CITY OF LANCASTER, TEXAS
STANDARD CONSTRUCTION DETAILS

Lancaster

SIGNATURE: _____
PUBLIC WORKS DIRECTOR

DATE: 2-21-22

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GENERAL NOTES – CITY OF LANCASTER

ALL WORK AND MATERIALS WILL BE IN ACCORDANCE WITH CITY OF LANCASTER STANDARD SPECIFICATIONS AND GENERAL DESIGN STANDARDS. IN THE EVENT AN ITEM IS NOT COVERED IN THE CITY OF LANCASTER SPECIFICATIONS AND DETAILS, THEN THE CITY ENGINEER SHALL MAKE THE FINAL DECISION ON MATERIALS, METHODS OF INSTALLATION AND PROCEDURES. THESE GENERAL NOTES ARE FOR CONSTRUCTION OF THE CITY INFRASTRUCTURE WITHIN CITY RIGHT OF WAYS AND EASEMENTS.

1. IT IS THE INTENT OF THESE PLANS TO SHOW THE LOCATION AND ELEVATION OF ALL EXISTING UNDERGROUND UTILITIES IN ACCORDANCE WITH EXISTING RECORDS. HOWEVER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD–VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING UTILITIES, WHETHER IN OR OUT OF RIGHT–OF–WAY.

2. FENCES, LANDSCAPING, AND ALL OTHER IMPROVEMENTS REMOVED TO ALLOW CONSTRUCTION SHALL BE IN THE SAME LOCATION AND IN CONDITION AS GOOD OR BETTER THAN THAT IN WHICH THEY WERE FOUND. NO COMPENSATION SHALL BE GIVEN TO THE CONTRACTOR FOR REMOVAL AND REPLACEMENT OF SUCH IMPROVEMENTS.

3. CONTRACTOR SHALL MAINTAIN WATER AND SEWER SERVICE TO ALL EXISTING CONNECTIONS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING CONNECTIONS, WATER METERS, WATER LINES, AND SEWER LINES IN THE FIELD PRIOR TO CONSTRUCTION.

4. THE CONTRACTOR SHALL ADHERE TO THE CITY OF LANCASTER'S CURRENT ADOPTED TREE ORDINANCE IN REFERENCE TO ALL TREES LOCATED WITH IN THE PROJECT.

5. ONLY THOSE ITEMS LISTED IN THE BID SCHEDULE WILL BE MEASURED AND PAID FOR AT THE UNIT PRICE. ALL OTHER WORK NOT LISTED IN THE BID SCHEDULE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS BID ITEMS.

6. ALL PAVEMENT TO BE REMOVED (ASPHALT OR CONCRETE) SHALL BE SAWCUT AT FULL DEPTH OR REMOVED TO THE NEAREST JOINT.

7. BRACE ALL UTILITY POLES AS REQUIRED TO MAINTAIN STABILITY OF THE POLES DURING CONSTRUCTION. YOU MUST NOTIFY FRANCHISE UTILITIES FOR APPROVAL.

8. CONTRACTOR SHALL NOTIFY THE ENGINEERING DEPARTMENT ASSIGNED INSPECTOR 48 HOURS PRIOR TO COMMENCEMENT OF WORK.

9. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE CURRENT TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND AMENDMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING ALL TRAFFIC CONTROL DEVICES THROUGH OUT THE PROJECT DURING CONSTRUCTION.

10. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS, ALLEYS, AND SIDEWALKS ADJACENT TO THE PROJECT FREE OF MUD AND DEBRIS DURING CONSTRUCTION OF THE PROJECT.

11. THE CONTRACTOR MUST MAINTAIN TWO–WAY TRAFFIC IN CONSTRUCTION AREAS. ONE LANE OF TRAVEL WITH FLAGMAN WILL BE ALLOWED AS INDICATED IN THE APPROVED TRAFFIC CONTROL PLAN (TCP). THE CONTRACTOR SHALL NOTIFY THE CITY OF LANCASTER CITY ENGINEER 48 HOURS IN ADVANCE OF ANY LANE CLOSURES FOR APPROVAL. THE CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVEWAYS UNLESS WRITTEN APPROVAL IS GIVEN BY THE CITY ENGINEER.

12. THE CLOSING OF STREET OR LANE SHALL BE BETWEEN 9.00AM TO 3.00PM MONDAY THROUGH FRIDAY. CONTRACTOR SHALL NOTIFY THE CITY 48 HOURS IN ADVANCED BEFORE CLOSING ANY LANE OR STREET.

13. CONTRACTOR SHALL NOT PLACE FILL OR WASTE MATERIAL ON PRIVATE PROPERTY WITHOUT A NOTARIZED WRITTEN AGREEMENT WITH THE PROPERTY OWNER AND PROPER PERMITTING AND VERIFICATION BY THE CITY ENGINEER.

14. EXCESS EXCAVATED MATERIAL SHALL NOT BE DEPOSITED IN LOW AREAS OR ALONG NATURAL WATERWAYS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM SUCH FILL AND SHALL REMOVE THE MATERIAL AT HIS OWN COST.

15. CONTRACTOR SHALL REMOVE AND REINSTALL ALL EXISTING STREET SIGN POSTS AND SIGNS WHICH INTERFERE WITH THE CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO NOTIFY THE LANCASTER STREET SUPERINTENDENT AT LEAST (5) DAYS IN ADVANCE OF THE TIME A STREET SIGN MUST BE RELOCATED. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY STREET SIGNS AS MAY BE REQUIRED DURING CONSTRUCTION.

16. BEFORE FINAL COMPLETION OF PROPOSED WORK, ALL ROADWAYS, SIGNS, SLOPES, MAIL BOXES, DITCHES AND BERMS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

17. CONTRACTOR SHALL RE–ESTABLISH AND MAINTAIN ALL DRAINAGE TO CHANNELS, DITCHES, AND DRAINAGE PATHS DISTURBED DURING CONSTRUCTION WITH PROPER GRADE TO DRAIN.

18. ALL DISTURBED SOIL SHALL BE RE–ESTABLISHED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR AFTER CONSTRUCTION.

19. ALL EXCESS EXCAVATION AND TRENCH SOIL SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED IN THESE PLANS AND APPROVED BY THE CITY ENGINEER.

20. THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS GOVERNING EXCAVATION, TRENCHES, AND SIDE SLOPES, AND SHALL MEET OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS.

21. ANY CHANGES OR DEVIATIONS FROM THESE APPROVED PLANS MUST BE SUBMITTED IN WRITING AND APPROVED BY THE CITY ENGINEER PRIOR TO MAKING THE CHANGES.

22. A CITY OF LANCASTER RIGHT OF WAY PERMIT IS REQUIRED PRIOR TO BEGINNING WORK WITHIN A CITY EASEMENT OR RIGHT–OF–WAY. THE CONTRACTOR SHALL REGISTER WITH THE CITY AND PROVIDE LIABILITY INSURANCE TO OBTAIN THE PERMIT.

23. TRACKING OF MUD FROM SITE IS NOT ALLOWED ON CITY STREETS. IF THE MUD IS TRACKED ON CITY STREETS, IT SHALL BE CLEANED IMMEDIATELY AS PER MS–4 PERMIT.

EROSION CONTROL

1. EVERY SOIL DISTURBING ACTIVITY SHALL HAVE AN ACCOMPANYING EROSION CONTROL PLAN (ECP), AND EITHER A CONSTRUCTION SITE NOTICE (CSN) FOR THOSE ACTIVITIES DISTURBING MORE THAN 1 BUT LESS THAN 5 ACRES, OR A NOTICE OF INTENT (NOI) FOR THOSE ACTIVITIES DISTURBING MORE THAN 5 ACRES. A COPY OF THE APPROPRIATE CSN OR NOI SHALL BE PROVIDED TO THE CITY OF LANCASTER PRIOR TO ISSUANCE OF A GRADING PERMIT. THE ECP SHALL BE PROVIDED TO THE LANCASTER CITY ENGINEER PRIOR TO GRADING.

2. THE CSN OR NOI SHALL BE POSTED IN A LOCATION VIEWABLE TO THE PUBLIC UNTIL CONSTRUCTION IS COMPLETE AND A NOTICE OF TERMINATION (NOT) IS SUBMITTED. THE STORM WATER PREVENTION PLAN (SWP3) SHALL BE READILY AVAILABLE FOR REVIEW BY FEDERAL, STATE, OR LOCAL AUTHORITIES.

3. NO SOIL DISTURBING ACTIVITIES WILL OCCUR PRIOR TO SWP3, ECP, AND ASSOCIATED BEST MANAGEMENT PRACTICES (BMP) BEING FULLY IMPLEMENTED, THEN INSPECTED BY THE CITY OF LANCASTER'S INSPECTOR.

4. THE CONTRACTOR SHALL COMPLY WITH THE CITY OF LANCASTER'S STORM WATER ORDINANCE, THE CURRENT NCTCOG BEST MANAGEMENT PRACTICES MANUAL, THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) GENERAL CONSTRUCTION PERMIT TXR150000, AND ANY OTHER STATE AND OR LOCAL REGULATIONS.

5. THE SITE SHALL BE REVIEWED BY THE CONTRACTOR OR HIS REPRESENTATIVE WEEKLY, AND AFTER ANY MAJOR STORM ADJUSTMENTS/REPAIRS TO THE EROSION CONTROL MEASURES WILL BE MADE AS NEEDED. THE CONTRACTOR SHALL NOTIFY THE CITY OF LANCASTER'S INSPECTOR OF ADJUSTMENTS/REPAIRS MAY BE INSPECTED AND APPROVED.INSPECTION REPORTS MUST BE EMAILED TO CITY INSPECTOR WEEKLY.

6. FINAL ACCEPTANCE OF A SITE SHALL BE CONTINGENT UPON VEGETATION BEING ESTABLISHED PER THE TPDES GENERAL CONSTRUCTION PERMIT TXR150000, AND PROPER NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE STATE OF TEXAS. A COPY OF THE NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO THE CITY OF LANCASTER.

7. CONTRACTOR (OR SUBCONTRACTOR) SHALL PROVIDE A COPY OF SELF INSPECTION REPORT TO THE CITY INSPECTOR ON WEEKLY BASIS.

WATER

ALL WORK AND MATERIALS WILL BE IN ACCORDANCE WITH CITY OF LANCASTER STANDARD SPECIFICATIONS AND GENERAL DESIGN STANDARDS. IN THE EVENT AN ITEM IS NOT COVERED IN THE CITY OF LANCASTER SPECIFICATIONS AND DETAILS, THEN THE CITY ENGINEER SHALL MAKE THE FINAL DECISION ON MATERIALS, METHODS OF INSTALLATION AND PROCEDURES.

1. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OPEN AND OR CLOSE ALL VALVES INCLUDING BUT NOT LIMITED TO THE CITY OF LANCASTER VALVES DURING CONSTRUCTION OF A PROJECT. THE PROCEDURES TO OPEN OR CLOSE CITY VALVES ARE AS FOLLOWS

   A. THE CONTRACTOR SHALL CONTACT THE CITY OF LANCASTER INSPECTOR AT LEAST 48 HOURS PRIOR TO OPERATING CITY WATER VALVE(S)TO GET PERMISSION TO OPEN OR CLOSE A VALVE(S).

   B. IF THE CONTRACTOR IS GIVEN PERMISSION BY THE CITY INSPECTOR TO OPERATE THE VALVE(S), THEN THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR AND DEVELOP A LIST OF ADDRESSES THAT WILL BE AFFECTED BY ANY VALVE CLOSINGS. AFTER THE LIST HAS BEEN DEVELOPED EACH ADDRESS AFFECTED SHALL BE GIVEN A WRITTEN NOTICE STATING THE WATER WILL BE OFF DUE TO CONSTRUCTION FOR A GIVEN PERIOD OF TIME (NOT TO EXCEED 4 HOURS) AND THE NOTICE(S) SHALL BE DELIVERED BY THE CONTRACTOR TO THE ADDRESS(S) AFFECTED, AT LEAST 48 HOURS PRIOR TO CLOSING THE VALVE(S). AFTER THE NOTIFICATION HAS BEEN DELIVERED AND 48 HOURS HAVE ELAPSED THE CONTRACTOR MAY OPERATE THE VALVE(S) WITH THE INSPECTOR PRESENT AND AT HIS INSTRUCTION.

   C. IN NO CASE SHALL CITY PERSONNEL BE RESPONSIBLE FOR OPERATING VALVES FOR CONSTRUCTION IN THE EVENT THE VALVE(S) DOES NOT OPERATE PROPERLY, THEN THE CONTRACTOR SHALL ASK THE INSPECTOR FOR ASSISTANCE. NO TIME OR CHARGES SHALL BE CHARGED TO THE CITY BY THE CONTRACTOR FOR OPERATING VALVES.

   D. TCEQ RULES AND REGULATIONS SHALL APPLY TO ALL WATER LINES THAT FALL BELOW THE TCEQ'S MINIMUM PRESSURES.

2. ALL FIRE HYDRANTS SHALL BE M&H, MUELLER, AND KENNEDY, AND EQUAL TO, APPROVED BY DIRECTOR OF PUBLIC WORKS. HYDRANTS SHALL BE THREE–WAY STANDARD THREAD WITH 4" NOZZLE AND 2 1/2" NOZZLES.

3. GATE VALVES SHALL BE RESILIENT WEDGE EPOXY COATED GATE VALVES, ISO TEST, MUELLER OR CLOW.

4. TAPPING SLEEVES SHALL BE ALL STAINLESS STEEL WITH STAINLESS STEEL BOLTS AND NUTS.

5. ALL WATER MAINS SHALL HAVE A MINIMUM OF 48" COVER OVER THE TOP OF THE PIPE UNLESS STIPULATED ON THE PLAN.

6. ALL CONNECTIONS USED FOR FLUSHING SHALL BE METERED WITH A CERTIFIED BACK FLOW PREVENTION DEVICE AND ALL WATER USED SHALL BE AT THE CONTRACTOR'S EXPENSE.

7. WATER LINES SHALL BE TESTED AT 150 PSI PRESSURE FOR A FOUR–HOUR CONTINUOUS PERIOD. THE LEAKAGE RATE WILL NOT EXCEED 25 GALLONS PER INCH OF NOMINAL DIAMETER PER MILE OF PIPE OVER A 24–HOUR PERIOD. THE CONTRACTOR WILL FLUSH AND STERILIZE LINES AND PERFORM BACTERIOLOGICAL TESTS AS DIRECTED BY THE CITY INSPECTOR AND TO PROVE LINES TO BE FREE OF COLIFORM ORGANISMS. THE CHLORINATION STEPS ARE AS FOLLOWS, CHLORINATE TO AT LEAST 50 PPM–WAIT 24 HOURS. FLUSH SUPERCHLORINATION, CHECK CL2, THEN WAIT ADDITIONAL 24 HOURS BEFORE TAKING SAMPLE.ALL CHLORINATION NEEDS TO BE METERED.IF SAMPLES ARE REPORTED POSITIVE, THE CONTRACTOR WILL FLUSH WITH METER AND RESTERILIZE AND REPEAT STEPS UNTIL WATER SAMPLES ARE FREE FROM COLIFORM ORGANISMS.

8. CONNECTION TO THE WATER SYSTEM SHALL NOT BE MADE UNTIL ALL LINES HAVE BEEN PRESSURE TESTED AND SATISFACTORY WRITTEN BACTERIOLOGICAL REPORT RESULTS HAVE BEEN RECEIVED BY THE CITY OF LANCASTER INSPECTOR.

9. ALL RESIDENTIAL SERVICES SHALL BE INSTALLED AS FOLLOWS:

   A. METER BOXES SHALL BE A PLASTIC BODY TYPE WITH LOCKING CAST IRON OR STEEL RINGED PLASTIC AND LID DALLAS SPECS.OR APPROVED EQUAL AND WILL BE INSTALLED TWO (2) FEET BACK OF CURB LINE. ALL METER BOXES IN PAVING SHALL BE TRAFFIC RATED. ALL WATER SERVICES WILL BE MINIMUM 1" IN DIAMETER, AND MADE OF TYPE "K" SOFT COPPER OR POLY PIPE UNLESS OTHERWISE SHOWN ON THE PLANS AND APPROVED BY THE CITY. REFER TO STANDARD CONSTRUCTION DETAIL WATER SHEET. WATER SERVICES SHALL BE LOCATED UPSTREAM OF THE SANITARY SEWER SERVICES EXCEPT AS MAY BE SHOWN ON THE PLANS.

   B. THE UTILITY CONTRACTOR WILL INSTALL THE WATER SERVICE TO A POINT TWO (2) FEET PAST THE BACK OF CURB, OR AS MAY BE SHOWN ON THE PLANS, AT A DEPTH OF 12 INCHES. THE METER BOX WILL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AFTER THE PAVING CONTRACTOR HAS COMPLETED THE FINAL GRADING IN BACK OF THE CURB. ALL WATER SERVICES SHALL BE EMBEDDED IN AT LEAST 6" OF SAND FROM TAP TO METER BOX.

   C. CONTRACTOR WILL TIE A 1" WIDE PIECE OF BLUE PLASTIC FLAGGING TO THE WATER SERVICE CURB STOP AND WILL LEAVE A MINIMUM OF 36" OF FLAGGING EXPOSED AFTER BACKFILLING CURB AND PAVING IS COMPLETE.

   D. CONTRACTOR IS RESPONSIBLE TO PROVIDE AND INSTALL METERS TO CITY SPECIFICATION AT HIS OWN COST.

10. POLYTUBEWRAPING:
    THE CONTRACTOR SHALL FURNISH AND INSTALL POLYETHYLENE WRAP AROUND THE DUCTILE IRON PIPE, FIRE HYDRANT UP TO THE BURY LINE AND RELATED FITTINGS AND VALVES. THIS WRAP WILL BE AN 8 MIL THICKNESS POLYTUBE. SEAMS AND OVERLAPS WILL BE WRAPPED AND HELD IN PLACE BY TWO INCH (2") WIDE PLASTIC BACKED ADHESIVE TAPE, POLYKEN NO. 900 OR SCOTHRAF NO. 50 OR AN EQUAL WITH APPROXIMATELY TWO (2') FOOTLAPS ON THE POLYTUBE. THE WRAP ON THE BARREL OF THE PIPE WILL BE LOOSE ENOUGH TO ALLOW THE FILM TO SHIFT WITH THE SOIL. THE WRAP WILL BE INSTALLED WITHOUT BREAKS, TEARS OR HOLES IN THE FILM. THE COST OF THE POLYEHTYLENE TUBE WRAP AND COMPLETE INSTALLATION WILL BE INCLUDED IN THE UNIT PRICE BID FOR FURNISHING AND INSTALLING DUCTILE IRON PIPE AND RELATED FITTINGS, VALVES AND FIRE HYDRANTS.

11. DUCTILE IRON FITTINGS SHALL BE A MINIMUM C–ISO, PRESSURE CLASS 250 AND ALL MECHANICAL BENDS AND FITTINGS SHALL BE MEGA–LUG RESTRAINED AND BLOCKED WITH 3600 PSI CONCRETE.

12. THE CONTRACTOR SHALL INSTALL FIRE HYDR4NTS 2' FROM BACK OF CURB OR AS MAY BE SHOWN ON THE PLANS OR AS MAY BE REQUIRED TO AVOID CONFLICTS. THE SPLASHPAD WILL BE IN FRONT OF FIRE HYDRANTS THAT ARE NOT ABUTTING SIDEWALKS OR CLOSE ENOUGH TO FLOW ONTO PAVED ROADWAYS.THE SPLASHBLOCK SHALL BE CONNECTED AND DOWELLED IN TO CURB, WHEN THERE IS CURB.

13. ALL BOLTS AND NUTS USED WITH MECHANICAL JOINT FITTINGS WILL BE HIGH STRENGTH, CORROSION RESISTANT STEEL PER ASTM A235 TYPE 3.

14. VALVE BOXES WILL BE FURNISHED AND SET ON EACH GATE VALVE. AFTER FINAL CLEAN UP AND ALIGNMENT HAS BEEN COMPLETED. THE CONTRACTOR (UTILITY) WILL POUR A STEEL REINFORCED CONCRETE BLOCK AROUND ALL VALVE BOX TOPS SO THE FINISHED GRADE IS LEVEL WITH THE FINISHED PARKWAY.

15. THE CONTRACTOR SHALL FURNISH THE CITY OF LANCASTER WITH A MAINTENANCE BOND FROM AN APPROVED SURETY COMPANY WHICH PROTECTS THE CITY AGAINST DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF THE FINAL ACCEPTANCE BY THE CITY. WHERE DEFECTIVE WORKMANSHIP AND/OR MATERIALS ARE DISCOVERED REQUIRING REPAIRS TO BE MADE UNDER THIS GUARANTEE, ALL SUCH REPAIR WORK SHALL BE DONE BY THE CONTRACTOR AT HIS OWN EXPENSE WITHIN FIVE (5) DAYS AFTER WRITTEN NOTICE OF SUCH DEFECT HAS BEEN GIVEN TO HIM BY THE CITY. SHOULD THE CONTRACTOR FAIL TO REPAIR LEAKS OR CORRECT SUCH DEFECTIVE WORKMANSHIP AND /OR MATERIAL WITHIN FIVE (5) DAYS AFTER BEING NOTIFIED , THE CITY MAY MAKE THE NECESSARY REPAIRS AND CHARGE THE CONTRACTOR WITH THE ACTUAL COST OF ALL LABOR AND MATERIAL REQUIRED. THE MAINTENANCE BOND SHALL IN THE AMOUNT OF $50,000.00 OR 10 PERCENT(10%) OF THE AMOUNT OF THE CONTRACT, WHICHEVER IS GREATER, BUT NOT EXCEED 100 PERCENT (100%) OF THE CONTRACT AMOUNT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING "RECORD DRAWINGS" TO THE ENGINEER SHOWING LOCATION OF WATER SERVICES AND VALVES BY DISTANCE TO BOTH LOT LINES.

    THIS INFORMATION SHALL BE PLACED AND MARKED
    "RECORD DRAWINGS" BY THE ENGINEER OF RECORD.
    COPIES OF "RECORD DRAWINGS" PLANS SHALL BE FURNISHED TO THE CITY.

16. THE INSTALLATION OF BLUE STEMSONITE (OR APPROVED EQUAL) MODEL 88–SSA FIRE HYDRANT MARKER WILL BE FURNISHED AND INSTALLED BY CONTRACTOR.

17. FIRE HYDRANTS WILL BE PAINTED AS NOTED. ALL HYDRANTS ARE TO BE PAINTED WITH TWO (2) COATS OF ALUMINUM PAINT.

18. PVC PIPE WILL BE A MINIMUM C–900 CLASS (DR–18) UNLESS INDICATED OTHERWISE ON THE PLANS. ALL WATER PIPE WILL BE INSTALLED WITH A "TRACER TAPE" PLACED OVER THE TOP OF THE SAND WITH WORD "WATER" MULTIPLY REPEATED ON THE TAPE, LAID 2' ABOVE THE PIPE PRIOR TO FINAL BACK FILL.

19. WATER MAINS WILL BE INSTALLED WITH A CLASS B+ EMBEDMENT AND ALL DITCHES AND TRENCHES WILL BE TAMPED AND COMPACTED TO 95% PROCTOR DENSITY. MOISTURE CONTENT SHALL BE WITHIN 0 TO +4 OF OPTIMUM.

20. DOUBLE STRAP BRASS SADDLE TO BE USED ON ALL SERVICE LINES INSTALLED ON PVC PIPE.

21. CONTRACTOR WILL PROTECT ALL PUBLIC UTILITIES DURING THE CONSTRUCTION OF THIS PROJECT. THE UTILITY CONTRACTOR MUST ADJUST ALL EXISTING MANHOLES, CLEAN OUTS, VALVES, BOXES, FIRE HYDRANTS AND APPURTENANCES TO PROPER LINE AND GRADE AFTER REPLACEMENT OF PAVING. NO ADDITIONAL PAY ITEM.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

STANDARD GENERAL NOTES & TESTING REQUIRMENTS FOR WASTER, WASTEWATER, STORM SEWER AND PAVEMENT CONSTRUCTION

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22. THE LOCATIONS OF ALL UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES. IT WILL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BY PRESENT.

23. WHERE STORM SEWER INLETS ARE INSTALLED OVER TOP OF WATER LINES, THE CONTRACTOR MUST PROVIDE A MINIMUM CLEARANCE OF 18". WHERE THE WATER CROSSES OVER TOP OF THE STORM SEWER, THERE MUST BE A MINIMUM OF 18" OF CLEARANCE.

24. REFER TO CITY OF LANCASTER STANDARD DETAILS FOR ADDITIONAL INFORMATION REGARDING CONSTRUCTION OF WATER & SANITARY SEWER SYSTEMS.

25. WATER SYSTEMS WILL NEED A KUPFERLE ECLIPSE 88 OR APPROVED EQUAL BY THE CITY. REFER TO STANDARD CONSTRUCTION DETAIL SHEETS FOR WATER.

26. DEAD END LINES SHOULD BE AVOIEDED BUT IN CASES WHERE THEY CAN NOT, CONTRACTOR MUST INSTALL A FLUSH POINT PER TCEQ STANDARDS.

27. A LIST OF APPROVED WATER UTILITY MATERIALS AND APPROVAL OF ALTERNATE MATERIALS MUST BE OBTAINED FROM THE CITY WATER AND SEWER SUPERINTENDENT PRIOR TO BEGINNING OF CONSTRUCTION.

28. AT THE END OF THE PROJECT AND BEFORE FINAL ACCEPTANCE, ALL VALVES AND WATER SERVICES LOCATED BEHIND THE CURB SHALL BE MARKED BY SAWING OR INSCRIBING INTO THE CURB 2" LETTER W FOR WATER SERVICES AND THE LETTER V FOR VALVES AND FH FOR FIRE HYDRANT. PAINTING OF SUCH LETTERING SHALL NOT BE AN ACCEPTED SUBSTITUTE.

29. CONTRACTORS ARE REQUIRED TO SUBMIT AN APPLICATION/DEPOSIT FOR USE OF CITY WATER METER WITH THE CITY UTILITY BILLING DEPARTEMENT, PRIOR TO STARTING WORK. THE CONTRACTOR MUST SUPPLY A TESTABLE BACKFLOW PREVENTER TO BE TESTED AFTER INSTALLED. TEST REPORTS MUST BE SUBMITTED TO THE CITY.

SANITARY SEWER

ALL WORK AND MATERIALS WILL BE IN ACCORDANCE WITH THE CITY OF LANCASTER STANDARD SPECIFICATIONS AND GENERAL DESIGN STANDARDS. IN THE EVENT AN ITEM IS NOT COVERED IN THE CITY OF LANCASTER SPECIFICATIONS AND DETAILS, THEN THE CITY ENGINEER SHALL MAKE THE FINAL DECISION ON MATERIALS, METHODS OF INSTALLATION AND PROCEDURES.

1. ALL PVC SEWER PIPE WILL BE SDR 35 FOR DEPTH LESS THEN 10' AND SDR 26 FOR DEPTH 10' OR GREATER AS PER CITY SPECIFICATIONS AND WILL BE INSTALLED WITH A MINIMUM OF CLASS B+ EMBEDMENT.
2. ANY OTHER PIPE FOR SANITARY SEWER MAIN CONSTRUCTION MUST BE APPROVED BY THE CITY ENGINEER.
3. ALL RESIDENTIAL SEWER SERVICES WILL BE A MINIMUM DIAMETER OF FOUR (4") INCHES OR AS SPECIFIED ON THE PLANS AND SHALL TERMINATE AT THE PROPERTY LINE WITH A CLEANOUT. SERVICES SHALL BE LOCATED DOWNSTREAM OF THE WATER SERVICES EXCEPT AS MAY BE SHOWN ON THE PLANS. ALL SERVICES SHALL BE EMBEDDED IN CLASS B+ EMBEDMENT.
4. ALL SEWER MAINS WILL BE A MINIMUM DIAMETER OF EIGHT (8") INCHES AND WILL BE INSTALLED PER THE PLAN PROFILE.
5. ALL TRENCHES WILL BE TAMPED AND COMPACTED TO A 95% PROCTOR DENSITY. MOISTURE CONTENT SHALL BE WITHIN 0 TO +4 OF OPTIMUM. AFTER PIPE HAS BEEN LAID ON PROPER BEDDING, BACKFILL WITH 8" MAXIMUM LOOSE LIFTS MECHANICALLY COMPACTED TO 95% STANDARD PROCTOR. MOISTURE CONTENT SHALL BE WITHIN 0 TO +4 OF OPTIMUM UNDER ROADWAY AND 12" MAXIMUM LOOSE LIFT BEHIND CURB. MAXIMUM SIZE ROCK IN BACKFILL SHALL NOT EXCEED 6" IN DIAMETER.
6. CONTRACTOR WILL TIE 1" WIDE PIECE OF RED PLASTIC FLAGGING TO THE END OF THE SEWER SERVICE AND WILL LEAVE A MINIMUM OF 36" OF FLAGGING EXPOSED AFTER BACKFILL. AT THE END OF THE PROJECT AND BEFORE FINAL ACCEPTANCE, ALL MANHOLES AND SEWER SERVICES LOCATED BEHIND THE CURB SHALL BE MARKED 2" BY SAWING INTO THE CURB. THE LETTERS FOR SEWER SERVICES AND THE LETTER MH FOR MANHOLE. PAINTING OF SUCH LETTERING SHALL NOT BE AN ACCPETED SUBSTITUTE.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING "AS-BUILT" PLANS TO THE ENGINEER SHOWING THE LOCATION OF SEWER SERVICES. THIS INFORMATION WILL BE PLACED ON THE ENGINEERING PLANS AND MARKED "AS-BUILT" BY THE DESIGN ENGINEER. COPIES OF THESE "AS-BUILT" PLANS WILL BE FURNISHED TO THE CITY. TIES WILL BE MADE BY DISTANCE MEASUREMENTS FROM BOTH LOT LINES FOR ALL MANHOLES. CLEANOUTS AND SERVICES.
8. ALL SANITARY SEWER LINES AND MANHOLES WILL BE TESTED FOR INFILTRATION AND EXFILTRATION BY THE LOW PRESSURE AIR TEST METHOD IN ACCORDANCE WITH THE TCEQ CURRE SPECIFICATIONS.
9. ALL SEWER PIPES WILL BE INSTALLED WITH A RED PLASTIC IDENTIFICATION TAPE MARKED "SEWER" LAID 2' ABOVE THE PIPE.
10. A LOW PRESSURE AIR TEST WILL BE PREFORMED ON ALL INSTALLED SECTIONS OF SEWER MAINS. SUCCESSFUL AIR TESTS WILL BE MANDATORY TO PROVE ACCEPTABILITY OF THE SEWER LINES.
11. ALL NEW SANITARY SEWER MAINS WILL REQUIRE MANDREL TESTS IN ACCORDANCE WITH TCEQ REQUIREMENTS.
12. MANHOLES ARE TO BE INSTALLED WITH A DUCTILE IRON HINGED RING AND WATER TIGHT COVER GASKET TYPE TO PREVENT INFILTRATION WITH AND LOCKING DEVICE PAM-REX BRAND OR APPROVED EQUAL WITH THE WORDING SANITARTY SEWER FORGED INTO THE LID.
13. THE CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF PRESSURE RATED PVC SANITARY SEWER PIPE AT ALL WATER LINE CROSSINGS. EMBED SANITARY SEWER LINE IN CEMENT STABILIZED SAND IN ACCORDANCE WITH TCEQ REGULATIONS CHAPTER 290, PAGE 43. THE PRESSURE RATED PIPE SHALL BE ASTM 2241 SDR-26 OR APPROVED EQUAL.
14. A LIST OF APPROVED SANITARY SEWER UTILITY MATERIALS AND APPROVAL OF ALTERNATE MATERIALS MUST BE OBTAINED FROM THE CITY WATER AND SEWER SUPERINTENDENT PRIOR TO BEGINNING OF CONSTRUCTION.
15. FOR FINAL ACCEPTANCE, THE CITY WILL REQUIRE VIDEO INSPECTION OF ALL SANITARY SEWER MAINS. A COPY OF THE RESULTS MUST BE PROVIDED TO THE CITY ON A CD ROM OR DVD DISC. VHS TAPES WILL NOT BE ACCEPTED.

