

1. ALL MATERIALS AND WORKMANSHIP FOR SANITARY SEWER CONSTRUCTION SHALL FIRST CONFORM TO THE LATEST APPLEWOOD SANITATION DISTRICT ENGINEERING STANDARDS AND THEN THE LATEST CITY AND COUNTY OF DENVER, DEPARTMENT OF PUBLIC WORKS, WASTEWATER MANAGEMENT DIVISION STANDARD DETAILS AND SANITARY SEWER DESIGN TECHNICAL CRITERIA MANUAL.
2. AT LEAST 5 DAYS PRIOR TO THE START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING WILL BE HELD AT THE DISTRICT'S OFFICE AND ATTENDED BY THE CONTRACTOR AND REPRESENTATIVES OF THE OTHER APPROVING AGENCIES. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT APPLEWOOD SANITATION DISTRICT (THE DISTRICT) TO SCHEDULE THIS MEETING.
3. THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL TIE IN POINTS AND PROVIDE THE DATA TO THE ENGINEER AND THE DISTRICT PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR WILL IDENTIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL REPORT ANY DISCREPANCIES TO THE ENGINEER AND THE DISTRICT IMMEDIATELY AND PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL HAVE IN THEIR POSSESSION AT ALL TIMES ONE SIGNED COPY OF PLANS APPROVED BY THE THE DISTRICT AND THE DISTRICT ENGINEER. THESE PLANS WILL ALSO INCLUDE ALL ADDENDUMS OR REVISIONS WHICH HAVE BEEN REVIEWED AND APPROVED BY THE DISTRICT.
6. PRIOR TO THE START OF WORK WHERE THE NEW SANITARY SEWER MAIN IS TO BE INSTALLED INTO EXISTING DISTRICT SANITARY SEWER SYSTEMS, THE NEAREST MANHOLE TO THE POINT OF TIE-IN SHALL BE PLUGGED WITH A PLUMBER'S PLUG ON THE INLET SIDE BY THE CONTRACTOR. THIS PLUG SHALL REMAIN IN PLACE UNTIL INITIAL ACCEPTANCE BY THE DISTRICT. ITS PURPOSE SHALL BE TO PREVENT MUD, WATER OR OTHER MATERIALS FROM ENTERING THE ACTIVE MAIN DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PUMPING AND CLEANING THESE MANHOLES AND REMOVING THE PLUG WHEN SO INSTRUCTED BY THE DISTRICT. A SECOND PLUG SHALL BE INSTALL IN FIRST NEW MANHOLE.
7. ALL DIRECT BURY SEWER MAINS SHALL BE PVC, ASTM D-3034, SDR35 OR APPROVED PVC SDR 26 OR PVC C900 DR 18 PIPE AS NOTED ON THE PLANS.
8. SANITARY SEWER MAIN SHALL BE 10 FEET CLEAR FROM WATER LINES EXCEPT WHEN CROSSING EACH OTHER. FOR SEWER MAINS WHICH CROSS LESS THAN 1 1/2 FEET VERTICALLY FROM WATER LINES, THE CLOSEST SANITARY SEWER JOINT SHALL BE A MINIMUM OF 6 FEET CLEAR FROM THE CROSSING.
9. ALL MANHOLES SHALL BE WATER TIGHT, WET PRECAST CONCRETE, WITH FULL DEPTH CHANNEL TO THE LARGEST PIPE IN THE BENCH, A MINIMUM OF 48 INCH IN DIAMETER WITH CONCENTRIC CONE, 24 INCH CAST IRON RING (8" DEPTH) AND COVER, UNLESS OTHERWISE SPECIFIED. CONCRETE ADJUSTMENT RINGS SHALL BE USED FOR ADJUSTMENT TO MATCH FINAL PAVEMENT ELEVATIONS AND SET IN FLEXIBLE BUTYL RUBBER CAULKING/SEALANT TO OBTAIN A WATER TIGHT SEAL. CONCRETE ADJUSTMENT RINGS SHALL BE THE LARGEST SIZE IN DEPTH TO ELIMINATE MULTIPLE JOINTS. NO MULTIPLE 2" AND 3" RINGS. NO GROUT REQD.



Applewood Sanitation District

GENERAL SANITARY SEWER NOTES

Scale: *NONE*

Date: *APRIL, 2023*

Revised: *11/13/24*

Detail: *1*

ALL COMPLETED MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ASTM C1244,

10. PIPE BEDDING CONFIGURATION SHALL BE CLASS "B" AND SHALL CONFORM TO ASTM C-33 OR AASHTO D-448 GRADATION NO. 6 OR NO. 67. OR NO. 8, $\frac{3}{8}$ " SQUEEGEE GRAVEL BEDDING. BEDDING DEPTH SHALL BE 6" UNDER AND AROUND THE SIDES OF THE PIPE AND 12" OVER THE PIPE. CONSOLIDATION IN PIPE ZONE SHALL BE BY HAND TAMPING PER THE MATERIAL. FOR PIPE INSTALLATION DEPTHS EQUAL TO OR GREATER THAN TWENTY FEET (20'), PIPE MATERIAL AND BEDDING SHALL BE DETERMINED BY THE DESIGN ENGINEER AND SPECIFIED ON THE PLANS.

11. ALUMINUM FOIL WARNING TAPE SHALL BE USED FOR ALL NEW DIRECT BURY SANITARY SEWER MAINS. THE TAPE WILL BE INSTALLED 2' BELOW FINISHED GRADE. TAPE MUST BE GREEN IN COLOR.

12. FERNCO **STRONGBACK** RC SERIES PIPE COUPLINGS WILL BE REQUIRED FOR PIPE AND LATERAL SERVICES. APPROPRIATE CONCRETE CRADLES SHALL ALSO BE INSTALLED UNDER FERNCO STRONGBACK.

13. TRENCH BACKFILL CANNOT HAVE ROCKS LARGER THAN 4" IN DIAMETER.

14. IF GROUND WATER IS ENCOUNTERED, CONCRETE CUT-OFF WALLS OR FLASH FILL WALLS SHALL BE INSTALLED AROUND THE PIPE EVERY 300'+/- AND 10' +/- FROM EACH SIDE OF MANHOLE UPON ENGINEERING EVALUATION AND APPROVAL.

15. IF GROUNDWATER AND UNSUITABLE OR UNSTABLE SOILS ARE ENCOUNTERED, A SUB-BEDDING BASE DEPTH OF 18" MINIMUM OF 2" MINIMUM DIAMETER CRUSHED ROCK, SURROUNDED AND COVERED BY GEOTEXTILE FABRIC SHALL BE INSTALLED. THIS CONDITION SHALL BE CONFIRMED AND EVALUATED BY AN ENGINEER. IF STABLE SOIL IS PRESENT, INCREASE THE DEPTH OF NO.67 BEDDING PER ENGINEERING EVALUATION AND APPROVAL.

16. IF SEWAGE BYPASS PUMPING IS NECESSARY, THE CONTRACTOR WILL SUPPLY AND MONITOR THE PUMP DURING THE ENTIRE PUMPING PERIOD. A BACK-UP PUMP WILL BE ONSITE FOR USE IF NECESSARY. BYPASS HOSE SHALL BE PROTECTED FROM TRAFFIC DAMAGE USING APPROVED APPARATUS FOR ALL SEWAGE BYPASS PUMPING. THE CONTRACTOR WILL HAVE CONTINUOUS ON SITE MONITORING OF PUMPING OPERATIONS.

17. PRIOR TO TESTING, INITIAL AND FINAL ACCEPTANCE WALK-THROUGH, THE CONTRACTOR/DEVELOPER SHALL JET CLEAN AND VIDEO THE ENTIRE NEW SANITARY SEWER SYSTEM AND PUMP OUT AT THE PLUGGED MANHOLE AND DISPOSE OF WATER AND MATERIAL OFFSITE IN ACCORDANCE WITH LATEST CDPHE STANDARDS. NO MATERIAL IS TO BE WASHED INTO THE ACTIVE SYSTEM. PRIOR TO THE VIDEOING, THE CONTRACTOR WILL DUMP CLEAN WATER DOWN THE NEW SANITARY SEWER MAIN. THE SANITARY MAIN SHALL EXHIBIT NO SAGS OR DIPS OF MORE THAN 5% OF THE PIPE CROSS-SECTIONAL AREA. THE CONTRACTOR WILL PROVIDE REPORTS AND VIDEOS TO THE DISTRICT FOR REVIEW AND EVALUATION.



Applewood Sanitation District

GENERAL SANITARY SEWER NOTES (CON'T)

Scale: *NONE*

Date: *APRIL, 2023*

Revised: *11/13/24*

Detail: *2*

18. ALL MANHOLE AND SANITARY SEWER MAIN TESTING SHALL BE TO ASTM C1244 AND F1417 STANDARDS AND WITNESSED BY A REPRESENTATIVE OF THE DISTRICT. A MINIMUM OF 48 HOURS ADVANCED NOTICE IS REQUIRED PRIOR TO TESTING. SANITARY MAINS SHALL BE CLEANED PRIOR TO TESTING.

19. ALL MATERIALS AND TESTING TO ADHERE TO LATEST APPLICABLE ASTM STANDARDS.

20. CONSTRUCTION STAKING STATIONING TO USE DESIGN PLAN STATIONING.

21. SANITARY SEWER SERVICE LOCATION AND ELEVATIONS OUT OF BUILDINGS WILL BE PROVIDED TO DISTRICT ENGINEER PRIOR TO CONSTRUCTION OF SERVICE LINE. SANITARY SEWER SERVICES SHALL BE WYES. SERVICE WYES FOR EACH UNIT OR PROPERTY SHALL BE STAKED. THE CONTRACTOR SHALL FURNISH TO THE DISTRICT ASBUILT LOCATIONS OF WYES AND ENDS OF STUBS.

22. TRACER WIRE: A SOLID 10 GAUGE, UF RATED TRACER WIRE SHALL BE INSTALLED ON ALL SANITARY SEWER MAINS AND SERVICES. FOR SERVICES, THE TRACE WIRE SHALL END AT A TEST STATION BY THE BUILDING OR IN A CLEAN OUT WITH A BOX. FOR MANHOLES, THE TRACER WIRE SHALL ENTER THE TOP OF THE MANHOLE THROUGH THE ADJUSTMENT RINGS OR THROUGH A 1/2 INCH HOLE FOR A FLAT TOP, SEALED WITH CAULKING, OR A 1/2 INCH GROOVE AT THE TOP OF THE CONE, SEALED WITH CAULKING. NO CI RIM CONTACT OR PINCH POINT ALLOWED. 3 FEET OF CONTINUOUS WIRE SHALL BE INSIDE THE MANHOLE AND WILL BE ACCESSIBLE FROM THE SURFACE. NO SPLICES ARE ALLOWED INSIDE OF THE MANHOLE.

23. ABANDONING PROCEDURES:

FOR SANITARY SEWER MAINS TO BE ABANDONED, PLACE MECHANICAL PLUG IN THE PIPE AND FILL 1' OF ABANDONED SANITARY SEWER MAIN WITH CONTROLLED LOW SLUMP MATERIALS (CLSM) OR CONCRETE.

