR ALL APPLICABLE AREAS OF THE SYSTEM.

SAMPLE PORTS:

1. ALL INTERCEPTORS ARE TO BE INSTALLED WITH A SAMPLING PORT THAT RECEIVES FLOW FROM THE INTERCEPTOR'S EFFLUENT.
2. TEE PIPING ON THE INTERCEPTOR'S INTERIOR WILL NOT SUFFICE AS A SAMPLE PORT.
3. SAMPLE PORTS MUST BE LOCATED IN AREAS PROTECTED FROM VEHICLE TRAFFIC.
4. SAMPLE PORTS ARE TO BE CLEANED AND INSPECTED DURING ROUTINE INTERCEPTOR PUMPING.
5. SAMPLE PORTS WILL HAVE A MINIMUM 10" DIAMETER ACCESS COVER.
6. SAMPLE PORTS WILL HAVE A MINIMUM 6" DROP BETWEEN INLET AND DISCHARGE PIPING.
7. SAMPLE PORTS MUST DRAIN COMPLETELY AND NOT HOLD WATER. BOTTOM TO BE GROUTED AND SLOPED.
8. INLET PIPE PENETRATION MUST EXTEND 1" PAST THE INSIDE WALL OF THE SAMPLE PORT. PENETRATIONS ARE TO BE SEALED TO PREVENT LEAKS.

NOTES:

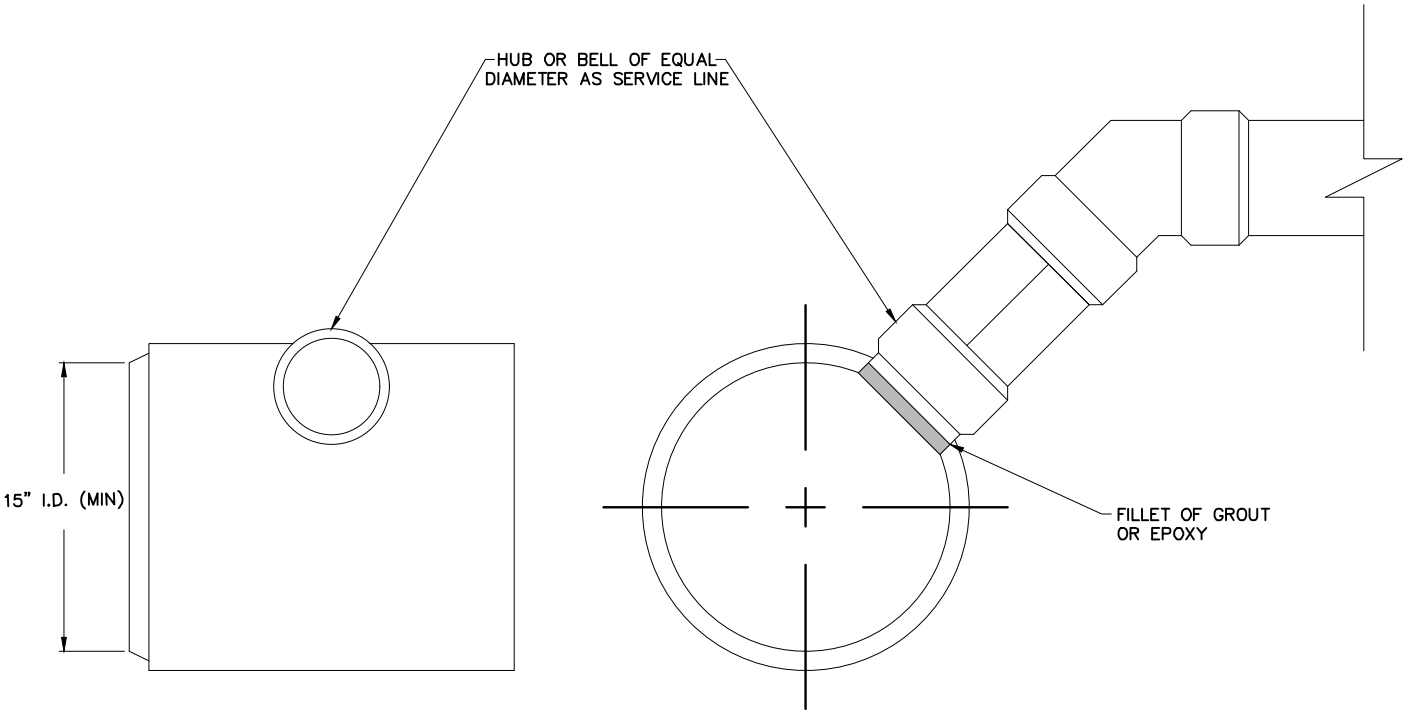
1. SAMPLE PORT RING AND LID
2. GREASE INTERCEPTOR DISCHARGE LINE
3. PIPE PENETRATION (EXTEND 1" PAST THE INSIDE WALL OF THE SAMPLE PORT, MUST BE SEALED TO PREVENT LEAKS. IF USING PVC, A SADDLE MUST BE USED)
4. GROUT (SLOPED TO WASTEWATER CHANNEL. THE SAMPLE PORT MUST DRAIN COMPLETELY AND NOT HOLD WATER)
5. SAMPLE PORT DISCHARGE LINE TO CITY'S SANITARY SEWER



EXTERIOR GREASE, SAND & OIL INTERCEPTORS
SAMPLE PORT DESIGN & MATERIALS

SCALE: NONE

STORM SEWER DETAILS

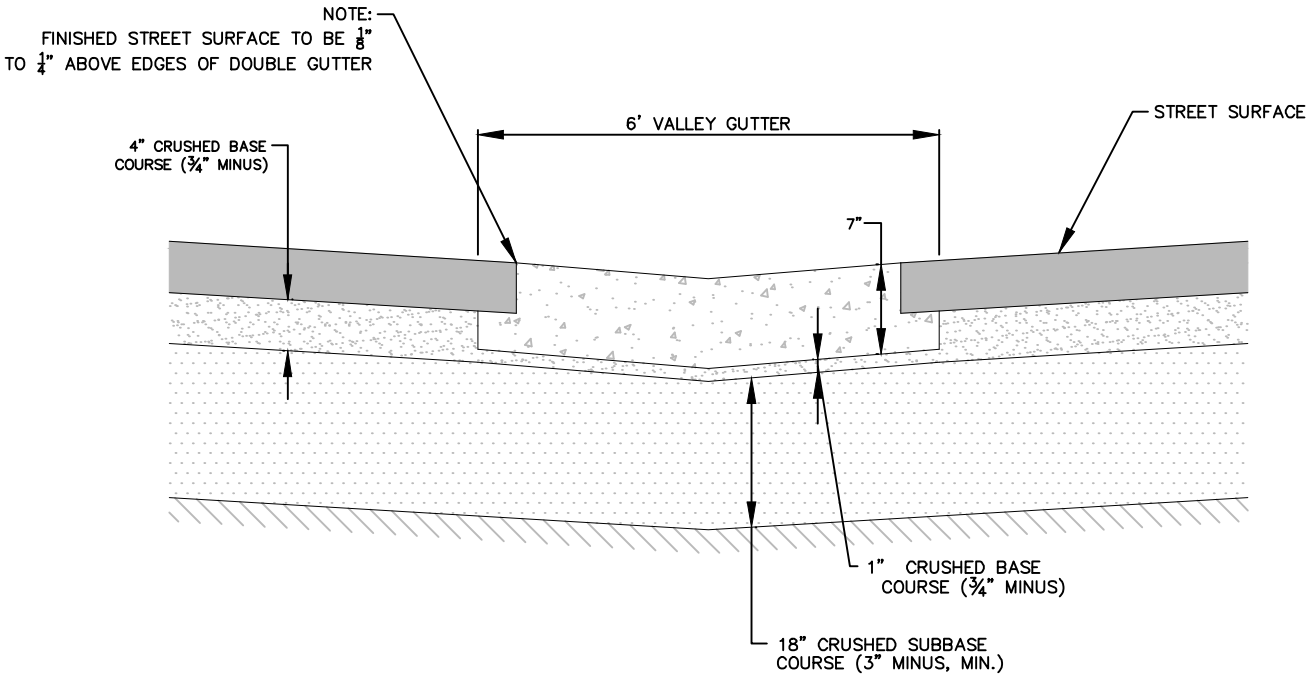


STORM DRAIN SERVICE CONNECTION

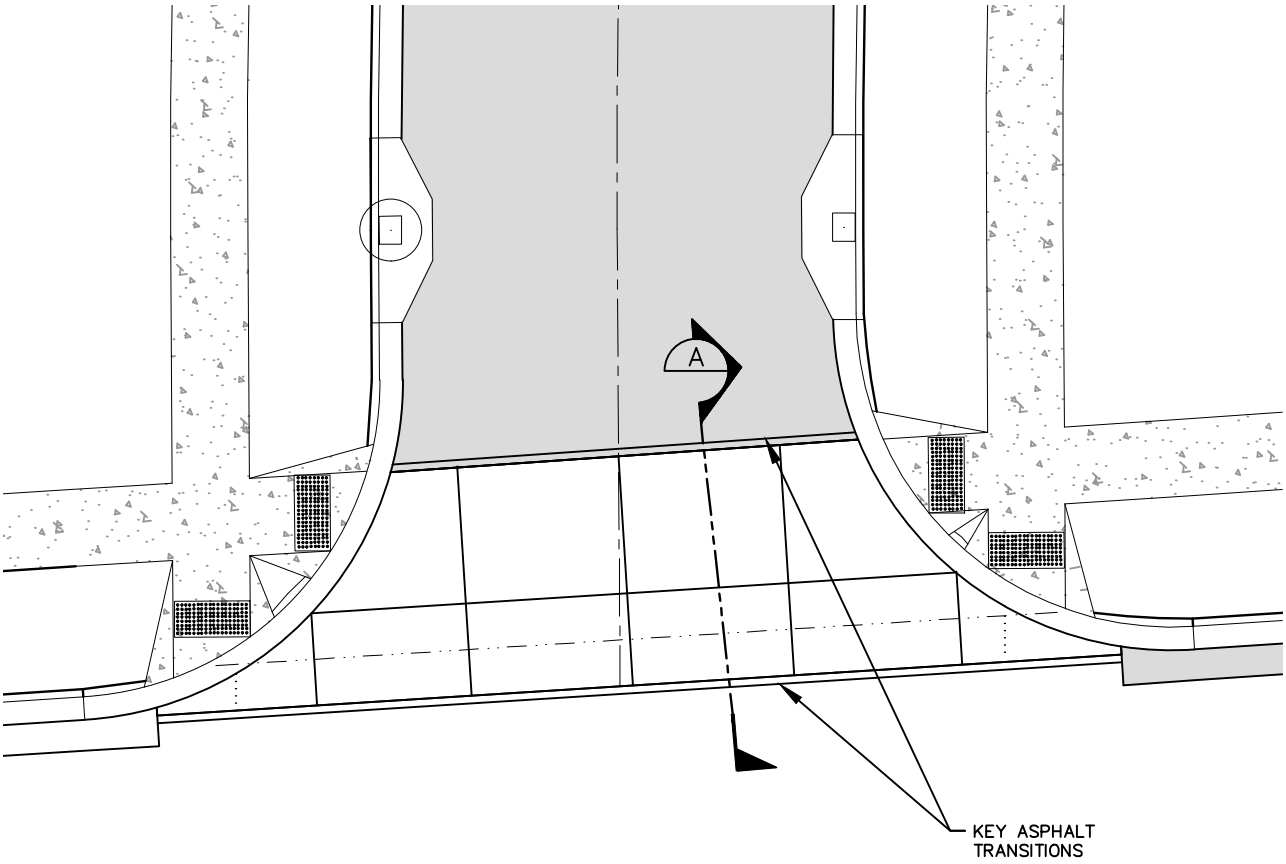
SCALE: NONE

NOTES:

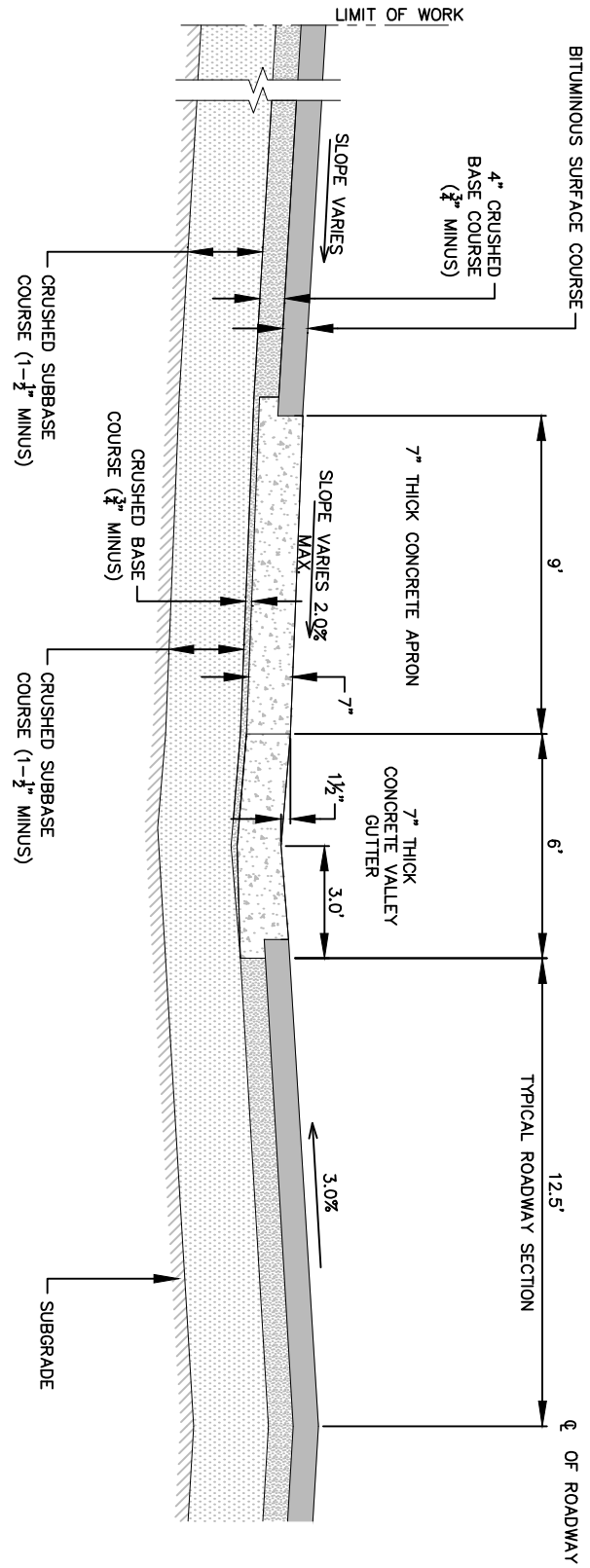
1. THIS TYPE OF CONNECTION SHALL BE USED ON MAINS OF 15 INCHES OR LARGER DIAMETER.
2. HUB OR BELL OF EQUAL DIAMETER AND TYPE OF PIPE WHICH WILL BE USED FOR THE SERVICE LINE SHALL BE USED FOR THE CONNECTION FITTING TO THE EXISTING MAIN.
3. HUB OR BELL MUST NOT PROTRUDE MORE THAN $\frac{1}{4}$ INCH INTO EXISTING MAINS.
4. ALL CONNECTIONS TO MAINS SHALL BE WATERTIGHT. A FILLET OF GROUT OR EPOXY SHALL BE APPLIED AROUND THE DIAMETER OF THE HUB OR BELL TO ASSURE A WATERTIGHT OR LEAK PROOF CONNECTION.
5. THIS TYPE OF CONNECTION SHALL BE APPROVED BY THE CITY PRIOR TO INSTALLATION.
6. ALL CONSTRUCTION PHASES OF THIS TYPE OF CONNECTION SHALL BE INSPECTED BY THE CITY OF WHITEFISH'S PUBLIC WORKS DEPARTMENT.
7. LINES UNDER 15" I.D. WILL REQUIRE A SADDLE.



CONCRETE VALLEY GUTTER
SCALE: NONE

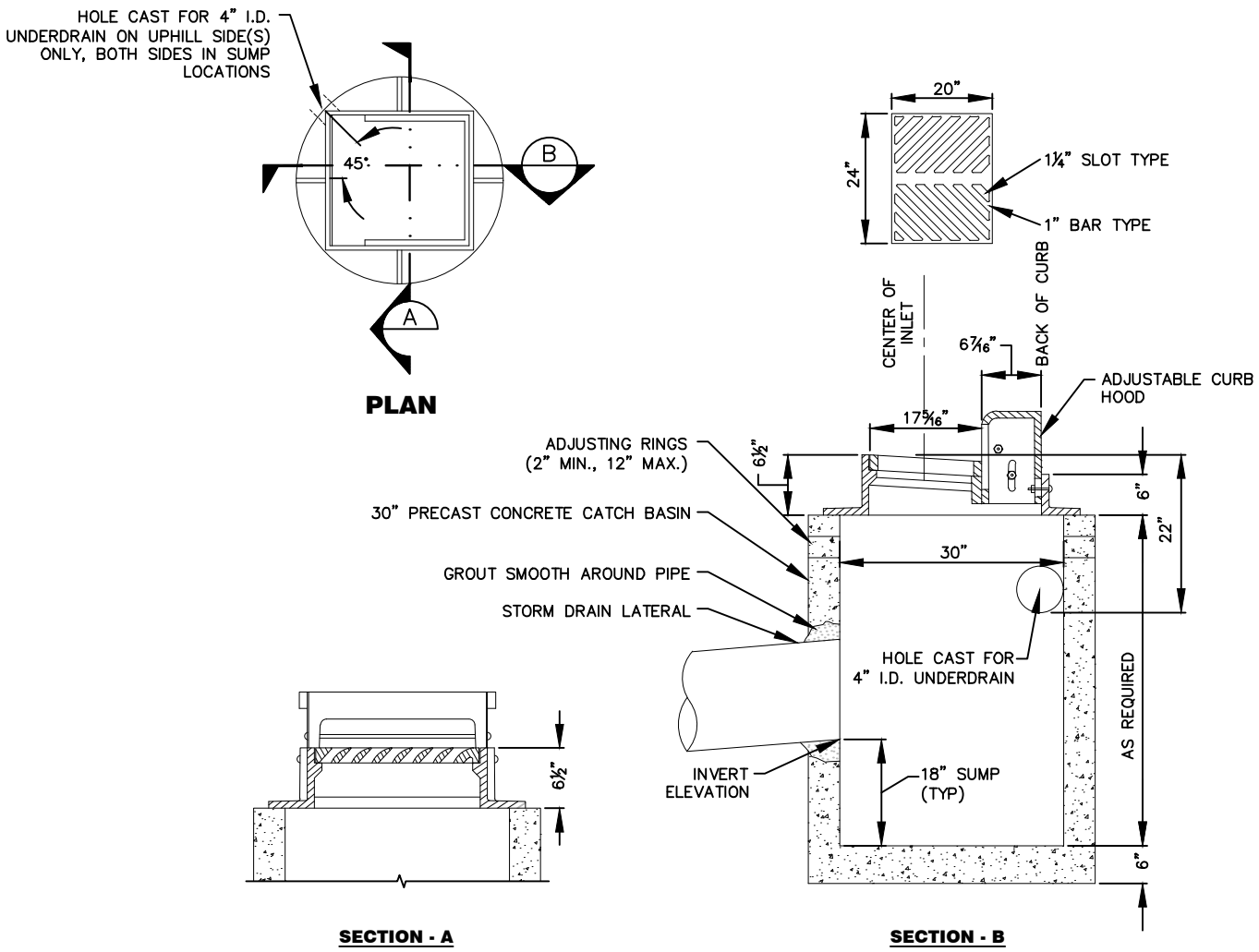


PLAN VIEW CONCRETE VALLEY GUTTER W/ APRON
SCALE: NONE



CONCRETE VALLEY GUTTER WITH APRON SECTION (A)

SCALE: NONE



NOTES:

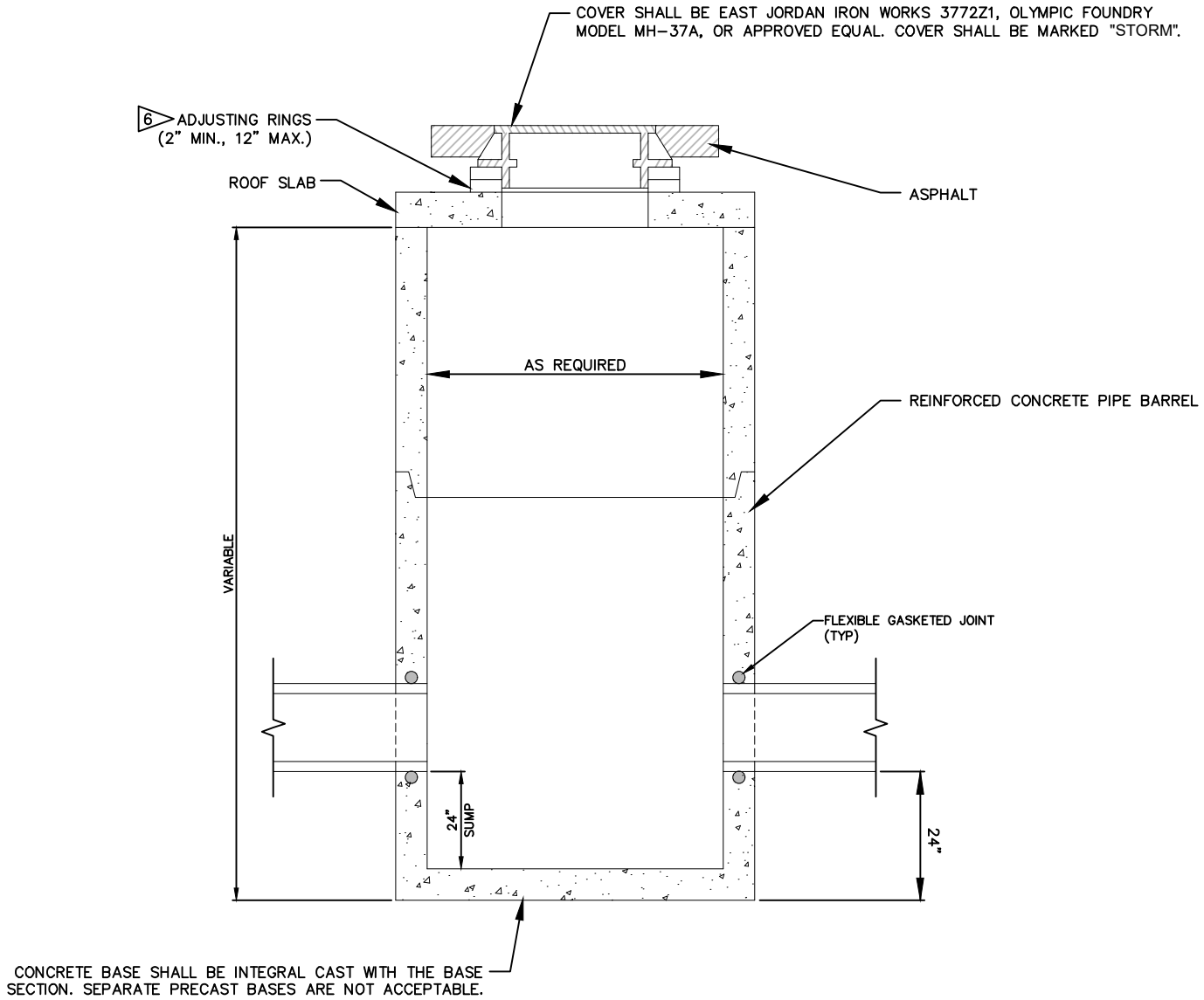
1. ALL CURB INLETS SHALL BE EAST JORDAN IRON WORKS 7752 CURB AND GUTTER INLET WITH 7750 M1 (HERRINGBONE) GRATE, OR APPROVED EQUAL.
2. ALL HOLES IN NEW INLETS SHALL BE CAST OR CORED. UNDER DRAIN HOLES MAY BE "ROTO-HAMMERED" IN THE FIELD.
3. "DUMP NO POLLUTANTS, OUTFALL TO STREAM" SHALL BE FORGED IN TOP OF HOOD, OR APPROVED EQUAL.