STORM SEWER

ALL WORK AND MATERIALS WILL BE IN ACCORDANCE WITH CITY OF LANCASTER STANDARD SPECIFICATIONS,STORM WATER DESIGN MANUAL AND ORDINANCE AND GENERAL DESIGN MANUAL. IN THE EVENT AN ITEM IS NOT COVERED IN THE CITY OF LANCASTER SPECIFICATIONS AND DETAILS, THEN THE CITY ENGINEER SHALL MAKE THE FINAL DECISION ON MATERIALS, METHODS OF INSTALLATION AND PROCEDURES.

1. INLET INSTALLATION; THE FLOOR OF THE EXCAVATION FOR THE INLET BOX MUST PROVIDE A FIRM, LEVEL BED FOR THE BASE SECTION TO REST UPON. USE A MINIMUM OF 6" DEPTH OF 1" DIAMETER (MAXIMUM) ROCK OR GRAVEL TO PREPARE THE INLET BEDDING TO FINAL GRADE. WHEN INSTALLING INLET WITH WET SOIL CONDITIONS, USE CEMENT STABILIZED-SAND AND ALLOW IT TO SET UP BY KEEPING HOLE PUMPED DRY.
2. AFTER PIPE HAS BEEN LAID ON PROPER BEDDING, BACKFILL WITH 8" MAXIMUM LOOSE LIFTS MECHANICALLY COMPACTED TO 95% STANDARD PROCTOR. MOISTURE CONTENT SHALL BE WITHIN 0 TO +4 OF OPTIMUM UNDER ROADWAY AND 12" MAXIMUM LOOSE LIFT BEHIND CURB. MAXIMUM SIZE ROCK IN BACKFILL SHALL NOT EXCEED 6" IN DIAMETER.
3. PRECAST INLETS AND HEADWALLS MUST BE APPROVED BY THE CITY ENGINEER.
4. CONCRETE FOR INLETS AND HEAD WALLS MUST BE A MINIMUM OF 4500 PSI.
5. CONNECTION OF THE STORM SEWER PIPE LATERALS TO INLETS SHALL BE MADE WITH PIPE THAT IS SMOOTH AND EVEN. IF THE PIPE HAS TO BE CUT THEN THE END OF THE PIPE SHALL BE EVENLY SAW CUT. CHIPPED OR BROKEN PIPE WILL BE REJECTED.
6. LOCKING DEVICE IS REQUIRED FOR ALL STORM SEWER LIDS.
7. THE WORDING "STORM WATER" SHALL BE FORGED INTO ALL INLET LIDS AND LETTERS SHALL BE A MINIMUM OF 2" IN HEIGHT.
8. EXISTING STORM SEWER PIPE AND/OR LATERALS SHALL BE LOCATED PRIOR TO CONSTRUCTION OF INLET BOXES. IF ADJUSTMENT IN GRADE OF LATERAL IS REQUIRED, A REVISED DESIGN BY THE ENGINEER OF RECORD SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.
9. REINFORCED CONCRETE PIPE SHALL BE CLASS III MINIMUM OR APPROVED EQUAL, INSTALLED ON A CLASS B+ EMBEDMENT.
10. CONNECTIONS BETWEEN PIPE SIZE CHANGES SHALL BE MADE WITH ONLY PRE-CAST MANUFACTURED PIPE FITTINGS.
11. ALL TRANSITIONS AND BENDS MUST BE PRE-CAST MANUFACTURED.
12. ALL STORM SEWER PIPE SPIGOT AND BELL ENDS SHALL BE ASPHALT PRIMERED.
13. FOR FINAL ACCEPTANCE, THE CITY WILL REQUIRE VIDEO INSPECTION OF ALL STORM SEWER MAINS. A COPY OF THE RESULTS MUST BE PROVIDED TO THE CITY ON A CD ROM OR DVD DISC. VHS TAPES WILL NOT BE ACCEPTED.
14. ALL INLETS SHALL HAVE MS-4 DRAIN TILE MARKERS. FOR DETAIL, CONTACT CITY INSPECTOR.
15. NO TRACKING OF MUD FROM CONSTRUCTION SITE IS ALLOWED. THE MUD TRACKED SHALL BE CLEANED IMMEDIATELY.

PAVING

ALL WORK AND MATERIALS WILL BE IN ACCORDANCE WITH CITY OF LANCASTER STANDARD SPECIFICATIONS AND GENERAL DESIGN STANDARDS. IN THE EVENT AN ITEM IS NOT COVERED IN THE CITY OF LANCASTER SPECIFICATIONS AND DETAILS, THEN THE CITY ENGINEER SHALL MAKE THE FINAL DECISION ON MATERIALS, METHODS OF INSTALLATION AND PROCEDURES.

1. CONCRETE FOR ALL STREETS AND ALLEYS SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE NCTCOG, FOR 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS OR AS SHOWN IN THE PLANS.
2. REINFORCEMENT SHALL IN ACCORDANCE WITH CITY PAVING DETAILS.
3. ALL REINFORCEMENT STEEL SHALL BE 100% TIED, WITH NO SKIP TIES. REINFORCING STEEL SHALL BE SET ON CHAIRS. THE CHAIRS SHALL BE PLACED UNFORMLY AT EVERY OTHER BAR. BAR LAPS SHALL BE EXTENDED TO A MINIMUM OVERLAP OF 18 INCHES.
4. ALL STREETS AND ALLEYS SHALL HAVE EXPANSION JOINTS INSTALLED AT 200 FT. INTERVALS AND AT ALL INTERSECTIONS OR AS MAY BE SHOWN ON THE PLANS. THE EXPANSION JOINTS SHALL BE INSTALLED AT ALL RADIUS RETURNS.
5. SAWED TRANSVERSE DUMMY JOINTS SHALL BE PLACED IN PAVEMENT EVERY 20'. SAWING OF PAVEMENT SHALL OCCUR WITHIN 5 TO 12 HOURS AFTER CURING AND SEALING. OTHERWISE, THE SECTION SHALL BE REMOVED AND A LONGITUDINAL BUTT JOINT CONSTRUCTED.
6. ALL STREETS, ALLEYS, AND FIRE LANES REQUIRE A COMPACTED LIME STABILIZED SUBGRADE TO A DISTANCE OF 12 INCHES BEYOND THE BACK OF CURB OR EDGE OF PAVEMENT. ONLY HYDRATED LIME SHALL BE UTILIZED. OPTIMUM LIME SHALL BE APPLIED. OPTIMUM LIME APPLICATION RATE SHALL BE DETERMINED BY A LIME SERIES TEST TO REDUCE THE PLASTICITY INDEX (PI) TO 15 OR LESS AS CONDUCTED BY A CITY APPROVED TESTING LABORATORY. THE CITY WILL ADD 1% FOR FIELD VARIATION. LIME SERIES TEST SHALL BE TAKEN ALONG THE EXCAVATION AT ALL CHANGES IN SOIL OR AT A MAXIMUM OF 300 FEET BETWEEN SAMPLE SPOTS. THE LIME TREATED SUBGRADE SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. MOISTURE CONTENT SHALL BE WITHIN 0 TO +4 OF OPTIMUM. DENSITY TEST RESULTS SHALL BE COMPLETED BY AN INDEPENDENT LABORATORY APPROVED BY THE CITY AT THE CONTRACTOR'S EXPENSE. A COPY OF ALL RESULTS SHALL BE GIVEN TO THE CITY INSPECTOR. SULFATE TESTS SHALL ALSO BE CONDUCTED AT THE DISCRETION OF THE CITY.DURING POURING OF CONCRETE, LAB MUST BE PRESENT.
7. LIME TRIMMINGS ARE NOT ACCEPTABLE FOR ANY USE. FILL IN OR LEVEL UP IS TO BE COMPLETED WITH FLOWABLE FILL (MIN. 2000 PSI). NO ROCKS LARGER THAN 6" IN ANY DIRECTION.
8. ALL FILL SHALL BE COMPACTED BY MECHANICAL METHODS. MAXIMUM LOOSE LIFT FOR COMPACTION SHALL BE 8 INCHES. ALL LIFTS SHALL BE TESTED FOR DENSITY BY AN INDEPENDENT LABORATORY APPROVED BY THE CITY AT THE CONTRACTOR'S EXPENSE. DENSITY REQUIREMENT SHALL BE AS SHOWN ON THE PLANS FOR THE TYPE OF MATERIAL CALLED FOR ON THE PLANS.
9. ALL DISTURBED AREAS OF ROADWAY WORK SHALL HAVE GRASS ESTABLISHED IMMEDIATELY.
10. ALL AREAS TO BE EXCAVATED OR FILLED SHALL HAVE EROSION CONTROL PLACED PRIOR TO COMMENCING ANY WORK. EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT THE PROJECT.
11. ALL SIDEWALKS SHALL INCLUDE BARRIER-FREE RAMPS AT INTERSECTING STREETS, ALLEYS, DRIVEWAYS, ETC. BARRIER-FREE RAMPS SHALL MEET CURRENT TAS AND ADA ACCESSIBILITY GUIDELINE REQUIREMENTS.
12. SIDEWALKS SHALL BE DOWELED INTO PAVEMENT WHERE IT ABUTS ANY PAVEMENT. EXPANSION JOINT MATERIAL SHALL BE USED AT THESE LOCATIONS. STEEL FOR SIDEWALKS SHALL BE NUMBER 3 BARS PLACED PER THE DETAIL SHEET 100 PERCENT TIED. PLASTIC CHAIRS WILL BE PLACED UNIFROMLY AT EVERY OTHER BAR . CONCRETE SHALL BE 3,000 PSI AT 28 DAYS COMPRESSIVE STRENGTH.
13. TEST CYLINDERS: 1 SET OF 4 EVERY 80 TO 100 CY POURED, BUT NO LESS THAN 1 SET PER POUR OR PER DAY @ 7 DAYS, 2 @ 28 DAYS AND HOLD ONE. 56 DAY BREAKS ARE NOT ACCEPTABLE. MINIMUM 28 DAY DESIGN STRENGTH FOR ALL STREETS, ALLEYS, AND FIRE LANES IS 4000 PSI. IF 28 DAY STRENGTH IS NOT ATTAINED, THE LABORATORY NEEDS TO SCHEDULE CORES TO PROVE OUT THE DEFICIENT SECTION NO MORE THAN 2 DAYS BEYOND 28. AS A MINIMUM, ALL REPORTS SHALL INDICATE UNIT WEIGHT, AIR CONTENT, SLUMP, AND AMBIENT/CONCRETE TEMPERATURES. FOR ANY FAILED PARAMETER FOR STREETS, ALLEYS, AND FIRE LANES,THE CITY ENGINEER OR FIRE MARSHALL SHALL DETERMINE IF THE PAVEMENT NEEDS TO BE CORED FOR DEPTH CHECKS EVERY 300 LF. LT-CNTR-RT. THERE IS A MINIMUM OF ONE QUARTER INCH TOLERANCE FOR ALL CONCRETE DEPTHS. ANYTHING MORE THAN ONE QUARTER INCH SHY WILL BE REMOVED AND REPLACED ACCORDING TO CITY CRITERIA.
14. ALL SUB-GRADE TESTING (INCLUDES FIRE LANES) GRADATIONS/PULVERIZATIONS SHALL BE TAKEN EVERY 300 LF. AND PI'S EVERY 300 LF. DENSITIES (95%, 0 TO +4% OF OPTIMUM MOISTURE) EVERY 300 LF. LT-CNTR-RT. GRAB SAMPLES WILL NEED TO BE TESTED FOR P.I.'S AT EACH GRADATION CHECK TO MAKE SURE SUFFICIENT LIME WAS INSTALLED. LIME DEPTH CHECKS EVERY 300 LF. LT-CNTR-RT OR WHEN THE SOIL CHANGES COMPOSITION.
15. ALL DENSITY CONTROL SHALL BE RECEIVED, REVIEWED, AND APPROVED BY THE CITY PRIOR TO ANY SUBGRADE WORK. DENSITY REPORTS ARE ONLY GOOD FOR 48 HOURS AFTER TAKEN OR RIGHT BEFORE A RAIN. 2 BATCH DESIGNS REQUIRED, ONE EACH FOR MACHINE AND HAND POURS.

SPECIAL DETAILS OR MODIFICATIONS TO THESE STANDARD DETAILS TO BE UTILIZED ON ANY GIVEN PROJECT SHALL BE SUBMITTED TO THE CITY FOR APPROVAL FOR USE.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

STANDARD GENERAL NOTES & TESTING REQUIRMENTS FOR WASTER, WASTEWATER, STORM SEWER AND PAVEMENT CONSTRUCTION

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	GN-02	2 OF 53

THIS INFORMATION IS AN EXPLANATION OF BASIC TESTING PROCEDURES AND IS MEANT TO BE USED IN CONJUNCTION WITH THE CITY OF LANCASTER STANDARD CONSTRUCTION DETAILS AND THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, FOURTH EDITION

TESTING OF MATERIALS:
- THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PUBLIC AND PRIVATE PROJECTS WITHIN THE CITY R.O.W. AND EASEMENTS UNLESS SPECIFIED OTHERWISE. ALL FINAL REPORTS SHALL BE TURNED IN TO THE INSPECTOR AND CONTRACTOR WITHIN FIVE WORKING DAYS. FIELD COPIES MUST BE SUBMITTED TO THE INSPECTOR AND CONTRACTOR UPON COMPLETION OF THE TESTING AND PRIOR TO LEAVING THE JOB SITE. FAILED SAMPLES MUST BE REPORTED TO THE CITY INSPECTOR AND CONTRACTOR IMMEDIATELY.

- PRIVATE DEVELOPMENT PROJECTS: THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CITY'S APPROVED TESTING FIRM AND THE CITY'S INSPECTOR AT LEAST 24 HOURS PRIOR TO ANY REQUIRED TESTING.

- THE CONTRACTOR SHALL COORDINATE ALL TESTING ACTIVITIES WITH THE CITY AND ITS INSPECTOR AND SHALL FACILITATE REQUIRED TESTING THROUGHOUT THE CONSTRUCTION PERIOD. THE INSPECTOR SHALL BE PRESENT DURING ALL TESTING. ALL PIPE, FITTINGS, AND OTHER CONSTRUCTION MATERIALS SHALL BE INSPECTED FOR DEFECTS AND CONFORMANCE TO CITY OF LANCASTER STANDARDS PRIOR TO PLACEMENT.

- ALL TESTING RESULTS WILL BE SUBMITTED TO THE CONTRACTOR AND INSPECTOR WITHIN FIVE WORKING DAYS OF TESTING.

- THE CITY SHALL MAKE FINAL DECISION AS TO THE VALIDITY OF ALL

TESTING RESULTS.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT MATERIALS TO BE TESTED ARE IN COMPLIANCE WITH ALL PLANS AND SPECIFICATIONS PRIOR TO TESTING. ALL MATERIALS FOUND NOT TO BE IN COMPLIANCE WITH THE PLANS AND SPECIFICATIONS BEFORE AND AFTER TESTING SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

- ALL COSTS ASSOCIATED WITH THE RETESTING OF WORK THAT FAILS TO MEET THE SPECIFICATIONS REQUIRED IN THE CONTRACT DOCUMENTS SHALL BE BORNE BY THE CONTRACTOR THROUGH THE DEVELOPER/CITY. FOR CITY PROJECTS RETESTING COST SHALL BE WITHHELD FROM PAY REQUESTS SUBMITTED BY THE CONTRACTOR, THIS COST WILL BE BASED ON THE CITY'S COST WITH NO ADDITIONAL MARK-UP. A LETTER OF ACCEPTANCE WILL NOT BE ISSUED UNTIL ALL TESTING DEFICIENCIES ARE ADDRESSED AND ALL RELATED COST PAID.

MATERIALS TESTING POLICIES:

- INSPECTOR AND TESTING FIRM MUST BE NOTIFIED 24 HOURS PRIOR TO ANY REQUIRED TESTING. FAILURE TO NOTIFY INSPECTOR AND TESTING FIRM MAY RESULT IN REJECTION OF THE WORK AND THE REMOVAL AND REPLACEMENT OF THE MATERIAL. INSPECTOR SHALL BE PRESENT DURING ALL TESTING. ALL PIPE, FITTINGS, AND OTHER CONSTRUCTION MATERIALS SHALL BE INSPECTED FOR DEFECTS AND CONFORMANCE TO CITY OF LANCASTER STANDARDS PRIOR TO PLACEMENT.

- THE CONTRACTOR MAKING ANY CONNECTION, EXTENSION OR MODIFICATION TO A PUBLIC UTILITY (WATER, WASTEWATER, OR STORM DRAIN), SHALL ALSO BE RESPONSIBLE FOR THE COMPACTION OF THE UTILITY TRENCH BACKFILL WITHIN THE EASEMENT OR RIGHT-OF-WAY. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REPLACEMENT OF ANY PAVING THAT IS REMOVED TO MAKE ANY CONNECTION, EXTENSION OR MODIFICATION TO SAID PUBLIC UTILITY.

SECTION 1: SANITARY SEWER MAINS

BACKFILL AND DENSITY TESTING
- ALL TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION 7 MECHANICAL TAMPING (ON THIS SHEET) MECHANICALLY COMPACTED WITH APPROVED VIBRATORY METHODS IN ACCORDANCE WITH NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1 UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS.

- DENSITIES SHALL CONFORM TO SECTION 7 AND NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1, UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS. PROCTOR SAMPLES SHALL BE TAKEN FOR ALL CLASSIFICATIONS OF SOIL ON SITE. ATTERBERG LIMITS SHALL BE DETERMINED ON ALL PROCTOR SAMPLES. DENSITIES SHALL BE IN ACCORDANCE WITH SECTION 7. NO "POTHOLING" OR "DIG-BACKS" WILL BE ALLOWED. DENSITIES SHALL BE TAKEN ON ALL SEWER SERVICES BOTH SIDES OF THE STREET WITHIN THE RIGHT-OF-WAY AND SHALL CONFORM TO SECTION 7 AND NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1, UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS. BACKFILL ADJACENT TO ALL STRUCTURES SHALL BE COMPACTED MANUALLY AND DENSITY TESTED ON EVERY LIFT.

SEWER LINE INSPECTION AND TESTING:
- ALL SEWER LINES SHALL BE TESTED WITH A MANDREL FOR 5% DEFLECTION (MAX.) IN ACCORDANCE WITH NCTCOG SPECIFICATION, ITEM 507.5.1.4.1. INSPECTOR OR OTHER CITY REPRESENTATIVE MUST BE PRESENT. ALL SEWER LINES SHALL BE TESTED BY A LOW PRESSURE AIR TEST ACCORDING TO THE NCTCOG SPECIFICATIONS, ITEM 507.5.1.3. INSPECTOR OR OTHER CITY REPRESENTATIVE MUST BE PRESENT. ALL SEWER LINES SHALL BE TELEVISED AND PLACED ON DVD (DIGITAL VIDEO DISK). A COPY OF THE DVD AND T.V. REPORT SHALL BE SUBMITTED TO THE CITY PRIOR TO ANY PAVING ACTIVITIES SO FAILURES MAY BE IDENTIFIED AND REPAIRED ACCORDINGLY (NCTCOG SPECIFICATIONS ITEM 507.5.2). ALL SERVICES SHALL NOT BE "PANNED" MANDRELED, AIR TESTED, NOR T.V. INSPECTED UNTIL ALL UTILITIES ARE COMPLETE IN PLACE AND BACKFILLED.

MANHOLE CONSTRUCTION:
- A CONCRETE MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY PRIOR TO ANY PLACEMENT OF CONCRETE. SEE CITY OF LANCASTER STANDARD CONSTRUCTION DETAILS FOR CONCRETE REQUIREMENTS. SULFATE RESISTANT CONCRETE SHALL BE USED FOR ALL MANHOLES.

- INSPECTOR SHALL BE NOTIFIED OF CONCRETE PLACEMENT 24 HOURS IN ADVANCE FOR STEEL AND FORM INSPECTION.

- ONE SET OF FOUR CYLINDERS (2-7 DAY, 2-28 DAY) FOR CAST-IN-PLACE MANHOLES SHALL BE MADE FOR EVERY DAY CONCRETE IS PLACED (ASTM C-31). AIR, SLUMP, AND TEMPERATURE TESTS SHALL BE TAKEN FOR EVERY SET OF CYLINDERS MADE. CONCRETE WITH A TEMPERATURE ABOVE 95° F WILL BE REJECTED. ADDITIONAL CYLINDERS AND OR TESTS MAY BE REQUESTED AT THE INSPECTOR OR ENGINEER'S DISCRETION. EXTERIOR FORMS SHALL NOT BE REMOVED FOR A MINIMUM OF 24 HOURS UNLESS APPROVED BY INSPECTOR OR ENGINEER.

- NO BACKFILLING AROUND MANHOLES SHALL BE PERMITTED UNTIL AT LEAST 72 HOURS AFTER FORM REMOVAL.

- ALL BACKFILL AROUND MANHOLES AND OTHER STRUCTURES SHALL BE MANUALLY PERFORMED AND SOIL DENSITIES SHALL BE TAKEN AT EVERY LIFT (6-8") IN SPIRAL FASHION.

- MAXIMUM SIZE ROCK IN BACKFILL SHALL NOT EXCEED 6" IN DIAMETER.

SECTION 2: WATER MAINS

BACKFILL AND DENSITY TESTING
- ALL TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION 7 (ON THIS SHEET) AND MECHANICALLY COMPACTED WITH APPROVED VIBRATORY METHODS (NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1). DENSITIES SHALL CONFORM TO SECTION 7 AND NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1, UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS. PROCTOR SAMPLES SHALL BE TAKEN FOR ALL CLASSIFICATIONS OF SOIL ON SITE. ATTERBERG LIMITS SHALL BE DETERMINED ON ALL PROCTOR SAMPLES.

- DENSITIES SHALL BE IN ACCORDANCE WITH SECTION 7. NO "POTHOLING" WILL BE ALLOWED. DENSITIES SHALL BE TAKEN ON ALL LONG SERVICES UNDER PAVEMENT AND SHALL CONFORM TO SECTION 7 AND NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1, UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS. BACKFILL ADJACENT TO HYDRANTS, METER VAULTS, AND OTHER WATER RELATED STRUCTURES SHALL BE COMPACTED MANUALLY AND DENSITY TESTED ON EVERY LIFT.

WATER MAIN TESTING
- SAMPLE LOCATIONS SHALL BE DETERMINED BY INSPECTOR. (SAMPLES MAY ONLY BE TAKEN MONDAY THROUGH THURSDAY FROM 8 AM TO 12 PM). INSPECTION OF WATER SERVICES AND MAIN LINE VALVES WILL BE DONE AT PRELIMINARY AND FINAL WALK THROUGH TO ENSURE SERVICES ARE "HOT" AND VALVES ARE OPERATIONAL AND FULLY OPEN. THIS WILL BE DONE BY OPERATING EACH SERVICE BRIEFLY TO VERIFY WATER FLOW AND OPERATING EACH VALVE TO A CLOSED POSITION AND BACK TO THE FULL OPEN POSITION. INSPECTION OF FIRE HYDRANTS WILL ALSO BE DONE AT FINAL WALK-THROUGH. THE HYDRANT WILL BE OPERATED WITH ALL CAPS CLOSED TO DEMONSTRATE NO FLANGE SEAL LEAKAGE. THEN THE HYDRANT WILL BE OPERATED WITH ONE CAP REMOVED TO DEMONSTRATE EASE OF OPERATION, WATER FLOW, AND WEEP-HOLE PERFORMANCE.

- MAXIMUM SIZE ROCK IN BACKFILL SHALL NOT EXCEED 6" IN DIAMETER.

SECTION 3: STORM DRAINS

BACKFILL AND DENSITY TESTING
- ALL TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH SECTION 7 (ON THIS SHEET) AND MECHANICALLY COMPACTED WITH APPROVED VIBRATORY METHODS (NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1) UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS. DENSITIES SHALL CONFORM TO SECTION 7 AND NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1 UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS. PROCTOR SAMPLES SHALL BE TAKEN FOR ALL CLASSIFICATIONS OF SOIL ON SITE. ATTERBERG LIMITS SHALL BE DETERMINED ON ALL PROCTOR SAMPLES. DENSITIES SHALL BE IN ACCORDANCE WITH SECTION 7. NO "POTHOLING" WILL BE ALLOWED. DENSITIES SHALL BE TAKEN ON EVERY LATERAL UNDER PAVEMENT AND SHALL CONFORM TO SECTION 7 AND NCTCOG SPECIFICATIONS ITEM 504.5.3.2.1 UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS. BACKFILL ADJACENT TO INLETS, HEADWALLS, JUNCTION BOXES, AND OTHER STRUCTURES SHALL BE COMPACTED MANUALLY AND DENSITY TESTED ON EVERY LIFT

CONNECTIONS
- BELL & SPIGOT ENDS SHALL BE PRIMER COATED. COLLARS, JUNCTIONS, WYES, AND DAMAGE REPAIRS WILL BE INSPECTED PRIOR TO CONCRETE PLACEMENT AND AGAIN PRIOR TO FINAL EMBEDMENT AND BACKFILL.

STRUCTURE CONSTRUCTION
- PRE-CAST MANHOLES OR INLETS SHALL BE PERMISSIBLE FOR PUBLIC STORM DRAIN. A CONCRETE MIX DESIGN MUST BE SUBMITTED AND APPROVED BY GEOTECH PRIOR TO ANY PLACEMENT OF CONCRETE. SEE CITY OF LANCASTER STANDARD CONSTRUCTION DETAILS FOR CONCRETE REQUIREMENTS. INSPECTOR SHALL BE NOTIFIED OF CONCRETE PLACEMENT 24 HOURS IN ADVANCE FOR STEEL AND FORM INSPECTION. ONE SET OF FOUR CYLINDERS (2-7 DAY, 2-28 DAY) SHALL BE MADE FOR EVERY DAY CONCRETE IS PLACED (ASTM C-31). AIR, SLUMP, AND TEMPERATURE TESTS SHALL BE TAKEN FOR EVERY SET OF CYLINDERS MADE. CONCRETE WITH A TEMPERATURE ABOVE 95° F WILL BE REJECTED. ADDITIONAL CYLINDERS AND OR TESTS MAY BE REQUESTED AT THE INSPECTOR OR ENGINEER'S DISCRETION. EXTERIOR FORMS SHALL NOT BE REMOVED FOR A MINIMUM OF 24 HOURS UNLESS APPROVED BY INSPECTOR OR ENGINEER.

- NO BACKFILLING ROUND STRUCTURES SHALL BE PERMITTED UNTIL AT LEAST 72 HOURS AFTER FORM REMOVAL.

- ALL STORM DRAIN LINES SHALL BE TELEVISED AND PLACE ON DVD (DIGITAL VIDEO DISK). A COPY OF THE DVD AND STATIONED REPORT SHALL BE SUBMITTED TO THE CITY PRIOR TO ANY PAVING ACTIVITIES SO FAILURES MAY BE IDENTIFIED AND REPAIRED ACCORDINGLY (NCTCOG SPECIFICATIONS ITEM 507.5.2).

- MAXIMUM SIZE ROCK IN BACKFILL SHALL NOT EXCEED 6" IN DIAMETER.