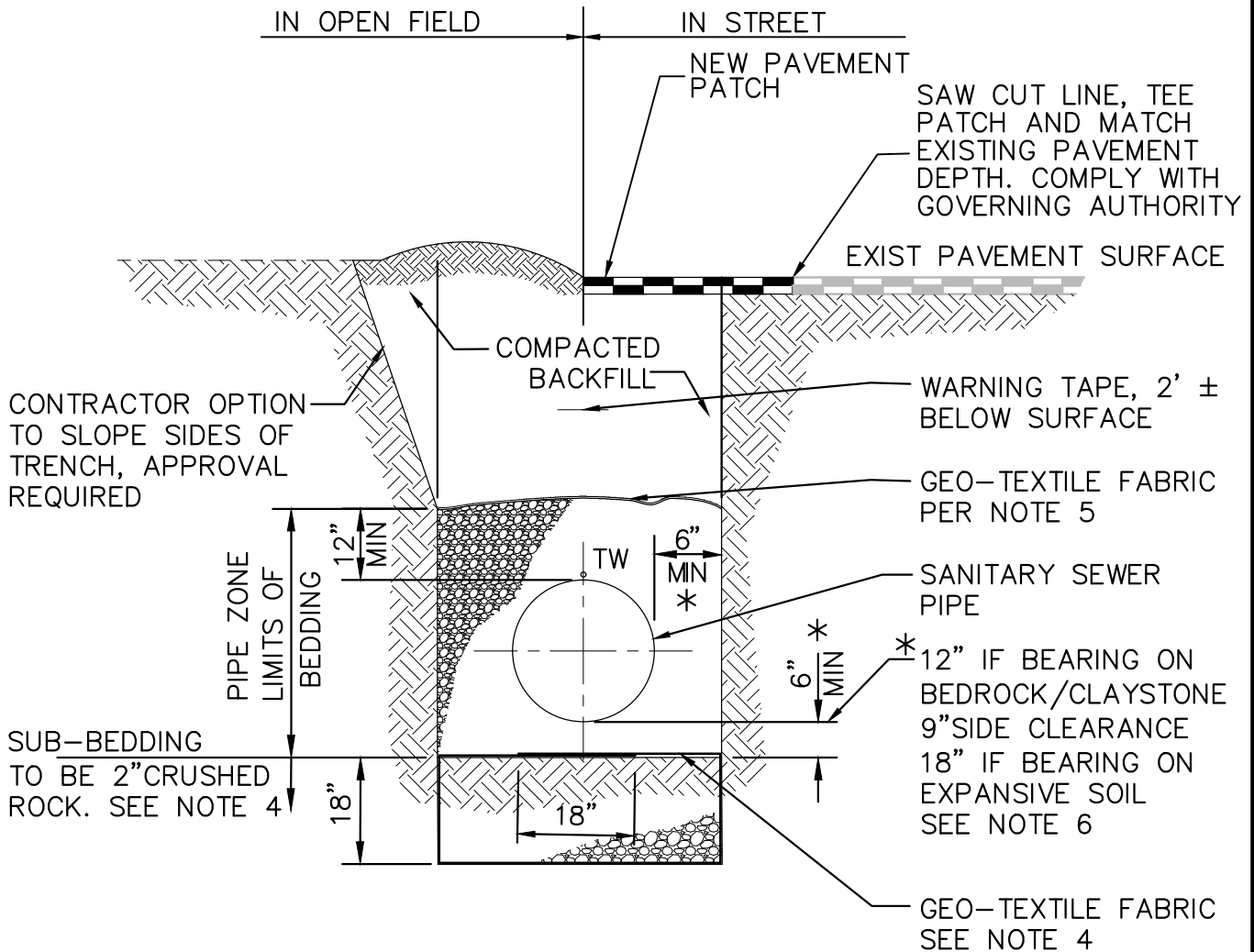
FOR SANITARY SEWER MANHOLES TO BE ABANDONED, REMOVE CAST IRON COVER, RIM, CONCRETE ADJUSTMENT RINGS AND CONE. FILL LOWER 1/3 OF MANHOLE WITH CLSM OR CONCRETE AFTER THE PIPE HAS BEEN PLUGGED AND REMAINDER OF MANHOLE WITH CLEAN COMPACTED BACKFILL OR SMALL DIAMETER ROCK. THE MANHOLE COVERS AND RIMS ARE THE PROPERTY OF THE DISTRICT. CONTACT DISTRICT ENGINEER FOR DISPOSITION.



Applewood Sanitation District

GENERAL SANITARY SEWER NOTES (CON'T)

Scale: <i>NONE</i>	Date: <i>APRIL, 2023</i>
Revised: <i>11/13/24</i>	Detail: <i>3</i>



PIPE BEDDING AND BACKFILL NOTES:

1. TRENCH WALLS TO BE SUPPORTED AS REQUIRED BY OSHA.
2. TRENCH BACKFILL SHALL CONTAIN NO ROCKS/STONES LARGER THAN 4" IN DIAMETER.
3. HAND COMPACTION IS REQUIRED AROUND ALL MANHOLES, DISTRICT APPURTENANCES, AND ALL OTHER GROUND OBSTACLES.
4. IF GROUND WATER IS PRESENT AND UNSUITABLE/UNSTABLE SOIL IS ENCOUNTERED, SUB-BEDDING AND GEO-TEXTILE FABRIC IS REQUIRED. IF STABLE SOIL IS PRESENT, INCREASE THE DEPTH OF NO. 67 BEDDING AS SHOWN PER ENGINEERING EVALUATION AND APPROVAL.
5. GEO-TEXTILE FABRIC TO COVER GRANULAR BEDDING MATERIAL, NO. 67.
6. IN EXPANSIVE SOILS AS DETERMINED BY SOIL REPORT. SANITARY SEWER PIPE SHALL BE PVC SDR26 OR APPROVED ALTERNATE.



Applewood Sanitation District

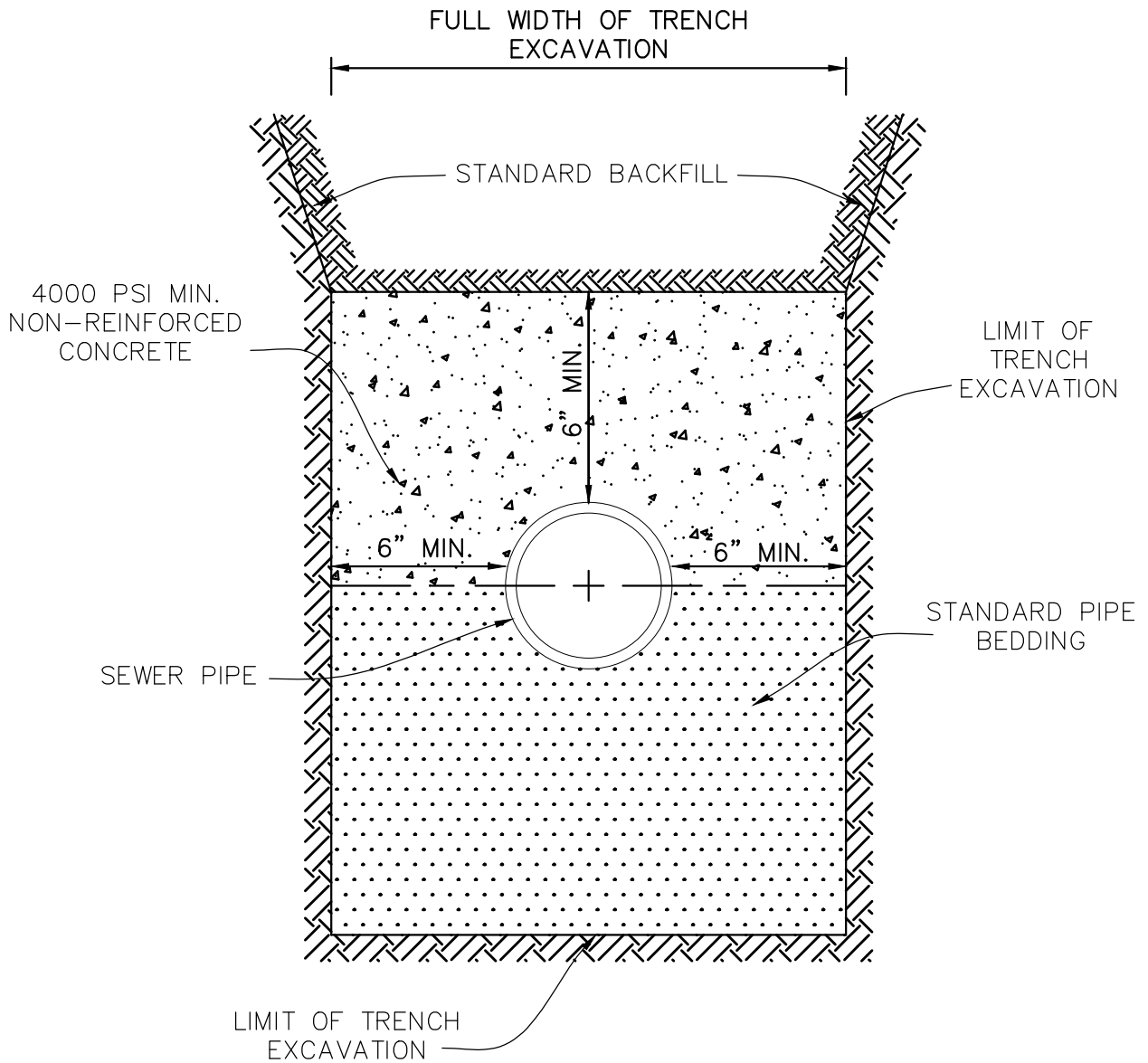
**TYPICAL TRENCH SECTION
PIPE PROTECTION**

Scale: NONE

Date: APRIL, 2023

Revised: 04/13/23

Detail: 4



CONCRETE PIPE SADDLE NOTES:

1. LENGTH OF CONCRETE SADDLE SHALL BE 5' BEYOND OUTSIDE EDGE OF CROSSING UTILITY OR LOAD STRUCTURE IF REQUIRED.



Applewood Sanitation District

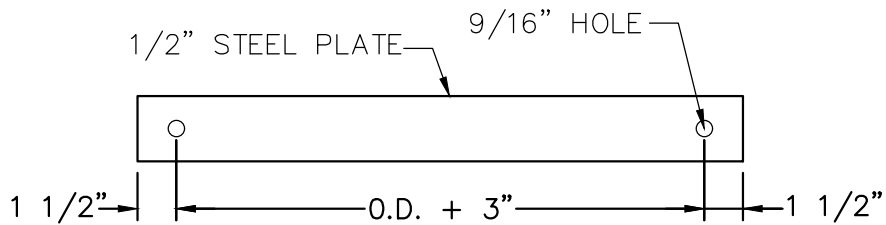
**CONCRETE
PIPE SADDLE**

Scale: *NONE*

Date: *APRIL, 2023*

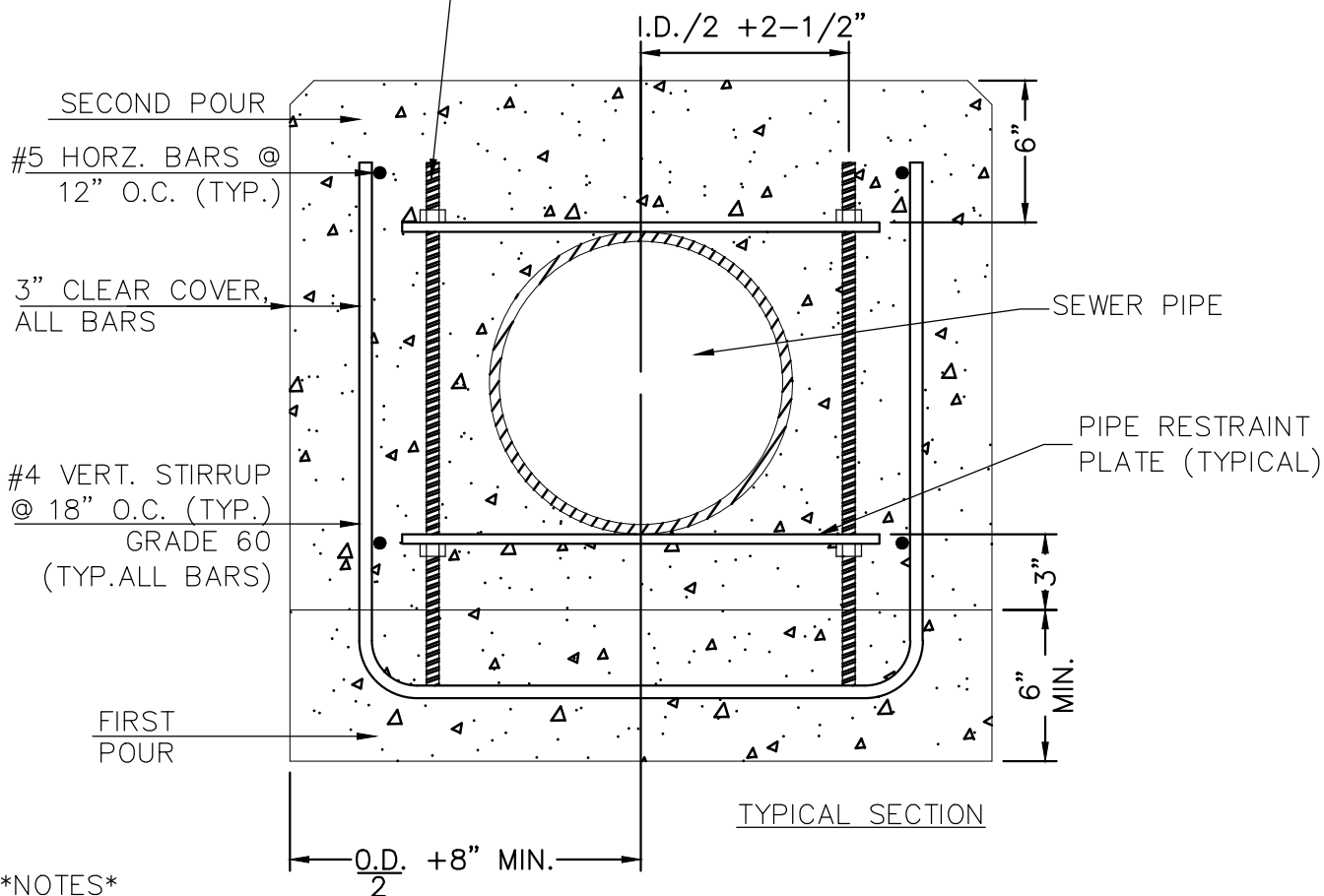
Revised: *04/13/23*

Detail: *5*



I.D.X 3/8" STEEL PLATE
 PLAN – PIPE RESTRAINT PLATE

1/2"Ø ALL-THREAD ROD WITH 1/2" NUTS, AT 10'-0" SPACING OR TO SUPPORT EACH LENGTH OF PIPE AT A POINT ABOUT 1 FOOT FROM HUB END.