STORM DRAIN INLET DETAIL

SCALE: NONE

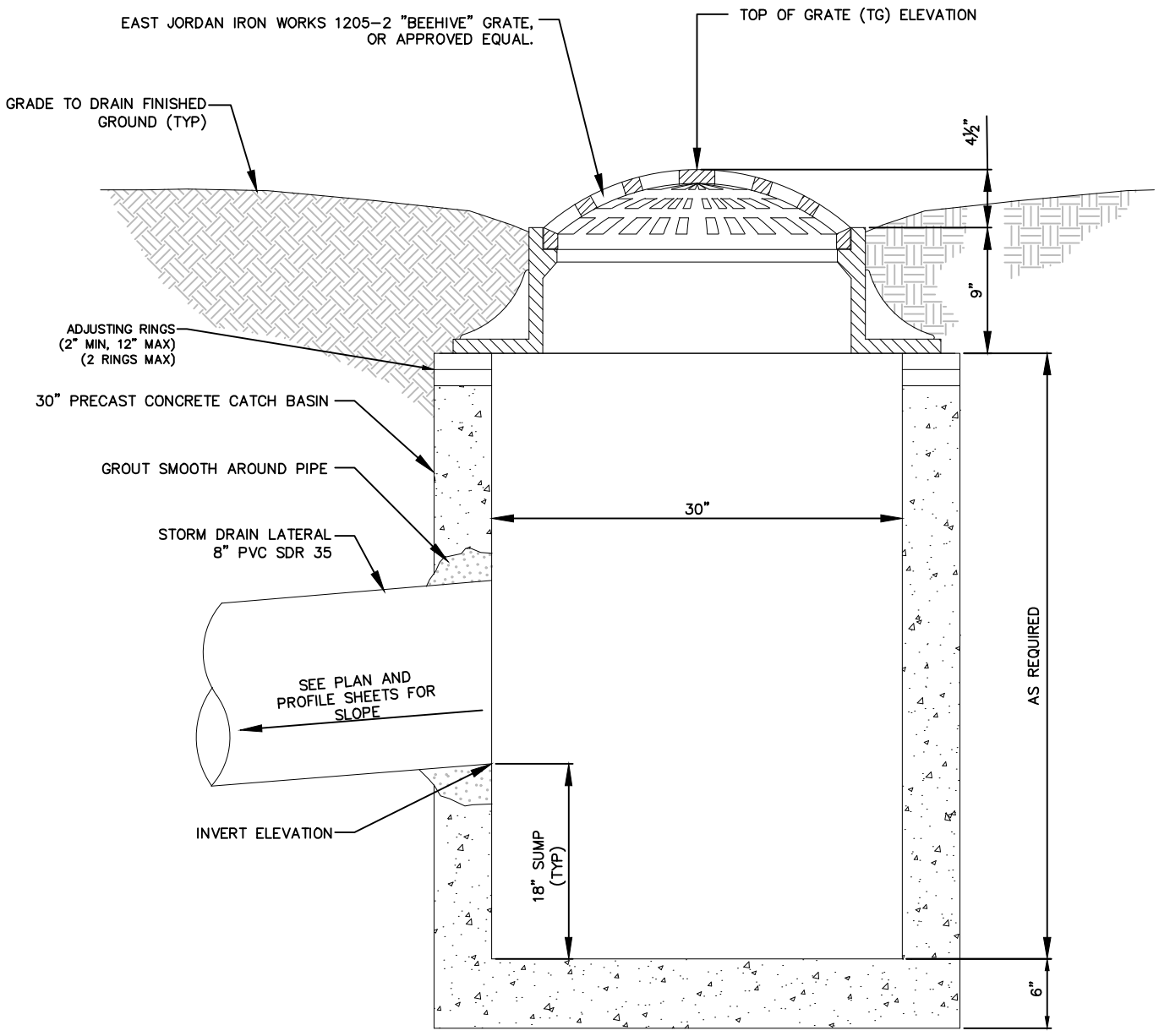
NOTES:

1. ALL JOINTS BETWEEN MANHOLE SECTIONS, ADJUSTING RINGS, AND MANHOLE FRAME SHALL BE WATERTIGHT. JOINT MATERIAL SHALL BE "RAM-NEK" OR EQUAL.
2. PRECAST REINFORCED CONCRETE MANHOLES SHALL CONFORM TO ASTM C-478.
3. ALL HOLES IN NEW MANHOLES SHALL BE CAST OR CORED.
4. ALL STORM MANHOLES SHALL BE STRAIGHT MANHOLES.
5. ADJUST FRAME AND LID TO MATCH CROWN AND GRADE OF STREET.
6. FIELD SET ADJUSTMENT RINGS TO MATCH STREET/FINISHED GROUND. MANHOLES IN STREETS SHALL INCLUDE AT LEAST ONE (1) LADTECH POLYETHYLENE MANHOLE ADJUSTING RING, WEDGE DESIGN, OR APPROVED EQUAL.



STORM DRAIN MANHOLE

SCALE: NONE



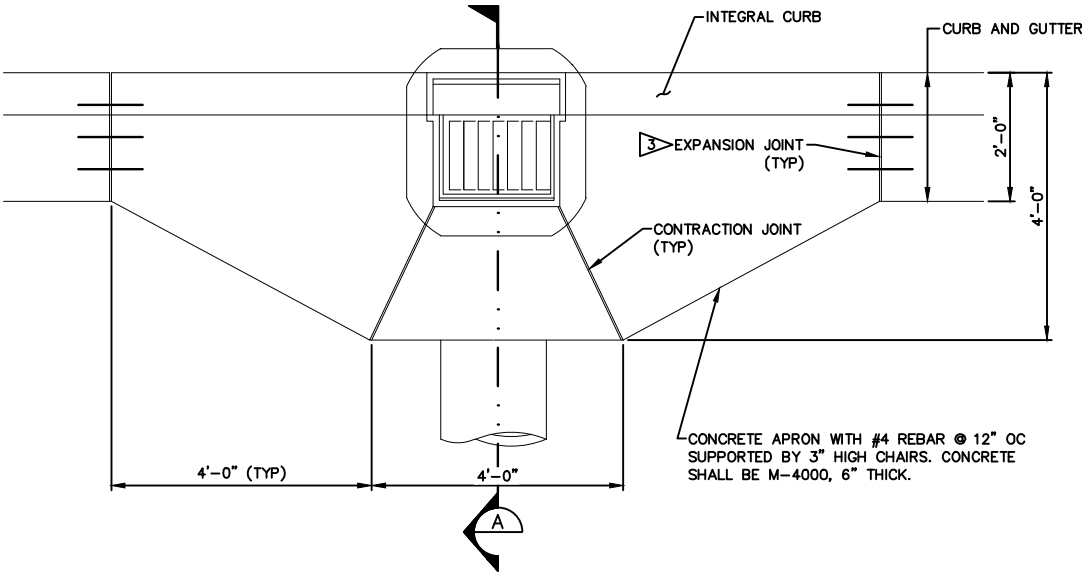
AREA DRAIN AND CATCH BASIN

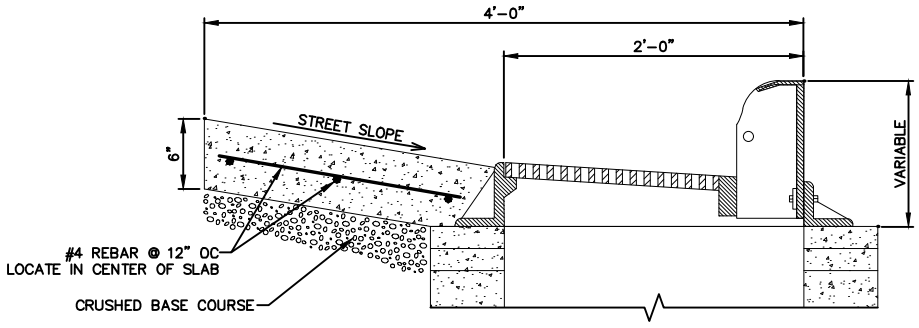
SCALE: NONE

NOTES:

1. PROVIDE CONCRETE APRON AT ALL CURB INLETS.
2. CONCRETE SHALL INCLUDE THE USE OF FIBER MESH (0.75 POUNDS PER CUBIC YARD OF CONCRETE).

3 CONCRETE APRON EXPANSION JOINTS SHALL HAVE 12" SMOOTH DOWELS (½" DIAMETER) PLACED 8" ON CENTER TO PREVENT HEAVING.





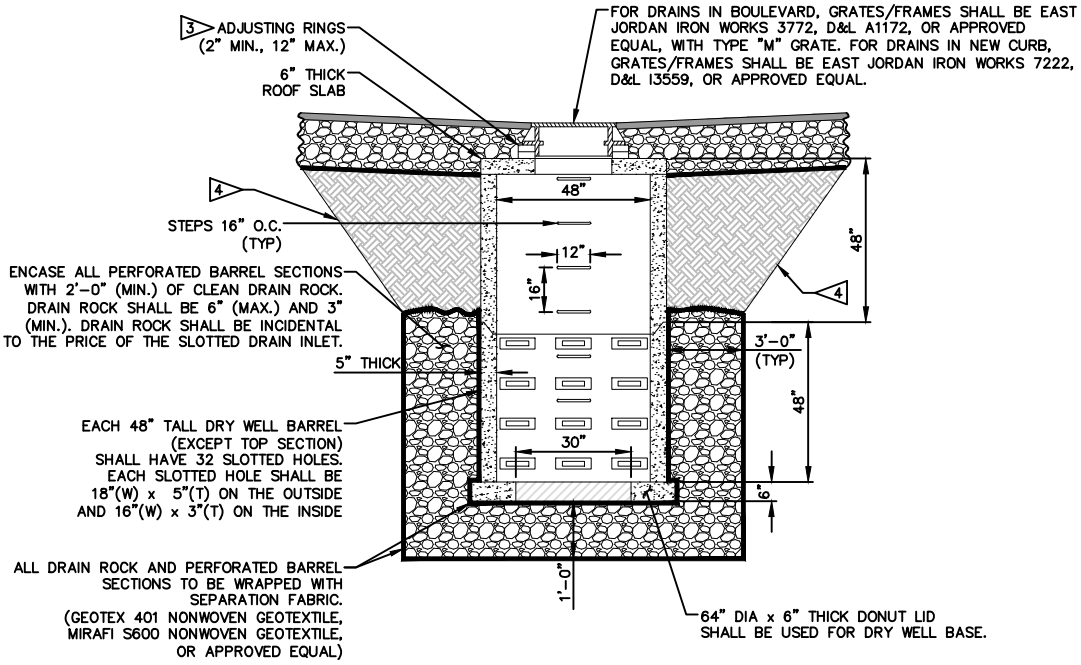
SECTION-A

CONCRETE INLET APRON

SCALE: NONE

NOTES:

1. ALL HOLES IN NEW INLETS SHALL BE CAST OR CORED.
2. PRECAST REINFORCED CONCRETE SHALL CONFORM TO ASTM C-478.
3. FIELD SET ADJUSTMENT RINGS TO MATCH STREET/FINISHED GROUND.
4. TRENCH SHALL BE CONSTRUCTED TO OSHA SPECIFICATIONS FOR EXCAVATION. DRAWINGS DO NOT SHOW TRENCH DIMENSIONS OR BACKSLOPES THAT MAY BE REQUIRED. CONTRACTOR REQUIRED TO DETERMINE WHICH OSHA SPECIFICATIONS ARE APPLICABLE. CONTRACTOR SHALL BE RESPONSIBLE FOR TRENCH EXCAVATION AND SAFETY PER OSHA SPECIFICATIONS.

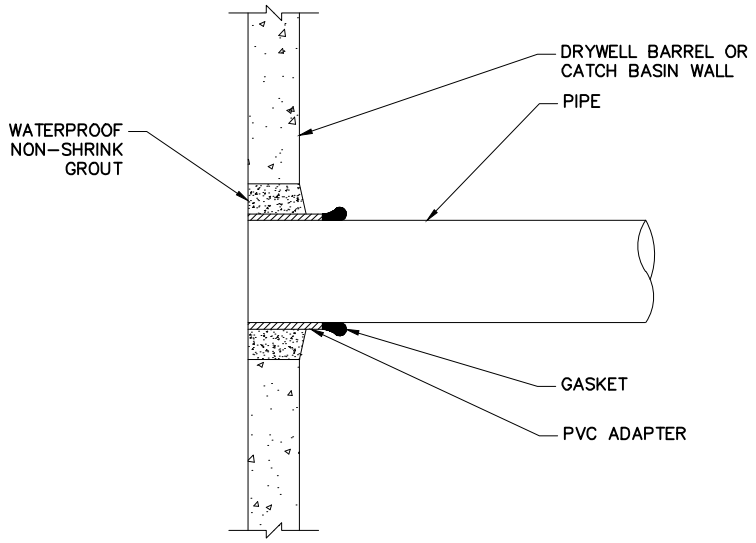


SLOTTED DRAIN INLET

SCALE: NONE

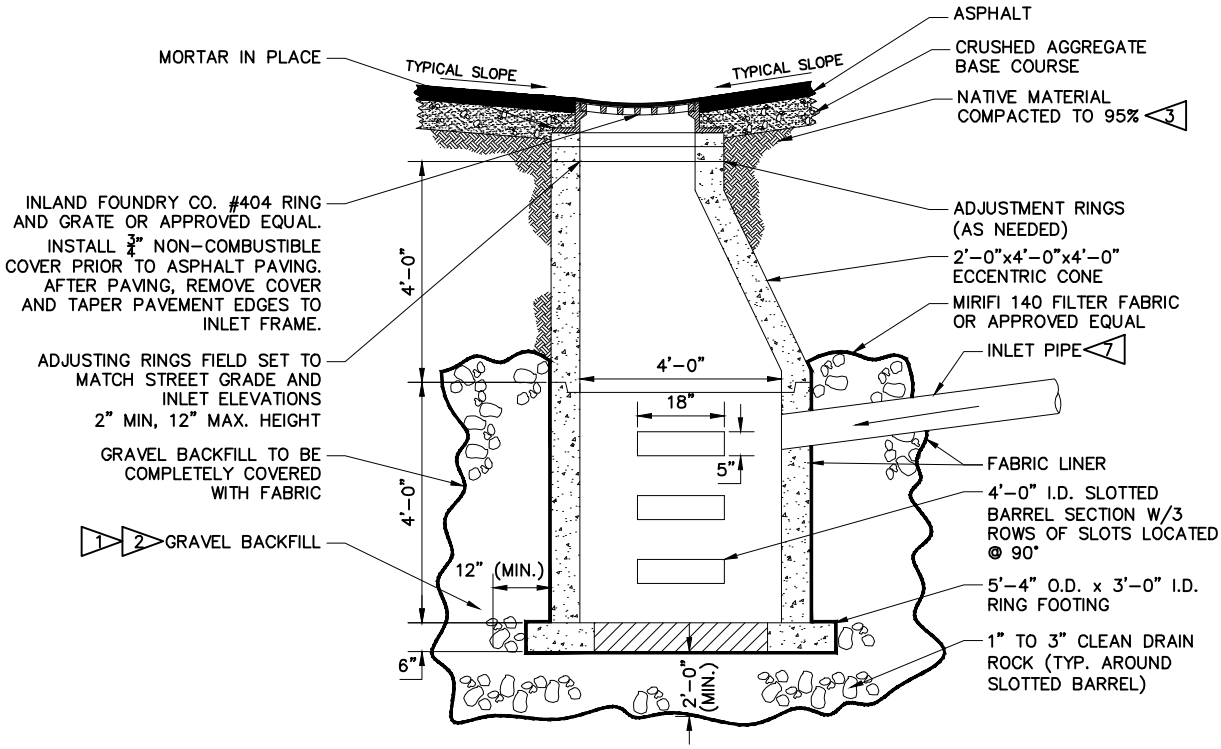
DETAIL NOTES:

PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH ASTM C428.