SECTION 4: STABILIZATION OF SUB-GRADE

SOIL CLASSIFICATION AND SAMPLING "
- SAMPLES SHALL BE TAKEN FOR ALL CLASSIFICATIONS OF SOILS ON SITE. TESTING FOR SULFATE PRESENCE AND LIME SERIES TESTS SHALL BE CONDUCTED FOR ALL SAMPLES PRIOR TO ANY STABILIZATION. SPECIFIC RECOMMENDATION SHALL BE MADE BY GEOTECHNICAL ENGINEER FOR SUBGRADE PREPARATION AND THICKER PAVEMENT SECTION TO BE APPROVED BY THE CITY IF SULFATE CONTENT IS GREATER THAN 2,000 PPM (PARTS PER MILLION) . WHERE LIME IS RECOMMENDED, LIME CONTENT SHALL BE 6% MINIMUM. FOR SOILS WITH A P.I. OF LESS THAN 10, A MINIMUM OF 5% PORTLAND CEMENT SHALL BE USED. ADDITIONAL GEOTECHNICAL TESTING AND RECOMMENDATIONS MAY BE REQUIRED BY CITY AS FIELD CONDITIONS DICTATE. ATTERBERG LIMITS SHALL BE DETERMINED ON ALL PROCTOR SAMPLES.

- LIME STABILIZED SUB-GRADE SHALL HAVE AN INITIAL CURE TIME OF NOT LESS THAN 72 HOURS PRIOR TO RE-MIXING ACCORDING TO NCTCOG SPEC. ITEM 301.2.3.5.1.

SUB-GRADE TESTING
- GRADATIONS FOR LIME TREATED SUB-GRADE SHALL BE TAKEN AT INTERVALS NOT EXCEEDING 300 FEET ALONG ROAD AND MUST PASS 100% THROUGH A 1 3/4" SIEVE AND 60% THROUGH A #4 SIEVE ACCORDING TO NCTCOG SPECIFICATIONSITEM 301.2.3.5.1.

- GRADATIONS FOR PORTLAND CEMENT TREATED SUB-GRADE SHALL BE TAKEN PRIOR TO PLACEMENT OF CEMENT AND AT INTERVALS NOT EXCEEDING 100 FEET ALONG ROAD AND MUST PASS 100% THROUGH A 1" SIEVE AND 80% THROUGH A #4 SIEVE ACCORDING TO NCTCOG SPECIFICATIONS(ITEM 301.3.3.2).

- LIME SUB-GRADE SHALL BE TESTED IN ACCORDANCE WITH NCTCOG SPECIFICATIONS(ITEM 301.2.1.3). TESTS WILL BE PERFORMED BY EXCAVATING DEEPER THAN LIME TREATMENT AND ADMINISTERING A PHENOLPHTHALEIN INDICATOR.

- DENSITIES SHALL BE TAKEN ON SUB-GRADE IN ACCORDANCE WITH SECTION 7 MECHANICAL TAMPING AND IN ACCORDANCE WITH (NCTCOG SPECIFICATIONS ITEM 301.2.3.6) UNLESS OTHERWISE STATED ON THE PLANS OR IN THE SPECIFICATIONS.

- ALL SUB-GRADE SHALL BE VISUALLY 'PROOF ROLLED' AFTER IT IS TRIMMED AND PRIOR TO PLACEMENT OF STEEL.

- DENSITIES SHALL BE TAKEN WITHIN 48 HOURS OF CONCRETE PLACEMENT (NCTCOG SPECIFICATIONS ITEM 303.5.1). IF MORE THAN 48 HOURS ELAPSE, DENSITIES MUST BE RETAKEN UNLESS AN APPROVED EMULSION SEALANT IS USED (NCTCOG SPECIFICATIONS ITEM 302.3.5).

- LOCATIONS FOR DENSITIES, GRADATIONS, AND DEPTH CHECKS SHALL BE AT THE DISCRETION OF THE INSPECTOR AND SHALL BE REPRESENTATIVE OF THE ENTIRE CROSS SECTION OF THE SUB-GRADE.

- SUB-GRADE FAILURES SHALL BE DEFINED BY INSPECTOR OR ENGINEER. REPAIR METHOD WILL BE DISCUSSED WITH INSPECTOR OR ENGINEER AND APPROVED PRIOR TO BEGINNING REPAIR WORK.

- AT ALL TESTING LOCATION INTERVALS, MULTIPLE TESTS MAY BE REQUIRED ACROSS WIDTH OF RIGHT-OF-WAY.

- FOR EMULSION PLACEMENT OVER SUB-GRADE PLEASE REFER TO NCTCOG SPECIFICATIONS ITEM 302.3.5

SECTION 5: CONCRETE PAVEMENT (NCTCOG SECTION-303)

MATERIALS AND BATCH DESIGN SUBMITTED FOR APPROVAL:
- THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER, PRIOR TO COMMENCING WORK, CONCRETE BATCH DESIGN MIXES TO BE USED IN ALL STRUCTURAL CONCRETE, SHOWING BY WEIGHT AND PROPORTION EACH OF CEMENT, FLYASH, ADMIXTURE, FINE AGGREGATE, AND COURSE AGGREGATE AND WATER TO OBTAIN A CONCRETE OF PROPER CONSISTENCY, DENSITY AND WORKABILITY. TESTING INFORMATION SHALL BE PROVIDED TO CONFIRM THE MIX DESIGN IS CAPABLE OF PRODUCING CONCRETE IN COMPLIANCE WITH THE PLANS AND SPECIFICATIONS. NO NATIVE/NATURAL STONE, RIVER ROCK/PEA GRAVEL SHALL BE ALLOWED. FINE AGGREGATE IE. (SAND) SHALL BE NATURAL SAND. NO BLEND WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER. NO MORE THAN 20% MANUFACTURED SAND BLEND WILL BE ALLOWED UNDER ANY CIRCUMSTANCE.

CONCRETE TESTING
- CONCRETE MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY PRIOR TO ANY PLACEMENT OF CONCRETE. SEE CITY OF LANCASTER STANDARD CONSTRUCTION DETAILS FOR CONCRETE REQUIREMENTS. INSPECTOR SHALL BE NOTIFIED OF CONCRETE PLACEMENT 24 HOURS IN ADVANCE FOR STEEL AND FORM INSPECTION. A MINIMUM OF FOUR TEST CYLINDERS SHALL BE OBTAINED PER ONE HUNDRED CUBIC YARD OF CONCRETE PRODUCTION; TESTS SHALL ALSO INCLUDE SLUMP, AIR CONTENTS AND TEMPERATURE OF CONCRETE MIXTURE; EACH MIX DESIGN OF CONCRETE PLACED EACH DAY SHALL ALSO BE TESTED. CONCRETE STRENGTH SHALL BE TESTED AT 7 DAYS (2 CYLINDERS) AND 28 DAYS (2 CYLINDERS). ADDITIONAL CYLINDERS AND OR TESTS MAY BE REQUESTED AT THE INSPECTOR OR ENGINEER'S DISCRETION.

HOT WEATHER CONCRETE PLACEMENT
- CONCRETE WITH A TEMPERATURE OF 85° OR HIGHER WILL REQUIRE A RETARDING AGENT ADMIXTURE. THE MAXIMUM TEMPERATURE OF CONCRETE AT THE TIME OF PLACEMENT SHALL NOT EXCEED 95°. IT SHALL BE THE CONTRACTOR AND/OR HIS SUPPLIERS'S RESPONSIBILITY TO TAKE STEPS TO CONTROL THE TEMPERATURE OF CONCRETE. ALL CONCRETE THAT EXCEEDS THE TEMPERATURE LIMIT OF 95° WILL BE REJECTED.

- STAMP OR DIE PROJECT PAVING LIMITS INCLUDING ALL STREET INTERSECTIONS TO N.C.T.C.O.G. ITEM. 303.5.6.1.3.

SECTION 6: CURE TIME, CORES, & FORM REMOVAL
- FORMS SHALL NOT BE REMOVED FROM PAVEMENT, SIDEWALKS, RAMPS, OR RETAINING WALLS FOR 24 HOURS MINIMUM, AND SHALL NOT BE BACKFILLED LESS THAN 72 HOURS AFTER CONCRETE PLACEMENT. PAVEMENT SHALL HAVE A MINIMUM CURE TIME OF 7 DAYS, BUT MAY BE OPENED TO TRAFFIC EARLIER AT THE DISCRETION OF THE INSPECTOR OR ENGINEER ONLY AFTER REVIEW OF COMPRESSIVE STRENGTH DATA. TEMPORARY PERPENDICULAR CROSSINGS MAY BE MADE AFTER 72 HOURS BY RAMPING SOIL OVER THE NEW PAVEMENT AT A DEPTH OF NOT LESS THAN 18" AND A WIDTH OF NOT LESS THAN 10'. PRIOR TO GROUT WIPING ANY CONCRETE, CONTRACTOR SHALL DEMONSTRATE METHOD OF SURFACE PREPARATION TO ENSURE ADHESION OF GROUT. ALL STREET PAVEMENT SHALL BE CORED TO VERIFY PROPER PAVEMENT THICKNESS AND STRENGTH PRIOR TO ACCEPTANCE. CORES FOR STRENGTH AND DEPTH SHALL BE 4" DIAMETER AND TAKEN AT INTERVALS NOT EXCEEDING 600 FEET; CORES FOR DEPTH ONLY SHALL BE 2" DIAMETER AND SHALL BE TAKEN AT INTERMEDIATE INTERVALS NOT EXCEEDING 300'. LOCATIONS WILL BE APPROVED BY THE CITY. MULTIPLE CORES MAY BE REQUIRED AT EACH INTERVAL TO REPRESENT ENTIRE CROSS SECTION. ALL CORES SHALL BE TAKEN AT 28 DAYS AND RESULTS SHALL BE CORRELATED WITH THE CYLINDER TEST RESULTS. EVALUATION OF CORES WILL BE IN ACCORDANCE WITH NCTCOG SPECIFICATIONS(ITEM 303.8.2). ALL REQUIRED PAVEMENT REPLACEMENT SHALL BE IN FULL PANEL INCREMENTS.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

STANDARD GENERAL NOTES & TESTING REQUIRMENTS FOR WASTER, WASTEWATER, STORM SEWER AND PAVEMENT CONSTRUCTION

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SECTION 7: MECHANICAL TAMPING OF BACKFILL
– ALL DITCH LINES AND BORE PITS SHALL BE MECHANICALLY TAMPED.

– BACKFILL, OTHER THAN SELECT FILL, MAY CONSIST OF ONSITE OR OFFSITE INORGANIC SOILS AND SHOULD BE PLACED IN LOOSE LIFTS 6"–8" IN THICKNESS AND SHOULD BE MECHANICALLY COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY

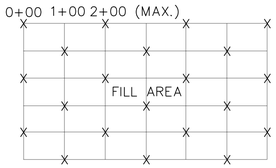
– AS DEFINED BY ASTM D–698 (STANDARD PROCTOR) PROCEDURES UNDER EXISTING AND PROPOSED PAVEMENT, AND TO 95 PERCENT STANDARD PROCTOR PROCEDURES ELSEWHERE. THE MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE BETWEEN 0 TO FOUR PERCENTAGE POINTS ABOVE THE PROCTOR OPTIMUM VALUE.

– ALL BACKFILL MATERIAL TO BE SELECT NATIVE MATERIAL 6" DIAMETER CLODS AND SMALLER UNLESS DIRECTED OTHERWISE ON THE PLANS OR IN THE SPECIFICATIONS AND TO BE MECHANICALLY TAMPED AND DENSITY CONTROLLED AS DESCRIBED IN ITEM NO. B. ABOVE.

– WATER JETTING IS NOT PERMITTED.

– DENSITIES SHALL BE TAKEN EVERY ONE LIFT AT STAGGERED LOCATIONS NOT TO EXCEED 200 FEET INCREMENTS. OFFSET FIFTY FEET EVERY OTHER LIFT.

– DENSITIES MAY BE TAKEN AT TYPICAL LOCATIONS AS SHOWN BELOW; ALSO DENSITIES WILL BE TAKEN AT RANDOM LOCATIONS AND AT THE GEO–TECHNICIAN'S DISCRETION.



(LEGEND: X DENOTES DENSITIES.)

– SOLUBLE SULFATE TESTS SHALL BE PERFORMED EVERY THREE HUNDRED LINEAR FEET AFTER UTILITY CONSTRUCTION HAS BEEN COMPLETED AND FINAL PAVEMENT SUB–GRADES HAVE BEEN ACHIEVED. SULFATE RESISTANT CONCRETE SHALL BE UTILIZED FOR ALL AREAS WHERE HIGH CONCENTRATIONS OF SOLUBLE SULFATES ARE PRESENT; SULFATE CONTENTS EXCEEDING 2000 PARTS PER MILLION (PPM) ARE CONSIDERED HIGH. SULFATE TESTING METHOD SHALL COMPLY WITH TXDOT'S TEST METHOD TEX145E.

SECTION 8: BATCH PLANT REQUIREMENTS WITHIN THE CITY LIMITS AND ETJ:

– THE CONTRACTOR SHALL COMPLY WITH THE CITY OF LANCASTER REQUIREMENTS:

PERMITS:
– PERMIT FOR TEMPORARY CONCRETE, ASPHALT OR ANY OTHER TYPE PLANT ESTABLISHED FOR MIXING MATERIALS FOR PAVING OR BUILDING MUST BE GRANTED BY THE CITY BUILDING INSPECTIONS.

SECTION 9: GENERAL:

– SOIL TESTING TECHNICIANS SHALL PROVIDE WRITTEN PROOF OF HAVING MINIMUM OF TWO YEARS OF RELATED FIELD EXPERIENCE.

HOT–MIX ASPHALT CONCRETE PAVEMENT
– SPECIFICATION SHALL FOLLOW ITEM 302 OF THE N.C.T.C.O.G. AND CONFORM TO THE TXDOT STANDARD FOR HOT–MIX ASPHALTIC CONCRETE.

– THE ASPHALTIC MIXTURE SHALL BE TESTED FOR OVEN BURN OFF/GRADATION AND STABILITY.

– A RELATIVE DENSITY OF NOT LESS THAN 92% WILL BE REQUIRED AFTER FINAL COMPACTION OF THE IN–PLACE PAVEMENT SECTION. THE CONTRACTOR SHALL SCHEDULE THE CMT LABORATORY TO COME OUT IN THE FIELD AND ESTABLISH A ROLLING PATTERN. THE USE OF NUCLEAR FIELD DENSITY DETERMINATIONS SHALL NOT BE ACCEPTED AS THE BASIS FOR ACCEPTANCE WITH RESPECT TO DENSITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT THE COMPACTION OF THE ASPHALTIC CONCRETE IN PLACE WILL ATTAIN BETWEEN FIVE AND NINE PERCENT AIR VOIDS. THE CONTRACTORS' RESPONSIBILITY FOR THE REQUIRED COMPACTION INCLUDES THE SELECTION OF ROLLING EQUIPMENT AND SELECTION OF ROLLING PATTERNS TO ACHIEVE THE REQUIRED COMPACTION.

– HMAC MIX TEMPERATURE RANGE AT TIME OF PLACEMENT SHALL BE BETWEEN 260° AND 325°. THE ASPHALTIC MIXTURE SHALL NOT BE PLACED WHEN THE AIR TEMPERATURE IS BELOW 50°F BUT MAY BE PLACED WHEN THE AIR TEMPERATURE IS ABOVE 40°F AND RISING, THE TEMPERATURE BEING TAKEN IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT.

– IN–PLACE COMPACTION CONTROL IS REQUIRED FOR ALL MIXTURES. ASPHALTIC CONCRETE SHOULD BE PLACED AND COMPACTED TO CONTAIN NOT MORE THAN NINE PERCENT NOR LESS THAN FIVE PERCENT AIR VOID UNLESS OTHERWISE INDICATED. THE PERCENT AIR VOIDS WILL BE CALIBRATED USING THE MAXIMUM THEORETICAL SPECIFIC GRAVITY OF THE MIXTURE DETERMINED ACCORDING TO TXDOT TEST METHOD TEX–227–F ROADWAY SPECIMEN, WHICH SHALL EITHER BE CORES OR SECTIONS OF PAVEMENT, WILL BE TESTED ACCORDING TO TXDOT TEST METHOD TEX–207F. THE SAME SPECIMEN SHALL BE USED TO DETERMINING BOTH THE THEORETICAL DENSITY AND FIELD DENSITY.

– PRIME COAT WILL FOLLOW N.C.T.C.O.G. SPECIFICATIONS 302.7 AND 302.9.6.1.

– TACK COAT WILL FOLLOW N.C.T.C.O.G. SPECIFICATION ITEM 302.9.6.2.

– HMAC MIX DESIGNS SHALL FOLLOW N.C.T.C.O.G. SPECIFICATION ITEM 302.9.3 AND THE GRADING TABLES INCLUDED IN THIS SECTION. THESE MIXTURES WILL BE IN ACCORDANCE WITH TXDOT TEST METHOD TEX–204–F, DESIGN OF BITUMINOUS MIXTURES.

FLOWABLE FILL SPECIFICATIONS
– COMPOSITION OF FLOWABLE FILL SHALL INCLUDE NATIVE SAND OR A BLEND OF NATIVE SAND/MANUFACTURED SAND, CEMENT AND FLY ASH WHICH WILL PRODUCE A MATERIAL WITH UNCONFINED COMPRESSIVE STRENGTH OF 250 TO 450 PSI AFTER TWENTY–EIGHT DAYS.

– FLOWABLE FILL MUST BE MIXED AT A CONCRETE BATCH PLANT OR A MOBILE TRANSIT AND SHALL HAVE A SLUMP OF FIVE TO EIGHT INCHES AND AN AIR CONTENT OF SIX TO TWENTY PERCENT. THE MIXTURE MUST BE ALLOWED TO SET PRIOR TO THE PLACEMENT OF ANY OVERLYING MATERIAL.

– THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A MIX DESIGN TO BE USED TEN DAYS PRIOR TO THE START OF THE BACKFILL OPERATION. CONTRACTOR SHALL ALSO SUPPLY THE PUBLIC WORKS INSPECTOR A COPY OF THE BATCH PLANT DELIVERY TICKET FOR EACH DELIVERED TRUCKLOAD.

– THE CITY MAY EXERCISE THE OPTION OF TESTING THE MATERIAL AT RANDOM. IT SHALL BE THE OWNER/DEVELOPER'S RESPONSIBILITY FOR ANY COST ASSOCIATED WITH TESTING OF THE MATERIAL.

TESTING OF MANHOLES:
– ALL MANHOLES SHALL BE VACUUM TESTED. MANHOLES SHALL BE TESTED IN THE PRESENCE OF THE CITY'S REPRESENTATIVE. THE VACUUM TEST SHALL CONSIST OF APPLYING A VACUUM TO THE MANHOLE. EACH MANHOLE SHALL BE TESTED AFTER THE INSTALLATION HAS BEEN COMPLETED. ALL PIPES ENTERING THE MANHOLE SHALL BE PLUGGED, TAKING CARE TO SECURELY BRACE THE PLUG FROM BEING DRAWN INTO THE MANHOLE. THE TEST HEAD SHALL BE PLACED AT THE INSIDE OF THE MANHOLE COVER FRAME, THE SEAL INFLATED AND THE MANHOLE SHALL BE TESTED IN ACCORDANCE WITH THE FOLLOWING A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF. WITH THE VALVES CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9 INCHES OF MERCURY. THE MANHOLE SHALL PASS IF THE TIME IS GREATER THAN 120 SECONDS.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

STANDARD GENERAL NOTES & TESTING REQUIRMENTS FOR WASTER, WASTEWATER, STORM SEWER AND PAVEMENT CONSTRUCTION

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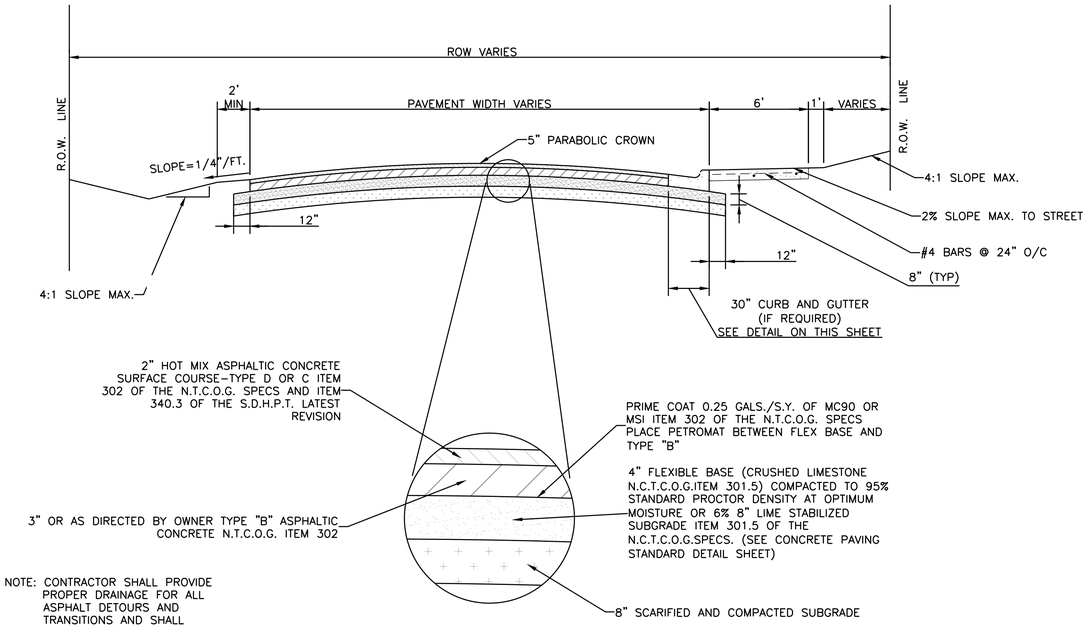
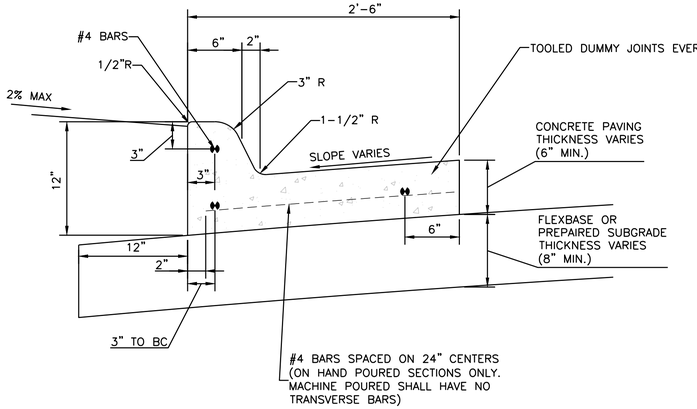


NOTE: CONTRACTOR SHALL PROVIDE PROPER DRAINAGE FOR ALL ASPHALT DETOURS AND TRANSITIONS AND SHALL MAINTAIN THEM UNTIL REMOVAL.

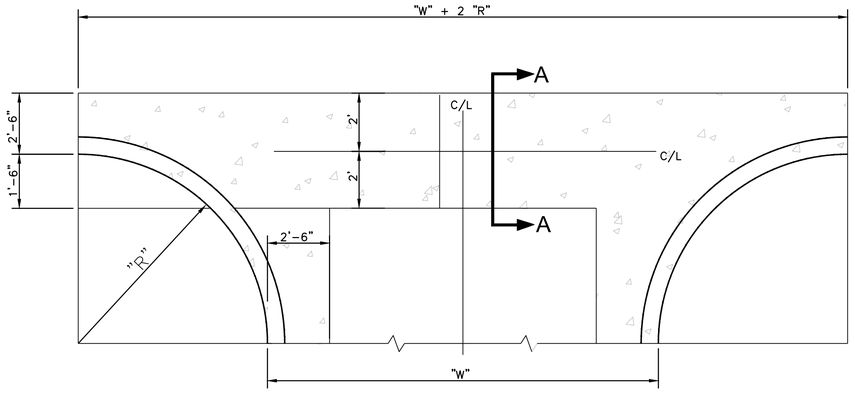
ASPHALT PAVEMENT CROSS SECTION

(FOR EXISTING ASPHALT ROADWAY EXTENSION TEMPORARY DETOURS AND TRANSITIONS)
NOT TO SCALE



6" MONOLITHIC CONCRETE CURB & GUTTER

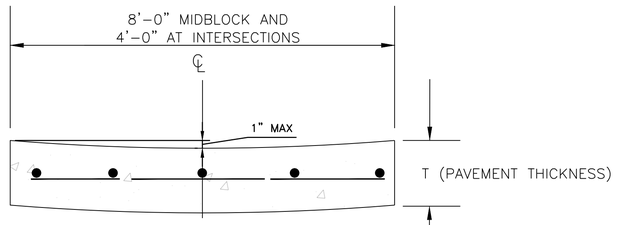
NOT TO SCALE



NOTE:
ALL CONCRETE FOR VALLEY GUTTER SHALL BE CLASS "A"4500 PSI COMPRESSION STRENGTH. REINFORCING STEEL SHALL BE NO. 4 BARS ON 12" CENTERS BOTH WAYS.

VALLEY GUTTER PLAN

NOT TO SCALE



SECTION A-A

NTS

VALLEY GUTTER SECTION

NOT TO SCALE

ASPHALT PAVING STANDARD RESIDENTIAL, COMMERCIAL INDUSTRIAL STREETS

GENERAL:
ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS" HEREIN REFERRED TO AS "N.C.T.C.O.G." SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888 (817) 640-3300. ALSO REFER TO N.C.T.C.O.G. ITEM 303 SPECIFICATIONS THERE SHALL BE NO LEAVE OUTS FOR UTILITY ADJUSTMENTS; ALL MANHOLE, VALVE SETS ETC. SHALL BE CONSTRUCTED TO FINAL GRADE PRIOR TO PAVING. MEDIANS AND PARKWAYS SHALL BE SODDED. (NO SEEDING)
CONTRACTOR SHALL CONTACT STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.
SUBGRADE PREPARATION:
PLEASE REFER TO ITEM 301 OF THE N.C.T.C.O.G. SPECIFICATIONS.
LIME STABILIZED SUBGRADE:
A. PLEASE REFER TO ITEM 301.2 OF THE N.C.T.C.O.G. SPECIFICATIONS. LIME SHALL BE PLACED USING THE SLURRY METHOD, MAY BE MIXED ON-SITE OR TRUCKED IN. PLEASE REFER N.C.T.C.O.G. ITEM 301.2.3.4.2.
B. SEE CITY OF LANCASTER STANDARD GENERAL TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN, AND PAVEMENT CONSTRUCTION.