NOTES

1. MINIMUM LENGTH OF REINFORCEMENT LAP SPLICES TO BE 18 INCHES
2. CDOT CLASS A OR B CONCRETE



Applewood Sanitation District

CONCRETE SEWER ENCASUREMENT

Scale: NONE

Date: APRIL, 2023

Revised: 04/13/23

Detail: 6



SOLID GREEN
OR
GREEN AND WHITE STRIPES

TAPE TO BE PLACED CONTINUOUSLY, APPROXIMATELY
2' BELOW THE FINISHED GRADE, BOTH
MAIN LINE AND SERVICE LINE.



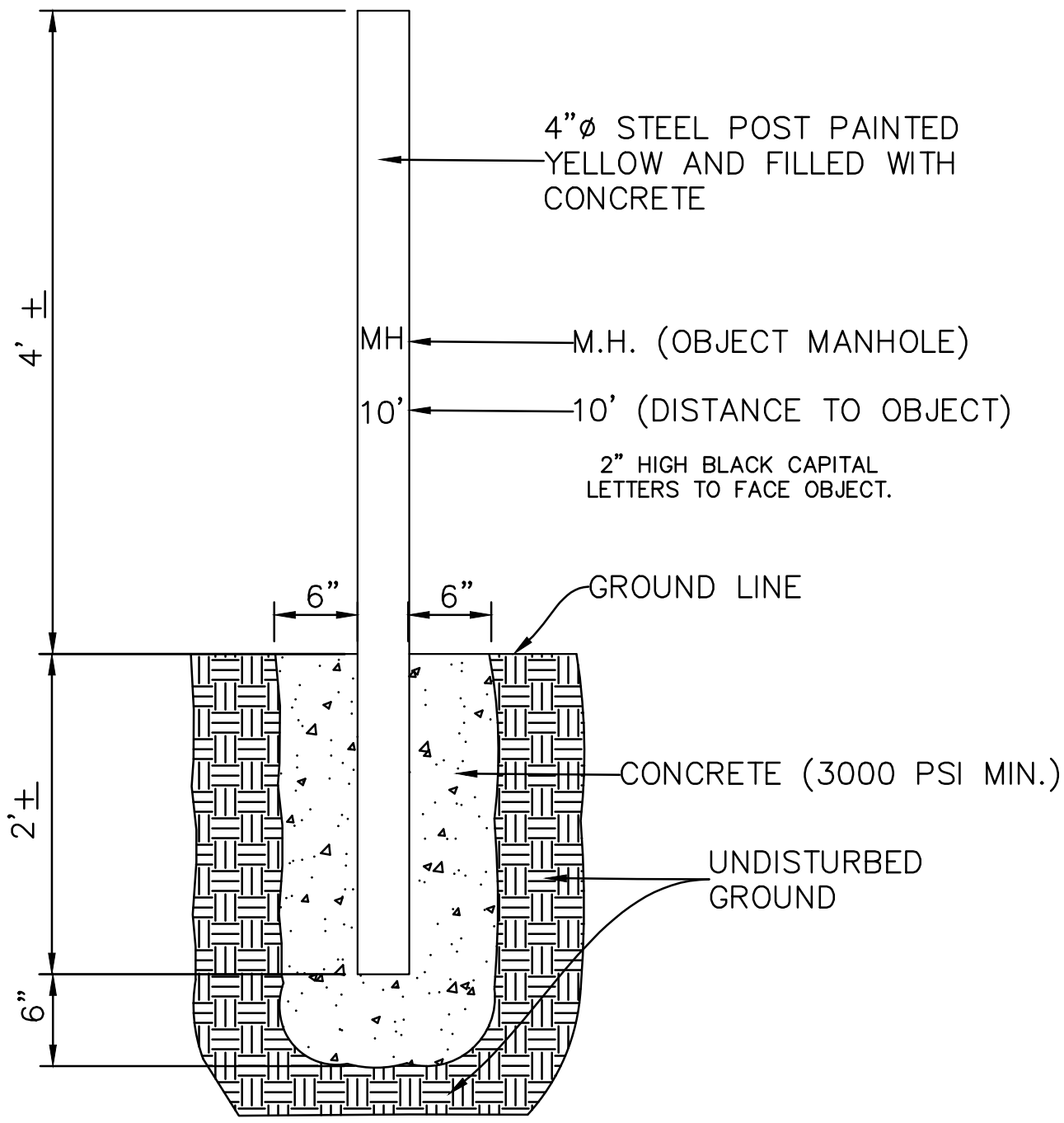
Applewood Sanitation District

METALLIC DETECTION TAPE

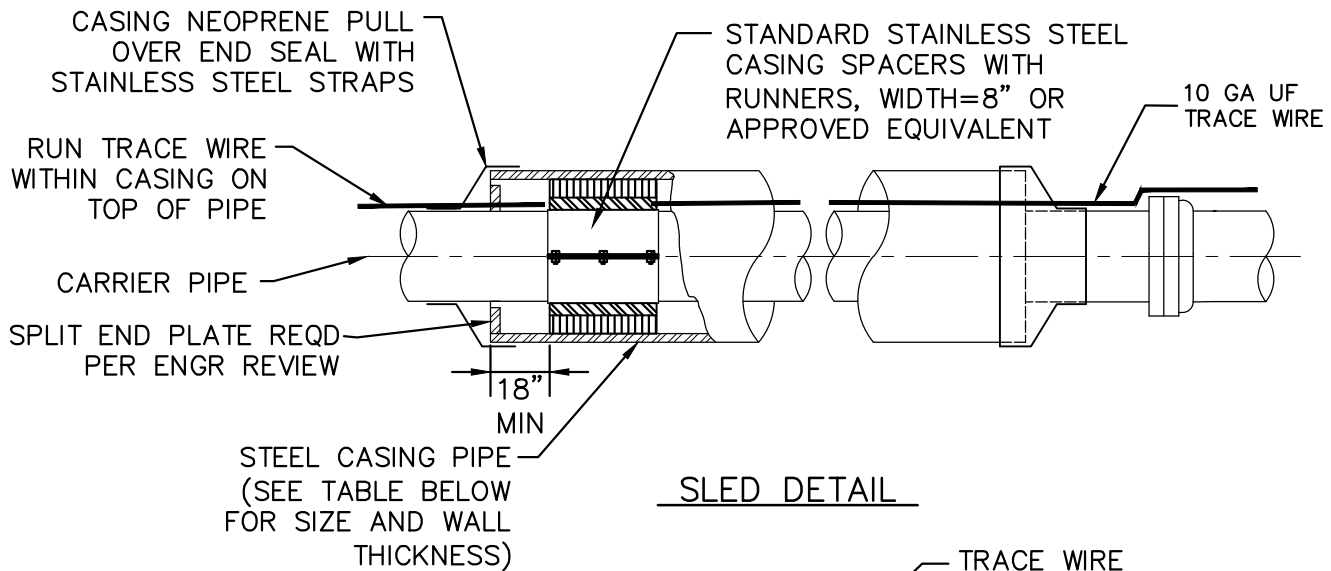
Date: *JANUARY 2019*

Revised: *11/13/2024*

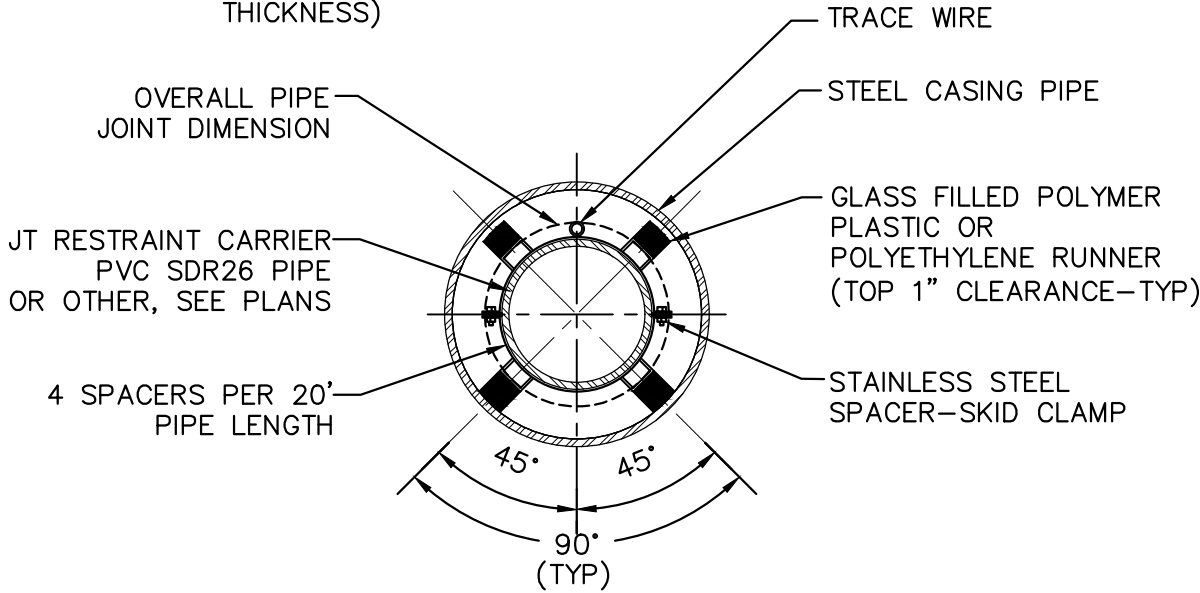
Detail: *7*



Applewood Sanitation District	
STEEL MARKER POST	
Scale: <i>NONE</i>	Date: <i>JANUARY 2019</i>
Revised:	Detail: <i>8</i>



SLED DETAIL



PIPE CASING DETAIL

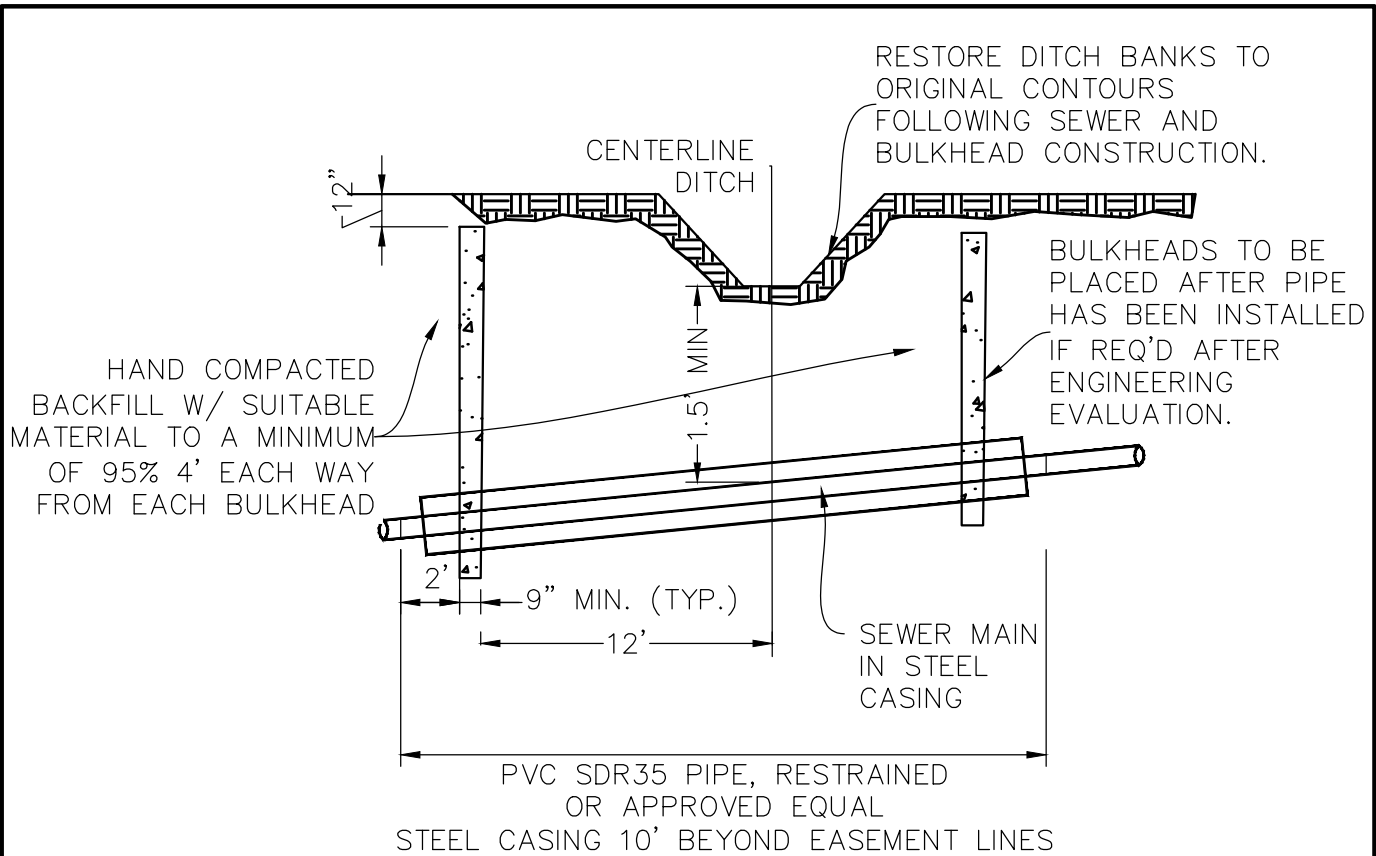
CARRIER PIPE NOMINAL ϕ	CASING PIPE	
	MIN OD	MIN WALL THICKNESS
6"	16"	0.375"
8"	20"	0.375"
10"	24"	0.375"
12"	30"	0.375"
15"	36"	0.500"
18"	42"	0.500"
24"	48"	0.500"
30"	54"	0.500"