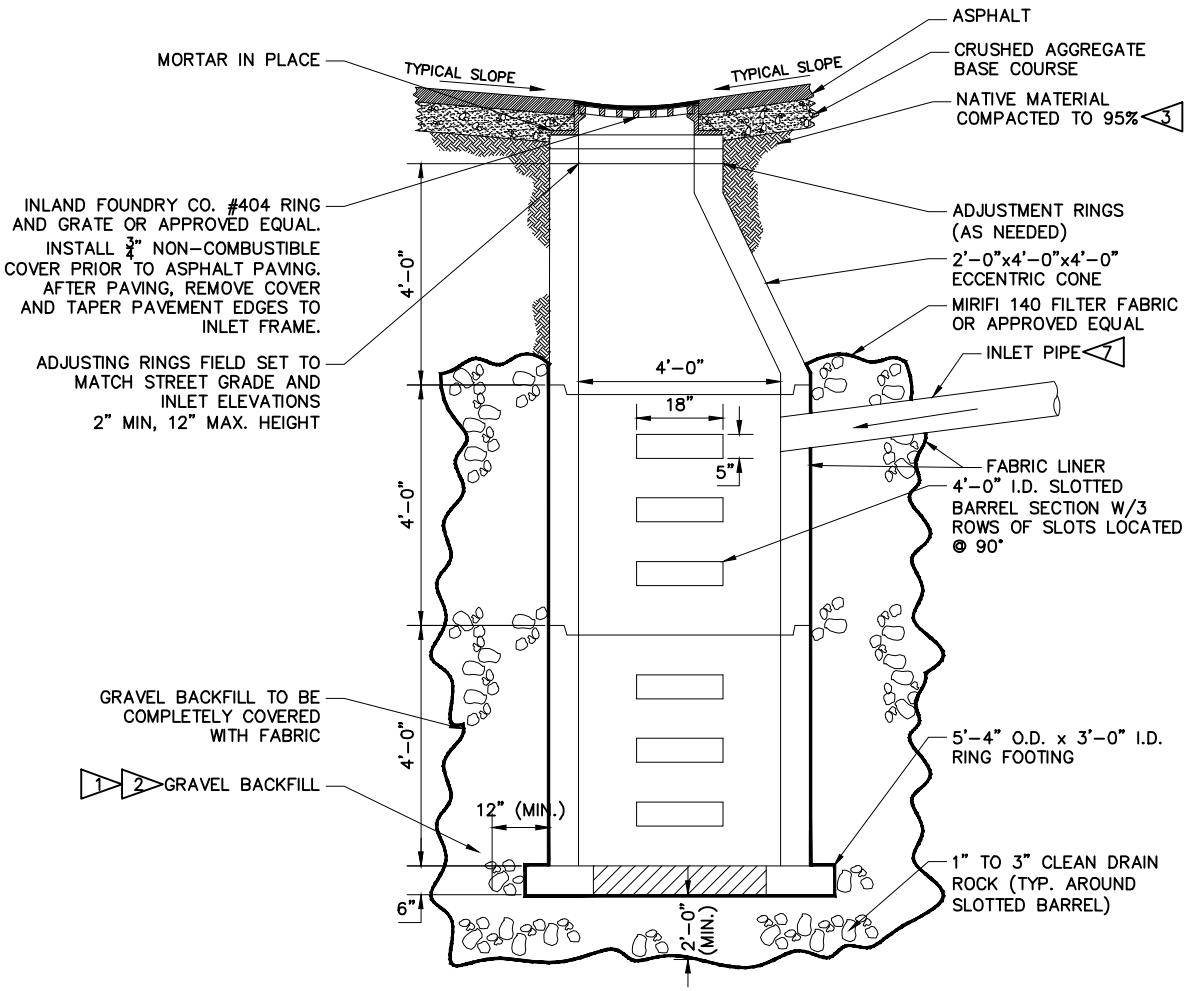
PVC ADAPTER (SAND COLLAR)

SCALE: NONE



DRYWELL - TYPE 'A'

SCALE: NONE



DRYWELL - TYPE 'B'

SCALE: NONE

DRYWELL NOTES:

1. GRAVEL BACKFILL QUANTITY FOR DRYWELLS:
   TYPE "A" – 30 CUBIC YARDS MINIMUM / 42 TONS.
   TYPE "B" – 40 CUBIC YARDS MINIMUM / 56 TONS.

2. SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT. A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.

3. NATIVE BACKFILL: WITH PRIOR APPROVAL OF THE CITY AND THE ENGINEER, ON-SITE EXCAVATED SOIL MAY BE USED TO BACKFILL WATER MAINS, WATER SERVICES, FIRE HYDRANT LEADS, SEWER MAINS AND SEWER SERVICES. BLOCKY OR PLATY CLAY, AND SATURATED OR NEAR SATURATED SOILS, WILL NOT BE PERMITTED FOR USE AS BACKFILL MATERIAL. BACKFILL MATERIAL SHALL BE PLACED IN 12" MAXIMUM DRY DENSITY, AS DETERMINED BY AASHTO T-99 OR ASTM D698. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A PROCTOR (MOISTURE-DENSITY RELATIONSHIP) FOR THE BACKFILL MATERIAL.

4. ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.

5. PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.

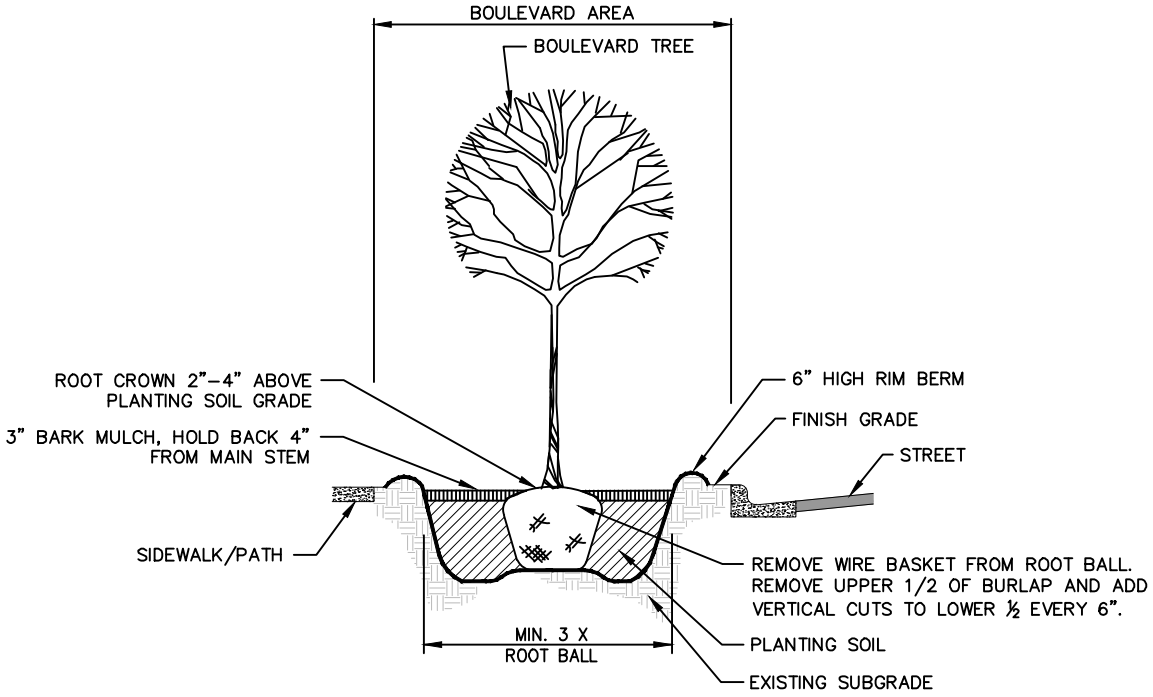
6. WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.

7. PIPES SHALL BE GROUTED INTO DRYWELLS.

TREE PLANTING DETAILS

NOTE:

1. ALL TREE PLANTINGS IN TURF AREAS SHALL BE IN A 5' DIAMETER MULCH RING.
2. ALL BOULEVARD TREE PLANTINGS SHALL BE CENTERED IN BOULEVARD AREA.



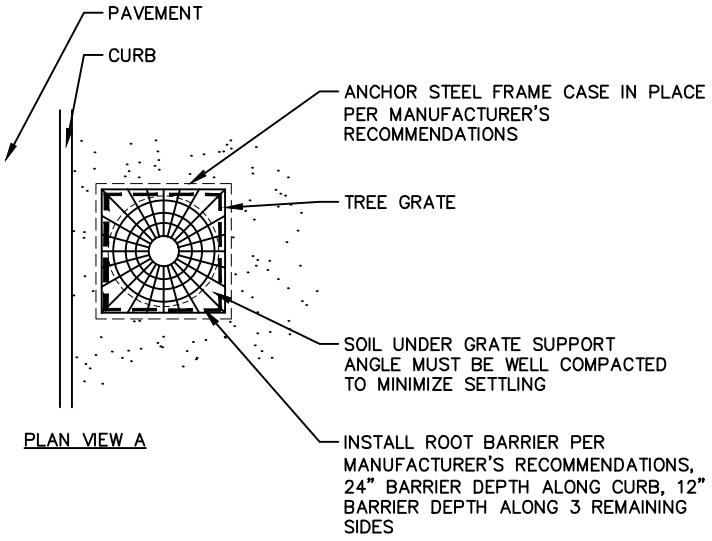
BOULEVARD TREE PLANTING

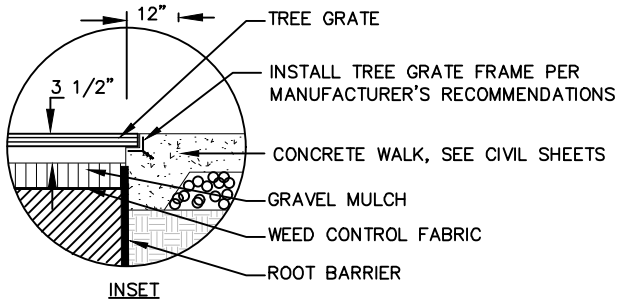
NOT TO SCALE

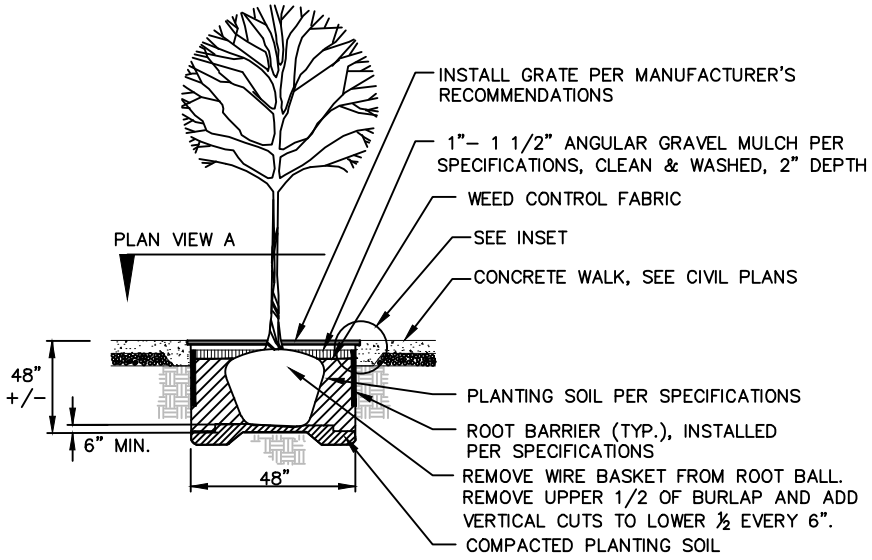
CONSTRUCTION STANDARDS CITY OF WHITEFISH	BOULEVARD TREE PLANTING	SD-66

NOTE:

1. TREE GRATES AND FRAMES SHALL MEET ASTM A 48, CLASS 35b OR BETTER, GREY-IRON CASTINGS OF SHAPE, PATTERN AND SIZE INDICATED.
2. TREE GRATE SHALL BE URBAN ACCESSORIES MODEL CHINOOK TREE GRATE, CAST IRON, 4 FEET SQUARE WITH NATURAL FINISH, OR APPROVED EQUAL.
3. FRAME SHALL BE URBAN ACCESSORIES MODEL STEEL FRAME, 4 FEET SQUARE WITH NATURAL FINISH, OR APPROVED EQUAL