MATERIAL:
A. ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.
B. HOT-MIX ASPHALT CONCRETE PAVEMENT:
1. SPECIFICATION SHALL FOLLOW SECTION 302 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION N.C.T.C.O.G. AND CONFORM TO THE TXDOT STANDARD FOR HOT-MIX ASPHALTIC CONCRETE.
2. THE ASPHALTIC MIXTURE SHALL BE TESTED FOR OVEN BURN OFF/GRADATION AND STABILITY.
3. DENSITY
(a) A RELATIVE DENSITY OF NOT LESS THAN 95% STANDARD PROCTOR AND MOISTURE CONTENT WITHIN 0 TO +4% OPTIMUM WILL BE REQUIRED AFTER FINAL COMPACTION OF THE IN-PLACE PAVEMENT SECTION.
(b) THE CONTRACTOR SHALL SCHEDULE THE CMT LABORATORY TO COME OUT IN THE FIELD AND ESTABLISH A ROLLING PATTERN.
(c) THE USE OF NUCLEAR FIELD DENSITY DETERMINATIONS SHALL NOT BE ACCEPTED AS THE BASIS FOR ACCEPTANCE WITH RESPECT TO DENSITY.
(d) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT THE COMPACTION OF THE ASPHALTIC CONCRETE IN PLACE WILL ATTAIN BETWEEN 5% AND 9% (FIVE AND NINE PERCENT) AIR VOIDS.
(e) THE CONTRACTORS' RESPONSIBILITY FOR THE REQUIRED COMPACTION INCLUDES THE SELECTION OF ROLLING EQUIPMENT AND SELECTION OF ROLLING PATTERNS TO ACHIEVE THE REQUIRED COMPACTION.
4. HMAC MIX TEMPERATURE RANGE AT TIME OF PLACEMENT SHALL BE BETWEEN 260° AND 325°. THE ASPHALTIC MIXTURE SHALL NOT BE PLACED WHEN THE AIR TEMPERATURE IS BELOW 50°F BUT MAY BE PLACED WHEN THE AIR TEMPERATURE IS ABOVE 40°F AND RISING, THE TEMPERATURE BEING TAKEN IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT.
5. COMPACTION CONTROL
(a) IN-PLACE COMPACTION CONTROL IS REQUIRED FOR ALL MIXTURES.
(b) ASPHALTIC CONCRETE SHOULD BE PLACED AND COMPACTED TO CONTAIN NOT MORE THAN 9% (NINE PERCENT) NOR LESS THAN 5% (FIVE PERCENT) AIR VOID UNLESS OTHERWISE INDICATED.
(c) THE PERCENT AIR VOIDS WILL BE CALIBRATED USING THE MAXIMUM THEORETICAL SPECIFIC GRAVITY OF THE MIXTURE DETERMINED ACCORDING TO TXDOT TEST METHOD TEX-227-F ROADWAY SPECIMEN, WHICH SHALL EITHER BE CORES OR SECTIONS OF PAVEMENT, WILL BE TESTED ACCORDING TO TXDOT TEST METHOD TEX-207F.
(d) THE SAME SPECIMEN SHALL BE USED TO DETERMINING BOTH THE THEORETICAL DENSITY AND FIELD DENSITY.
6. PRIME COAT WILL FOLLOW N.C.T.C.O.G. SPECIFICATIONS 302.7 AND 302.9.6.1.
7. TACK COAT WILL FOLLOW N.C.T.C.O.G. SPECIFICATION 302.9.6.2.
8. HMAC MIX DESIGNS SHALL FOLLOW N.C.T.C.O.G. SPECIFICATION 302.9.3 AND THE GRADING TABLES INCLUDED IN THIS SECTION. THESE MIXTURES WILL BE IN ACCORDANCE WITH TXDOT TEST METHOD TEX-204-F, DESIGN OF BITUMINOUS MIXTURES.
C. CONCRETE CURB AND GUTTER:
1. ALL CONCRETE FOR CURB AND GUTTER SHALL BE 4500 PSI, 5% AIR (±1.5%)
2. EXPANSION JOINTS SHALL BE PLACED AT ALL INTERSECTIONS CR.S, PT.S, DRIVEWAYS, INLETS, AND OTHER CURB AND GUTTER OR EVERY 200 LF.
3. ALL EXPANSION JOINTS SHALL NOT BE LESS THAN 3/4" IN THICKNESS WITH LONGITUDINAL DOWELS.
4. DOWEL BARS SHALL BE THREE NO. 4 SMOOTH BARS, WITH A GREASED EXPANSION GAP WITH LENGTH AS FOLLOWS.
(a) FOR 30" G&G LENGTH EQUALS 24"
(b) FOR 24" G&G LENGTH EQUALS 18"
(c) FOR 18" G&G LENGTH EQUALS 12"
5. ALL LOOSE MATERIAL BETWEEN THE FORM WILL BE REMOVED AND THE GRADE WETTED PRIOR TO THE PLACEMENT OF CONCRETE.
6. CURING
(a) PLEASE REFER TO ITEM 303.5.8 AND 303.2.13.1.1 OF N.C.T.C.O.G. SPECIFICATIONS
(b) THE CONTRACTOR SHALL USE A WHITE PIGMENTED LIQUID CURING COMPOUND AS PER N.C.T.C.O.G. 303.5.8 AND 303.2.13.1.1
7. CURB & GUTTER REPLACEMENT IS 30" MONOLITHIC CONC. PLACEMENT

TESTING:
A. PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
B. THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

PRIVATE DEVELOPMENT PROJECTS:
A. THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

ASPHALT PAVEMENT, DETOURS AND TRANSITIONS STANDARD DETAILS

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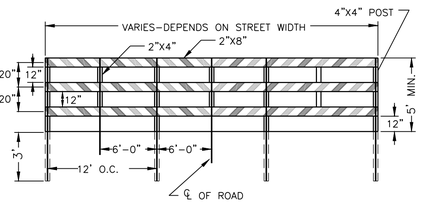
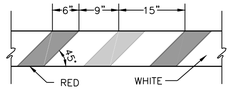


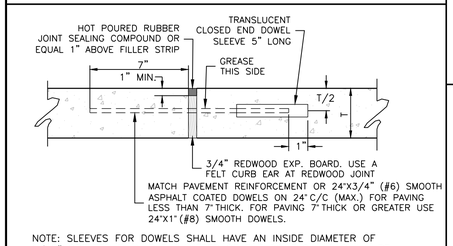


END OF ROAD BARRICADE DETAIL

NOT TO SCALE

NOTES:

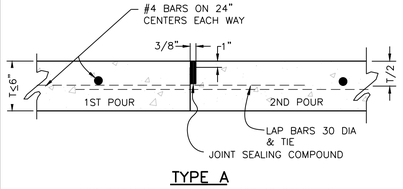
1. REFLECTIVE SHEETING FOR ALL TRAFFIC CONTROL DEVICES SHALL BE OF HIGH SPECIFIC INTENSITY (TYPE IIIA OR IIIB) ALL CHANNELIZATION DEVICES SHALL USE TYPE IIIA REBOUNDABLE SHEETING.
2. ATTACH 2"X 8" BOARDS TO 4"X 4" PRESSURE TREATED POST WITH LAG BOLTS.
3. ATTACH 2"X 4" BRACES TO 2"X 8" BOARDS WITH 10d-NAILS.
4. BARRICADE TO BE FULL WIDTH OF STREET BACK OF CURB TO BACK OF CURB.
5. IF BARRICADE IS USED TO DENOTE END OF ROADWAY, DIAGONAL STRIPES USED SHALL BE RED AND WHITE.



NOTE: SLEEVES FOR DOWELS SHALL HAVE AN INSIDE DIAMETER OF 1/16" GREATER THAN THE DIAMETER OF THE DOWELS AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE. EXPANSION JOINTS TO BE CONSTRUCTED A MAXIMUM OF 500' APART ON STRAIGHT PAVING AND ON ALL RADII, PC, PT AND CR OR OTHERWISE SPECIFIED.

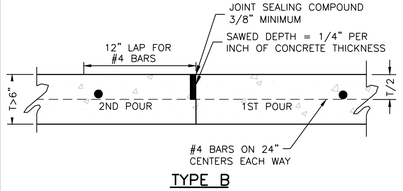
EXPANSION JOINT

NOT TO SCALE



TYPE A

FOR PAVEMENT THICKNESS 6" (OR AS SPECIFIED)



TYPE B

FOR PAVEMENT THICKNESS GREATER THAN 6" (OR AS SPECIFIED)

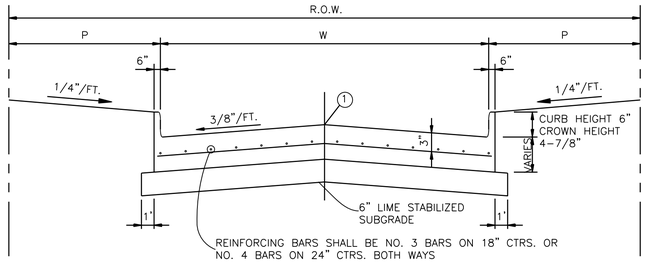
CONSTRUCTION JOINT

NOT TO SCALE

LEGEND

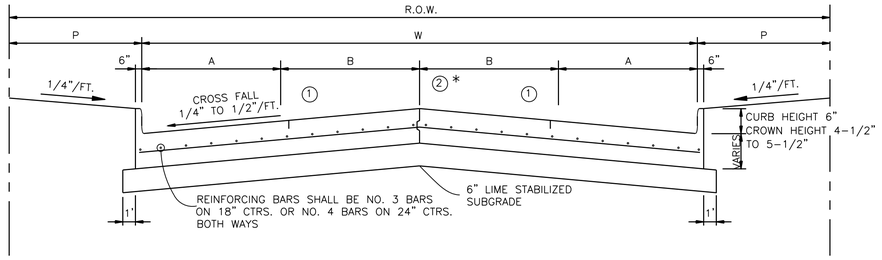
① – SAWED LONGITUDINAL DUMMY JOINT

② – CONSTRUCTION JOINT (FULL WIDTH PVMT. IS ALLOWED WHERE APPROVED BY CITY OF LANCASTER)



REGULAR SECTION

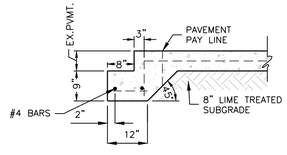
R2U
C2U



REGULAR SECTION

C4U
M4U
M5U

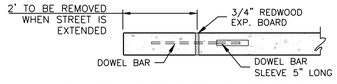
R2U, C2U, C4U, M4U & M5U PAVING SECTIONS SHALL HAVE A MINIMUM PAVEMENT THICKNESS OF 6 INCHES.



NOTE: PAVEMENT BARS TO BE BENT DOWN INTO HEADER AND PAVEMENT TO BE MONOLITHIC

TYPE-A CONCRETE HEADER

NOT TO SCALE

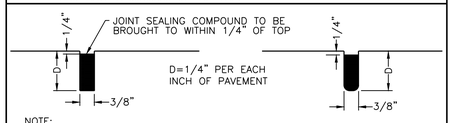


NOTE: TYPE-B HEADER TO BE USED FOR FUTURE STREET EXTENSION OR WHEN SPECIFIED ON PLANS TO BE USED.

TYPE-B CONCRETE HEADER

NOT TO SCALE

NOTE: UNLESS TYPE 'A' OR 'B' HEADERS ARE SPECIFIED, WHEN CONSTRUCTING NEW PAVEMENT, THE CONTRACTOR MUST A) EXPOSE THE REINFORCING STEEL FROM THE EXISTING PAVEMENT AND TIE IT TO THE PROPOSED STEEL MAT, OR B) DOWEL #3 REINFORCING STEEL BARS INTO THE EXISTING PAVEMENT A A MINIMUM OF (6) SIX INCHES AT 24" CENTERS AND HAVE A MINIMUM OF 15" LAP.

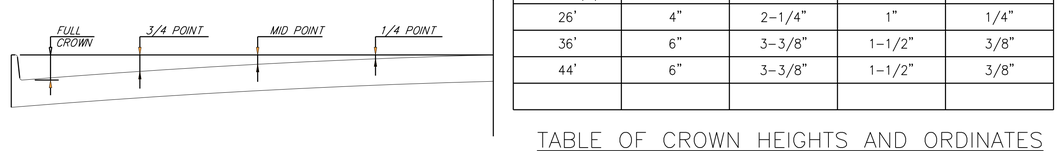


NOTE:
JOINT SEALING COMPOUND SHALL CONFORM TO C.O.G. ITEM 303.2.14 AND SHALL CONSIST OF HOT POURED POLYMER OR READY-MIXED COLD APPLIED SEALANT AS FOLLOWS.

1. CLASS 3-SEALTIGHT 3405
2. CLASS 3-HOT POURED RUBBER JOINT SEALANT # 3405
3. CLASS 4-DOW CORNING 888
4. CLASS 5 & 8 SIKASIL 728-SL
5. CLASS 8 – DOW CORNING 890-SL

JOINT SEALING

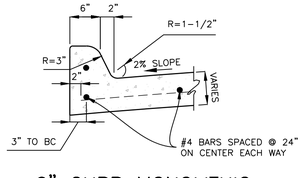
NOT TO SCALE



ROADWAY WIDTH (W)	TOTAL CROWN HEIGHT	3/4 POINT	MID-POINT	1/4 POINT
26'	4"	2-1/4"	1"	1/4"
36'	6"	3-3/8"	1-1/2"	3/8"
44'	6"	3-3/8"	1-1/2"	3/8"

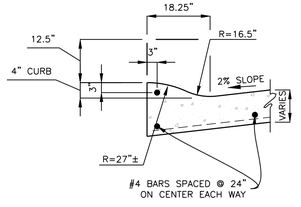
TABLE OF CROWN HEIGHTS AND ORDINATES FOR VARIOUS PARABOLIC SECTIONS

SLIP FORM PAVEMENT MUST MEET CROWN GRADES AT GUTTERS, AT MID-POINTS & ℄ PARABOLIC ROADS ONLY TO BE CONSTRUCTED WITH SLIP FORM PAVERS



6" CURB MONOLITHIC WITH PAVING

NOT TO SCALE



4" ROLLED CURB MONOLITHIC WITH PAVING

NOT TO SCALE

* NOTES:

1. STREET CROWN FOR ROLLED CURB SECTION, SHALL BE 3" ROOF TOP.
2. ENGINEERING PLANS FOR ROLLED CURB CONSTRUCTION MUST BE PRE-APPROVED BY THE CITY ENGINEER FOR DRAINAGE CONVEYANCE AS ADDITIONAL INLETS MAY BE REQUIRED.
3. STREET SECTIONS FOR 4" ROLLED DOWN CURB SHALL HAVE ROOF TOP CROWN.
4. IF THE 4-INCH HIGH CURBED STREET SECTION IS USED, INCREASE THE LINEAR FEET OF INLETS PROVIDED BY 84% TO MEET CURRENT CITY DRAINAGE REQUIREMENTS.
5. AT CURB INLETS, CURB HEIGHT SHALL BE TRANSITIONED FROM 6" TO 4" (TO MATCH THE 4" ROLLED CURB)

P.C. CONCRETE STANDARD RESIDENTIAL, COMMERCIAL & INDUSTRIAL STREETS

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(C) THERE SHALL BE NO LEAVE OUTS FOR UTILITY ADJUSTMENTS; ALL MANHOLE, VALVE SETS ETC. SHALL BE CONSTRUCTED TO FINAL GRADE PRIOR TO PAVING.
(D) MEDIANS AND PARKWAYS SHALL BE SODDED. (NO SEEDING)
(E) CONTRACTOR SHALL CONTACT PUBLIC WORKS OR STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

SUBGRADE PREPARATION:
PLEASE REFER TO ITEM 301 OF THE N.C.T.C.O.G. SPECIFICATIONS.

LIME STABILIZED SUBGRADE:
(A) PLEASE REFER TO ITEM 301.2 OF THE N.C.T.C.O.G. SPECIFICATIONS. LIME SHALL BE PLACED USING THE SLURRY METHOD, MAY BE MIXED ON-SITE OR TRUCKED IN. PLEASE REFER N.C.T.C.O.G. ITEM 301.2.3.4.2.
(B) SEE CITY OF LANCASTER STANDARD GENERAL TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.

FORMS:
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REINFORCEMENT BARS:
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(D) MANUFACTURED SAND SHALL NOT EXCEED 20% OF THE TOTAL SAND CONTENT IN THE CONCRETE MIX DESIGN.
(E) CONCRETE FOR ALL PAVING AND CURBS WITHIN THE RIGHT-OF-WAY SHALL HAVE A MINIMUM 5 1/2 SACK/CUBIC YARD OF CEMENT CONTENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI WHEN TESTED AT THE AGE OF 28 DAYS. HAND PLACED CONCRETE SHALL HAVE A MINIMUM 6 1/2 SACK/CUBIC YARD OF CEMENT CONTENT AND MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI.
(F) THE DESIGN ENGINEER SHALL APPROVE THE CONCRETE MIX DESIGN IN WRITING PRIOR TO USE.
(G) PAVEMENT CURBS SHALL BE POURED MONOLITHICALLY. PLEASE REFER TO N.C.T.C.O.G. ITEM. 303.5.2.4.
(H) STAMP OR DIE PROJECT PAVING LIMITS INCLUDING ALL STREET INTERSECTIONS TO N.C.T.C.O.G. ITEM. 303.5.6.1.3 AND DETAIL ON THIS SHEET.
(I) THERE SHALL BE ZERO TOLERANCES FOR CONCRETE STRENGTH AND DEPTH. NO VARIANCES ARE ALLOWED. ANY AREAS OF DEFICIENCY SHALL BE PROVED, REMOVED AND REPLACED.
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(K) ALL CONCRETE SHALL BE VIBRATED.

CURING:
(A) PLEASE REFER TO ITEM 303.5.8 AND 303.2.13.1.1 OF THE N.C.T.C.O.G. SPECIFICATIONS.
(B) THE CONTRACTOR SHALL USE A WHITE PIGMENTED LIQUID CURING COMPOUND AS PER N.C.T.C.O.G. ITEM 303.5.8. AND 303.2.13.1.1

JOINTS:
(A) CONSTRUCTION JOINTS SHALL BE USED IN ALL BLOCK-OUTS FOR DRIVEWAYS, INLETS, ETC.
(B) TRANSVERSE JOINTS SHALL BE SAWED ON 15' CENTERS. THE CONCRETE SAW MUST BE STATIONED ON THE JOB-SITE PRIOR TO PLACING THE PAVEMENTS. ALL JOINTS SHALL BE SAWED WITHIN AN EIGHTEEN (18) HOUR PERIOD FROM THE TIME OF THE POUR.
(C) LONGITUDINAL JOINTS SHALL BE SAWED BASED ON THE FOLLOWING:
25' WIDTH (BLVD.) SAW JOINT 3" FROM THE CENTER
27' " SAW JOINT ALONG THE CENTER
31' " SAW JOINT ALONG THE CENTER
37' " TWO EVENLY SPACED JOINTS
OVER 37' WIDTH MINIMUM TWO JOINTS – OUTSIDE JOINTS SAWED AT 12'-6" MAX.
(D) SAW JOINTS TO BE 1/4" DEPTH FOR EACH 1" OF PAVEMENT THICKNESS.
6" PAVEMENT = 1 1/2" DEEP,
7" PAVEMENT = 1 3/4 DEEP",
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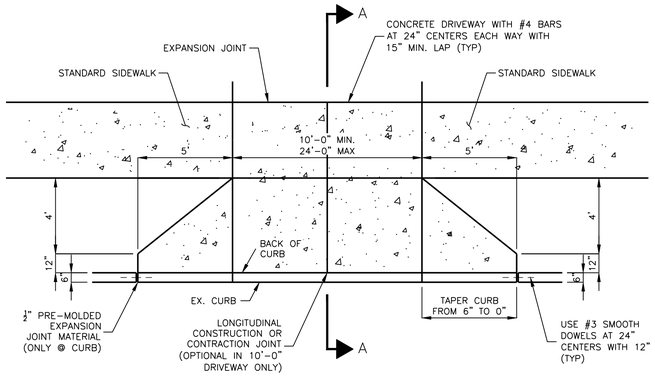
TESTING:
1.) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
2.) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE WORKING DAYS.
3.) MATERIAL: ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

PRIVATE DEVELOPMENT PROJECTS: THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

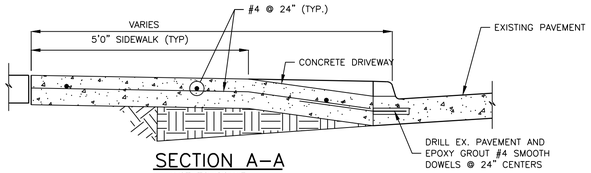
CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

CONCRETE PAVING
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	*PAV-02*	*6* OF *53*

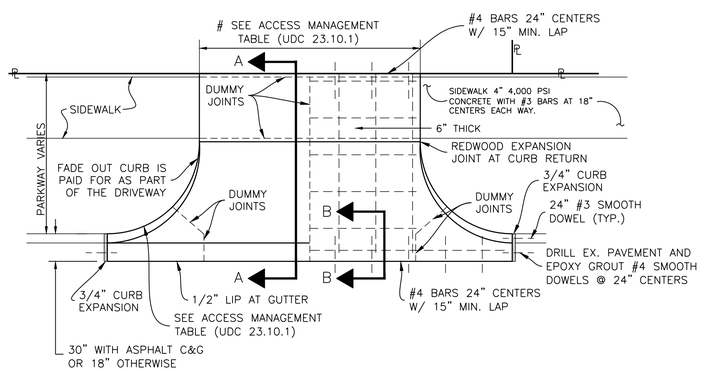


NEW RESIDENTIAL DRIVEWAY DETAIL WITH LAY DOWN CURB (AS DIRECTED BY THE DESIGN ENGINEER)



SECTION A–A
NOT TO SCALE

NOTES:
1. SIDEWALK SECTION THROUGH DRIVEWAY SHALL BE POURED SAME THICKNESS AND STEEL REINFORCEMENT AS DRIVEWAY APPROACH (EXISTING SIDEWALK, IF ANY, SHALL BE REMOVED)
2. DRIVEWAY APPROACH THICKNESS SHALL BE A MINIMUM OF 6" (SIX INCHES)
3. DRIVEWAYS CONSTRUCTED ON PRIVATE PROPERTY SHALL TAPER AT A 1:1 RATIO TO INTERSECT APPROACH AT PROPERTY LINE NO GREATER THAN 24' WIDTH.
4. NEW RESIDENTIAL DRIVEWAYS SHALL HAVE A MAXIMUM GRADE NOT TO EXCEED 10%. NEW COMMERCIAL DRIVEWAYS SHALL HAVE A MAXIMUM GRADE NOT TO EXCEED 6%.



STANDARD COMMERCIAL AND RESIDENTIAL DRIVEWAY DETAIL SEE ACCESS MANAGEMENT TABLE (UDC 23.10.1)

NOTE:
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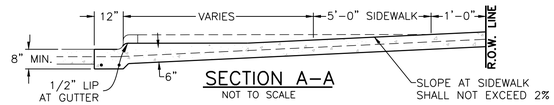
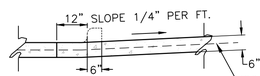
2. NEW COMMERCIAL DRIVEWAYS SHALL HAVE A MAXIMUM GRADE NOT TO EXCEED 10%. NEW COMMERCIAL DRIVEWAYS SHALL HAVE A MAXIMUM GRADE NOT TO EXCEED 6%.



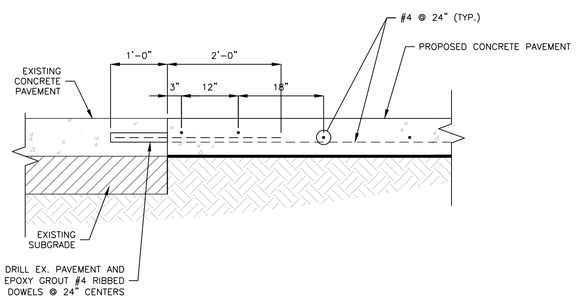
SECTION A–A
NOT TO SCALE



SECTION B–B
NOT TO SCALE

NOTE: CURB, GUTTER, PAVEMENT AND VALLEY TO BE POURED MONOLITHIC THE REINFORCED CONCRETE VALLEY SHALL REPLACE THE CONCRETE PAVING WITH THE SUBGRADE AND BASE TREATMENT REMAINING THE SAME IN ACCORDANCE WITH THE TYPICAL PAVING SECTION. DO NOT DOWEL IN NEW CONCRETE DRIVES INTO EXISTING ASPHALT ROADS. UTILIZE MODIFIED TYPE–A CONCRETE HEADER.

# ACCESS MANAGEMENT TABLE (UDC 23.10.1)					
		LOCAL	COLLECTOR	MINOR ARTERIAL	PRINCIPAL ARTERIAL
RESIDENTIAL DRIVEWAY	THROAT WIDTH	15-28 ft.	15-28 ft.	N/A	N/A
	CURB RADIUS	N/A	N/A	N/A	N/A
INDUSTRIAL DRIVEWAY	THROAT WIDTH	40 ft.	40-60 ft.*	40-60 ft.*	40-60 ft.*
	CURB RADIUS	30 ft.	40 ft.	40 ft.	40 ft.
COMMERCIAL DRIVEWAY	THROAT WIDTH	30-40 ft.	30-40 ft.	30-40 ft.	30-40 ft.
	CURB RADIUS	20 ft.	25 ft.	30 ft.	35 ft.



PROPOSED PAVING CONNECTION TO EXISTING PAVEMENT

NOT TO SCALE

NOTE:
1. NEW RESIDENTIAL DRIVEWAYS SHALL BE 15' (MIN.) WIDTH
2. EXISTING RESIDENTIAL DRIVEWAY APPROACHES SHALL NOT BE RECONSTRUCTED TO LESS THAN 9' WIDTH.
3. CURB RETURNS FOR NEW DRIVES SHALL BE CONSTRUCTED TO 5' RADIUS B.O.C.
4. IN REPLACING EXISTING DRIVES, THE EXISTING DRIVE SHALL BE SAWED AND REMOVED AT A DISTANCE WHICH WILL ASSURE A SMOOTH GRADE, (TO BE SPECIFIED BY THE ENGINEER) AND WILL BE REPLACED TO THAT POINT.
5. NEW RESIDENTIAL DRIVEWAYS SHALL HAVE A MAXIMUM GRADE NOT TO EXCEED 10%.
6. NEW COMMERCIAL DRIVEWAYS SHALL HAVE A MAXIMUM GRADE NOT TO EXCEED 6%.
7. VERTICAL CURVES SHALL BE USED FOR ALL GRADE BREAKS IN DRIVEWAYS EXCEEDING 12%

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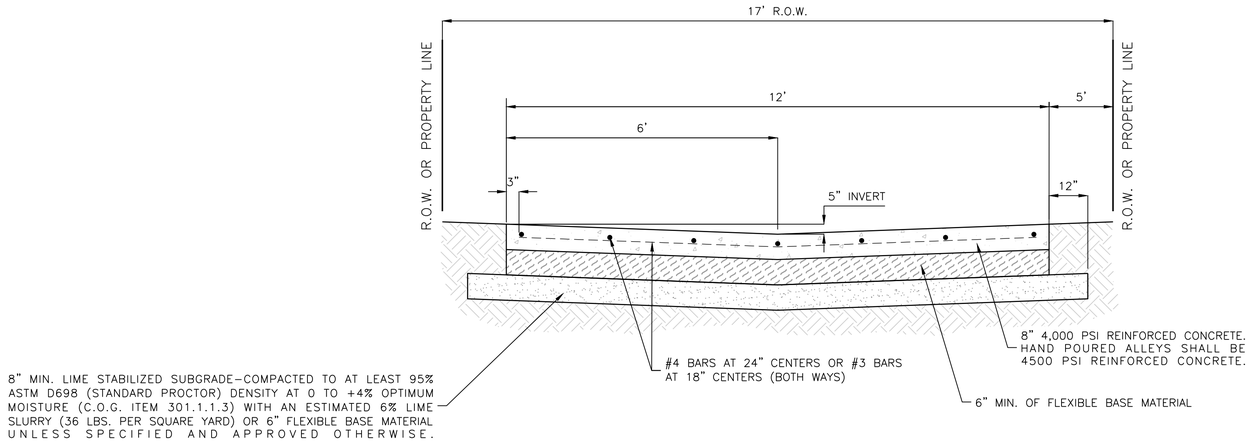
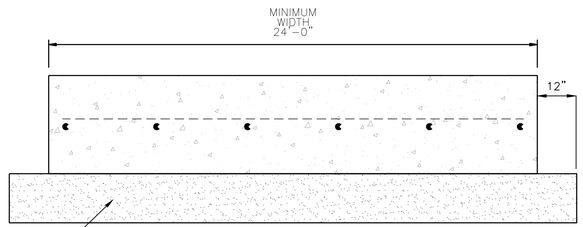
CONCRETE DRIVEWAY
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV–03	7 OF 53



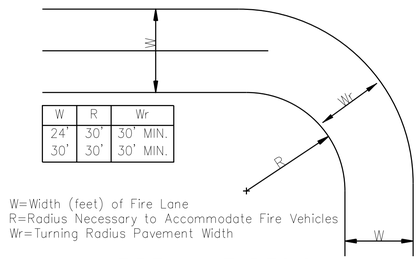
NOTE:
1. CONSTRUCT TRANSVERSE SAW JOINT @ 20' (MAX)
2. EXPANSION JOINTS TO BE PLACED AT ALL INTERSECTIONS AND RADIUS POINTS; AND NOT TO EXCEED 240' BETWEEN JOINTS.

ALLEY DETAILS



1. ALL FIRE LANES SHALL BE PAVED WITH A MINIMUM OF 6 INCHES OF 4000 P.S.I. CONCRETE REINFORCED WITH #3 REBAR PLACED ON 18 INCH CENTERS OR #4 REBAR ON 24 INCH CENTERS EACH WAY ON A 6" LIME STABILIZED SUBGRADE. THE SUBGRADE SHALL BE STABILIZED WITH HYDRATED LIME IN SUFFICIENT AMOUNT TO REDUCE THE PLASTICITY INDEX BELOW FIFTEEN (15), AT LEAST 95% STANDARD PROCTOR DENSITY. CONTRACTION JOINTS SHALL BE SPACED AT A MAXIMUM OF 15.5 FEET ON CENTERS EACH WAY. CONTRACTION JOINTS MAY BE DUMMY OR SAWED JOINTS AT A DEPTH OF AT LEAST ONE (1)INCH DEEP. TO INSURE PROPER RUNOFF IN ORDER TO PREVENT PONDING, THE PAVEMENT SURFACE SHOULD HAVE A MINIMUM SLOPE OF 1%(12" PER 100 FEET).
2. ALL STEEL SHALL BE TIED 100%.

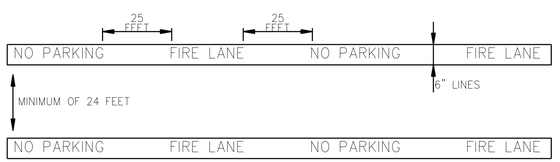
FIRE LANE PAVING & JOINT DETAIL



W	R	Wr
24'	30'	30' MIN.
30'	30'	30' MIN.

W=Width (feet) of Fire Lane
R=Radius Necessary to Accommodate Fire Vehicles
Wr=Turning Radius Pavement Width

FIRE LANE DESIGN



1. THE FIRE MARSHAL IS AUTHORIZED TO DESIGNATE FIRE LANES.
2. FIRE LANES SHALL BE MARKED BY SIX INCH (6") WIDE LINES USING RED TRAFFIC 2. PAINT, WITH THE WORDING "NO PARKING" AND "FIRE LANE" PAINTED ON THE LINES AT INTERVALS OF TWENTY-FIVE (25'). THE LETTERING WILL BE FOUR INCHES (4") HIGH WITH A ONE INCH (1") WIDE STROKE PAINTED WITH WHITE TRAFFIC PAINT.
3. FIRE LANES SHALL BE A MINIMUM OF TWENTY FOUR-FEET (24') IN WIDTH F-F
4. ANY DEAD-END FIRE LANE MORE THAN ONE HUNDRED FIFTY-FEET (150') LONG SHALL 4. PROVIDE A TURN AROUND OF ONE HUNDRED FEET (100') IN DIAMETER AT THE CLOSED END, OR A 50' HAMMER HEAD 50'R.

FIRE LANE MARKING

P.C. CONCRETE STANDARD RESIDENTIAL, COMMERCIAL & INDUSTRIAL STREETS

GENERAL:
(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS" HEREIN REFERRED TO AS "N.C.T.C.O.G." SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888 (817)640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
(B) ALSO REFER TO N.C.T.C.O.G. ITEM 303 SPECIFICATIONS
(C) THERE SHALL BE NO LEAVE OUTS FOR UTILITY ADJUSTMENTS; ALL MANHOLE, VALVE SETS ETC. SHALL BE CONSTRUCTED TO FINAL GRADE PRIOR TO PAVING.
(D) MEDIANS AND PARKWAYS SHALL BE SODDED. (NO SEEDING)
(E) CONTRACTOR SHALL CONTACT PUBLIC WORKS OR STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

SUBGRADE PREPARATION:
PLEASE REFER TO ITEM 301 OF THE N.C.T.C.O.G. SPECIFICATIONS.