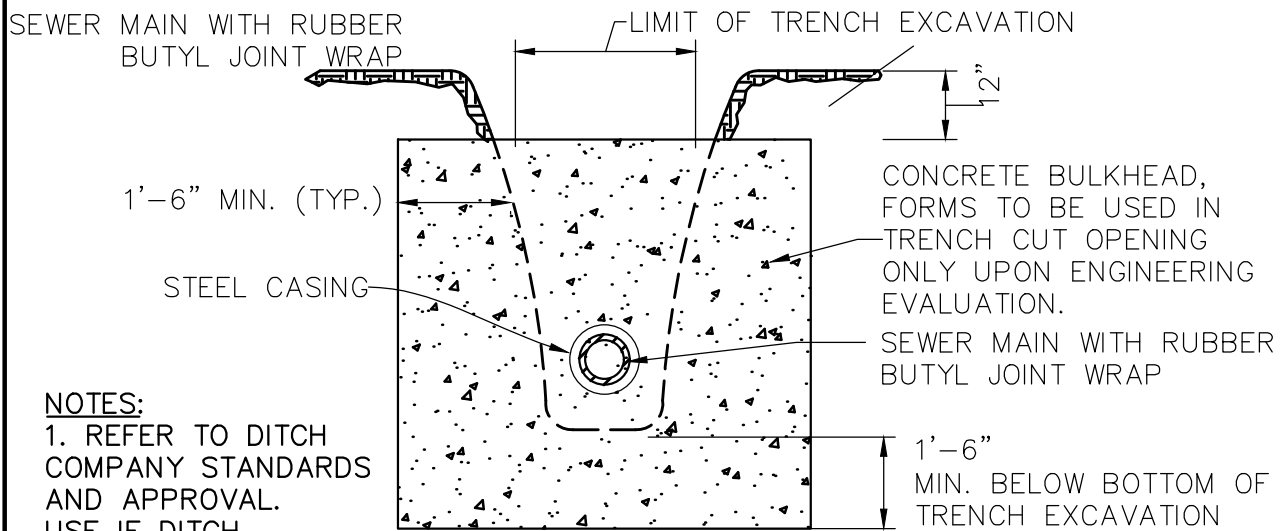
Applewood Sanitation District

**SANITARY SEWER
BORE CASING**

Scale: NONE	Date: APRIL, 2023
Revised: 04/13/23	Detail: 9



ELEVATION VIEW



CROSS SECTION VIEW

NOTES:
 1. REFER TO DITCH COMPANY STANDARDS AND APPROVAL. USE IF DITCH COMPANY HAS NO STANDARDS.



Applewood Sanitation District

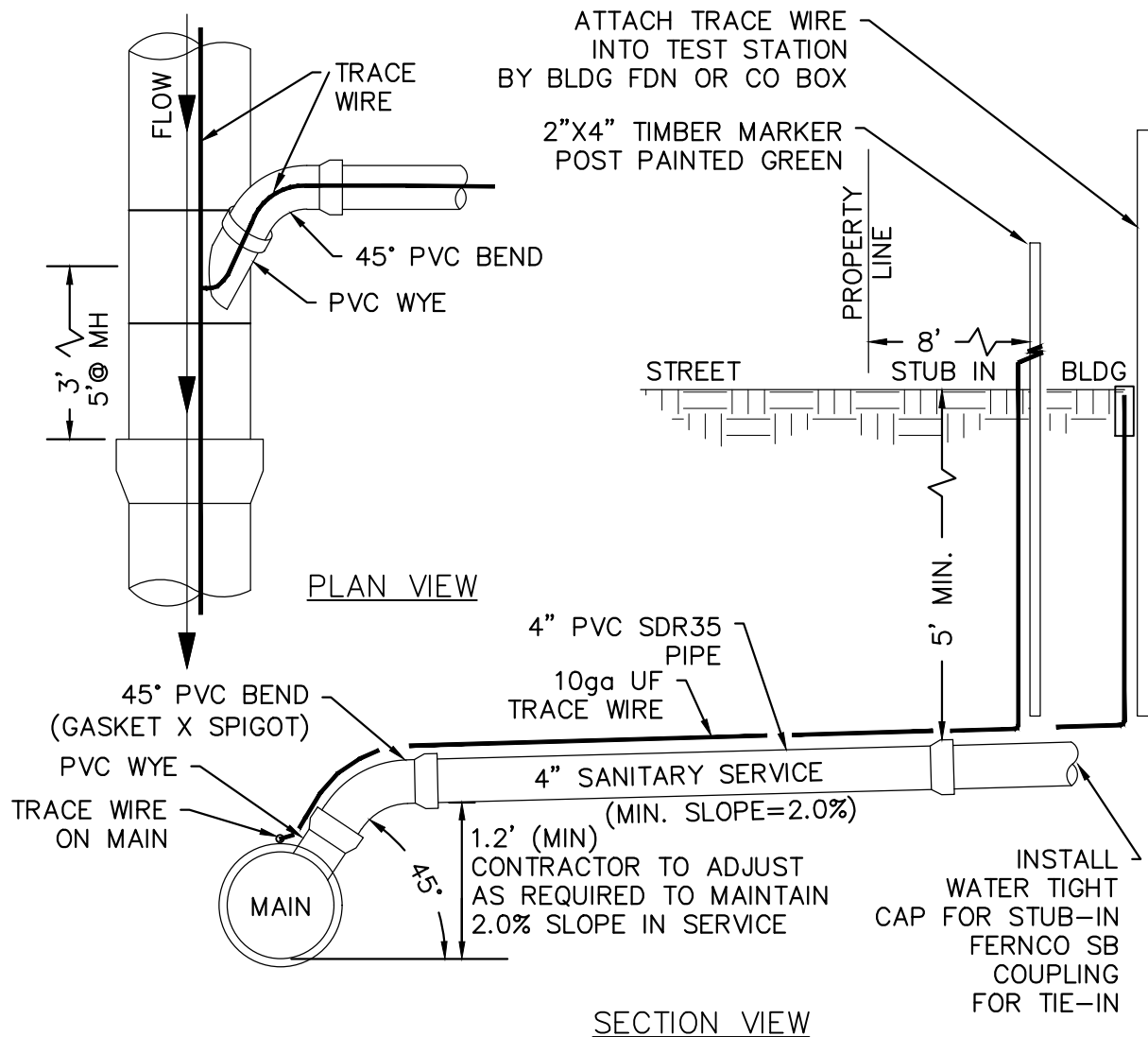
BULKHEAD CONSTRUCTION

Scale: NONE

Date: APRIL, 2023

Revised: 11/13/24

Detail: 10



NOTES:

- 1) SANITARY SEWER SERVICE TAPS SHALL BE LOCATED ON THE MAIN AT THE 2 O'CLOCK OR 10 O'CLOCK POSITION.
- 2) SANITARY SEWER SERVICE TAPS SHALL NOT BE MADE WITHIN 3 FEET OF A PIPE JOINT OR 5 FEET FROM OUTSIDE EDGE OF MANHOLE TO CL WYE FITTING.
- 3) DEPTH OF BURY OF SANITARY SEWER SERVICE LINE AT ROW WILL BE AT THE DISCRETION OF THE DISTRICT AND TO BE DETERMINED ON A PROJECT BASIS AND DISCUSSED AT THE PRE-CONSTRUCTION MEETING.
- 4) MINIMUM DISTANCE BETWEEN TWO 45° BENDS IS 3 FEET.
- 5) SEWER SERVICE CONNECTIONS SHALL BE MADE USING "WYE" FITTINGS. EXISTING MAIN-PVC SADDLE WITH STAINLESS STEEL STRAPS.
- 6) RISER SEGMENT SHALL BE EXTENDED AS NEEDED TO MAINTAIN THE SANITARY SERVICE AT A SLOPE OF 2%-8%.



Applewood Sanitation District

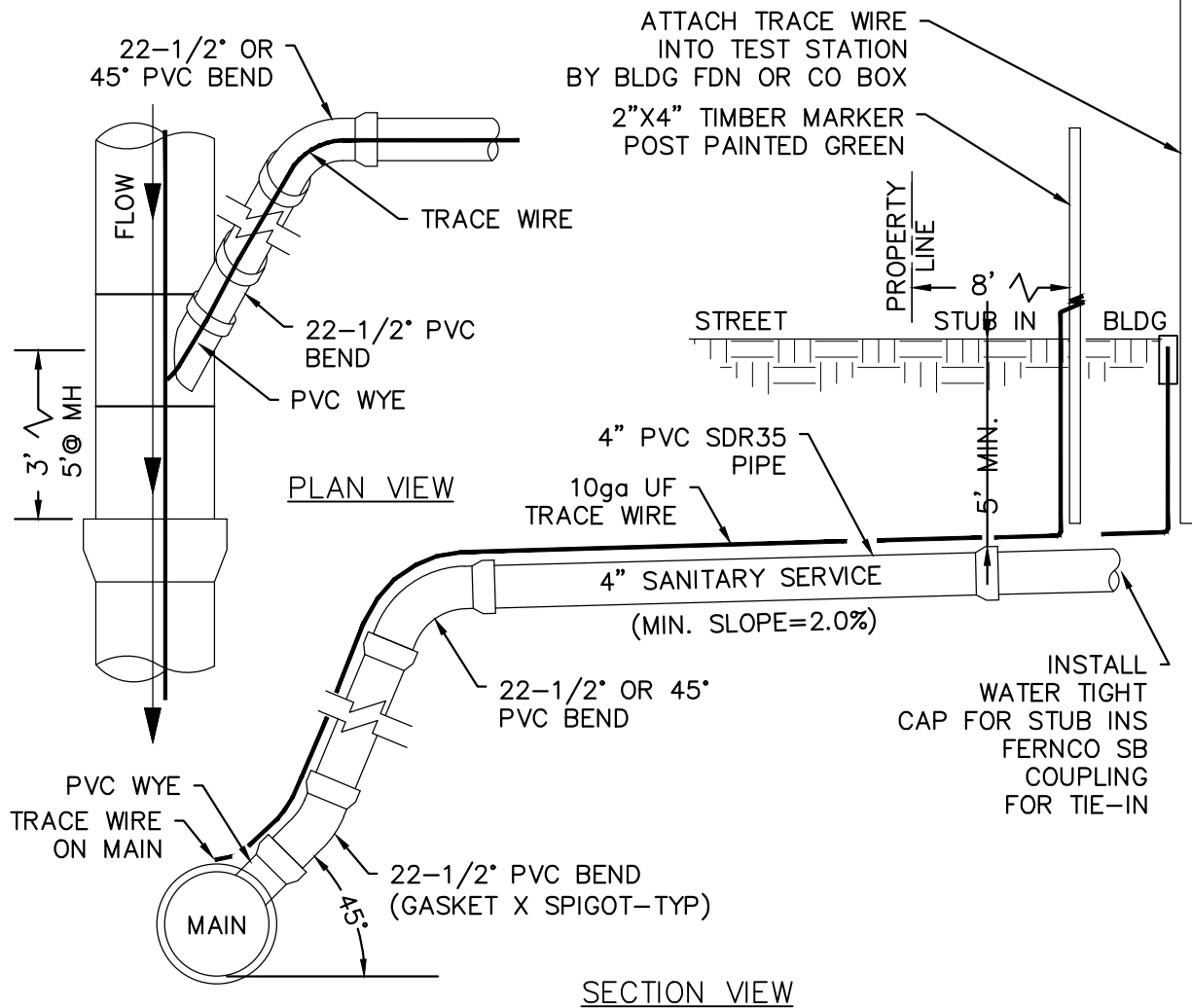
**SANITARY SEWER WYE
 BRANCH CONNECTION
 FOR MAIN DEPTH LESS THAN 12'**

Scale: NONE

Date: APRIL, 2023

Revised: 04/13/23

Detail: 11



NOTES:

- 1) SANITARY SEWER SERVICE TAPS SHALL BE LOCATED ON THE MAIN AT THE 2 O'CLOCK OR 10 O'CLOCK POSITION.
- 2) SANITARY SEWER SERVICE TAPS SHALL NOT BE MADE WITHIN 3 FEET OF A PIPE JOINT OR 5 FEET FROM OUTSIDE EDGE OF MANHOLE TO CL WYE FITTING.
- 3) DEPTH OF BURY OF SANITARY SEWER SERVICE LINE AT ROW WILL BE AT THE DISCRETION OF THE DISTRICT AND TO BE DETERMINED ON A PROJECT BASIS AND DISCUSSED AT THE PRE-CONSTRUCTION MEETING.
- 4) MINIMUM DISTANCE BETWEEN TWO 45° BENDS IS 3 FEET.
- 5) SEWER SERVICE CONNECTIONS SHALL BE MADE USING "WYE" FITTINGS. EXISTING MAIN-PVC SADDLE WITH STAINLESS STEEL STRAPS.
- 6) RISER SEGMENT SHALL BE EXTENDED AS NEEDED TO MAINTAIN THE SANITARY SERVICE AT A SLOPE OF 2%-8%.



Applewood Sanitation District

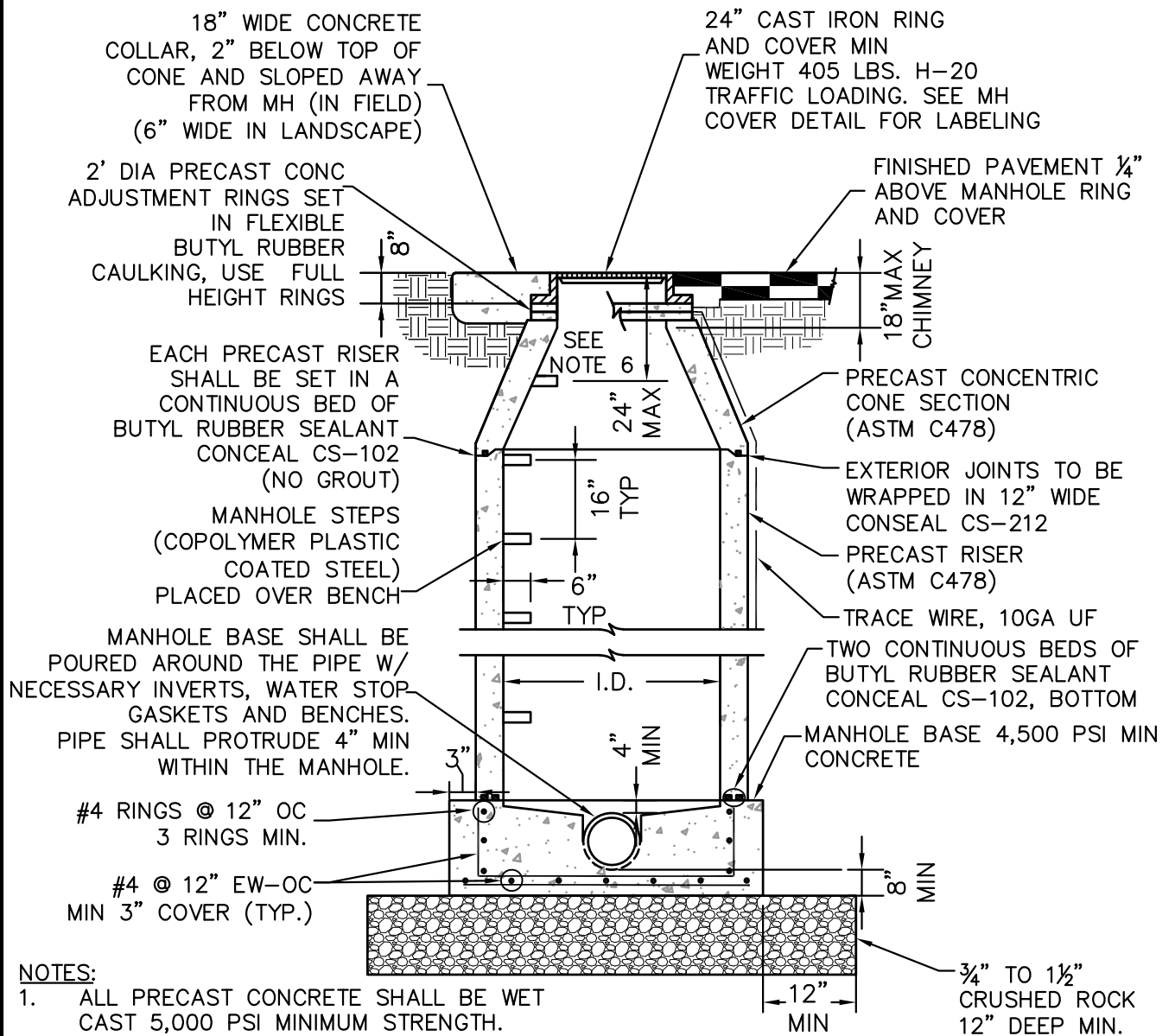
SANITARY SEWER WYE BRANCH CONNECTION FOR MAIN DEPTH GREATER THAN 12'

Scale: NONE

Date: APRIL, 2023

Revised: 04/13/23

Detail: 12



NOTES:

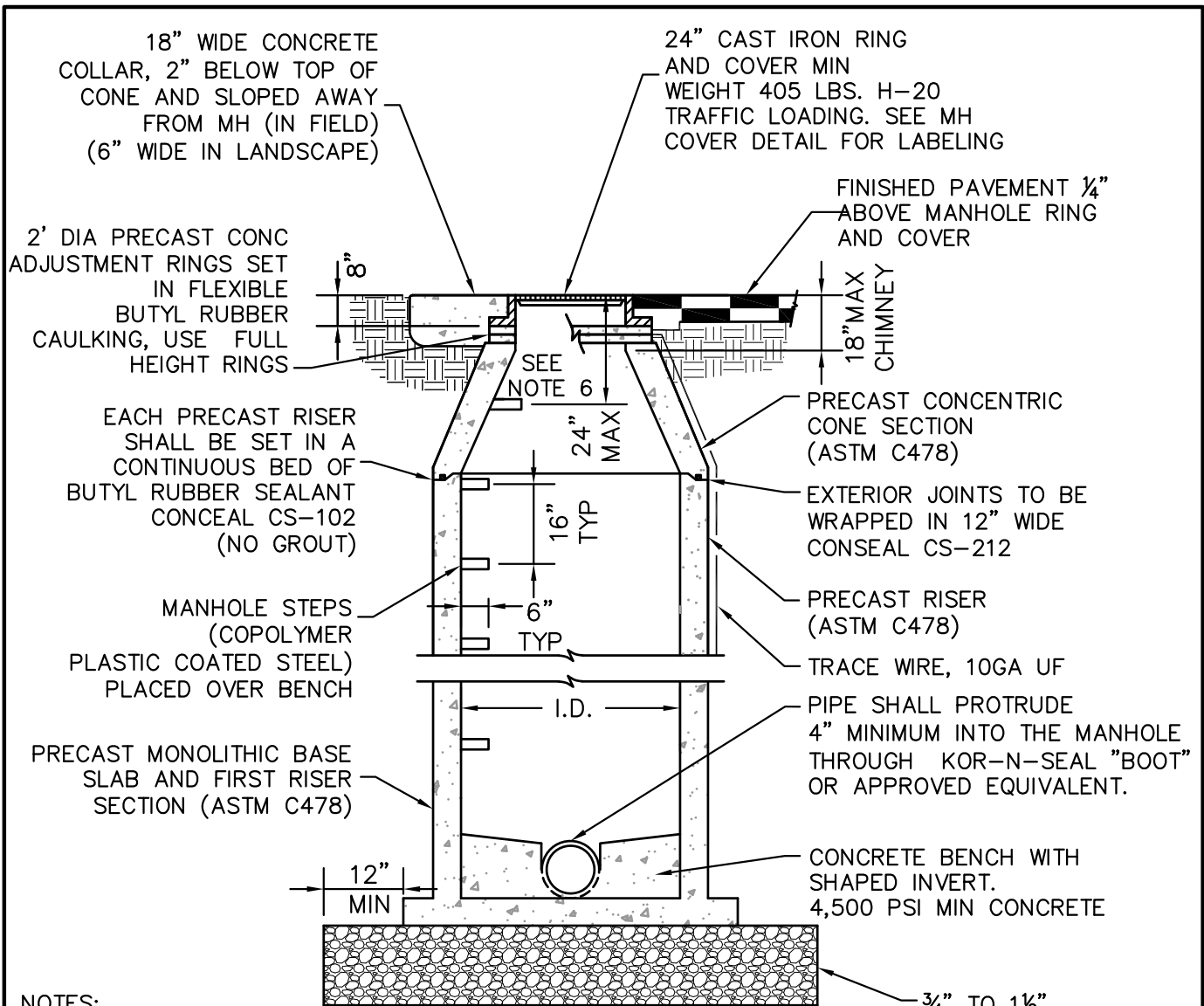
1. ALL PRECAST CONCRETE SHALL BE WET CAST 5,000 PSI MINIMUM STRENGTH.
2. MANHOLES ARE TO BE WATERPROOF.
3. PRECAST MANHOLE/VAULT BARREL SECTIONS, WALLS WILL REQUIRE AN EXTERIOR COATING OF BITUMINOUS WATERPROOFING OR APPROVED EQUIVALENT.
4. THE BENCH SHALL HAVE A BRUSHED SURFACE AND A FULL DEPTH CHANNEL.
5. 5' STUB-OUT PIPES SHALL CONTAIN WATER-TIGHT PLUGS.
6. A TWO-SIDED CONFINED SPACED WARNING TAG SHALL BE ATTACHED TO THE TOP STEP.
7. IF STEP IS PROTRUDING THE CHIMNEY, USE A 3" HAND HOLD STEP, S2-PF-HH.

MANHOLE ID:
 ID=4' FOR SEWER MAIN DIAMETERS < 15"
 ID=5' FOR SEWER MAIN DIAMETERS 15"-36"
 ID=6' FOR SEWER MAIN DIAMETERS 42"-48"

WHENEVER MORE THAN A TWO WAY MH OR 90° TURN, THE MH SHALL BE INCREASED TO LARGER DIA SIZE.



Applewood Sanitation District	
SANITARY SEWER MANHOLE (CIP BASE)	
Scale: NONE	Date: APRIL, 2023
Revised: 02/11/25	Detail: 13



NOTES:

1. ALL PRECAST CONCRETE SHALL BE WET CAST 5,000 PSI MINIMUM STRENGTH.
2. MANHOLES ARE TO BE WATERPROOF.
3. PRECAST MANHOLE/VAULT BARREL SECTIONS, WALLS WILL REQUIRE AN EXTERIOR COATING OF BITUMINOUS WATERPROOFING OR APPROVED EQUIVALENT.
4. THE BENCH SHALL HAVE A BRUSHED SURFACE AND A FULL DEPTH CHANNEL.
5. 5' STUB-OUT PIPES SHALL CONTAIN WATER-TIGHT PLUGS.
6. A TWO-SIDED CONFINED SPACED WARNING TAG SHALL BE ATTACHED TO THE TOP STEP.
7. IF STEP IS PROTRUDING THE CHIMNEY, USE A 3" HAND HOLD STEP, S2-PF-HH.