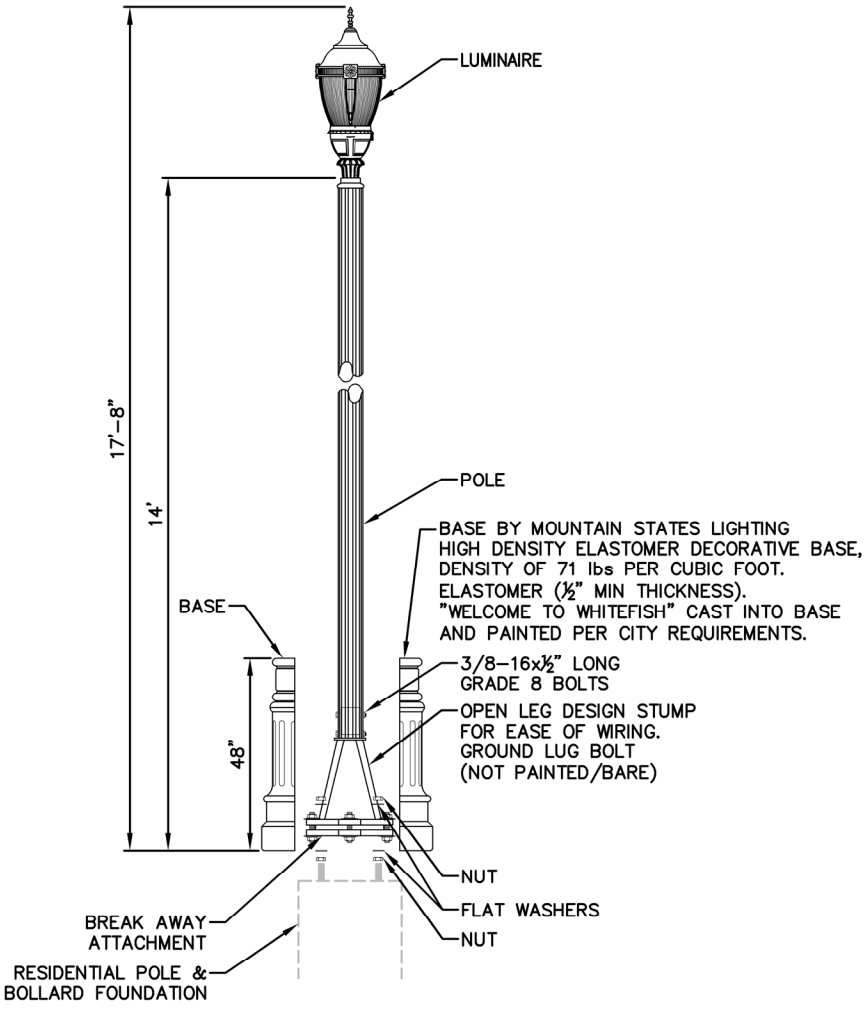
STREET TREE AND GRATE

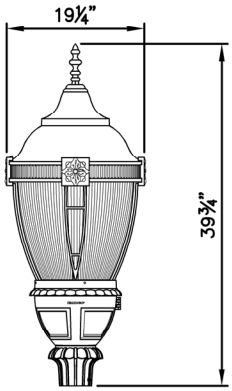
NOT TO SCALE

CONSTRUCTION STANDARDS CITY OF WHITEFISH	STREET TREE PLANTING IN SIDEWALK	SD-67

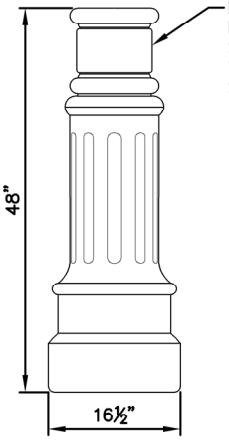
STREET LIGHTING DETAILS

LUMINAIRE: CYCLONE #AG10T4D–VS3AR–3MHS–34W–2200K–120–277–F30–PT–SD–GM–SM–CP5493
POLE: MSL #14EFA–5–TT/3x3–16.5WF(NAME)–LEG–J (GREEN)
BASE: MSL #WF–16.5"Wx48"H–5OD–HDEB–J (GREEN)
COLOR: "J" GREEN





LUMINAIRE DETAIL



BASE DETAIL

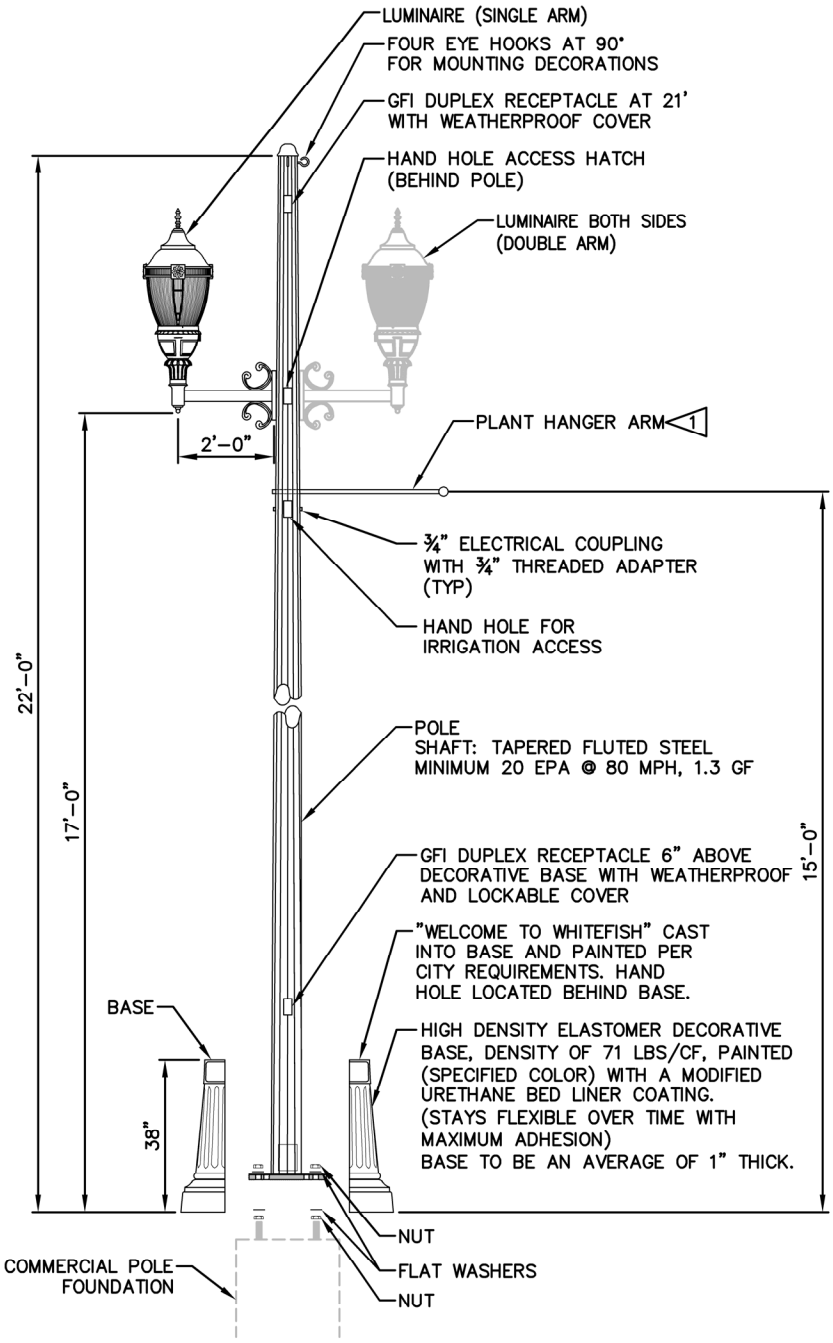
CONSTRUCTION STANDARDS CITY OF WHITEFISH	LUMINAIRE AND POLE DETAIL (RESIDENTIAL–CITY STREET, PARKING LOT AND SHARED USE PATH)	SD–68

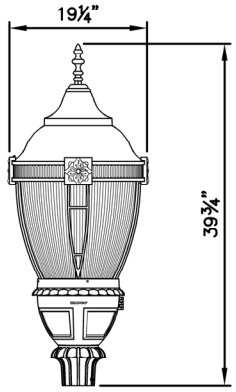
LUMINAIRE: CYCLONE #AG10T4D–VS3AR–3MHS–50W–2200K–120–277–F30–PT–SD–GM–SM–MG
SINGLE ARM POLE: MSL #22TFS–SA/17'/2'x2.375"/SCR–22"
MAD(Madison)–C2316AF1XT–(1)BA–J (GREEN)
DOUBLE ARM POLE: MSL #22TFS–DBLSA/17'/2'x2.375"/SCR–22"
MAD(Madison)–C2316AF1XT–(2)BA–J (GREEN)
BASE: MSL #MAD(Madison)–22"Wx38"H–HDEB–J

COLOR: "J" GREEN

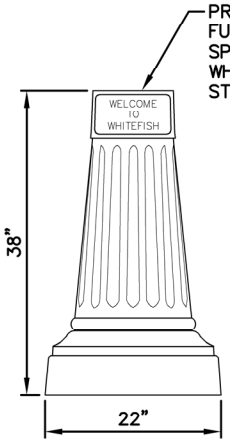
NOTES:

1. PLANT HANGER ARM COMES OUT OF SHEET ON DOUBLE LIGHT POLE, NOT SHOWN FOR CLARITY.



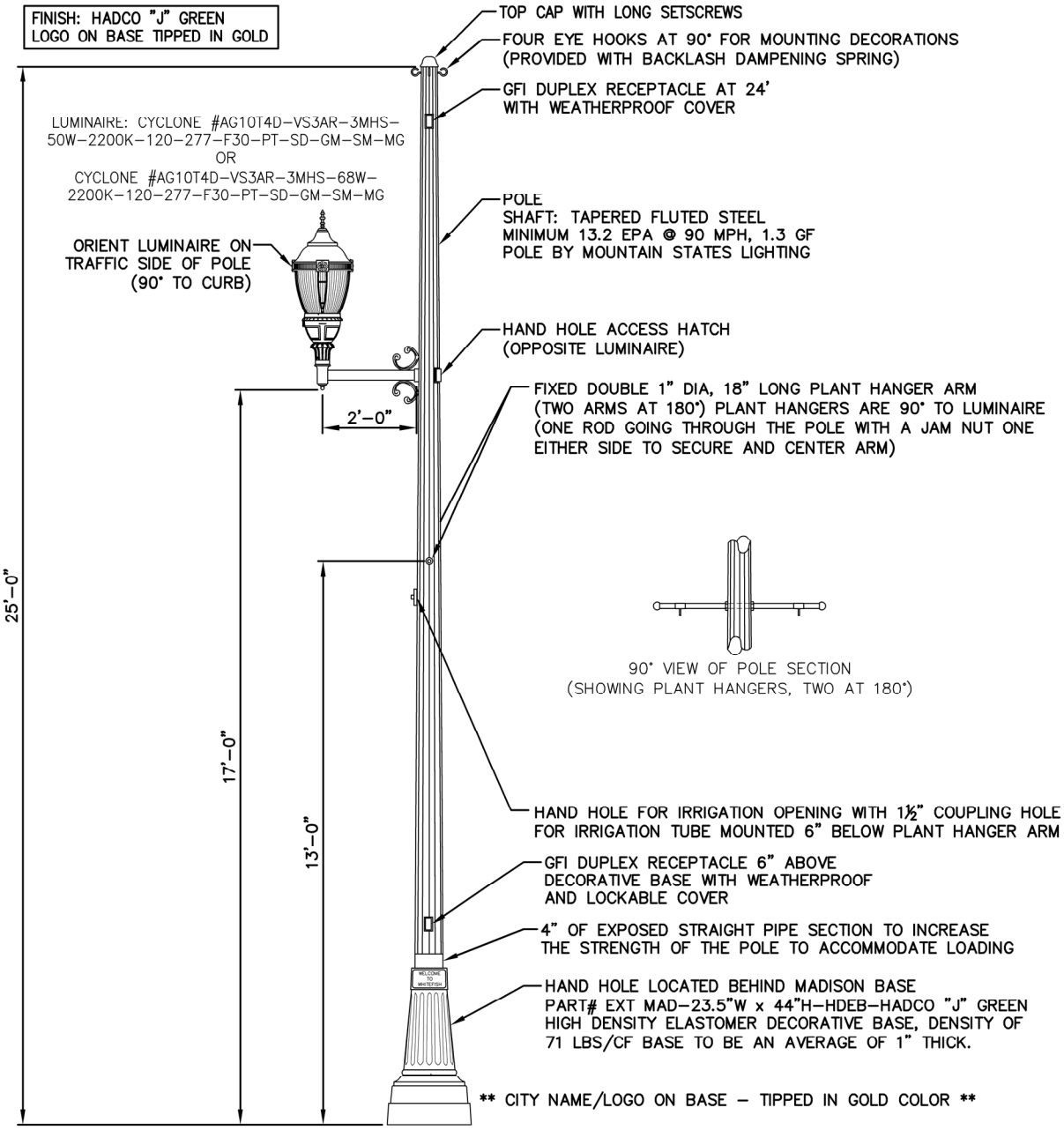


LUMINAIRE DETAIL



BASE DETAIL

CONSTRUCTION STANDARDS CITY OF WHITEFISH	LUMINAIRE AND POLE DETAIL (COMMERCIAL–CITY STREET AND PARKING LOT)	SD–69

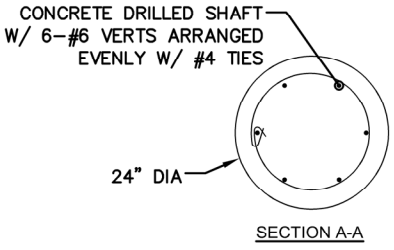


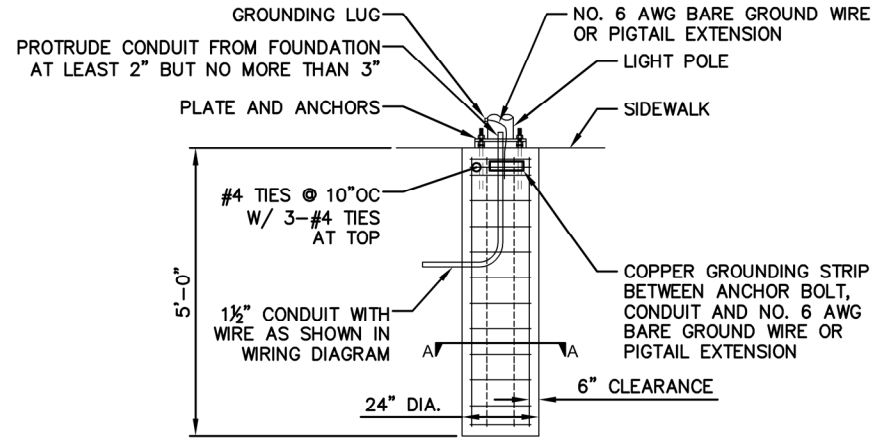
SINGLE FIXTURE DECORATIVE LUMINAIRE POLE, DBL PLANT HANGER ARM, IRRIGATION HOLE

POLE TO HAVE 12" BOLT CIRCLE TO ACCOMMODATE 1"x36" BOLTS WITH A 4" BOLT PROJECTION

NOTES:

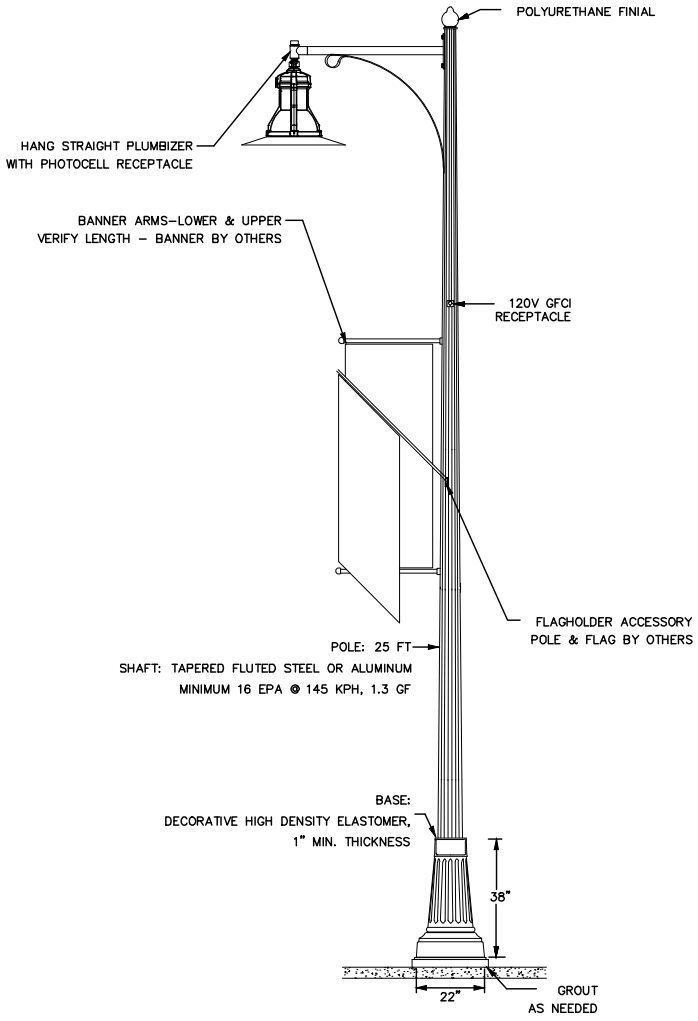
1. ALL CONCRETE SHALL BE CLASS "DD" PER MDT STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'C=3,000 PSI AT 28 DAYS, NORMAL WEIGHT.

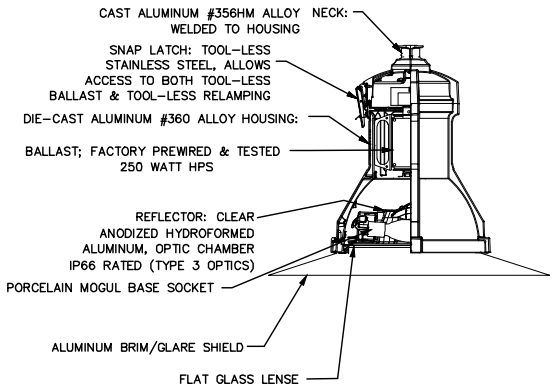




DECORATIVE LUMINAIRE POLE FOUNDATION

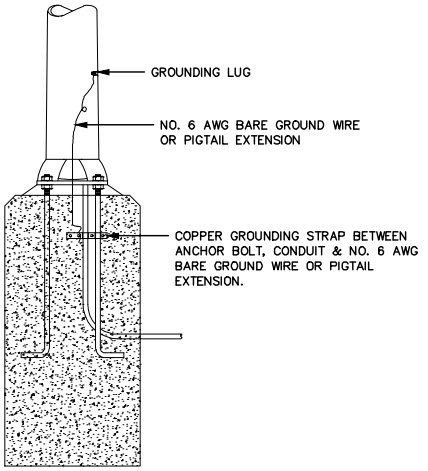
CONSTRUCTION STANDARDS CITY OF WHITEFISH	LUMINAIRE AND POLE DETAIL (COMMERCIAL – MDT HWY 93 – DOWNTOWN)	SD-70

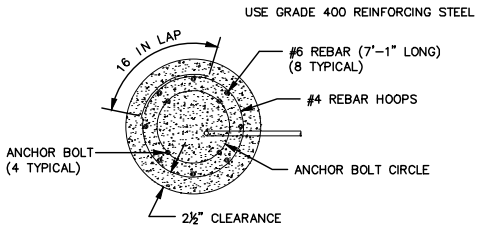




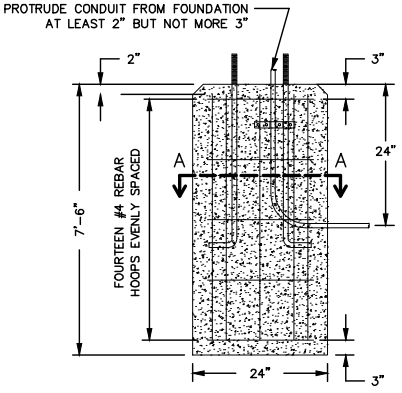
DECORATIVE LUMINAIRE POLE – TYPE 2

NO SCALE





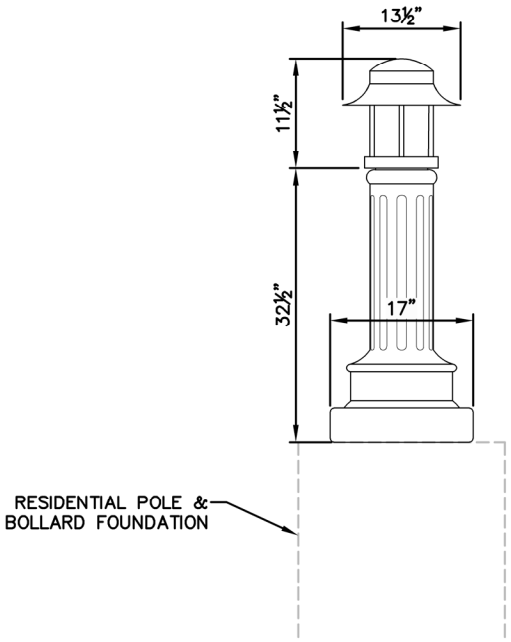
SECTION A–A



DECORATIVE LUMINAIRE POLE TYPE 2 FOUNDATION

SCALE: NONE

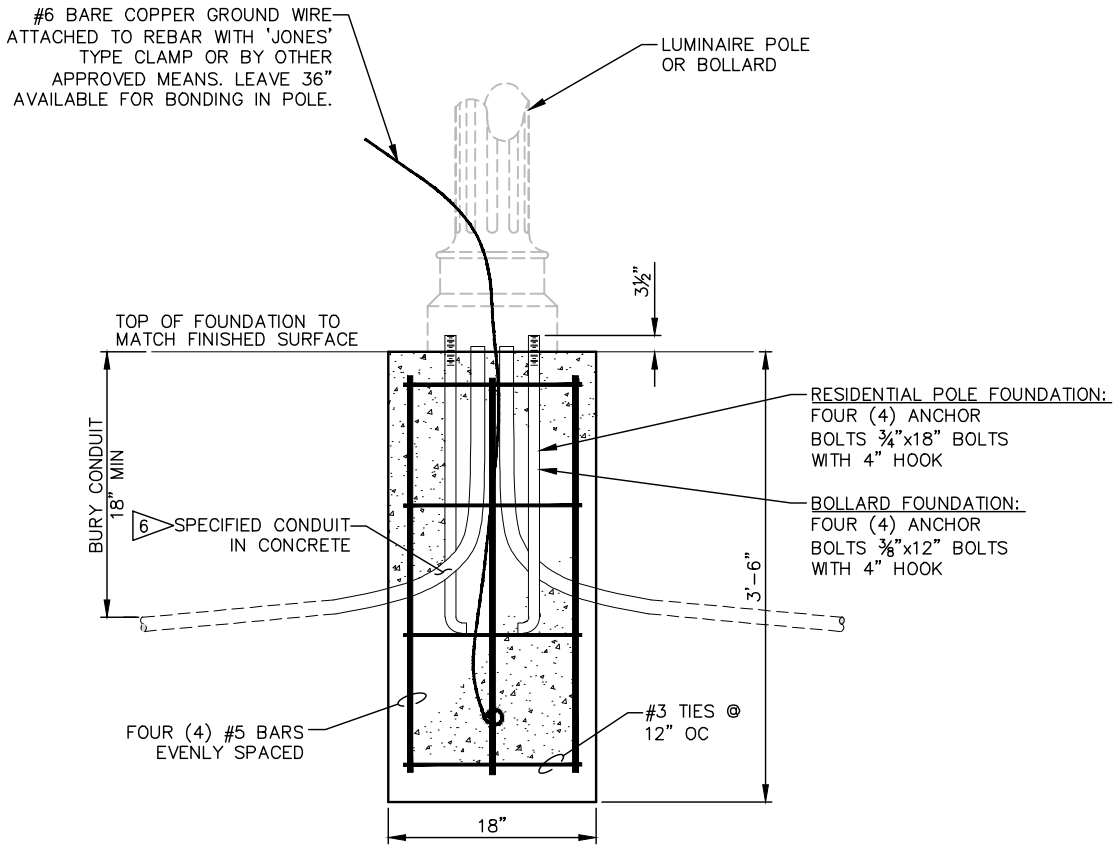
FIXTURE TYPE: CBM1154C-CAP-3-25W-3K-240-BB3-NONE-GM-TX
LUMINAIRE: LAP, POND ACRYLIC, 75% DIFFUSING
OPTIC: LED TYPE 3
SOURCE: 240 VOLT, 3K HIGH POWER LED, 3000K
FINISH: DARK GREEN TEXTURED POWDER COAT

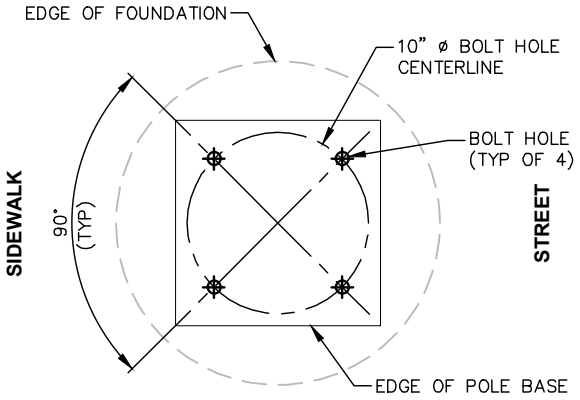


NOTES:

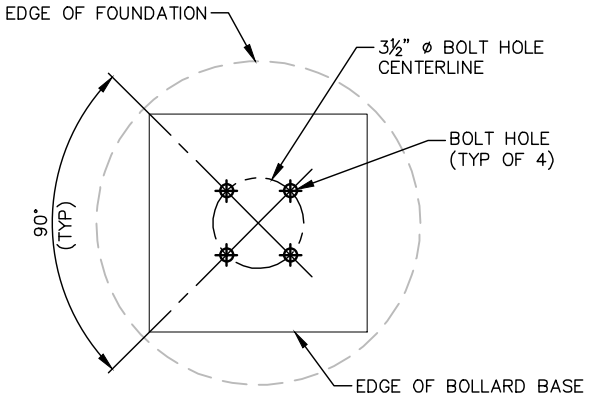
1. GROUND LIGHT POLE BASES PER MANUFACTURER'S RECOMMENDATIONS.
2. SET ANCHOR BOLTS WITH OR 3½" OF THREADS EXPOSED.
3. LIGHT POLE FOUNDATION SHALL BE BACKFILLED USING SUITABLE ON-SITE MATERIAL. BACKFILL TO BE COMPACTED TO 95% OF ASTM D-698.
4. ALL LIGHT POLE FOUNDATIONS SHALL BE CAST IN PLACE. PRECAST LIGHT POLE FOUNDATION SHALL NOT BE USED.
5. TOP OF FOUNDATION SHALL BE PLUMB SO THAT BASE SITS FLAT ON FOUNDATION.