LIME STABILIZED SUBGRADE:
(A) PLEASE REFER TO ITEM 301.2 OF THE N.C.T.C.O.G. SPECIFICATIONS. LIME SHALL BE PLACED USING THE SLURRY METHOD, MAY BE MIXED ON-SITE OR TRUCKED IN. PLEASE REFER N.C.T.C.O.G. ITEM 301.2.3.4.2.
(B) SEE CITY OF LANCASTER STANDARD GENERAL TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.

FORMS:
PLEASE REFER TO N.C.T.C.O.G. ITEM 303.4.4

REINFORCEMENT BARS:
ONLY STEEL RODS SHALL BE USED. PLEASE REFER TO ITEM 303.2.9 OF THE N.C.T.C.O.G. SPECIFICATIONS.

REINFORCEMENT BAR CHAIRS:
THE CONTRACTOR SHALL INSTALL SUPPORTING CHAIRS FOR REINFORCING STEEL ON A ONE SQUARE YARD SPACING IN ALL CONCRETE PAVEMENTS. THE CHAIRS ARE TO BE PLASTIC AND INSTALLED AS PER ITEM 303.2.11 OF THE N.C.T.C.O.G. SPECIFICATIONS.

CONCRETE:
(A) PORTLAND CEMENT SHALL BE AS PER N.C.T.C.O.G. ITEM 303.2.2
(B) UP-TO 25% (BY WEIGHT) OF THE CEMENT CONTENT MAY BE REPLACED WITH TYPE C FLY ASH. FLY ASH REPLACEMENT SHALL BE 1.25 POUNDS PER 1.0 POUND OF CEMENT REDUCTION. ALSO REFER TO N.C.T.C.O.G. ITEM 303.2.4
(C) AGGREGATES SHALL BE AS PER N.C.T.C.O.G. ITEM 303.2.1. RIVER ROCK OR BLENDED AGGREGATES SHALL NOT BE ALLOWED.
(D) MANUFACTURED SAND SHALL NOT EXCEED 20% OF THE TOTAL SAND CONTENT IN THE CONCRETE MIX DESIGN.
(E) CONCRETE FOR ALL PAVING AND CURBS WITHIN THE RIGHT-OF-WAY SHALL HAVE A MINIMUM 5 1/2 SACK/CUBIC YARD OF CEMENT CONTENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI WHEN TESTED AT THE AGE OF 28 DAYS. HAND PLACED CONCRETE SHALL HAVE A MINIMUM 6 1/2 SACK/CUBIC YARD OF CEMENT CONTENT AND MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI.
(F) THE DESIGN ENGINEER SHALL APPROVE THE CONCRETE MIX DESIGN IN WRITING PRIOR TO USE.
(G) PAVEMENT CURBS SHALL BE POURED MONOLITHICALLY. PLEASE REFER TO N.C.T.C.O.G. ITEM. 303.5.2.4.
(H) STAMP OR DIE PROJECT PAVING LIMITS INCLUDING ALL STREET INTERSECTIONS TO N.C.T.C.O.G. ITEM. 303.5.6.1.3 AND DETAIL ON THIS SHEET.
(I) THERE SHALL BE ZERO TOLERANCES FOR CONCRETE STRENGTH AND DEPTH. NO VARIANCES ARE ALLOWED. ANY AREAS OF DEFICIENCY SHALL BE PROVED, REMOVED AND REPLACED.
(J) ALL CURBS AND GUTTERS SHALL BE POURED IN ONE COURSE. CONSTRUCTION CONCRETE SHALL BE PLACED IN FORMS ON COMPACTED, WETTED SUBGRADE AND SHALL BE TAMPED AND SPADED UNTIL MORTAR COVERS THE ENTIRE SURFACE. TAMPING AND SPADING OF NEWLY POURED CONCRETE SHALL BE GIVEN SPECIAL ATTENTION TO ENSURE ADEQUATE COMPACTION AND SURFACES FREE OF HONEYCOMBS.
(K) ALL CONCRETE SHALL BE VIBRATED.

CURING:
(A) PLEASE REFER TO ITEM 303.5.8 AND 303.2.13.1.1 OF THE N.C.T.C.O.G. SPECIFICATIONS.
(B) THE CONTRACTOR SHALL USE A WHITE PIGMENTED LIQUID CURING COMPOUND AS PER N.C.T.C.O.G. ITEM 303.5.8. AND 303.2.13.1.1

JOINTS:
(A) CONSTRUCTION JOINTS SHALL BE USED IN ALL BLOCK-OUTS FOR DRIVEWAYS, INLETS, ETC.
(B) TRANSVERSE JOINTS SHALL BE SAWED ON 15' CENTERS. THE CONCRETE SAW MUST BE STATIONED ON THE JOB-SITE PRIOR TO PLACING THE PAVEMENTS. ALL JOINTS SHALL BE SAWED WITHIN AN EIGHTEEN (18) HOUR PERIOD FROM THE TIME OF THE POUR.
(C) LONGITUDINAL JOINTS SHALL BE SAWED BASED ON THE FOLLOWING:
25' WIDTH (BLVD.) SAW JOINT 3" FROM THE CENTER
27' " SAW JOINT ALONG THE CENTER
31' " SAW JOINT ALONG THE CENTER
37' " TWO EVENLY SPACED JOINTS
OVER 37' WIDTH MINIMUM TWO JOINTS – OUTSIDE JOINTS SAWED AT 12'-6" MAX.
(D) SAW JOINTS TO BE 1/4" DEPTH FOR EACH 1" OF PAVEMENT THICKNESS.
6" PAVEMENT = 1 1/2" DEEP.
7" PAVEMENT = 1 3/4 DEEP".
8" PAVEMENT = 2" DEEP, ETC.

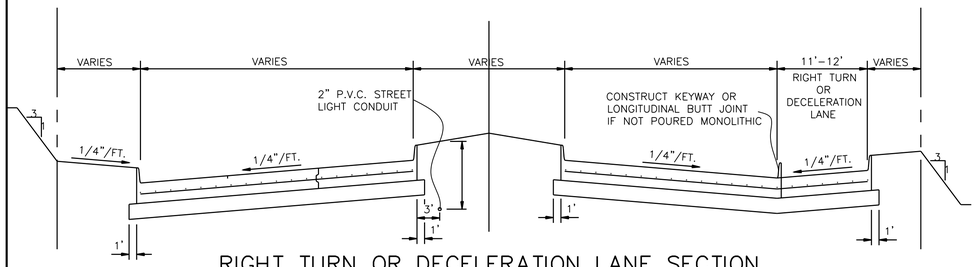
TESTING:
1.) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
2.) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE WORKING DAYS.
3.) MATERIAL: ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

PRIVATE DEVELOPMENT PROJECTS: THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

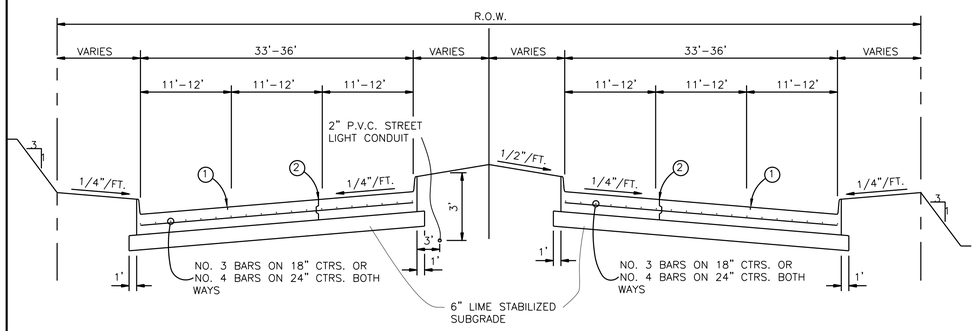
CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

CONCRETE PAVING
ALLEY & FIRE LANE
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-04	8 OF 53

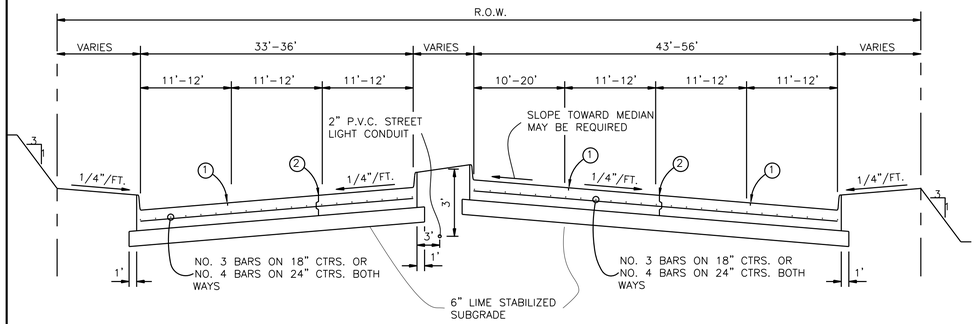


RIGHT TURN OR DECELERATION LANE SECTION

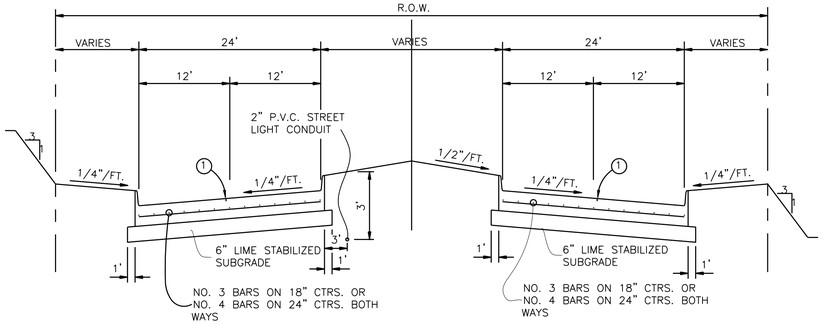


REGULAR SECTION

M6D & P6D

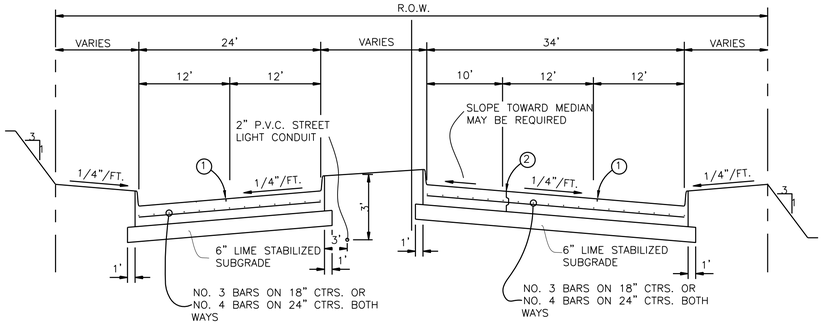


LEFT TURN SECTION



REGULAR SECTION

M4D



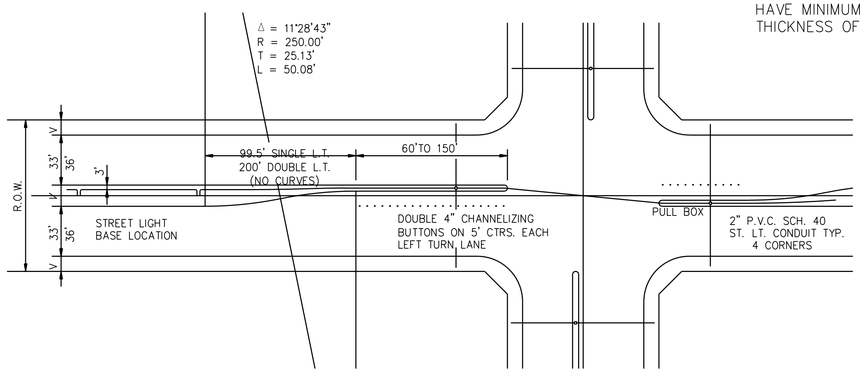
LEFT TURN SECTION

NOTE:
FOR RETROFIT TURN LANES AND MEDIAN OPENINGS. TWO ADDITIONAL INCHES OF CONCRETE CAN BE PLACED IN LIEU OF LIME STABILIZATION.

LEGEND

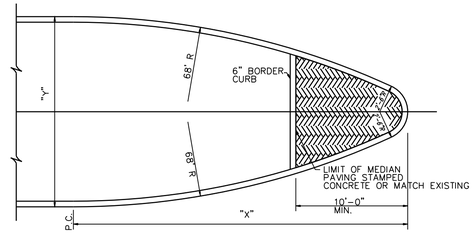
① – SAWED LONGITUDINAL DUMMY JOINT

② – A. CONSTRUCTION JOINT (FULL WIDTH PVMT. IS ALLOWED WHERE APPROVED BY CITY OF LANCASTER).
B. DELETE IT WHEN PAVING IS 25 FT. WIDTH TO BE WIDENED IN FUTURE.
C. INSTALL CURB IF PAVING IS LESS THAN FULL WIDTH OF 33'-36'.



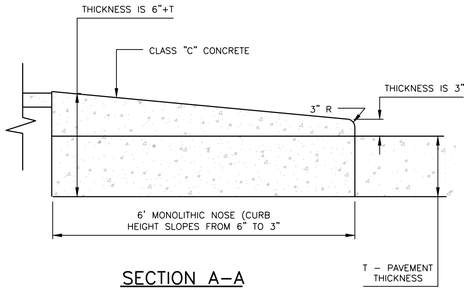
LEFT TURN PLAN

M60, P60, M4D SECTIONS SHALL HAVE MINIMUM PAVEMENT THICKNESS OF 8 INCHES.



DETAIL OF NOSE FOR MEDIAN ISLAND

DIMENSIONS OF MEDIAN NOSE			
X = 13.90'	Y = 7.0'	X = 26.36'	Y = 14.0'
X = 16.44'	Y = 8.0'	X = 29.89'	Y = 17.0'
X = 18.06'	Y = 9.0'	X = 32.93'	Y = 20.0'
X = 20.42'	Y = 10.0'	X = 36.47'	Y = 24.0'



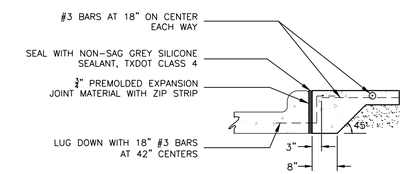
SECTION A–A

NOT TO SCALE

NOTE:
1. USE #4 REBARS WHEN TAPERING MEDIAN NOSE FROM 6" TO 3"
2. ALL MEDIAN NOSES SHALL BE TAPERED AS SHOWN ABOVE

TAPERED MEDIAN NOSE DETAIL

NOT TO SCALE



MEDIAN LUG DETAIL

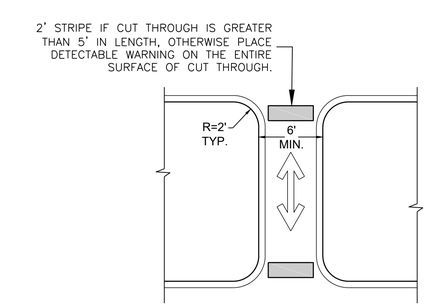
NOT TO SCALE

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

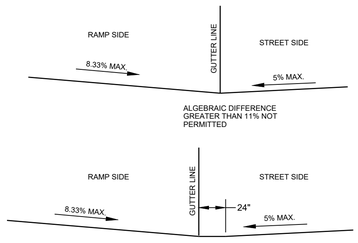
CONCRETE PAVING
STANDARD DETAILS FOR
DIVIDED THOROUGHFARE

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-05	9 OF 53

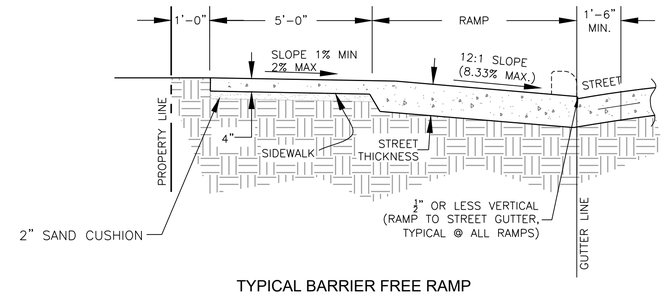
1. NOTE:
2. SEE BARRIER FREE RAMPS SHEET 2 OF 2 FOR DETECTABLE WARNING DETAILS
3. LAY-DOWN CURB LENGTH VARIES (MINIMUM LENGTH AS SHOWN)
4. BARRIER FREE RAMPS SHALL BE DOWELED INTO EXISTING STREET PAVEMENT (MIN. 9") WITH #3 @ 18" O.C. x 24" LONG.
5. BARRIER FREE RAMPS SHALL BE REINFORCED CONCRETE (4000 PSI) FOR A 2 FOOT WIDTH FROM BACK OF CURB & MATCH STREET THICKNESS. THE REMAINDER OF THE BARRIER FREE RAMP SHALL BE 5" REINFORCED CONCRETE (4000 PSI). THE ENTIRE RAMP MAY HAVE A 2" SAND CUSHION.
6. ALL 12:1 RAMPS SHALL NOT EXCEED 6' IN LENGTH.
7. FILL TO BE MINIMUM 95% STANDARD PROCTOR DENSITY AT ± 2% OF OPTIMUM MOISTURE CONTENT AND SHALL BE SELECT FILL WITH P.I. LESS THAN 15.
8. BARRIER FREE RAMPS SHALL BE CONSTRUCTED AT ALL STREET AND ALLEY INTERSECTIONS EVEN IF THE SIDEWALKS ARE NOT INCLUDED IN THE CONSTRUCTION PLANS.



CUT THROUGH AT ISLAND/MEDIAN



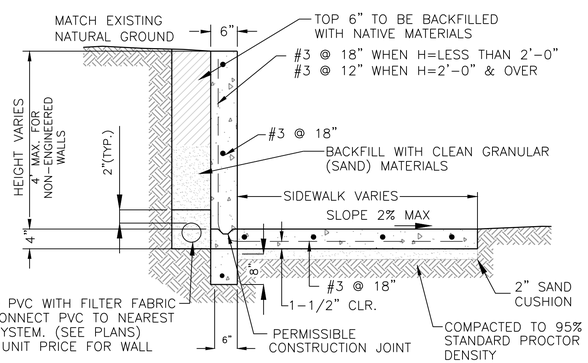
COUNTER SLOPE CONDITIONS



TYPICAL BARRIER FREE RAMP

NOT TO SCALE

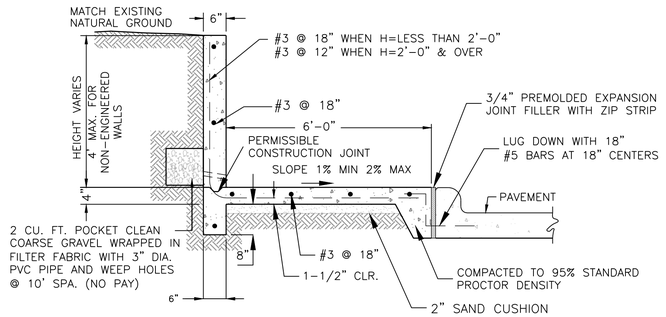
NOTE: 4000 PSI CONCRETE REINFORCED W/ #3 @ 14" O.C. EACH WAY W/ 2" SAND CUSHION.

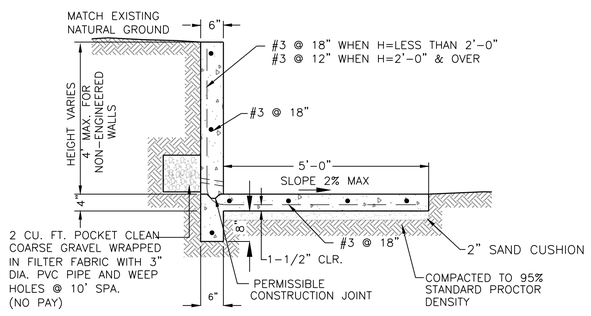


SIDEWALK AND RETAINING WALL PLAN WITHOUT WEEP HOLES

(DRAINAGE BEHIND WALL TO BE USED WHEN DRAINAGE SYSTEM IS IN NEAR PROXIMITY)

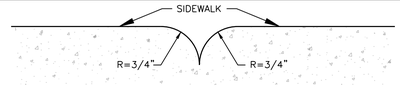
NOT TO SCALE





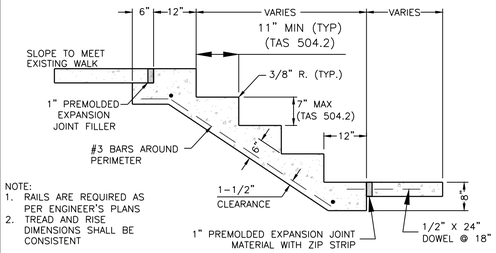
SIDEWALK AND RETAINING WALL PLAN WITH WEEP HOLES

(DRAINAGE THROUGH WEEP HOLES, TO BE USED IN THE ABSENCE OF DRAINAGE SYSTEM)



TOOLED JOINT

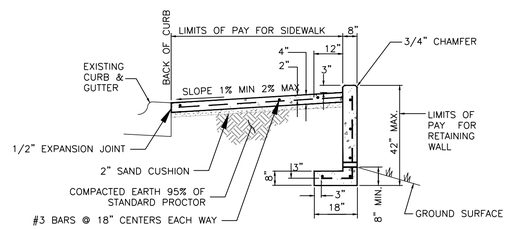
NOT TO SCALE



NOTE:
1. RAILS ARE REQUIRED AS PER ENGINEER'S PLANS
2. TREAD AND RISE DIMENSIONS SHALL BE CONSISTENT

SIDEWALK STEPS

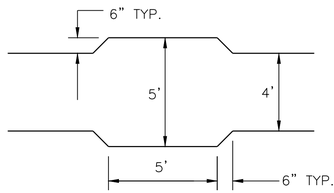
NOT TO SCALE



NOTES:
1. STEEL REINFORCING IN WALL SHALL BE #3 BARS @ 12" CENTERS HORIZONTALLY AND #4 BARS @ 8" CENTERS VERTICALLY.
2. REDWOOD JOINTS IN WALL SHALL MATCH REDWOOD JOINTS IN THE SIDEWALK. THE WALL SHALL BE DOUBLE CHAMFERED AT THE REDWOOD LOCATIONS.3. ENDS OF WALL SHALL ALSO BE CHAMFERED.
3. CONCRETE TO HAVE COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.

SIDEWALK WITH LOW WALL

NTS

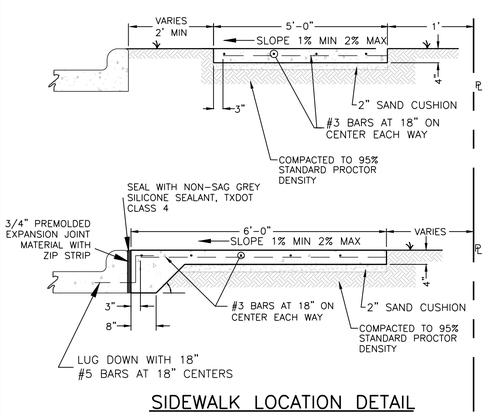


SIDEWALK PASSING AREA *

NOT TO SCALE

NOTE: DRIVEWAY CROSSING QUALIFY AS PASSING AREA. *MAXIMUM 200' INTERVALS

NOTE: NO TREES OR BUSHES SHALL BE PLACED BETWEEN BACK OF CURB AND SIDEWALK



SIDEWALK LOCATION DETAIL

NOT TO SCALE

SIDEWALK AND BARRIER RAMPS NOTES:

GENERAL REQUIREMENTS:
A. BARRIER FREE RAMPS SHALL BE CONSTRUCTED AS PER THE LATEST REQUIREMENTS AND SPECIFICATIONS OF THE TEXAS ACCESSIBILITY STANDARDS AND THE AMERICANS WITH DISABILITIES ACT.
B. CONTRACTOR SHALL CONTACT THE PUBLIC WORKS OR STREET DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

LOCATION:
A. BARRIER FREE RAMPS UNDER THESE PROVISIONS, SHALL BE WHEREVER AN ACCESSIBLE ROUTE CROSSES A CURB.

SLOPE:
A. SLOPES ON BARRIER FREE RAMPS SHALL BE AS FOLLOWS:
B. THE SLOPE SHALL BE MEASURED AS SHOWN IN COUNTER SLOPE CONDITION DETAIL & SECTION B-B OF BARRIER FREE RAMP TYPE-VI (DUAL).
C. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
D. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE BARRIER FREE RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.
E. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1:12. THE MAXIMUM RISE FOR ANY RUN SHALL BE 30" (760 MM). BARRIER FREE RAMPS AND RAMPS TO BE CONSTRUCTED ON EXISTING SITES OR IN EXISTING BUILDING OR FACILITIES MAY HAVE SLOPES AND RISES IF SPACE LIMITATIONS PROHIBIT THE USE OF A 1:12 SLOPE OR LESS, AS FOLLOWS:
   1. A SLOPE BETWEEN 1:10 AND 1:12 IS ALLOWED FOR A MAXIMUM RISE OF 6".
   2. A SLOPE BETWEEN 1:8 AND 1:10 IS ALLOWED FOR A MAXIMUM OF 3" A SLOPE STEEPER THAN 1:8 IS NOT ALLOWED.

RAMP WIDTH:
A. THE MINIMUM WIDTH OF A BARRIER FREE RAMP SHALL BE 36" EXCLUSIVE OF FLARED SIDES.

SIDEWALK WIDTH:
A. THE MINIMUM WIDTH OF ALL SIDEWALKS SHALL BE 5', AND TO BE CONSTRUCTED AS PER THE "SIDEWALK LOCATION DETAIL" ON THIS SHEET.
B. MINIMUM 6' SIDEWALK MAY BE PLACED ADJACENT TO THE CURB, WITH THE APPROVAL OF THE CITY ENGINEER.

SURFACE:
A. SURFACES OF CURB RAMPS, ALONG ACCESSIBLE ROUTES AND IN ACCESSIBLE ROOMS AND SPACES INCLUDING FLOORS, WALKS, RAMPS, STAIRS, AND CURB RAMPS, SHALL BE STABLE, FIRM, AND SLIP RESISTANT.

SIDES OF BARRIER FREE RAMPS:
A. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES.
B. THE MAXIMUM SLOPE OF THE FLARE SHALL BE 1:10 BARRIER FREE RAMPS WITH RETURNED CURBS MAY BE USED WHERE PEDESTRIANS WOULD NOT WALK ACROSS THE RAMP.

BUILT-UP RAMPS:
A. BUILT-UP BARRIER FREE RAMPS SHALL BE LOCATED SO THEY DO NOT PROJECT INTO VEHICULAR TRAFFIC LANES.

OBSTRUCTIONS:
A. BARRIER FREE RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.
B. ALL EFFORT SHALL BE MADE TO ENSURE AN UNOBSTRUCTED ACCESSIBLE ROUTE AND ALL WORK SHALL COMPLY WITH TEXAS ACCESSIBILITY STANDARDS (TAS) AND TDLR REQUIREMENTS.

LOCATION AT MARKED CROSSINGS:
A. BARRIER FREE RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.

DIAGONAL BARRIER FREE RAMPS:
A. IF DIAGONAL (OR CORNER TYPE) BARRIER FREE RAMPS HAVE RETURNED CURBS OR OTHER WELL DEFINED EDGES, SUCH EDGES SHALL BE PARALLEL TO THE DIRECTION OF PEDESTRIAN FLOW.
B. THE BOTTOM OF DIAGONAL BARRIER FREE RAMPS SHALL HAVE 48" (1220 MM) MIN.
C. IF DIAGONAL BARRIER FREE RAMPS ARE PROVIDED AT MARKED CROSSINGS, THE 48" (1220 MM) CLEAR SPACE SHALL BE WITHIN THE MARKINGS.
D. IF DIAGONAL BARRIER FREE RAMPS HAVE FLARED SIDES, THEY SHALL ALSO HAVE AT LEAST A 24" (610 MM) LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE BARRIER FREE RAMP AND WITHIN THE MARKED CROSSING.
E. ANY RAISED ISLANDS IN CROSSINGS SHALL BE CUT THROUGH LEVEL WITH THE STREET OR HAVE BARRIER FREE RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48" (1220 MM) LONG BETWEEN THE BARRIER FREE RAMPS IN THE PART OF THE ISLAND INTERSECTED BY THE CROSSINGS.

CONSTRUCTION:
A. THE CONTRACTOR SHALL SAWCUT, REMOVE AND DISPOSE OFF-SITE THE REQUIRED EXISTING CONCRETE SIDEWALK, CURB AND GUTTER, TO CONSTRUCT THE PROPOSED RAMPS.
B. CONCRETE SIDEWALKS AND RAMPS SHALL BE MINIMUM 5 1/2 SACK/CUBIC YARD OF CEMENT AND MINIMUM 4" THICK 4,000 PSI CONCRETE, REINFORCED WITH #3 BARS AT 18" CENTERS BOTH WAYS, PLACED OVER A 2" THICK SAND CUSHION EMBEDMENT.
C. THE CONTRACTOR SHALL USE 1" PREMOLDED EXPANSION JOINT MATERIAL BETWEEN THE PROPOSED SIDEWALKS AND RAMPS AT THE BACK OF CURBS, AND AT JOINTS AT NO EXTRA PAY.
D. EXPANSION JOINTS AND DUMMY JOINTS
   1. FOR 4' SIDEWALK: REDWOOD EXPANSION JOINTS REQUIRED AT EVERY 40' AND DUMMY JOINTS AT EVERY 4'.
   2. FOR 5' SIDEWALK: REDWOOD EXPANSION JOINTS REQUIRED AT EVERY 40' AND DUMMY JOINTS AT EVERY 5'.
   3. FOR 6' SIDEWALK: REDWOOD EXPANSION JOINTS REQUIRED AT EVERY 42' AND DUMMY JOINTS AT EVERY 6'.
   4. FOR 8' SIDEWALK: REDWOOD EXPANSION JOINTS REQUIRED AT EVERY 40' AND DUMMY JOINTS AT EVERY 8'.
E. INSTALL 1/2" SLIP DOWELS (SMOOTH) ALONG LEAD WALKS AND AT BARRIER FREE RAMPS

TESTING:
A. PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
B. THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

PRIVATE DEVELOPMENT PROJECTS:
A. THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.
B. ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.
C. CONCRETE SHALL BE MADE WITH A MINIMUM OF 5 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.