MANHOLE ID:

- ID=4' FOR SEWER MAIN DIAMETERS < 15"
- ID=5' FOR SEWER MAIN DIAMETERS 15"-36"
- ID=6' FOR SEWER MAIN DIAMETERS 42"-48"

WHENEVER MORE THAN A TWO WAY MH OR 90° TURN, THE MH SHALL BE INCREASED TO LARGER DIA SIZE.



Applewood Sanitation District

SANITARY SEWER MANHOLE (PRECAST BASE)

Scale: NONE

Date: APRIL, 2023

Revised: 02/11/25

Detail: 14



CONFINED SPACE

**ENTRY CAN BE FATAL
ENTRY BY PERMIT ONLY**

SEE OTHER SIDE

ACCUFORM REORDER# Q490710WM-001



**FOLLOW
CONFINED SPACE
ENTRY**

**PROCEDURE
BEFORE
ENTERING**

SEE OTHER SIDE

1. THE CONFINED SPACE WARNING TAG SHALL BE 15 MIL DOUBLE SIDED PVC PLASTIC OR POLYESTER WITH A 3/8" BRASS GROMMET WITH A 8" NYLON TIE. SIZE=3"X6" +/- OR APPROVED EQUIVALENT.
2. THE WARNING TAG SHALL BE FASTENED TO THE TOP STEP OF THE MH.



Applewood Sanitation District

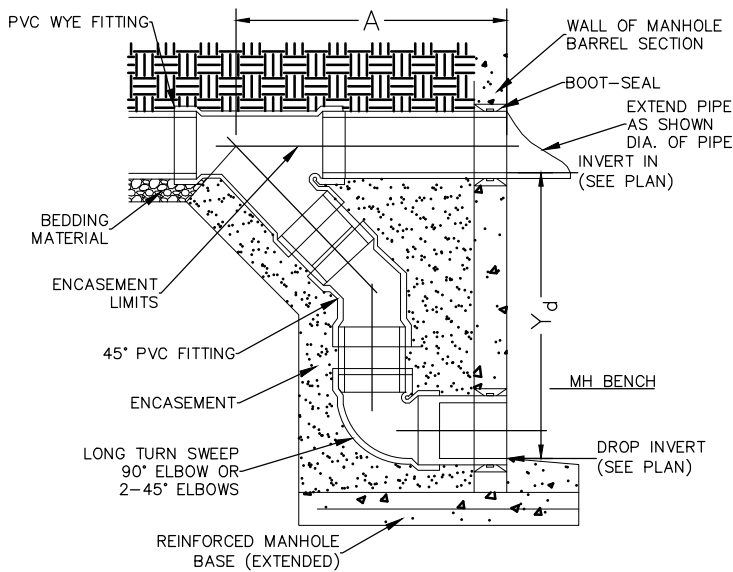
CONFINED SPACE SAFETY TAG

Scale: *NONE*

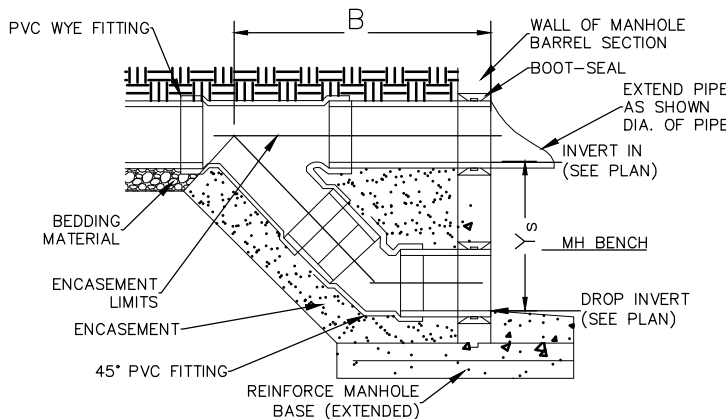
Date: *APRIL, 2023*

Revised: *04/13/23*

Detail: *15*



OUTSIDE DROP – DEEP: FOR PVC



OUTSIDE DROP – SHALLOW: FOR PVC

DROP MANHOLE NOTES:

1. ALL PIPE AND FITTINGS TO BE ASTM D3034, F679 AND DISTRICT APPROVED. PIPE 12" AND LARGER SHALL BE CONSTRUCTED WITH SDR 26 PIPE AND FITTINGS.
2. DIAMETER OF THE DROP PIPE SHALL NOT BE LESS THAN MAIN LINE PIPE DIAMETER.
3. FOR 18" DIAMETER AND LARGER, OUTSIDE DROP SHALL BE A SPECIAL DESIGN AND DISTRICT APPROVED PRIOR TO REVIEW SUBMITTAL.
4. A KOR-N-SEAL BOOT SHALL BE USED FOR THE CONNECTIONS IN A PRECAST MH. A WATER STOP GASKET AROUND THE PIPE SHALL BE USED IN A CAST IN PLACE (CIP) BASE AND SHALL BE DISTRICT APPROVED.
5. OUTSIDE DROP SHALL BE ALL OF ONE MATERIAL AND SIZE.
6. FLOW FILL ENCASEMENT SHALL BE A MINIMUM OF 8" THICK ALL AROUND.
7. PIPE DIMENSIONS ARE APPROXIMATE AND MAY VARY FROM ONE MANUFACTURER TO ANOTHER.
8. FOR CIP BASE MH WITH EXTENDED BASE, EXTEND #4 BAR PATTERN INTO EXTENSION.
9. FOR CIP EXTENSION TO PRECAST MH BASE, USE #4 DOWELS X 22" LG (4" EMB) AND #4 @ 12 EW MAT. BASE THICKNESS TO MATCH THE PRECAST MH BASE THICKNESS, 8" MIN. BASE DIMENSIONS TO SUPPORT ENCASEMENT.
10. ALL REQUIRED WALL OPENINGS SHALL BE PRECAST BLOCK-OUTS OR CORE DRILLED. JACK HAMMERING OF OPENINGS IS NOT ALLOWED.
11. EXCEEDING THE MAXIMUM ALLOWABLE DROP NOTED, SHALL BE APPROVED BY THE DISTRICT PRIOR TO THE REVIEW SUBMITTAL.
12. ALL DROP MANHOLES SHALL BE LINED WITH A POLYURETHANE OR EPOXY LINING SYSTEM.

DIMENSIONS (NOMINAL)	DEEP								SHALLOW							
	Y _d (INCHES)				A (INCHES)				Y _s (INCHES)				B (INCHES)			
PIPE DIAMETER (INCHES)	8	10	12	15	8	10	12	15	8	10	12	15	8	10	12	15
MINIMUM DROP GREATER THAN	31	37	39	55	42	47	49	65	18	18	22	28	41	43	51	61



Applewood Sanitation District

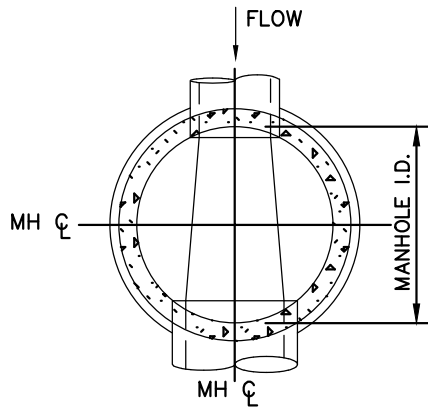
**STANDARD
DROP MANHOLE**

Scale: NONE

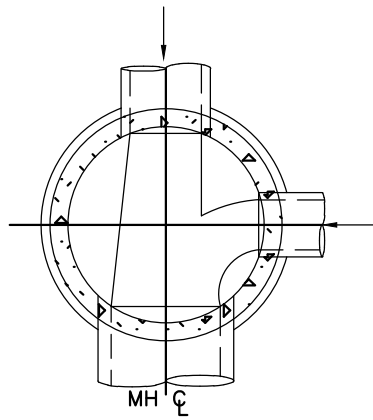
Date: APRIL, 2023

Revised: 04/13/23

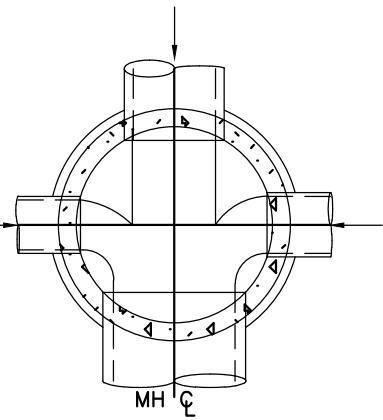
Detail: 16



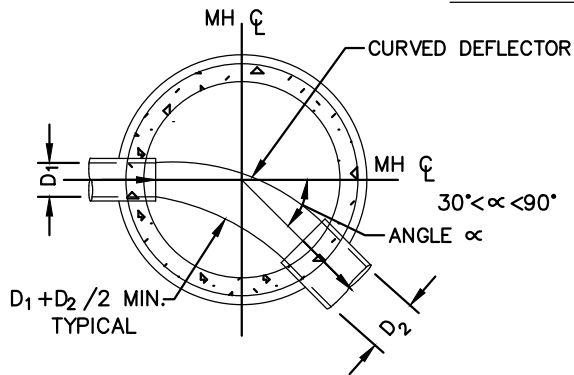
THROUGH PIPE



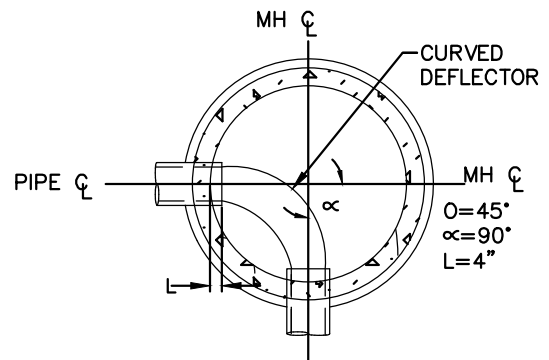
THROUGH PIPE
ONE COLLECTION LINE*



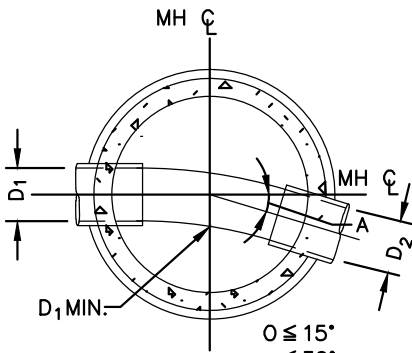
THROUGH PIPE
TWO COLLECTION LINES*



INTERMEDIATE ANGLE

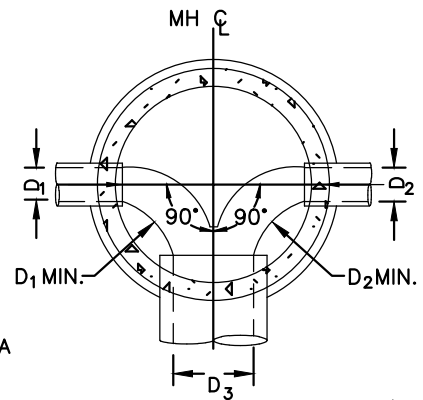


SHARP ANGLE*



INTERMEDIATE ANGLE

NOTE:
1. DETAILS SHOWN ARE TYPICAL ONLY FOR INSTALLATIONS WITH A MAXIMUM OF UP TO 8" INSIDE DROP IN A 4' MH WITH ENGINEERING APPROVAL



OPPOSED LATERALS*

* INCREASE MH TO LARGER DIA



Applewood Sanitation District

MANHOLE BASE & DEFLECTOR

NONE

Date: MAY 2021

Revised: 11/14/24

Detail: 17

PRECAST RISER

ALIGN STEPS ABOVE AND BELOW PLATFORM OPENING AS SHOWN.