6 INSTALL ONLY ONE CONDUIT CENTERED WITHIN BOLLARD FOUNDATION. ADJACENT PULL BOX MAY BE REQUIRED.





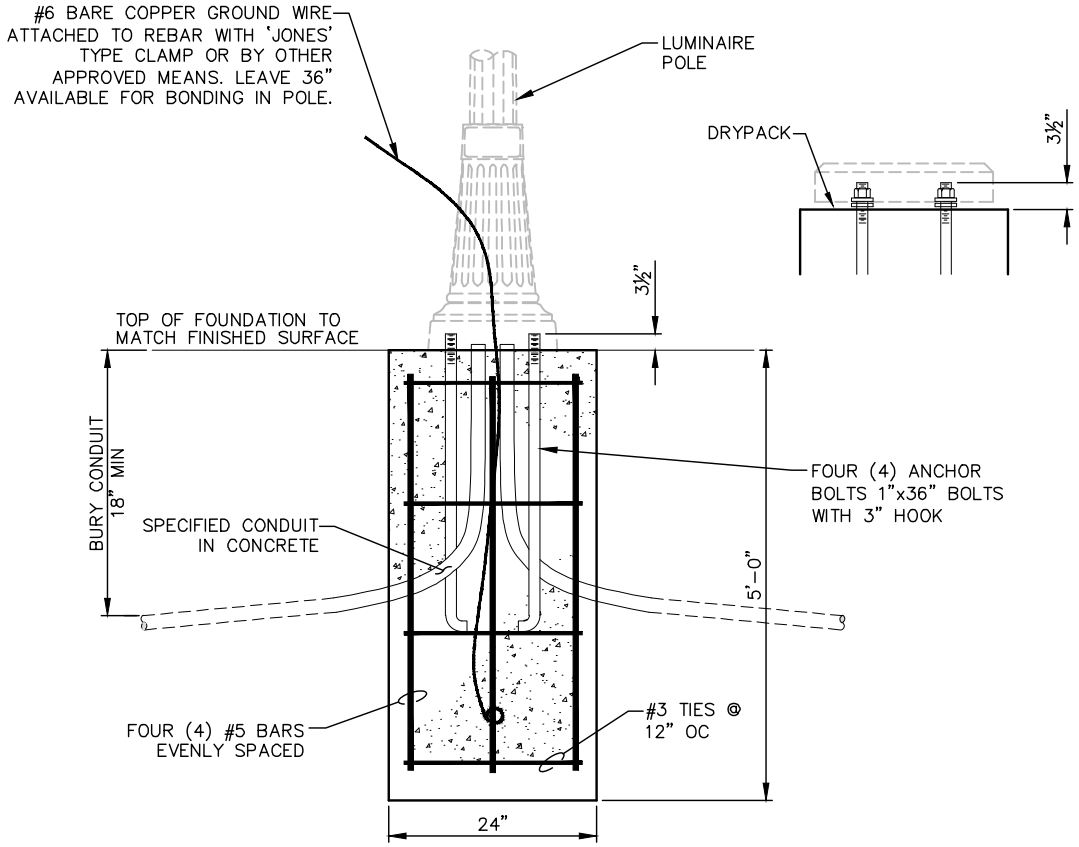
ANCHOR BOLT TEMPLATE
(RESIDENTIAL POLE FOUNDATION)

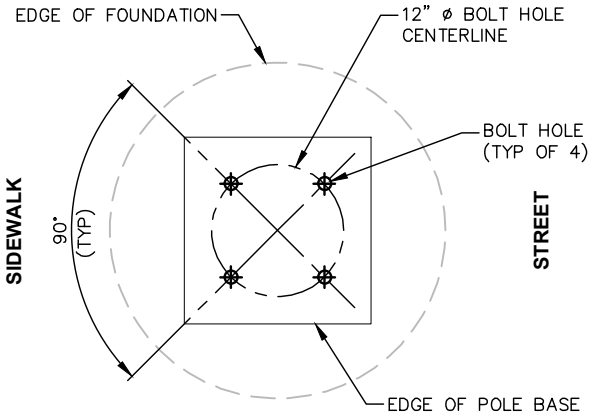


ANCHOR BOLT TEMPLATE
(BOLLARD FOUNDATION)

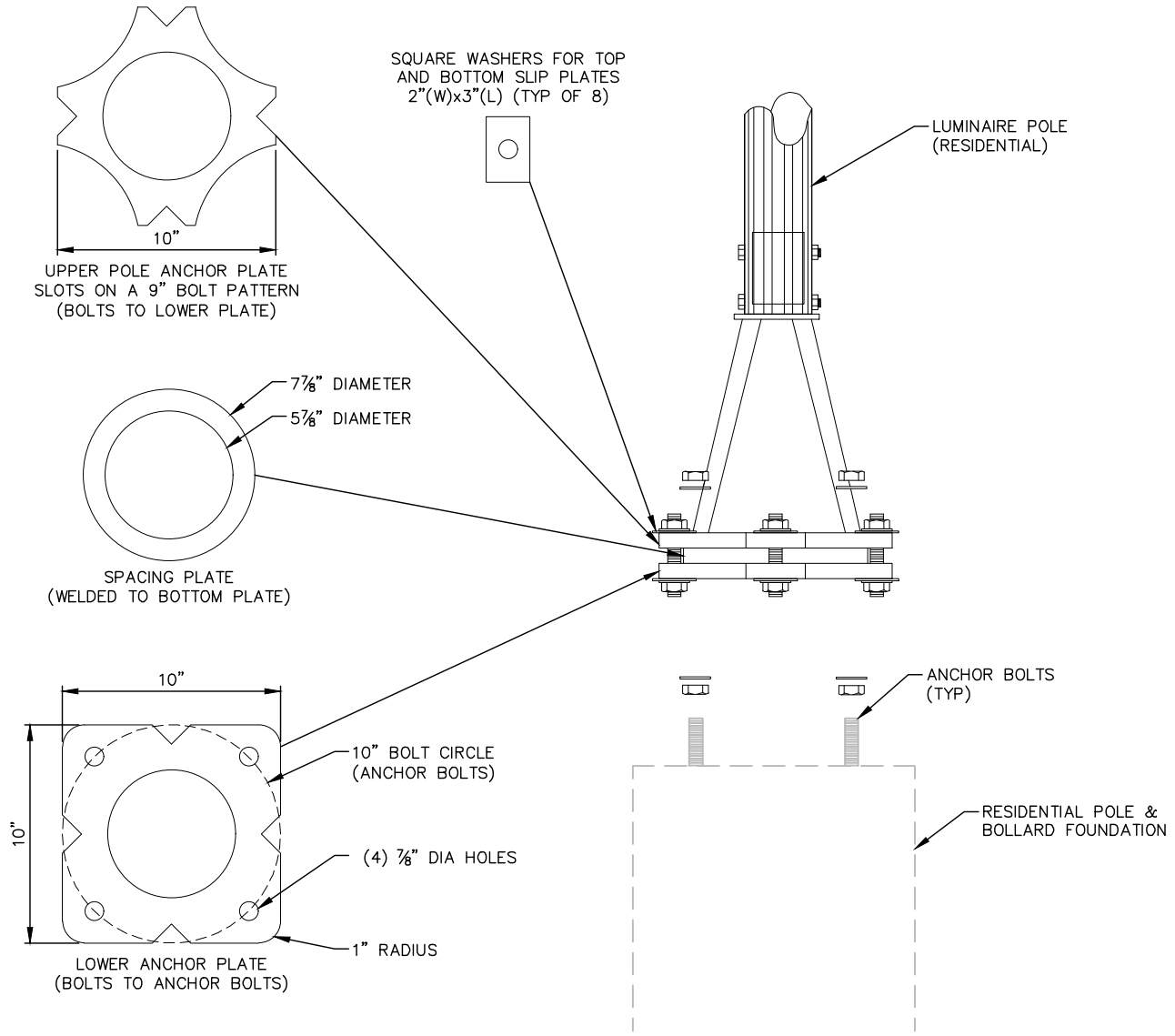
NOTES:

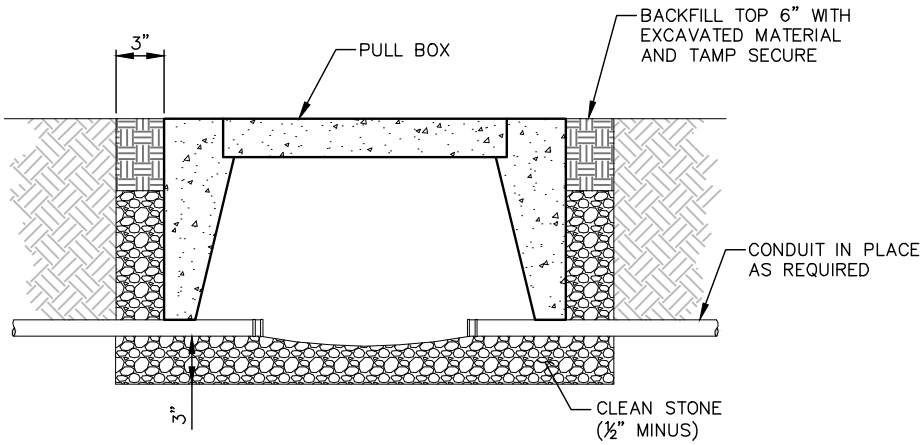
1. GROUND LIGHT POLE BASES PER MANUFACTURER'S RECOMMENDATIONS.
2. SET ANCHOR BOLTS WITH 3½" OF THREADS EXPOSED.
3. LIGHT POLE FOUNDATION SHALL BE BACKFILLED USING SUITABLE ON–SITE MATERIAL. BACKFILL TO BE COMPACTED TO 95% OF ASTM D–698.
4. ALL LIGHT POLE FOUNDATIONS SHALL BE CAST IN PLACE. PRECAST LIGHT POLE FOUNDATION SHALL NOT BE USED.
5. TOP OF FOUNDATION SHALL BE PLUMB SO THAT BASE SITS FLAT ON FOUNDATION.
6. IRRIGATION CONDUITS SHALL BE PROVIDED. (NOT SHOWN FOR CLARITY)





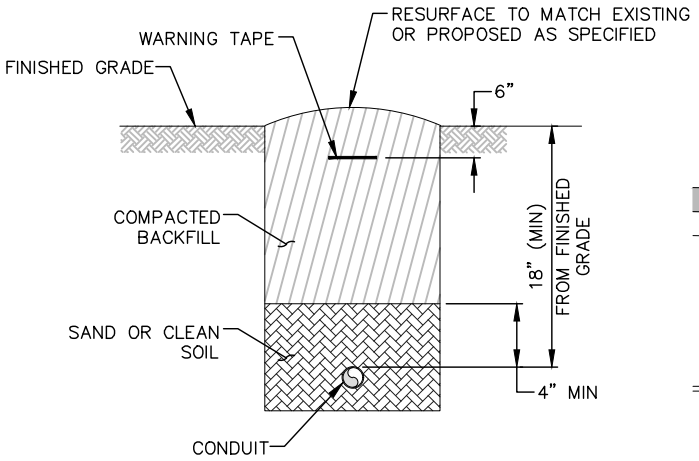
ANCHOR BOLT TEMPLATE


10"
UPPER POLE ANCHOR PLATE
SLOTS ON A 9" BOLT PATTERN
(BOLTS TO LOWER PLATE)
SQUARE WASHERS FOR TOP
AND BOTTOM SLIP PLATES
2"(W)x3"(L) (TYP OF 8)
LUMINAIRE POLE
(RESIDENTIAL)
7⅞" DIAMETER
5⅞" DIAMETER
SPACING PLATE
(WELDED TO BOTTOM PLATE)
10"
10"
10" BOLT CIRCLE
(ANCHOR BOLTS)
(4) ⅞" DIA HOLES
1" RADIUS
LOWER ANCHOR PLATE
(BOLTS TO ANCHOR BOLTS)
ANCHOR BOLTS
(TYP)
RESIDENTIAL POLE &
BOLLARD FOUNDATION