CERTIFICATION:
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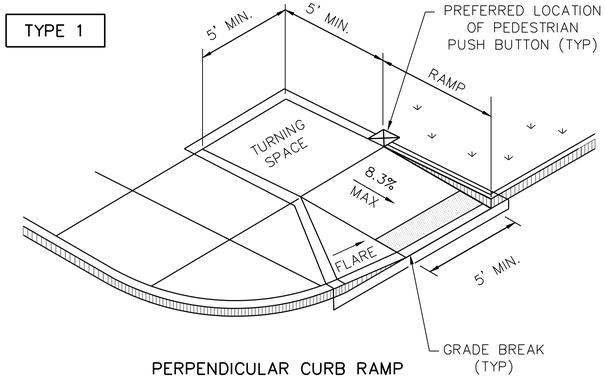
SIDEWALK AND BARRIER FREE RAMPS

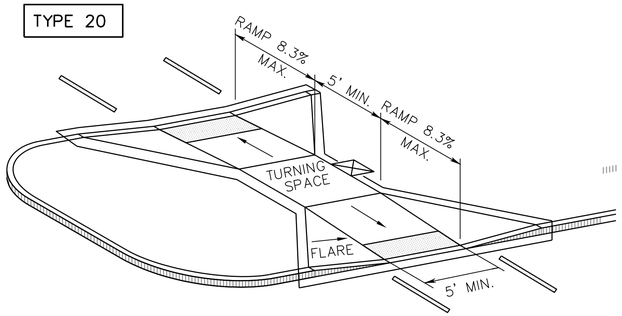
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-06	10 OF 53

TYPE 1



PERPENDICULAR CURB RAMP

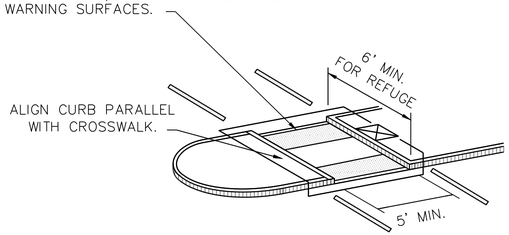
TYPE 20



CURB RAMPS AT MEDIAN ISLANDS

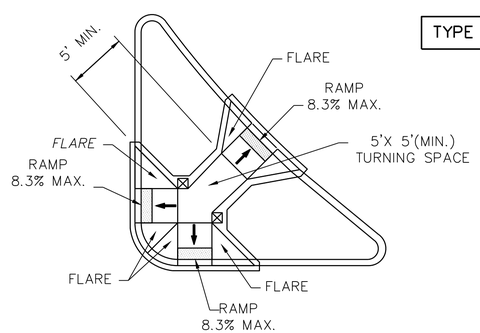
INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

TYPE 21



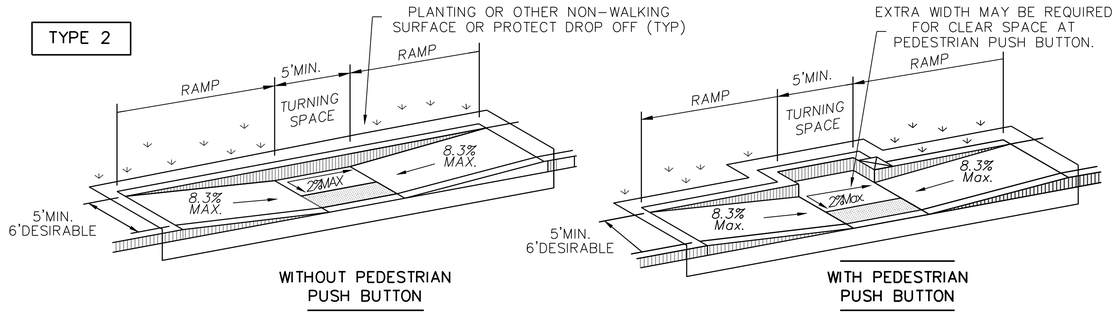
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

TYPE 2



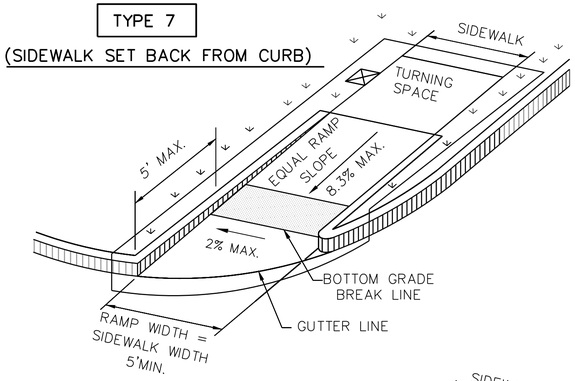
WITHOUT PEDESTRIAN PUSH BUTTON

WITH PEDESTRIAN PUSH BUTTON

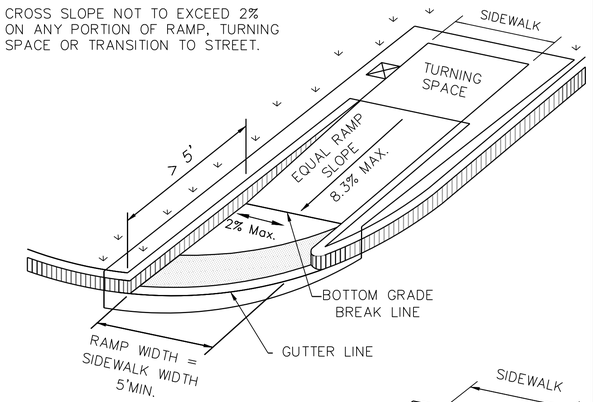
PARALLEL CURB RAMP

TYPE 7

(SIDEWALK SET BACK FROM CURB)

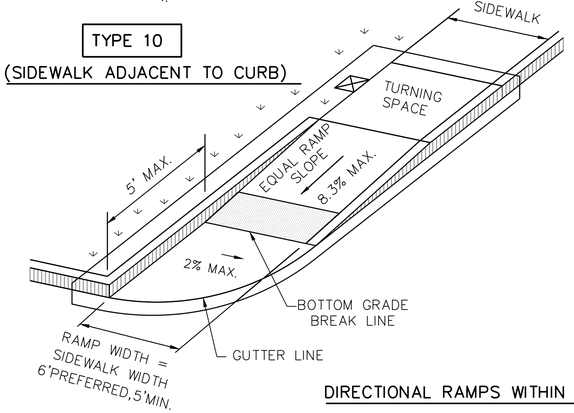


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

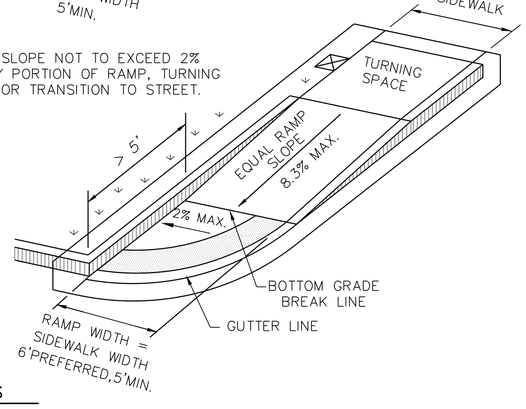


TYPE 10

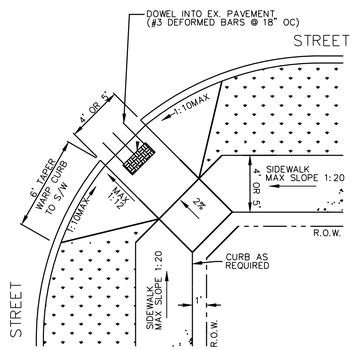
(SIDEWALK ADJACENT TO CURB)



CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

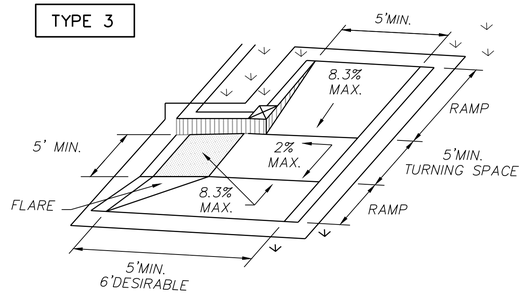


DIRECTIONAL RAMPS WITHIN RADIUS

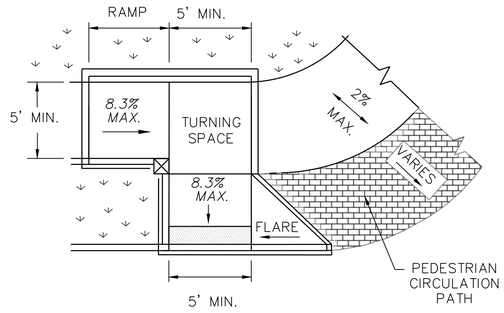


TYPICAL "SHORT LANDING" RAMP

TYPE 3

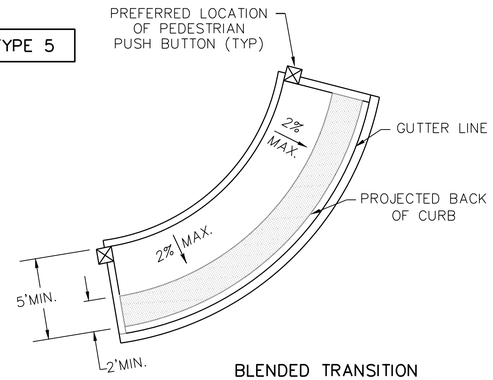


TYPE 6



COMBINATION CURB RAMPS

TYPE 5



BLENDED TRANSITION (FLUSH LANDING)

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

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PEDESTRIAN FACILITIES 1 OF 4

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-07	11 OF 53

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

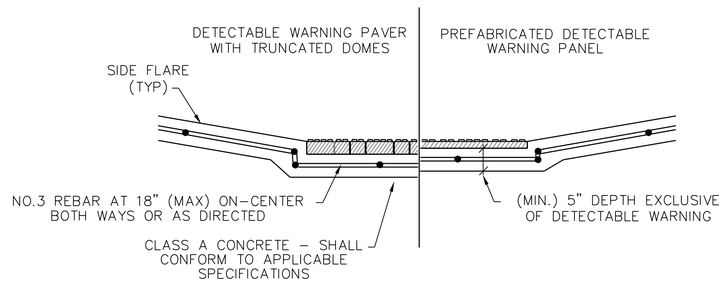
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

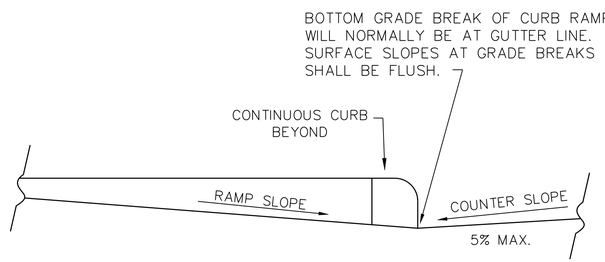
25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

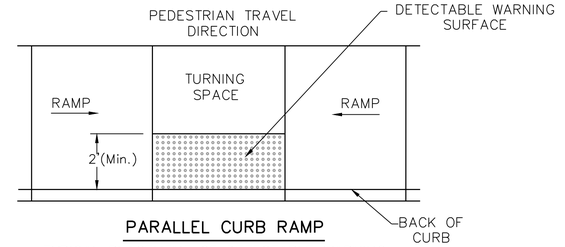


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

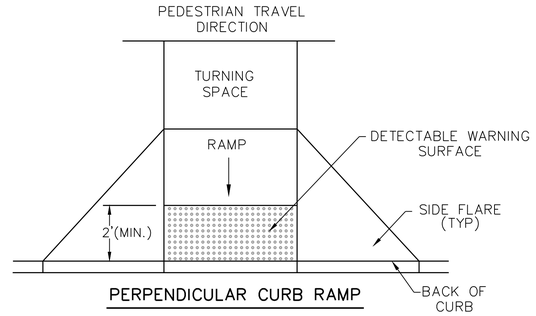


TYPICAL SECTION OF PERPENDICULAR
CURB RAMP AT CONNECTION TO ROADWAY

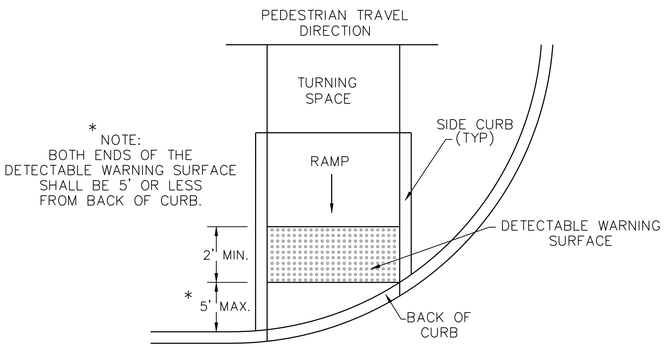
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

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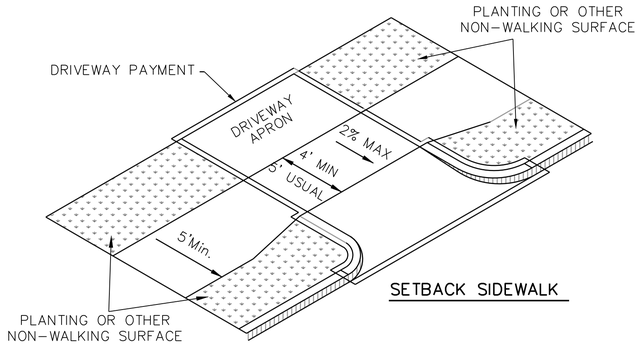
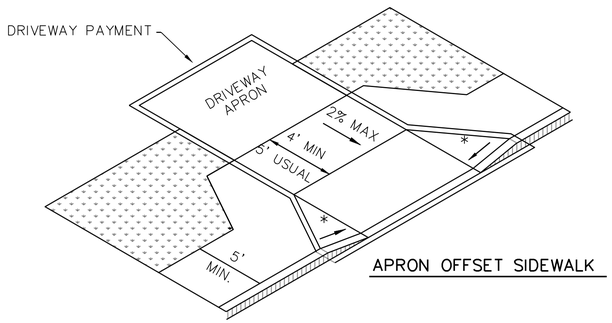
PEDESTRIAN FACILITIES 2 OF 4
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-08	12 OF 53

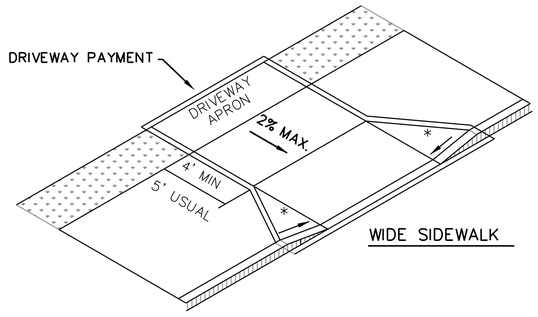
SIDEWALK TREATMENT AT DRIVEWAYS



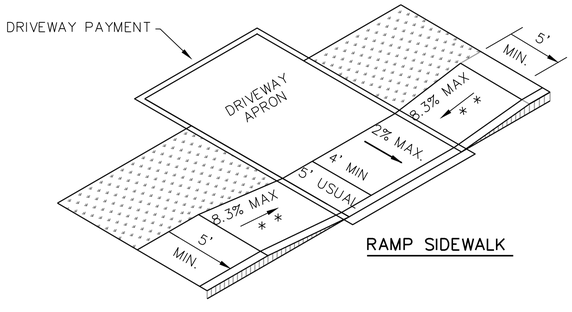
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

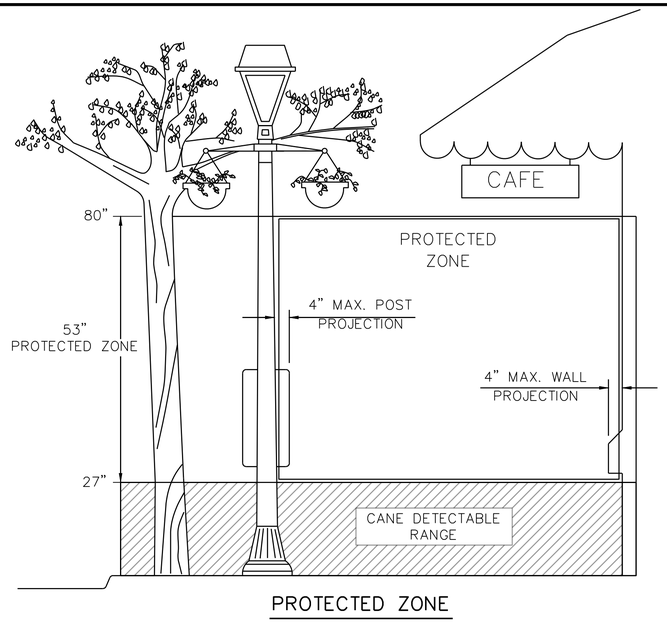


RAMP SIDEWALK

NOTES:

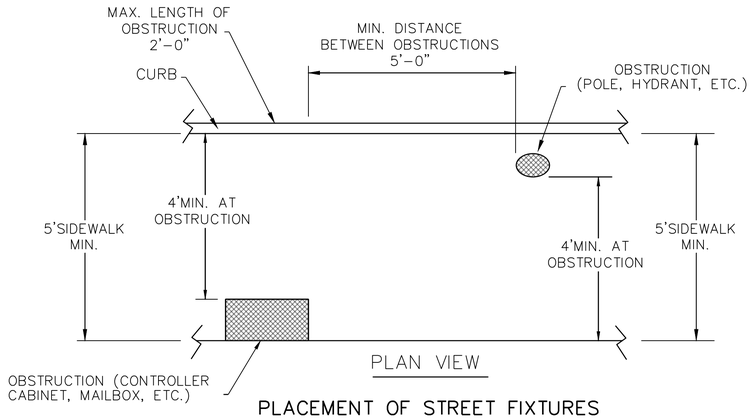
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



PROTECTED ZONE

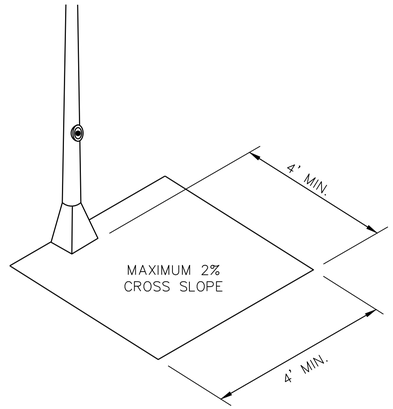
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



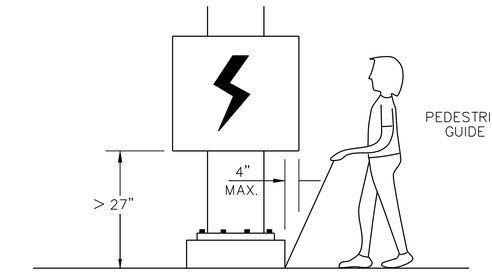
PLAN VIEW

PLACEMENT OF STREET FIXTURES

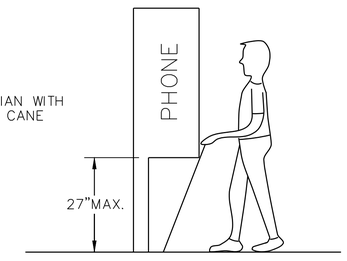
NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PEDESTRIAN WITH GUIDE CANE



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

PROTRUDING OBJECTS OF A HEIGHT 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE <80"

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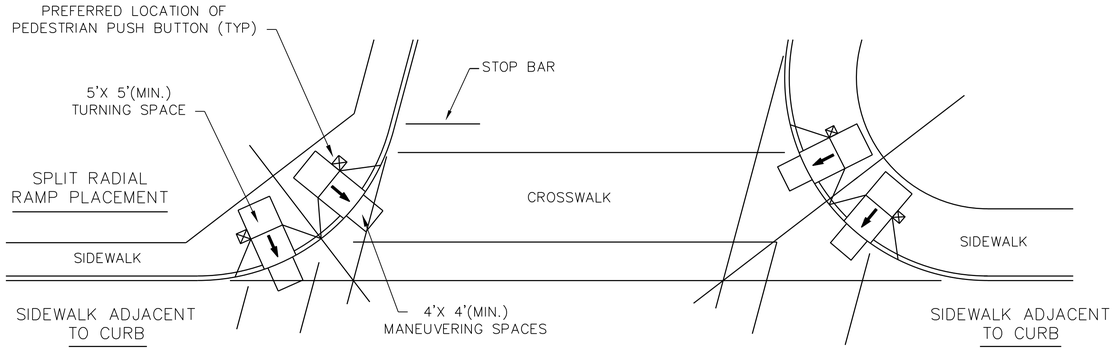
PEDESTRIAN FACILITIES 3 OF 4

STANDARD DETAILS

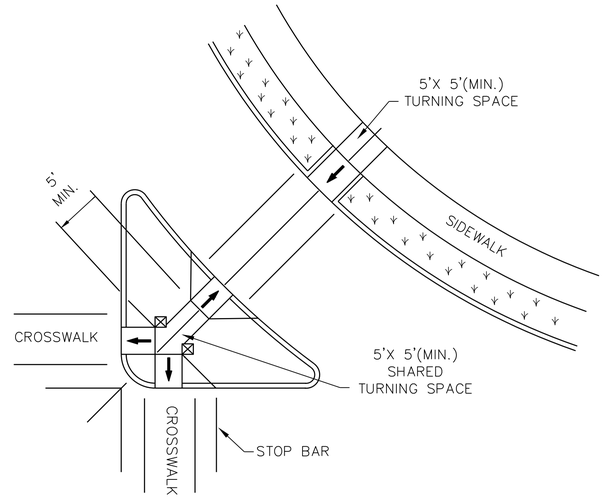
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-09	13 OF 53

TYPICAL CROSSING LAYOUTS

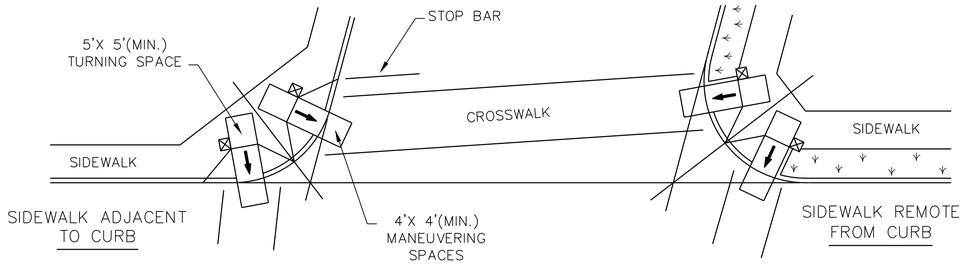
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



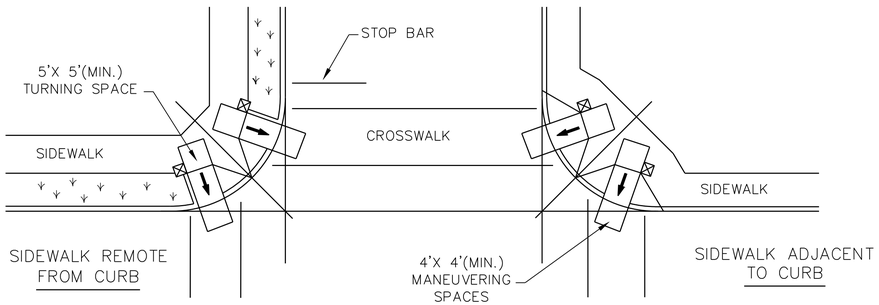
SKEWED INTERSECTION WITH "LARGE" RADIUS



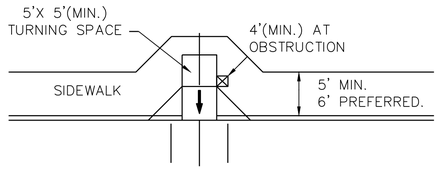
AT INTERSECTION
W/FREE RIGHT TURN & ISLAND

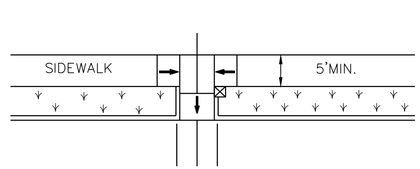


SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS





MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

CERTIFICATION:
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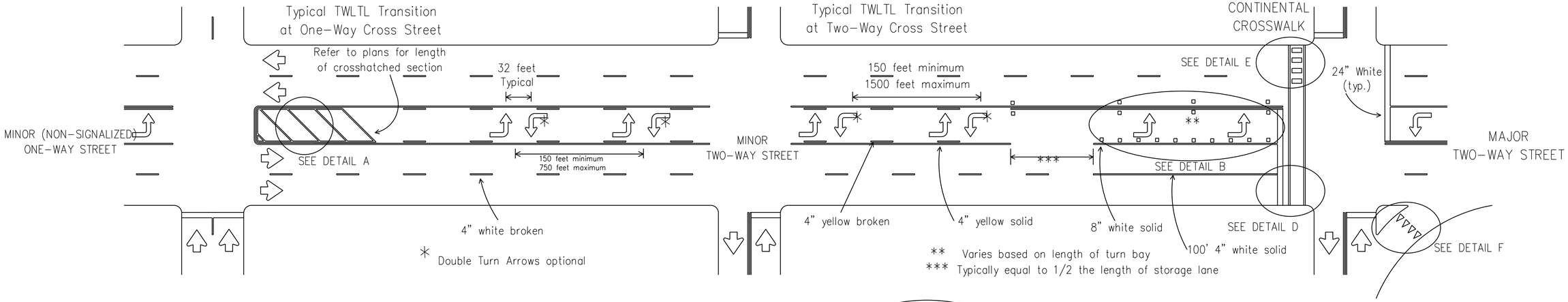
PEDESTRIAN FACILITIES 4 OF 4

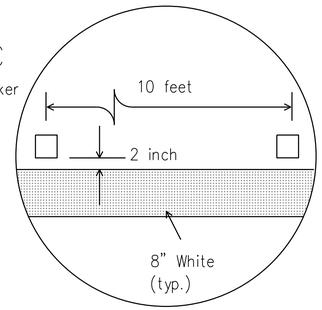
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-10	14 OF 53

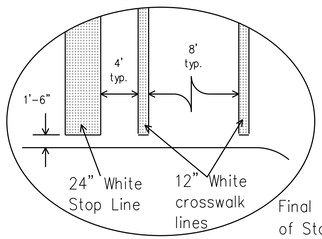


DETAIL C

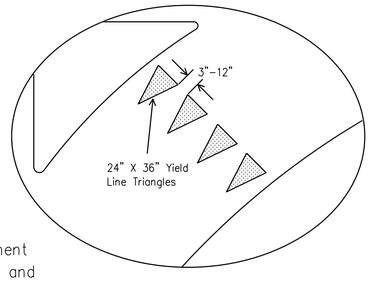
Raised pavement marker
Type II-C-R.



DETAIL D

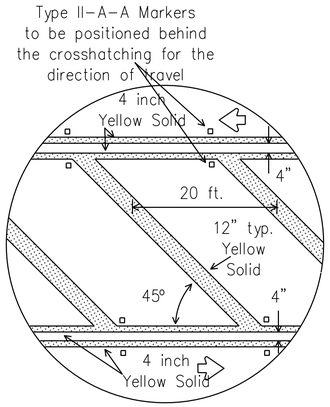


Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.



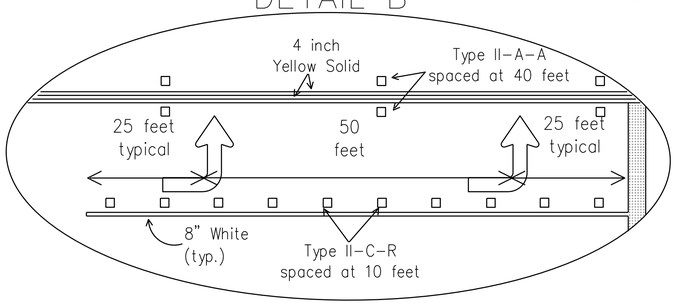
DETAIL F

Final placement of the Yield Line shall be approved by the Engineer in the field. If a crosswalk is present the Yield Line shall be a minimum of 4 feet from the crosswalk.