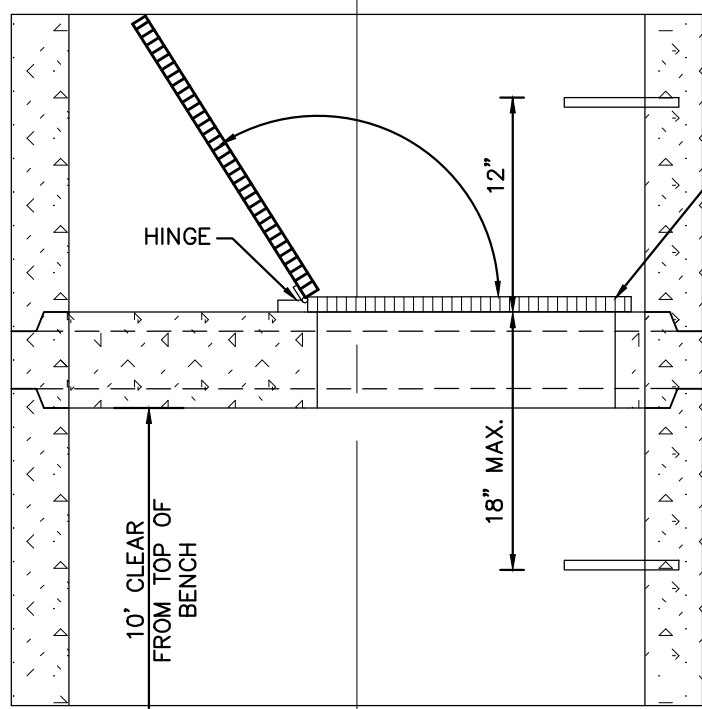
24" OPENING

FIBERGLASS OR ALUMINUM GRATING, 3/16" x 1-1/4" BEARING BARS. SERRATED GRATING OPTIONAL.

15/16"

4"

STANDARD PRECAST FLAT TOP AND 24" OPENING



24" x 18" GRATE ON HINGES PLACED SO THAT IT CLEARS THE STEP ABOVE.

SET IN FULL BED OF BUTYL RUBBER SEALANT, CONSEAL CS-102

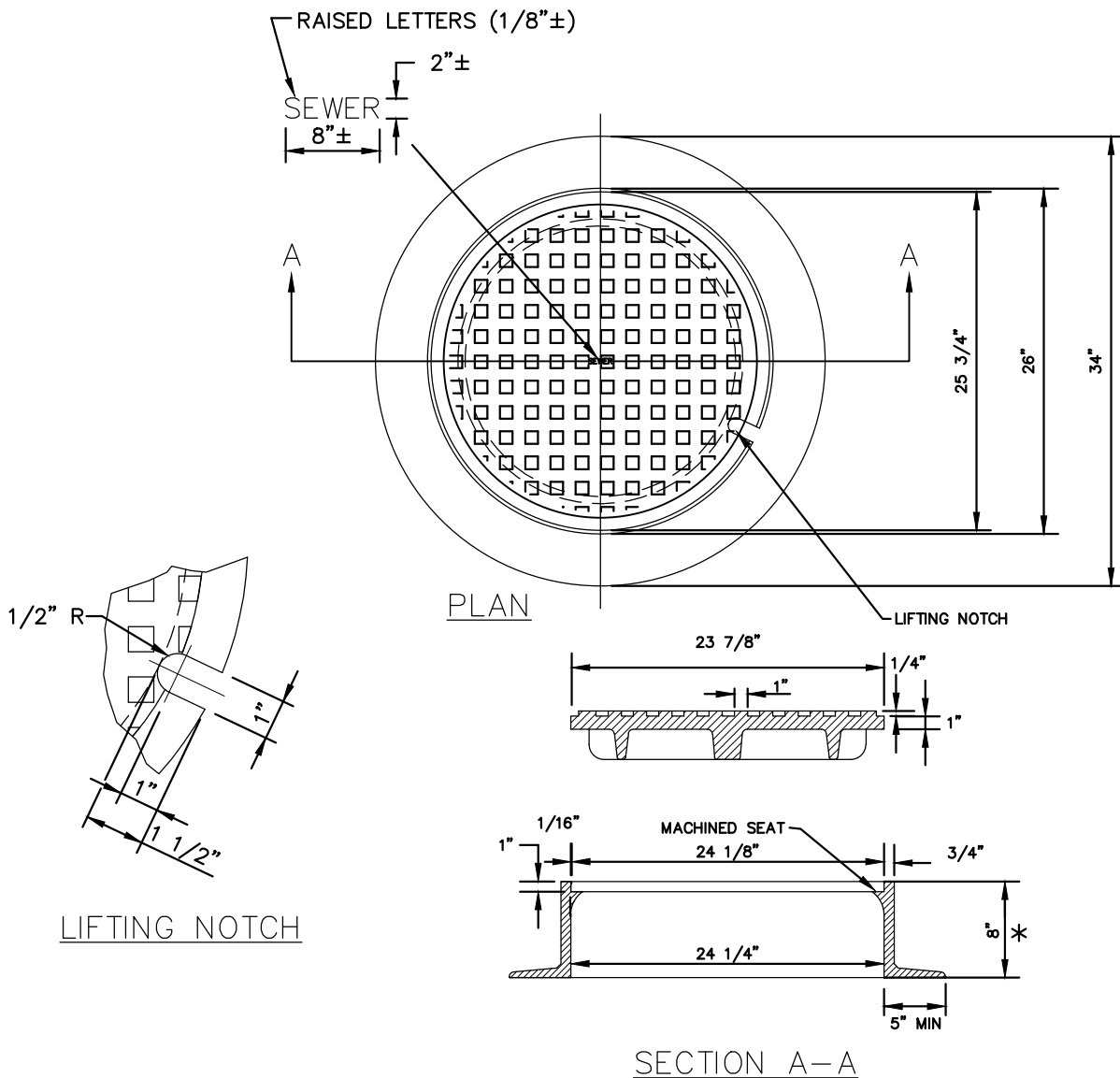
ALL MANHOLES IN EXCESS OF 18' IN DEPTH AS MEASURED FROM THE COVER TO THE INVERT SHALL HAVE A INTERMEDIATE PLATFORM.

RG AND ASSOCIATES, LLC
 4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033
 303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

Applewood Sanitation District

MANHOLE PLATFORM

Scale: <i>NONE</i>	Date: <i>APRIL, 2023</i>
Revised: <i>04/13/23</i>	Detail: <i>18</i>



NOTE:

1. CASTING SPECIFICATIONS: ASTM A-48 WITH A MINIMUM TENSILE STRENGTH OF 35 KSI (CLASS 35)
2. NOMINAL WEIGHTS

8" RING/COVER	
RING	240 LBS
COVER	165 LBS
TOTAL	405 LBS

* OTHER RING HEIGHTS REQUIRE ENGINEERING APPROVAL



Applewood Sanitation District

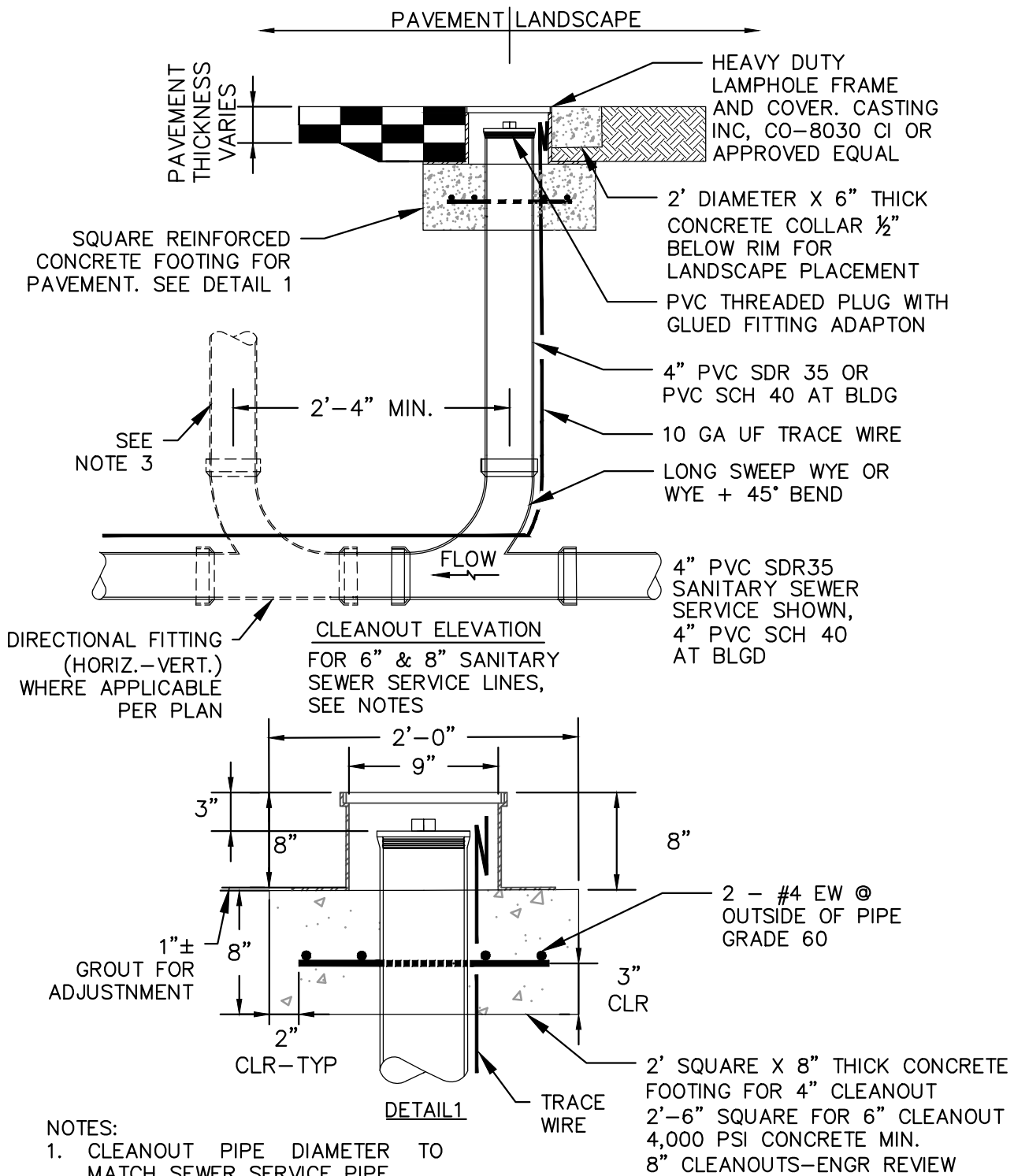
MANHOLE RING AND COVER WITH LIFT SLOT

Scale: *NONE*

Date: *APRIL, 2023*

Revised: *04/13/23*

Detail: *19*



NOTES:

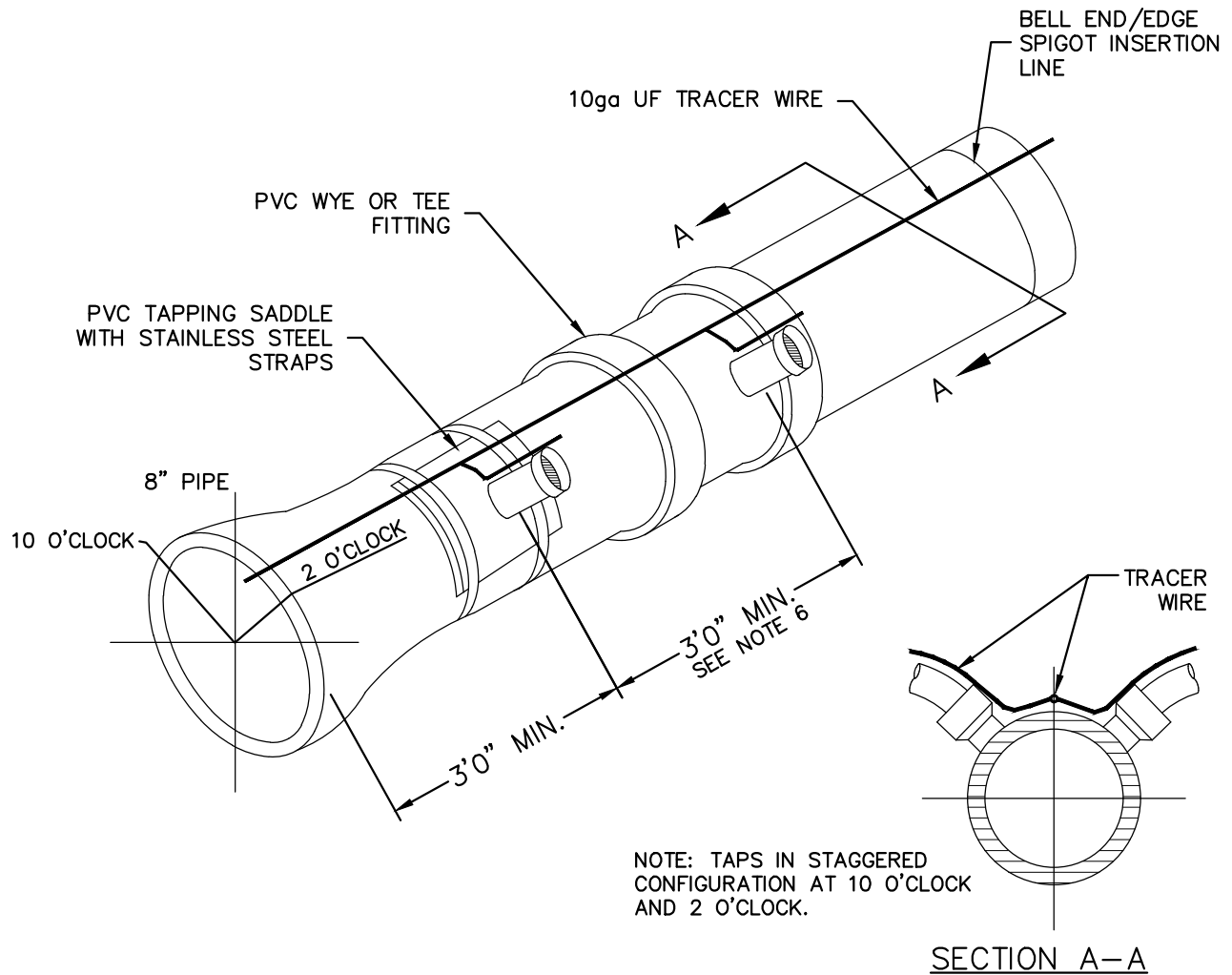
1. CLEANOUT PIPE DIAMETER TO MATCH SEWER SERVICE PIPE.
2. COVER AND RIM TO BE 1/4" LOWER THAN PAVEMENT.
3. OPTIONAL TWO WAY CLEANOUT AS SPECIFIED ON PLANS.
4. SINGLE 6" OR 8" CLEANOUTS SHALL FACE UP STREAM, BELOW THE BEND FOR JET CLEANING.