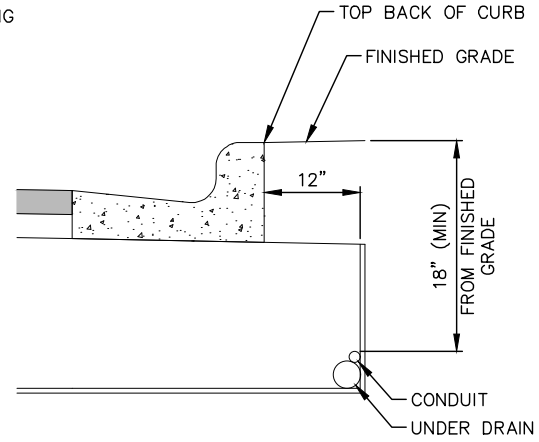

3"
PULL BOX
BACKFILL TOP 6" WITH
EXCAVATED MATERIAL
AND TAMP SECURE
CONDUIT IN PLACE
AS REQUIRED
3"
CLEAN STONE
(½" MINUS)

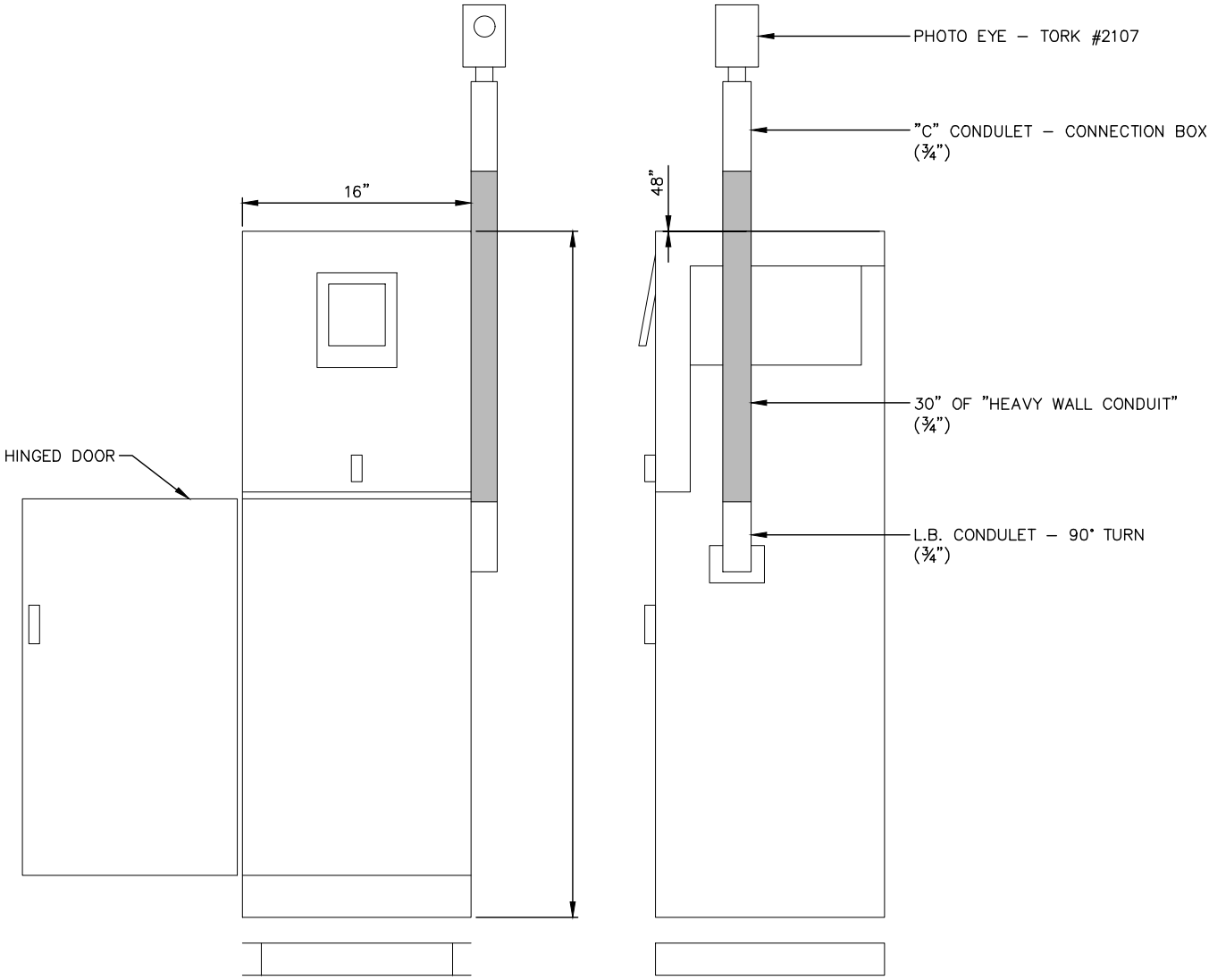
NOTES:

1. COORDINATE TRENCHING TO SHARE TRENCHES WITH OTHER UTILITIES WHEN FEASIBLE



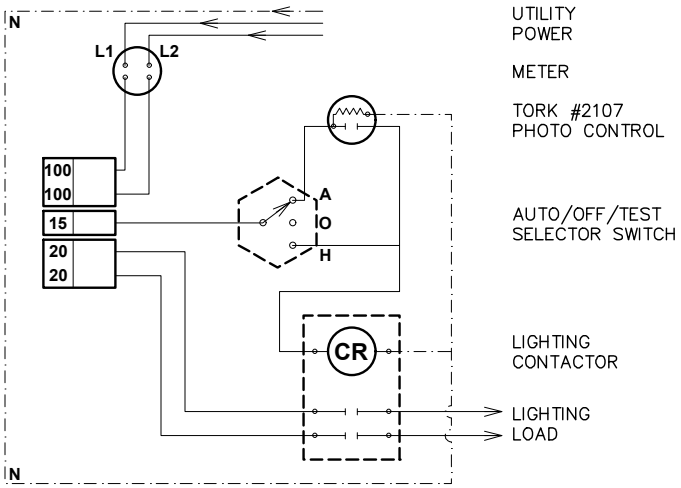
(SEE ELECTRICAL PLANS FOR CONDUIT SIZES)





STREET LIGHT ELECTRICAL SERVICE

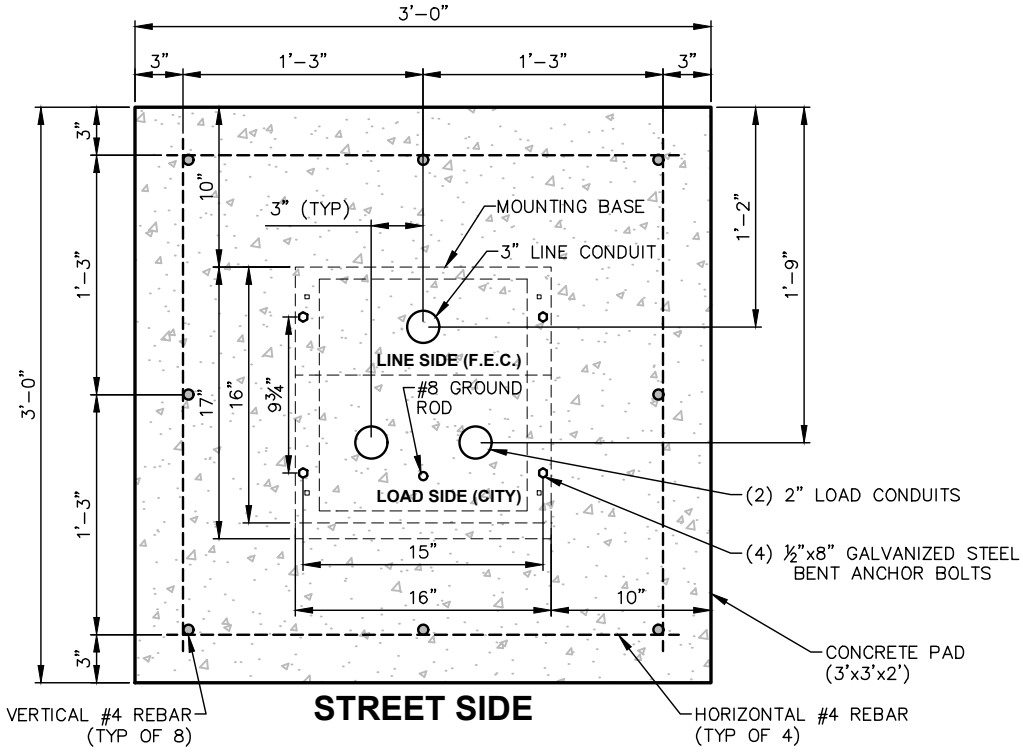
SERVICE BREAKER SCHEDULE		
100 AMP	2 POLE	MAIN SERVICE DISCONNECT
15 AMP	1 POLE	CONTROL CIRCUIT
20 AMP	2 POLE	LIGHTING LOAD

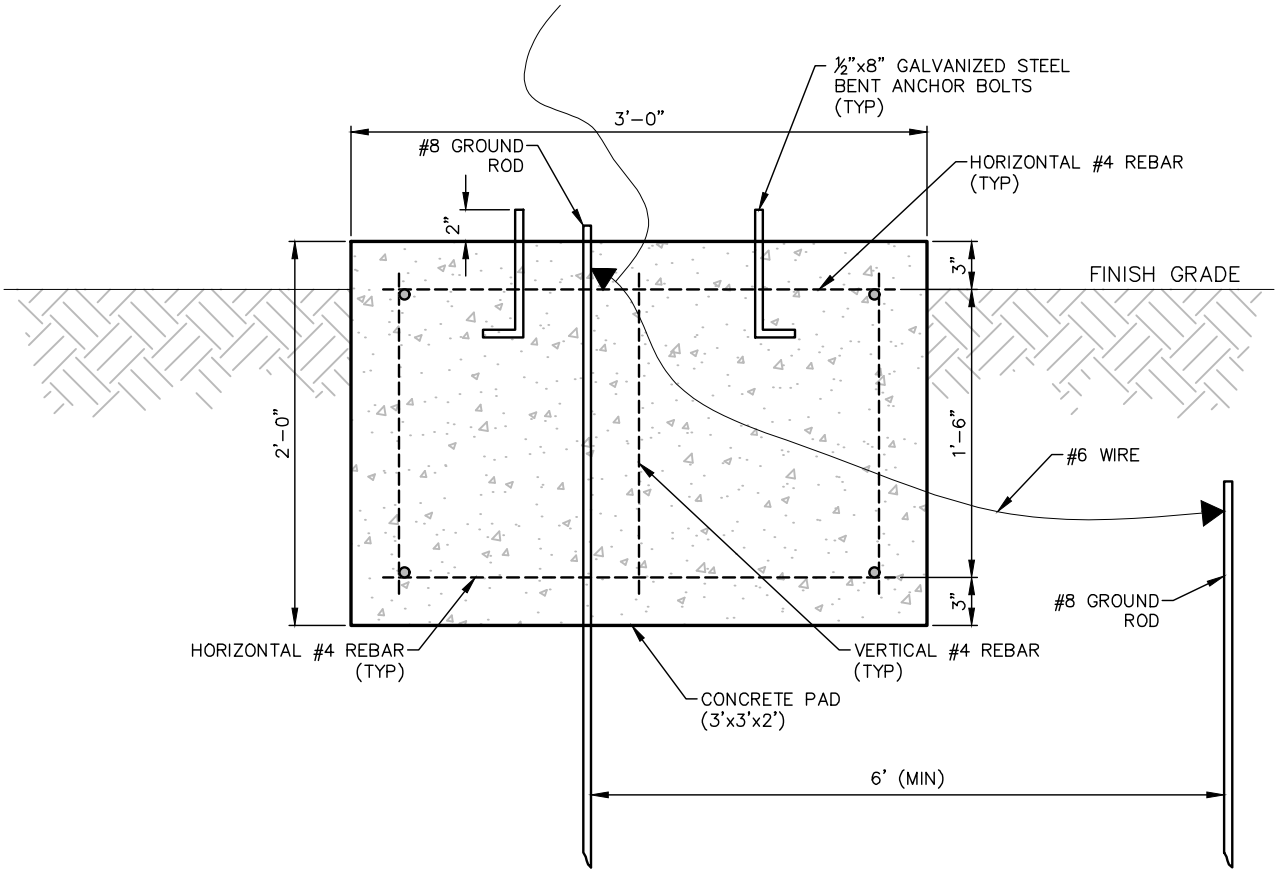


WIRE DIAGRAM

NOTES:

1. (2) 8' COPPER CLAD GROUND RODS. INSTALL 6' APART. #6 AWG GROUND WIRE WITH 6' FREE CONDUCTOR FOR CONNECTION TO SERVICE.





NOTES:

1. 3" PVC RISER AT F.E.C. POLE STUB UP SEPARATION 6" TO CENTERLINE.