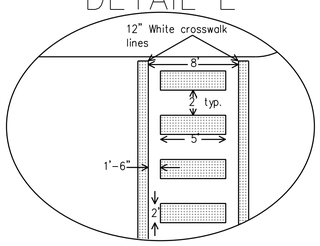


DETAIL A

DETAIL B



DETAIL E



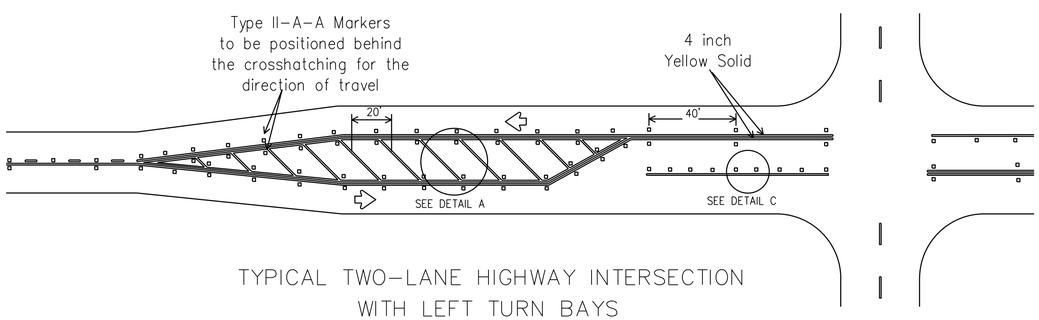
Final placement of Crosswalk shall be approved by the Engineer in the field.

GENERAL NOTES

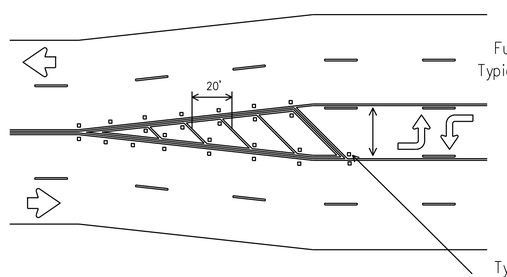
Refer elsewhere in plans for additional RPM placement and details.
Details for words and arrows as shown on other sheets.
All pavement marking materials shall meet the Texas Department of Transportation Material Specifications as specified by the plans.
For a left turn bay less than 100 feet in length two arrows shall be used.
For a left turn bay greater than 100 feet in length three arrows shall be used. Spacing to be determined by Engineer.
The use of turn bay arrows are reserved for signalized intersections only.
The use of the word ONLY shall only be used in trapped turn lanes
Yield line triangles may be 12" X 18" minimum on narrow, low speed facilities.
Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.

SPECIFICATION REFERENCE TABLE

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECT.)	DMS-4200
EPOXY	DMS-6100
BITUMINOUS ADHESIVE FOR PAV. MRKRS.	DMS-6130



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

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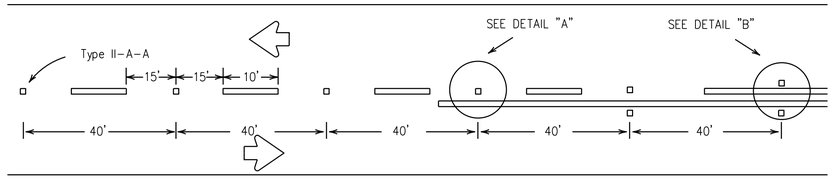
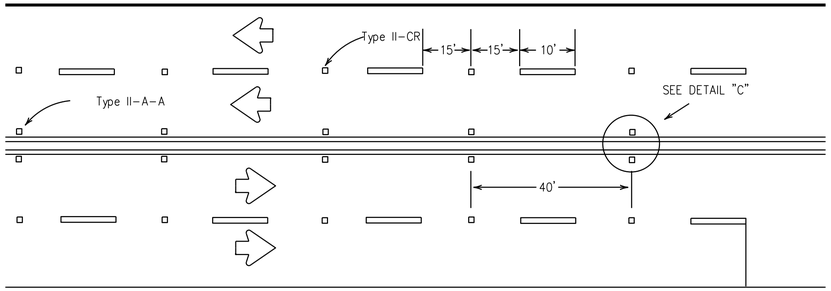
PAVEMENT MARKINGS 1 OF 4
TURN LANE AND TRANSVERSE
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-11	15 OF 53

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

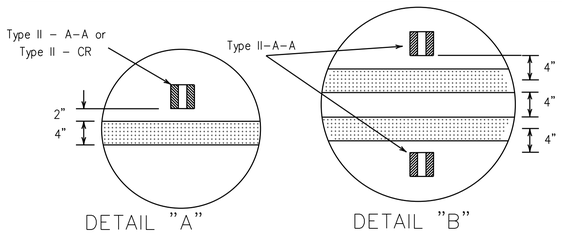


CENTERLINE FOR ALL TWO LANE ROADWAYS



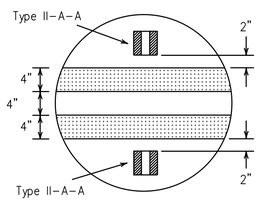
CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type II-CR, shall have clear side face toward normal traffic. Red side shall face wrong way traffic. Shall be placed on 40' centers.

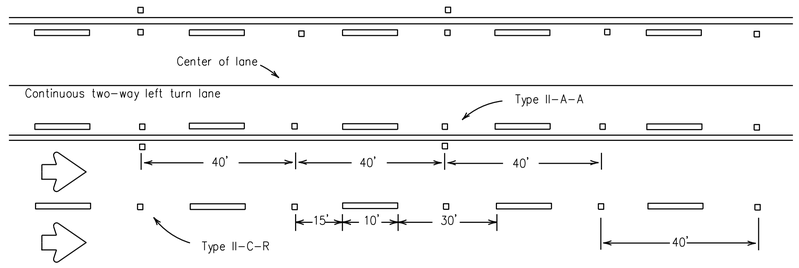


DETAIL "A"

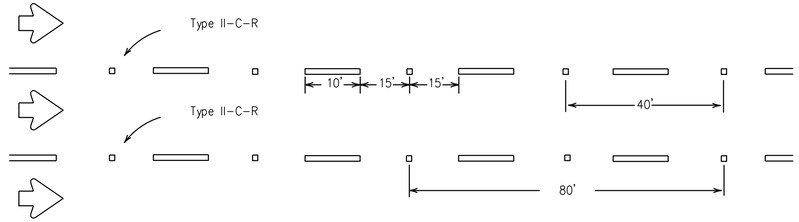
DETAIL "B"



DETAIL "C"



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



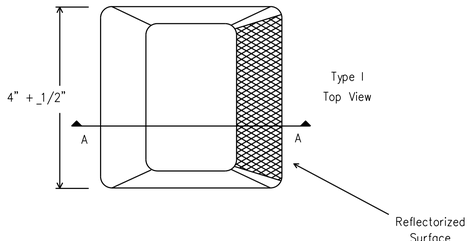
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

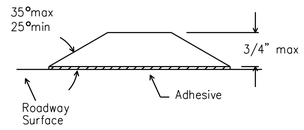
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

Type I - C markers may be used in place of Type II - CR markers at the discretion of the Engineer.

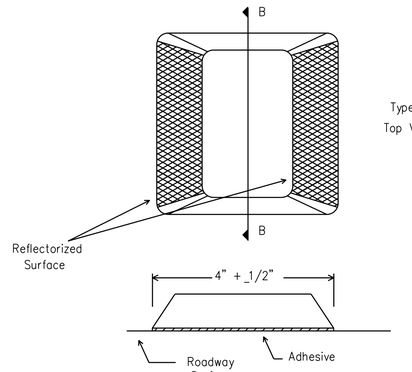
RAISED PAVEMENT MARKERS

(REFLECTORIZED)



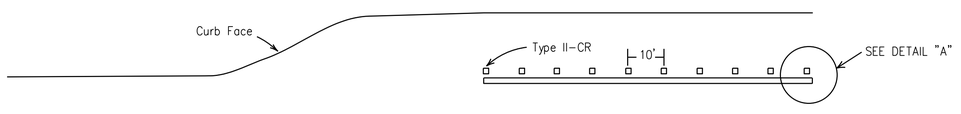


SECTION A

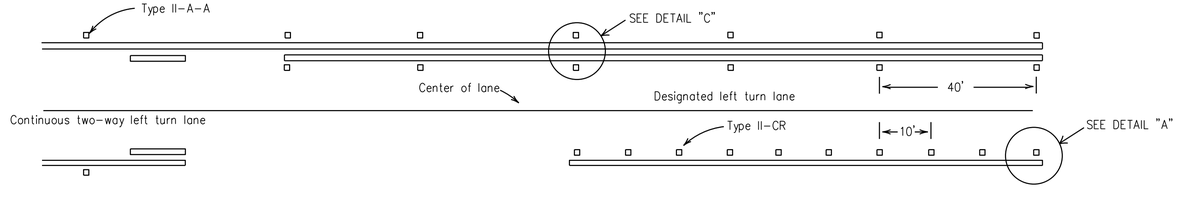


SECTION B

LANE LINES FOR DESIGNATED TURN LANES



LANE LINES FOR DESIGNATED TURN LANES IN A SHARED TWO-WAY TURN LANE



GENERAL NOTES:

All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.

On concrete pavements the raised pavement markers should be placed to the same side of the longitudinal joints as the lane line.

All pavement markers installed on concrete shall be installed using Epoxy adhesive.

All pavement markers installed on asphalt shall be installed using Bituminous adhesive.

All pavement marking materials shall meet the Texas Department of Transportation Material Specifications as specified by the plans.

SPECIFICATION REFERENCE TABLE

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECT.)	DMS-4200
EPOXY	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130

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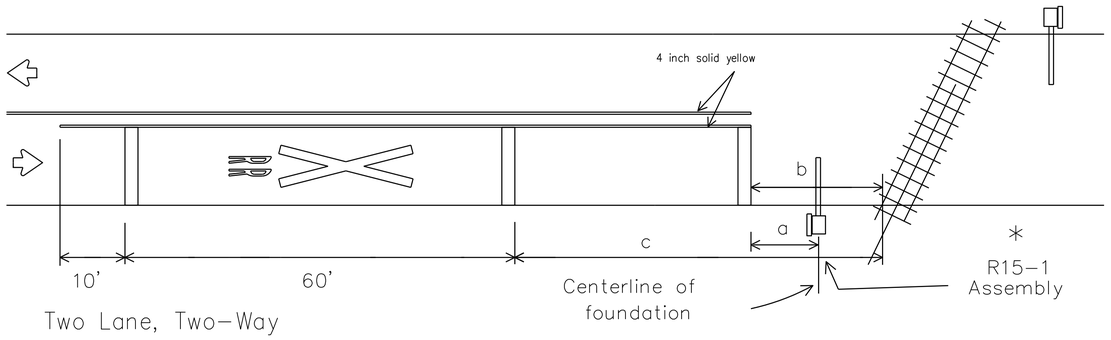
PAVEMENT MARKINGS 2 OF 4

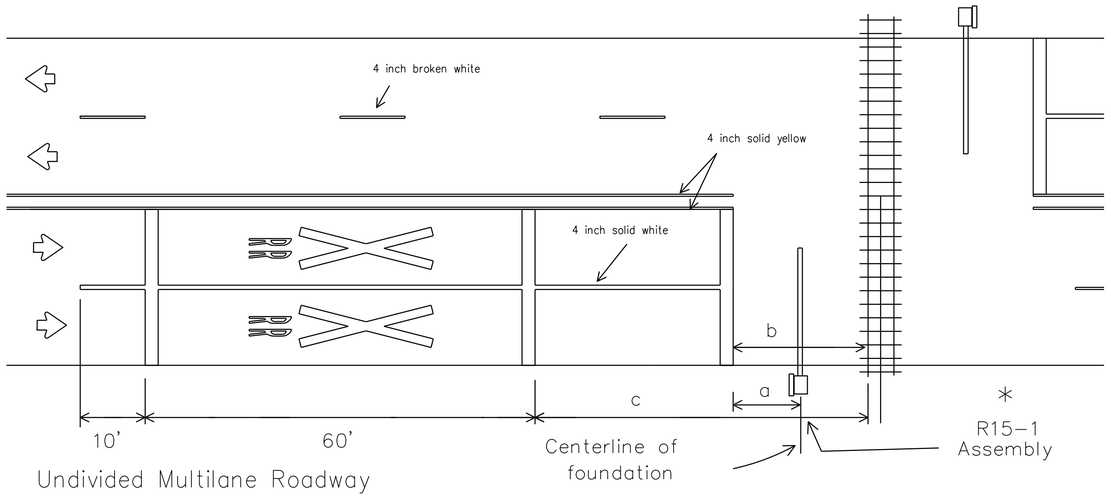
RAISED PAVEMENT MARKERS

STANDARD DETAILS

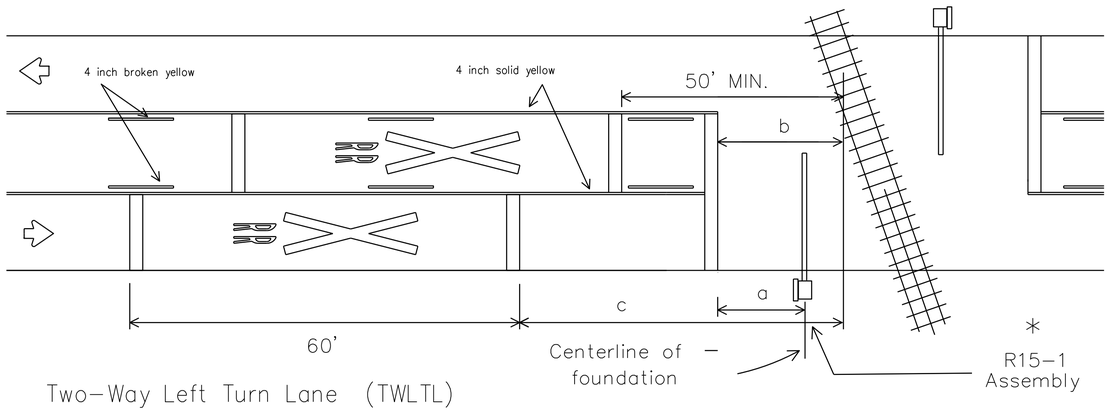
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-12	16 OF 53



Two Lane, Two-Way



Undivided Multilane Roadway



Two-Way Left Turn Lane (TWLTL)

a =

Stop lines should be approximately 8 feet in advance of active warning devices (Type A, E or F). Stop line should be approximately 15 feet from near rail if only passive devices (R15-1, plus R15-2 when applicable) are present.

b =

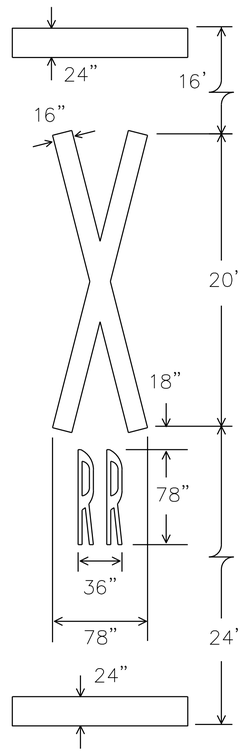
15 feet desirable minimum. R15-1 should be placed between stop line and rails with adequate distance provided for "a".

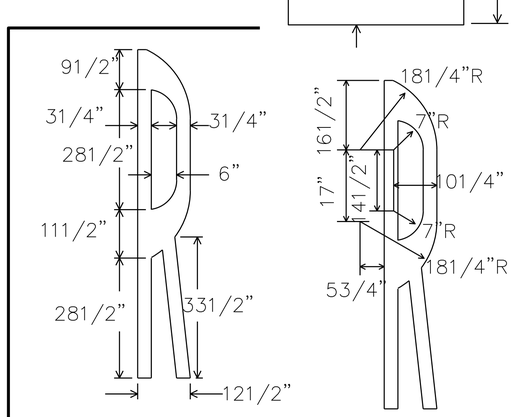
c =

*

Approach Speed(mph)	Desirable Placement (feet)
20	145
25	220
30	295
35	370
40	445
45	520
50	595
55	670
60	745
65	820
70	900

* Local conditions may require alternate placement locations.





ESTIMATED QUANTITIES

(for Contractor Information ONLY)

24 INCH WHITE TRANSVERSE MARKINGS AND STOP LINES

No. of Approach Lanes (Include TWLTL)	LANE WIDTH (FT) 11	12	13	14
1	33	36	39	42
2	66	72	78	84
3	99	108	117	126
4	132	144	156	168

4 INCH SOLID YELLOW NO PASSING LINE = "d" – "c" + 70

For: Two Lane, Two-Way, Single Lane Approach per Direction

4 INCH SOLID WHITE LANE LINE = "d" – "a" + 70

For: Two-Way or One-Way Traffic, 2 or More Approach Lanes in Same Direction (Do NOT Include TWLTL)

GENERAL NOTES

1. The pavement markings on an approach to a railroad grade crossing shall consist of:
   a. The RR Xing symbol,
   b. Three transverse 24" lines, and
   c. Lane lines: a solid no passing line for two-way traffic approaches, or solid lane lines for multilane approaches.
2. For bidding purposes, the RR Xing symbol will be measured and paid for as for each lane in place. The transverse markings and lane lines will be measured and paid for by the lineal foot.
3. Centerlines shall be yellow, other markings shall be white.
4. Approach lanes less than 8 foot width shall NOT have markings.
5. Markings should NOT be placed where less than 110 feet of approach roadway is available for placement.
6. RR Xing symbols should be placed approximately in the center of the approach lane.
7. All transverse markings, including stop lines, shall be placed at right angles to the centerline and across all approach lanes.
8. Existing non-standard markings shall be removed to the fullest extent possible so as not to leave a discernable marking, by any method approved by the engineer. OVERPAINTING WILL NOT BE ALLOWED.
9. Additional markings and placement details may be found in the TMUTCD, Appendix H.
10. The Engineer may require additional longitudinal markings if the distance between the stop lines is greater than 80 feet. Markings are not required across or between the rails unless specified elsewhere in the plans.

*

R15-1 Assembly

May consist of one or more of the following:

R15-1 Crossbuck Sign
R15-2 Multiple Track Sign
Type A Mast Flashers
Type E Cantilevers
Type F Gates

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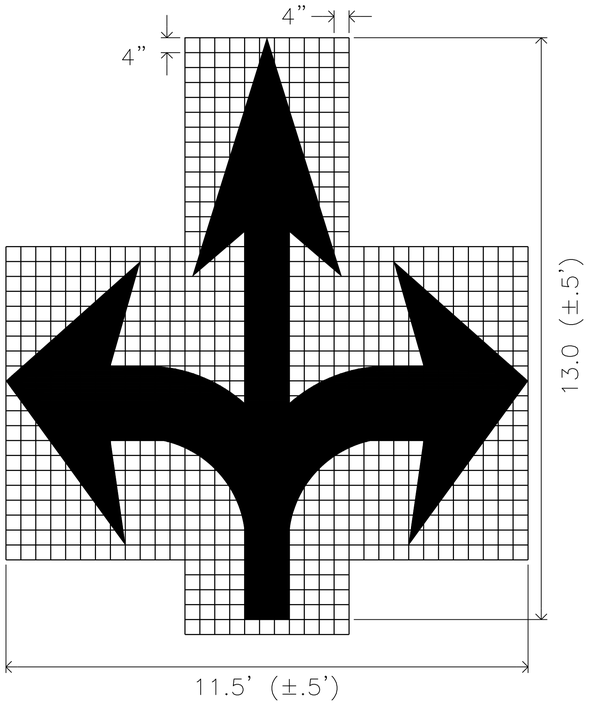
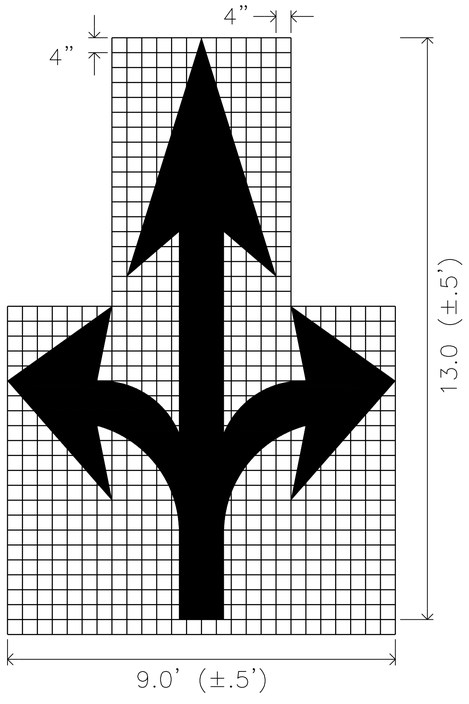
PAVEMENT MARKINGS 3 OF 4

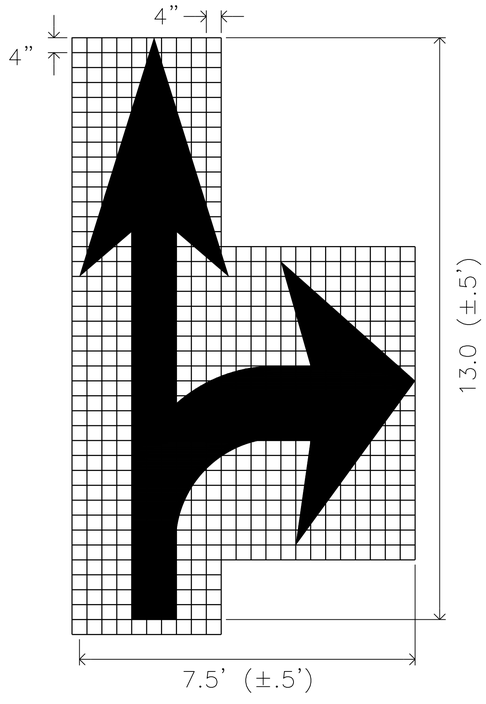
RAILROAD CROSSINGS

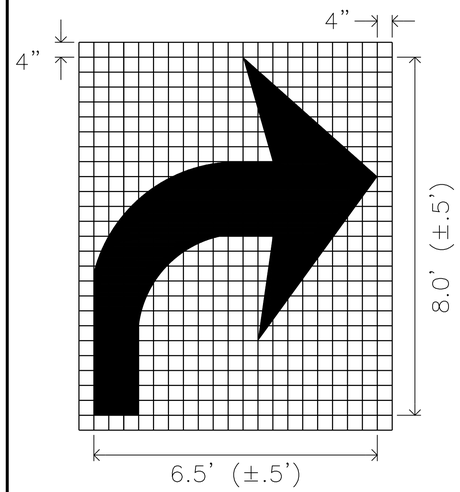
STANDARD DETAILS

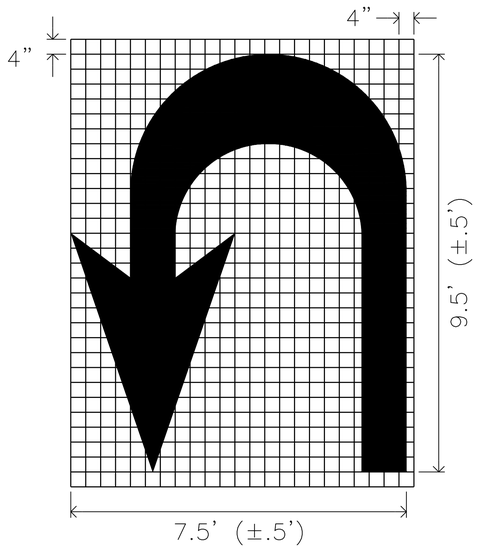
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-13	17 OF 53

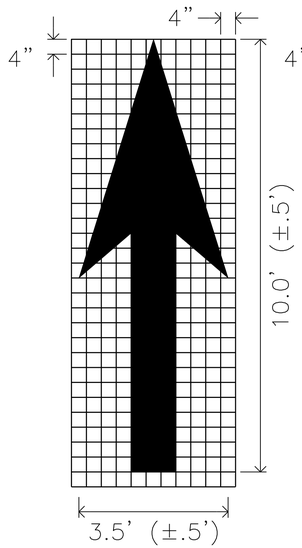


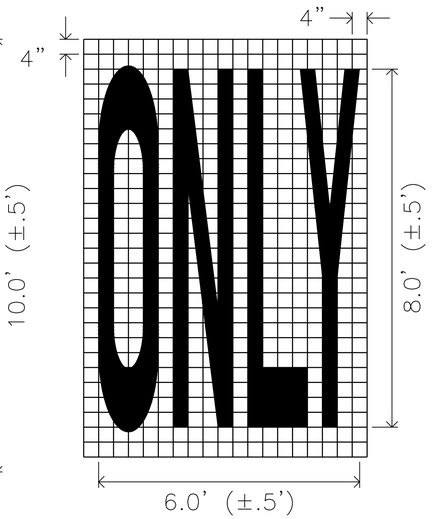












GENERAL NOTES;

1. Minimum 8 foot white markings should be used, unless otherwise noted. If message consists of more than one word, it should be placed with first word nearest the driver.
2. These details are standard size for normal installation; sizes may be reduced approximately one-third for low speed urban conditions; larger sizes may be needed for freeways, above average speed conditions or other critical locations.
3. The longitudinal space between markings should be at least four times the height of the markings, on low speed roads, but should not exceed ten times the height under any condition.
4. Markings considered appropriate for use when warranted include the following:
   A. Regulatory
      STOP
      RIGHT (LEFT) TURN ONLY
      25 MPH
      SYMBOL ARROWS
   B. Warning
      STOP AHEAD
      SIGNAL AHEAD
      SCHOOL
      SCHOOL X-ING
      PED X-ING
      R X R (see RCPM standard)
   C. Guide
      US XXX
      ROUTE XXX
      STATE XXX
      Other words or symbols may be necessary under certain conditions
5. Uncontrolled use of pavement markings can result in driver confusion. Word and symbol markings should be no more than three lines.
6. The word "STOP" shall not be used on the pavement unless accompanied by a Stop line and Stop sign. The word "STOP" shall not be placed on the pavement in advance to a stop line, unless every vehicle is required to stop at all times.
7. Pavement markings should generally be no more than one lane in width, with School messages being the exception. For details of School and School crossing pavement markings, refer to Part VII of the "Texas Manual on Uniform Traffic Control Devices".
8. Spacing between letters should be approximately 4 inches. The width of letters may vary depending on the width of the travel lanes.
9. Lane-Use arrow markings may be used to convey either guidance or mandatory messages. Arrows used to convey a mandatory movement must be accompanied by standard signs. The use of the pavement marking word "ONLY" shall be determined by the Engineer.
10. Pavement markings are to be located as specified elsewhere in the plans.

SPACING BETWEEN LINES OF PAVEMENT MARKING	
MPH	SPACING
≤45	MINIMUM 4 TIMES THE LETTER HEIGHT
>45	MINIMUM – 4 TIMES THE LETTER HEIGHT MAXIMUM – 10 TIMES THE LETTER HEIGHT

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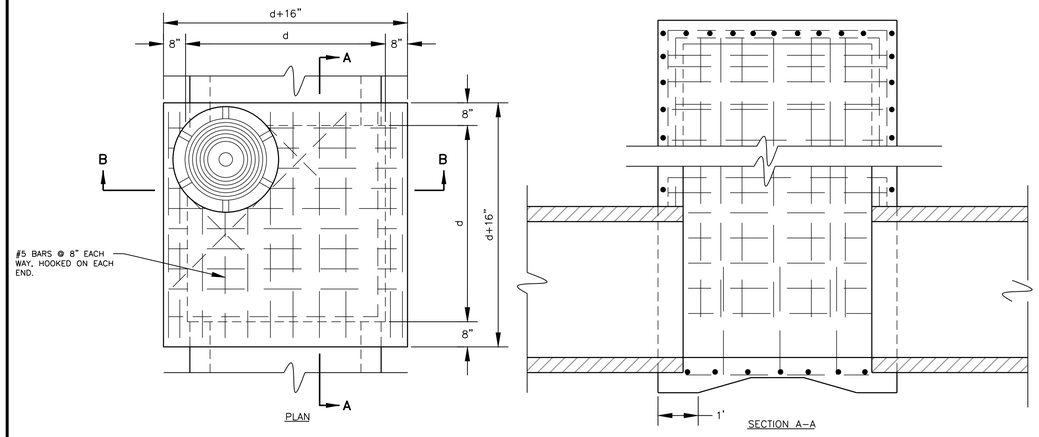
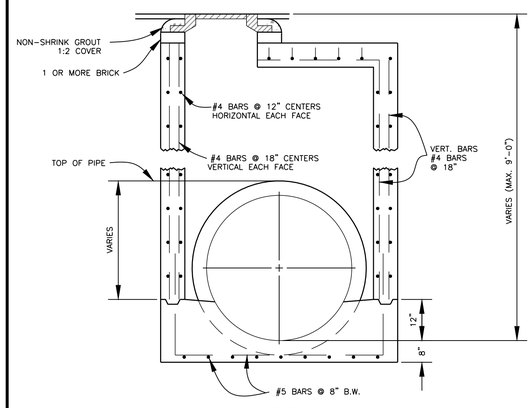
PAVEMENT MARKINGS 4 OF 4

ARROWS AND SYMBOLS

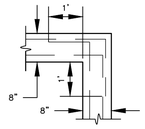
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	PAV-14	18 OF 53



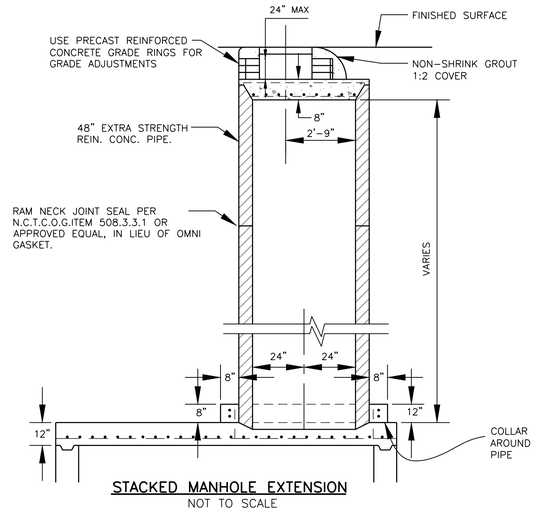


SECTION B–B
(ELEV.)