RG AND ASSOCIATES, LLC
 4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033
 303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

Applewood Sanitation District

CLEAN-OUT

Scale: NONE	Date: APRIL, 2023
Revised: 04/13/23	Detail: 20

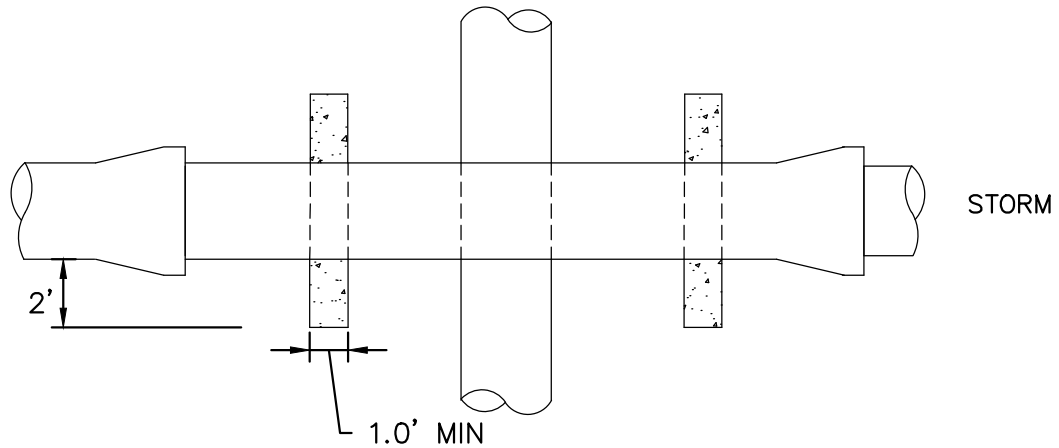


SANITARY SEWER

1. SEWER SERVICE CONNECTIONS SHALL BE POSITIONED AT EITHER THE 2 O'CLOCK OR THE 10 O'CLOCK POSITION ON THE CIRCUMFERENCE OF THE SEWER MAIN.
2. ON NEW INSTALLATIONS, EITHER PVC WYE OR TEE FITTINGS SHALL BE USED. WHEN TAPPING INTO AN EXISTING SEWER MAIN, A PVC SADDLE CONNECTION WITH STAINLESS STEEL STRAPS AND APPROVED CORING METHOD SHALL BE USED. THE HOLE SHALL BE OVALED OR A WYE.
3. 8" PIPE: THE MINIMUM DISTANCE FROM EITHER THE BELL OR SPIGOT INSERTION LINE OF A PIPE SHALL BE 3 FEET FOR TAPS AND 3 FEET TO THE CL OF THE WYE-TEE FITTING. OTHER PIPES ADD DIAMETER TO 3 FEET. THE MINIMUM DISTANCE FROM THE OUTSIDE OF A MANHOLE TO THE CL OF SERVICE CONNECTION SHALL BE 5 FEET FOR TAPS OR 5 FEET TO THE WYE-TEE FITTING. OTHER PIPES ADD DIAMETER TO 5 FEET.
4. A MAXIMUM OF 4 SEWER SERVICE CONNECTIONS SHALL BE ALLOWED PER 20-FOOT LENGTH OF PIPE.
5. WITH AWWA C-900 CLASS 235, DR18 PIPE, USE AWWA C-900 CLASS 235 PVC TEES FOR SERVICES, CONFORMING TO DR18 OR APPROVED EQUAL. SDR 26 PIPING WILL REQUIRE SDR 26 HEAVY WALL (GASKETED) FITTINGS.
6. THE MINIMUM DISTANCE BETWEEN SERVICE WYE-TEE FITTINGS SHALL BE 3 FEET FOR 6" & 8" PIPE. FOR PIPE LARGER THAN 8", THE MINIMUM DISTANCE BETWEEN WYE-TEE FITTINGS IS 3 FEET PLUS THE DIAMETER OF PIPE.
7. WHEN TAPPING AN EXISTING CIPP LINED MAIN THE NEW HOLE THROUGH THE PIPE AND LINER SHALL BE PROFESSIONALLY SEALED WITH AN EPOXY, SIKADUR31 HI-MOD GEL, OR EQUIVALENT.

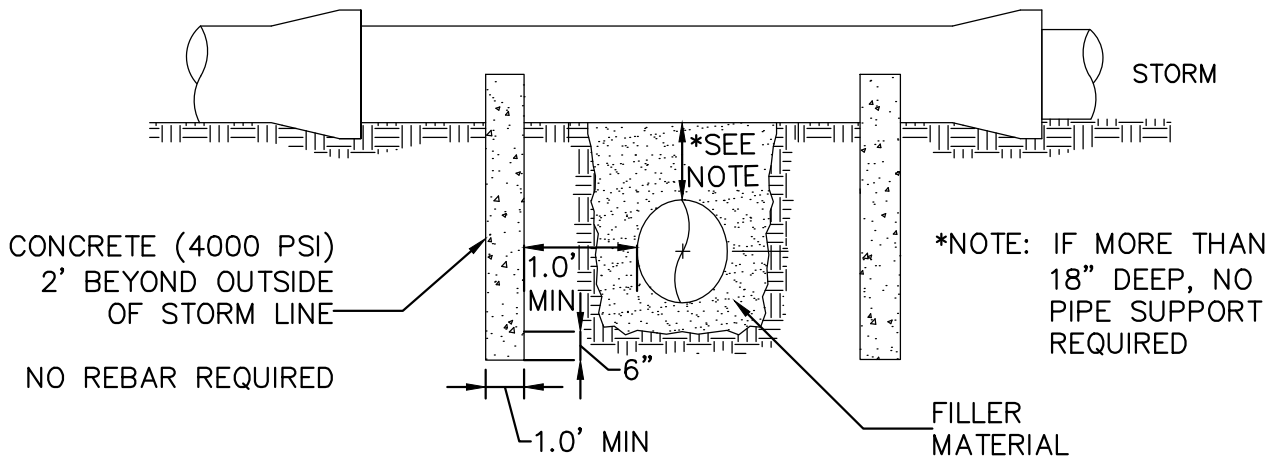


Applewood Sanitation District	
SEWER TAPPING	
Scale: <i>NONE</i>	Date: <i>APRIL, 2023</i>
Revised: <i>08/28/2023</i>	Detail: <i>21</i>



PLAN VIEW
NTS

ALL CONDITIONS TO BE
EVALUATED AND APPROVED
BY ENGINEER



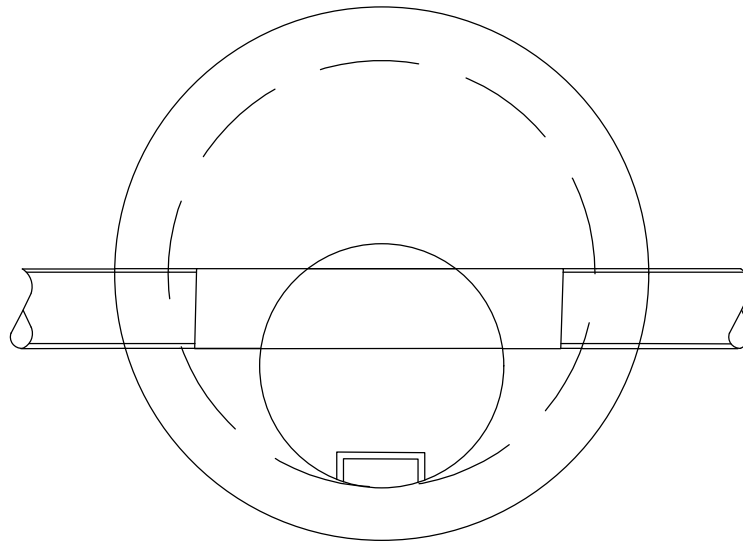
ELEVATION VIEW
NTS



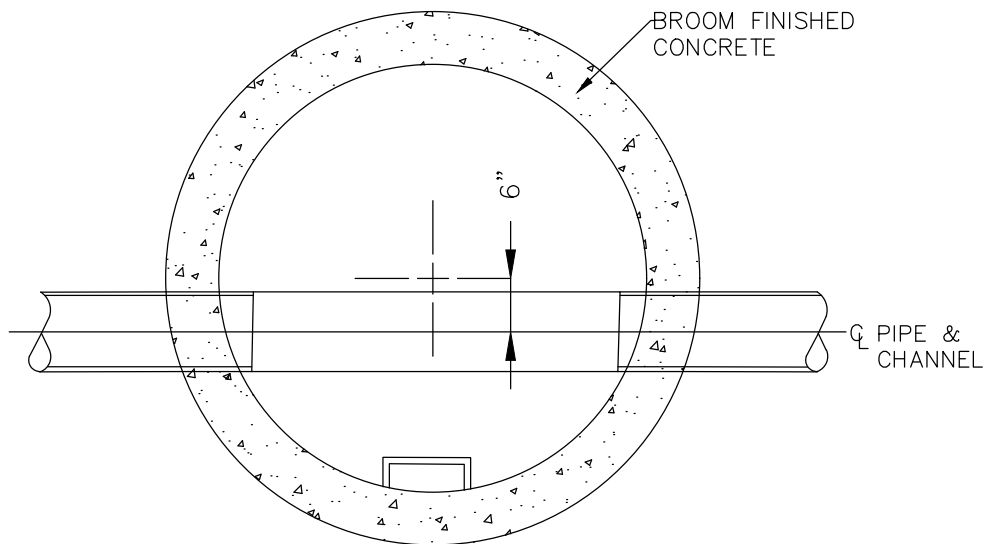
Applewood Sanitation District

STORMLINE CROSSING PIPE SUPPORT CONSTRUCTION

Scale: <i>NONE</i>	Date: <i>DECEMBER, 2023</i>
Revised: <i>12/11/23</i>	Detail: <i>22</i>



DETAIL 1
 MANHOLE ECCENTRIC
 CONE LAYOUT
 NOT TO SCALE



DETAIL 2
 MANHOLE BELOW
 RIM LAYOUT
 NOT TO SCALE

NOTES:

1. MANHOLE DIAMETER IS 5'

Applewood Sanitation District		
MONITORING MANHOLE		
Scale: <i>NONE</i>	Date: <i>DECEMBER, 2023</i>	
Revised: <i>02/12/25</i>		Detail: <i>23</i>

ENGINEERING APPROVAL
APPLEWOOD SANITATION DISTRICT

REVIEW IS ONLY FOR GENERAL COMPLIANCE WITH APPLEWOOD SANITATION DISTRICT ENGINEERING STANDARDS AND REQUIREMENTS. ALL RESPONSIBILITY FOR EXISTING CONDITIONS, CORRECTNESS OF DIMENSIONS, DETAILS, CONCEPTS, QUANTITIES AND SAFETY DURING CONSTRUCTION SHALL REMAIN WITH THOSE DESIGNING, DEVELOPING AND CONSTRUCTING THE PROJECT.

DISTRICT ENGINEER

DATE



Applewood Sanitation District

**ENGINEERING
APPROVAL BLOCK**

Scale: *NONE*

Date: *FEBRUARY, 2025*

Revised: *02/11/25*

Detail: *24*