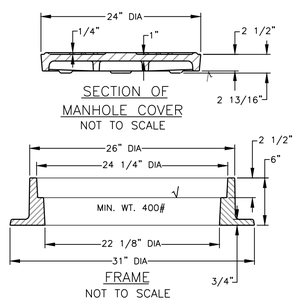
PIPE SIZES	d
24"–39"	5'
42"–48"	6'
54"–60"	7'
66"–72"	8'

TYPE "B" MANHOLE
NOT TO SCALE



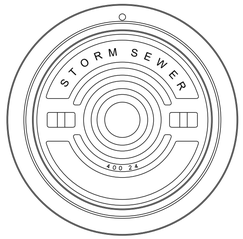
STACKED MANHOLE EXTENSION
NOT TO SCALE

MANHOLE FRAME AND COVER NOTES:
1. MANHOLE LIDS SHALL HAVE PICK SLOTS ONLY.
2. M.H. FRAME & COVERS IN STREET SHALL BE 400 LBS. MIN. WT. (BASS & HAYS # 400–24 OR EQUAL) ALL OTHERS MAY BE 300 LBS. (BASS & HAYS # 300–24 OR EQUAL)

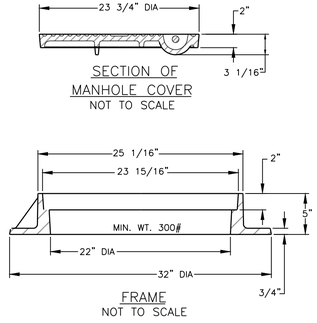


SECTION OF MANHOLE COVER
NOT TO SCALE

FRAME
NOT TO SCALE



TRAFFIC RATED
MANHOLE FRAME & COVER DETAIL

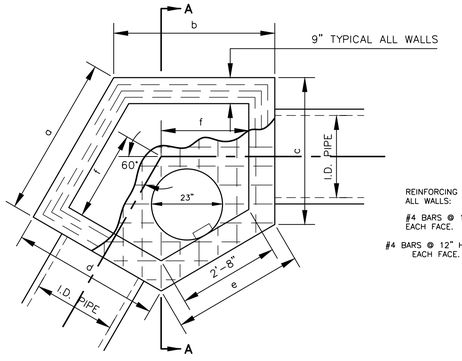


SECTION OF MANHOLE COVER
NOT TO SCALE

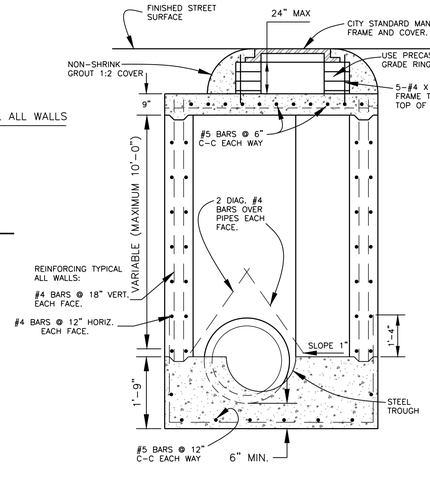
FRAME
NOT TO SCALE

NON–TRAFFIC RATED
MANHOLE FRAME & COVER DETAIL

GENERAL NOTES:
A. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005–5888. (817) 640–3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
B. ALL MANHOLES SHALL BE POURED IN PLACE OR PRECAST. PRECAST JUNCTION BOXES OR MANHOLES SHALL HAVE SHOP DRAWINGS PRE–APPROVED BY THE CITY ENGINEER.
C. DIRECT TRAFFIC CONCRETE STRUCTURES SHALL BE MADE WITH A MINIMUM OF 6 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. OTHER CONCRETE SHALL BE MADE WITH A MINIMUM OF 5 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
D. ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET–STEEL PER ASTM DESIGNATION A–615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP–88 AND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.
E. THE CONTRACTOR SHALL USE A LIQUID MEMBRANE–FORMING CURING COMPOUND PER N.C.T.C.O.G. ITEM 303.2.13.
F. LIGHT BROOM FINISH REQUIRED ON ALL EXPOSED MANHOLE TOPS.
G. MANHOLE FRAME AND COVER SHALL BE INSTALLED AS PER THE DETAILS ON THIS SHEET.
H. STACKED MANHOLE EXTENSION SHALL BE INSTALLED, WHERE SPECIFIED ON THE PLANS AND AS PER THE DETAILS ON THIS SHEET. PRECAST ALLOWED FOR STACKED MANHOLE EXTENSIONS.
I. MANHOLES SHALL BE CONSTRUCTED PER DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 502.1.
J. PREFABRICATED ROUND MANHOLES SHALL CONFORM TO ASTM C478 SPECIFICATIONS.
K. PREFABRICATED SQUARE MANHOLES SHALL CONFORM TO ASTM C890 AND ASTM C913 SPECIFICATIONS.
L. ALL UTILITY DITCH LINES WITHIN CITY R.O.W. OR EASEMENT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY PER 6"–8" LIFTS (NOT TO EXCEED 12") AT STAGGERED 100' INTERVALS. ALL LATERALS OR SERVICES SHALL HAVE A MINIMUM OF ONE DENSITY TEST PER FOOT OF LIFT. THE INSPECTOR SHALL HAVE THE RIGHT TO REQUEST ADDITIONAL RANDOM TESTS AS HE/SHE DEEMS NECESSARY.
M. ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.
N. CONTRACTOR SHALL CONTACT STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT–OF–WAY.
O. PLEASE REFER TO THE GENERAL NOTES SHEETS, GN–01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
P. THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.
Q. PRIVATE DEVELOPMENT PROJECTS: THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.



PLAN



SECTION A–A

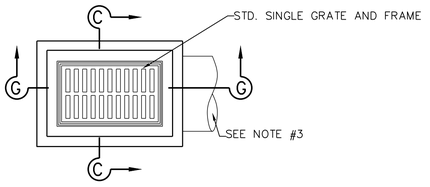
TYPE "A" MANHOLE
NOT TO SCALE

NO.	PIPE SIZES	a	b	c	d	e	f
1	18"–24"	4'–5½"	4'–5½"	4'–2"	4'–2"	3'–6½"	2'–5"
2	27"–33"	4'–11⅜"	4'–11⅜"	5'–1"	5'–1"	3'–6⅜"	2'–8"
3	36"–42"	5'–5⅝"	5'–5⅝"	5'–11¼"	5'–11¼"	3'–6⅜"	2'–11"
4	48"–54"	6'–1¾"	6'–1¾"	7'–1¼"	7'–1¼"	3'–6½"	3'–3"
5	60"–66"	6'–9⅞"	5'–9⅞"	8'–3¼"	8'–3¼"	3'–6½"	3'–7"
6	72"–78"	7'–6"	7'–6"	9'–5¼"	9'–5¼"	3'–6½"	3'–11
7	84"–96"	8'–6⅛"	8'–6⅛"	11'–2¼"	11'–2¼"	3'–6½"	4'–5½"

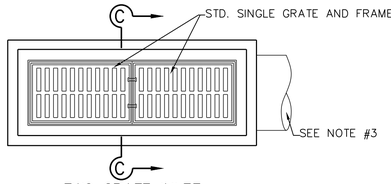
CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

STORM DRAIN MANHOLE
STANDARD DETAILS

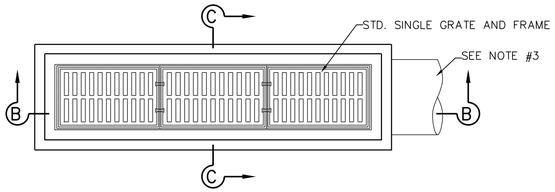
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM–01	19 OF 53



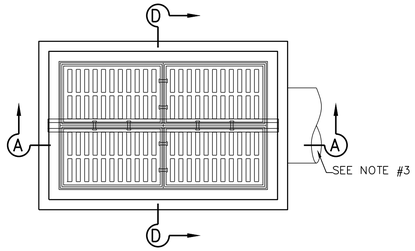
ONE GRATE INLET



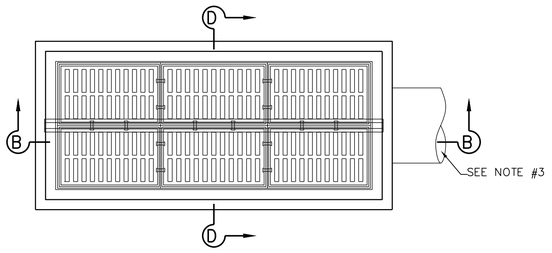
TWO GRATE INLET



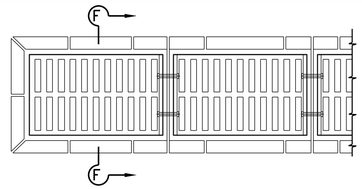
THREE GRATE INLET

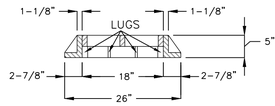


FOUR GRATE INLET



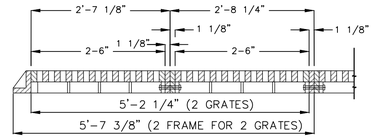
SIX GRATE INLET





SECTION F-F

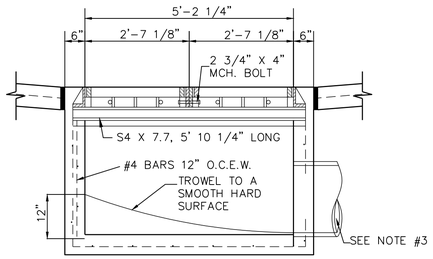
NOTE :
GRATE AND FRAME SHALL BE PATTERN NO. 814 AS MANUFACTURED BY BASS & HAYES FOUNDRY OR APPROVED EQUAL.



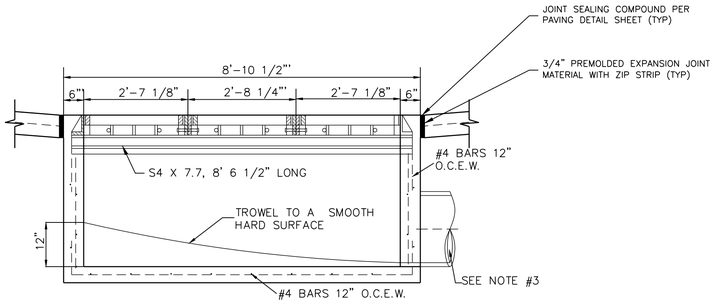
GRATE DETAILS

NOTES

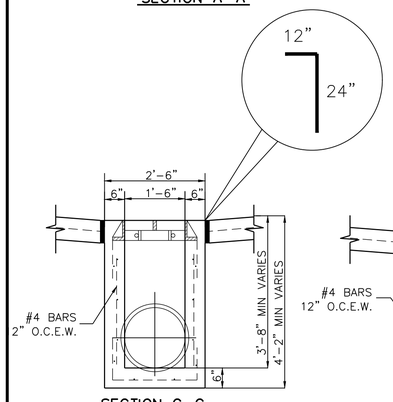
1. ALL LAPS AND EXTENSIONS OF REINFORCING BARS SHALL BE 30 BAR DIAMETERS UNLESS NOTED OTHERWISE.
2. TACK WELD GRATES IN PLACE OR USE GRATE LOCK.
3. PIPE MAY BE PLACED IN ANY WALL, BUT SHALL NOT ENTER ANY CORNER OR BOTTOM.
4. CONCRETE TO MIN. OF 4200 PSI.
5. GRATE INLET DESIGN TO BE ONLY USED IN PAVED AREAS ONLY.



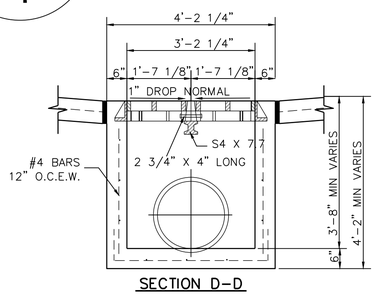
SECTION A-A



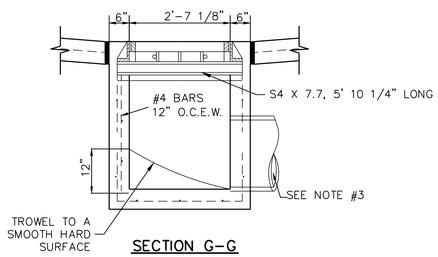
SECTION B-B



SECTION C-C



SECTION D-D



SECTION G-G

GENERAL:
(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888. (817) 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM

CLOSED CONDUITS:
(A) CLOSED CONDUITS SHALL BE INSTALLED PER N.C.T.C.O.G. ITEM 508
(B) ONLY REINFORCED CONCRETE PIPE (RCP) OR REINFORCED CONCRETE BOX (RCB) IS APPROVED FOR USE FOR STORM DRAIN CONDUIT, UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(C) CLASS IV RCP SHALL BE USED WHERE THE PIPE COVER IS GREATER THAN 1 FEET AND LESS THAN 2 FEET. CLASS III RCP SHALL BE USED WHERE THE PIPE COVER VARIES FROM 2 FEET TO 6 FEET. THE CLASS OF ALL OTHER RCP SHALL DETERMINED BY AN ENGINEER PER LOADS AND SUPPORTING STRENGTHS, AMERICAN CONCRETE PIPE ASSOCIATION.
(D) C-850 RCB SHALL BE USED WHERE THE COVER IS LESS THAN 3 FEET. C-789 SHALL BE USED WHERE THE COVER VARIES FROM 3 FEET TO 6 FEET. THE DESIGN OF ALL OTHER RCB SHALL BE DETERMINED BY AN ENGINEER.
(E) FOR PIPES, EMBEDMENT SHALL BE PER THE STREET BACKFILL & REPAIR DETAIL ON STORM DRAIN & INLET STANDARD DETAIL SHEET. FOR BOX CULVERTS, EMBEDMENT SHALL BE PER THE BOX CULVERT EMBEDMENT DETAIL ON STORM DRAIN & INLET STANDARD DETAIL SHEET. NOTE THAT FLOWABLE BACKFILL IS ONLY REQUIRED BELOW AREAS TO BE PAVED.
(F) THE CONTRACTOR SHALL SEAL ALL JOINTS ON CLOSED CONDUITS WITH OMNI-FLEX JOINT SEALS OR EQUAL; UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(G) THE MINIMUM SIZE FOR LATERALS IS 18 INCHES IN DIAMETER. THE MINIMUM SIZE FOR MAINS IS 24 INCHES IN DIAMETER.

FITTINGS COLLARS AND CONNECTIONS:
(A) THE CONTRACTOR SHALL USE ONLY PRE-FABRICATED FITTINGS ON NEW CONSTRUCTION PROJECTS. FIELD CONNECTIONS SHALL BE MADE ONLY TO EXISTING PIPE WITH CITY APPROVAL. THE CONNECTION SHALL BE A SMOOTH CONNECTION AND CONCRETE WRAPPED ON THE OUTSIDE AND INSIDE.
(B) CONCRETE COLLARS SHALL BE CONSTRUCTED PER THE CONCRETE COLLAR DETAILS, ON THE STORM DRAIN AND INLET STANDARD DETAIL SHEET, AT ALL STORM DRAIN SIZE AND AT GRADE CHANGES OR IN CURVES WHERE THE JOINT IS BEING PULLED MORE THAN RECOMMENDED BY THE MANUFACTURER. PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 508.3.4.1.

INLETS:
(A) ALL INLETS SHALL BE POURED IN PLACE OR PRECAST. PRECAST INLETS, JUNCTION BOXES, MANHOLES, AND HEADWALLS SHALL HAVE SHOP DRAWINGS PRE-APPROVED BY THE CITY ENGINEER.
(B) INLETS SHALL NOT BE USED AS JUNCTION BOXES OR PLACED ON A MAIN, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
(C) THE MINIMUM OPENING FOR A CURB INLET SHALL BE 5 FEET. CURB INLETS SHALL BE CONSTRUCTED IN 5 FOOT INCREMENTS. ALL CURB INLETS WITH 15 FEET WIDE OR LARGER OPENINGS SHALL HAVE A CENTER SUPPORT. ALL CURB INLETS GREATER THAN 7 FEET DEEP SHALL BE DESIGNED AND SEALED BY AN ENGINEER.
(D) BOTTOMS, TOPS, AND VARIABLE HEIGHT CURB TO BE SEPARATE POURS (3 POURS) FOR CURB INLETS.
(E) CURB INLET BOTTOMS SHALL BE POURED PRIOR TO ANY PAVING. (F) CURB INLETS SHALL HAVE 10 LINEAR FEET OF VARIABLE HEIGHT CURB ON BOTH SIDES OF THE INLET OPENING.
(G) FRAME AND COVER ON CURB INLETS TO BE LOCATED DIRECTLY OVER THE OUTLET PIPE.

CONCRETE:
(A) CONCRETE SHALL BE MADE WITH A MINIMUM OF 6 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. NO CONTINUOUS VOLUMETRIC MIX CONCRETE ALLOWED IN STRUCTURAL POURS. ALL CONCRETE MUST BE PLANT RUN/TRANSIT MIX CONCRETE. UNLESS OTHERWISE APPROVED BY THE ENGINEER.
(B) ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET-STEEL PER ASTM DESIGNATION A-615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP-88 AND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.
(C) THE CONTRACTOR SHALL USE A LIQUID MEMBRANE-FORMING CURING COMPOUND PER N.C.T.C.O.G. ITEM ITEM 303.2.13.1.1.

TESTING:
(A) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:
  (a) ALL CLOSED CONDUITS SHALL BE T.V. INSPECTED PER N.C.T.C.O.G. ITEM 507.5.2 METHOD AND BE COMPLETED PRIOR TO PLACING PAVEMENT.
  (b) ALL UTILITY DITCH LINES WITHIN CITY R.O.W. OR EASEMENT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY PER 6"-8" LIFTS (NOT TO EXCEED 12") AT STAGGERED 100' INTERVALS. ALL LATERALS OR SERVICES SHALL HAVE A MINIMUM OF ONE DENSITY TEST PER FOOT OF LIFT. THE INSPECTOR SHALL HAVE THE RIGHT TO REQUEST ADDITIONAL RANDOM TESTS AS HE/SHE DEEMS NECESSARY.
(B) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
(C) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

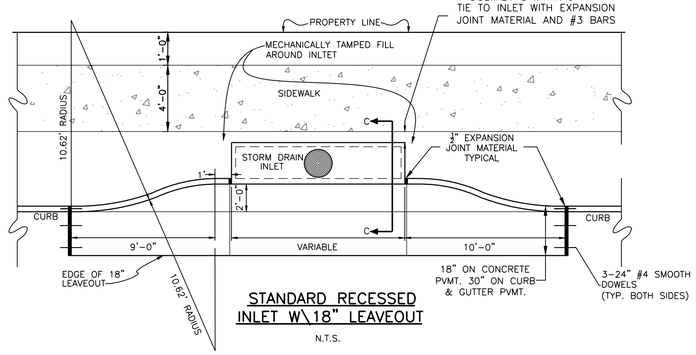
MATERIAL: ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

PRIVATE DEVELOPMENT PROJECTS:
A. THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.
B. WELD CHAINS TO GRATES OR TACK WELD.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

GRATE INLETS
STANDARD DETAILS

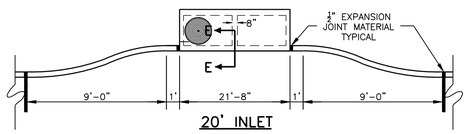
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM-02	20 OF 53



STANDARD RECESSED INLET W\18" LEAVEOUT

N.T.S.

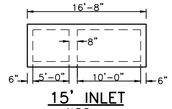
NOTE:
1. ALL 15' AND 20' INLETS WILL REQUIRE A CENTER SUPPORT BEAM.
2. ALL OPEN BACK INLETS GREATER THAN 5' WILL REQUIRE A CENTER BEAM, REGARDLESS OF INLET TYPE OR SIZE.
3. IF DISTANCE FROM BOTTOM OF SUPPORT BEAM TO BOTTOM OF INLET IS LESS THAN 4' THEN ADD A SECOND INLET FRAME AND COVER.
4. REINFORCEMENT BARS MAY NOT BE SHOWN FOR CLARITY. BARS ARE REQUIRED IN TOP, SIDES ENDS, AND BOTTOM OF ALL STRUCTURES.



20' INLET

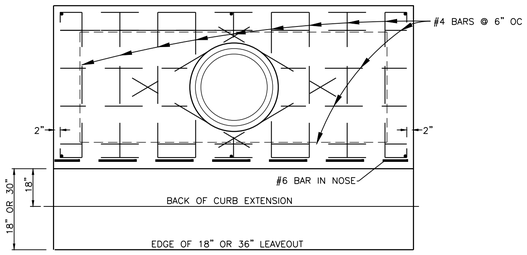
(TO BE BUILT AS A DOUBLE 10' INLET EXCEPT AS SHOWN)

N.T.S.



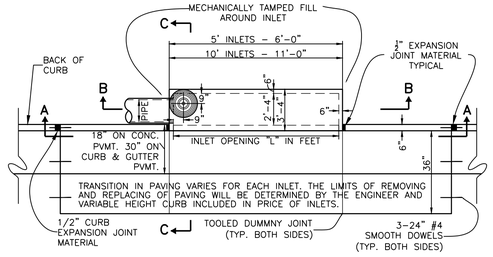
15' INLET

N.T.S.



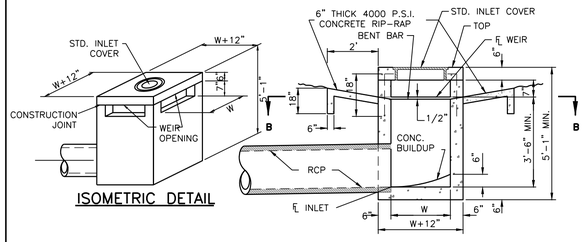
SECTION D–D

N.T.S.



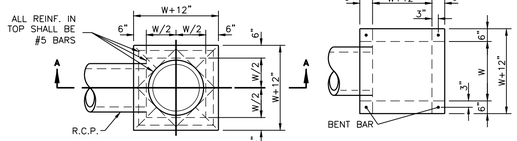
STANDARD CURB INLET W\36" LEAVEOUT

N.T.S.



ISOMETRIC DETAIL

SECTION A–A



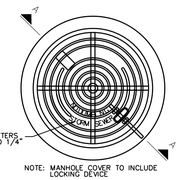
PLAN

SECTION B–B

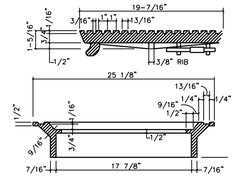
TYPE Y & SPECIAL TYPE Y INLET

N.T.S.

TYPE Y AND SPECIAL TYPE Y INLET NOTES:
1. SPECIAL TYPE Y INLET HAS WEIR OPENINGS REQUIRED ON TWO SIDES.
2. TYPE Y INLET HAS WEIR OPENINGS REQUIRED ON FOUR SIDES.
3. THE MINIMUM OPENINGS FOR TYPE Y AND SPECIAL TYPE Y INLETS IS W=3'
4. ALL REINFORCING SHALL BE w/ #4 BARS @ 12" CENTERS, EXCEPT IN TOP.



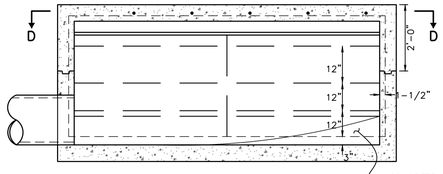
PLAN OF COVER



SECTION OF FRAME AND COVER SECTION A–A

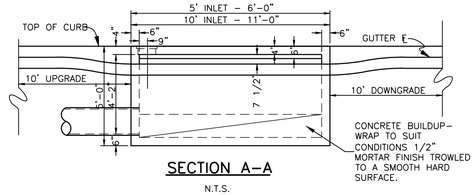
INLET FRAME AND COVER

BASS & HAYS COVER 55#, FRAME 45# OR APPROVED EQUAL



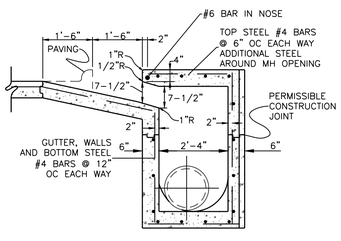
SECTION B–B

N.T.S.



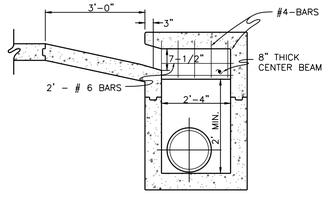
SECTION A–A

N.T.S.



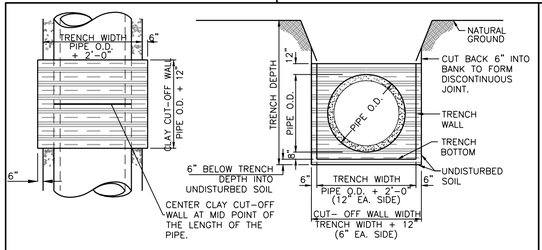
SECTION C–C

N.T.S.



SECTION E–E

N.T.S.



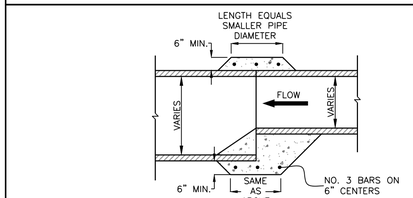
PLAN

TYP. SECTION

CLAY CUT–OFF WALL NOTES:
1. CLAY CUT–OFF WALLS SHALL BE CONSTRUCTED AT APPROXIMATELY 250 FOOT INTERVALS ALONG ALL STORM DRAIN CONDUITS HAVING CRUSHED STONE EMBEDMENT.
2. THE CLAY CUT–OFF WALL SHALL BE PLACED AT THE MID POINT OF THE LENGTH OF THE PIPE BEING PLACED.
3. MATERIAL FOR CLAY CUT–OFF WALL SHALL BE CLEAN MATERIAL WITH NO LUMPS LARGER THAN 3". CLAY SHALL HAVE P.I. OF 30 TO 40. MATERIAL SHALL BE PLACED IN 6" LIFTS, MOISTENED TO OPTIMUM MOISTURE CONTENT AND COMPACTED WITH HAND HELD MECHANICAL TAMPERS, WITHOUT DAMAGING THE PIPE.

CLAY CUT–OFF WALL

N.T.S.

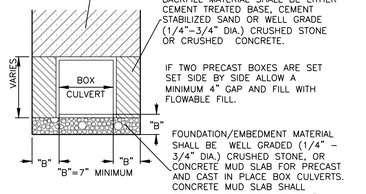


Notes:
1. THIS PROCEDURE/DETAIL WILL ONLY BE USED WHEN A PREFAB REDUCTION IS NOT POSSIBLE.
2. CONCRETE FOR COLLAR WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS OTHER BIDS.
3. CONCRETE SHALL BE 5–1/2 SACK 4000 psi.

CONCRETE COLLAR DETAIL

N.T.S.

MECHANICALLY TAMP NATIVE MATERIAL (6"ø CLODS OR SMALLER IN 6"–8" LIFTS) TO 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY THE STD. PROCTOR TEST, ASTM D698 WITH MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION TO BE NEAR OPTIMUM OR 4% ABOVE PROCTOR OPTIMUM VALUE.



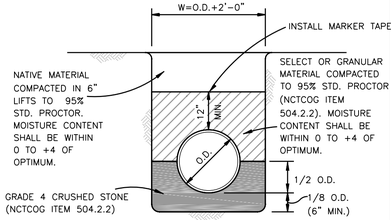
BACKFILL MATERIAL SHALL BE EITHER CEMENT TREATED BASE, CEMENT STABILIZED SAND OR WELL GRADE (1/4"–3/4" DIA.) CRUSHED STONE OR CRUSHED CONCRETE.

IF TWO PRECAST BOXES ARE SET SET SIDE BY SIDE ALLOW A MINIMUM 4" GAP AND FILL WITH FLOWABLE FILL.

FOUNDATION/EMBEDMENT MATERIAL SHALL BE WELL GRADED (1/4" – 3/4" DIA.) CRUSHED STONE, OR CONCRETE MUD SLAB FOR PRECAST AND CAST IN PLACE BOX CULVERTS. CONCRETE MUD SLAB SHALL CONFORM TO N.C.T.C.O.G.ITEM# 504.3.2

TYPICAL BOX CULVERT EMBEDMENT & BACKFILL

N.T.S.



PIPE EMBEDMENT DETAIL – CLASS B+ EMBEDMENT

N.T.S.

GENERAL:
(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005–5888. (817) 640–3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
(B) ALL TYPE "A" AND TYPE "B" HEADWALLS SHALL BE CONSTRUCTED AS PER TxDOT STANDARD DETAILS AND SPECIFICATIONS.

CULVERTS:
(A) CLOSED CONDUITS SHALL BE INSTALLED PER N.C.T.C.O.G. ITEM 508
(B) ONLY REINFORCED CONCRETE PIPE (RCP) OR REINFORCED CONCRETE BOX (RCB) IS APPROVED FOR USE, UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(C) CLASS IV RCP SHALL BE USED WHERE THE PIPE COVER IS GREATER THAN 1 FEET AND LESS THAN 2 FEET. CLASS III RCP SHALL BE USED WHERE THE PIPE COVER VARIES FROM 2 FEET TO 6 FEET. THE CLASS OF ALL OTHER RCP SHALL DETERMINED BY AN ENGINEER PER LOADS AND SUPPORTING STRENGTHS, AMERICAN CONCRETE PIPE ASSOCIATION.
(D) C–850 RCB SHALL BE USED WHERE THE COVER IS LESS THAN 3 FEET. C–789 SHALL BE USED WHERE THE COVER VARIES FROM 3 FEET TO 6 FEET. THE DESIGN OF ALL OTHER RCB SHALL BE DETERMINED BY AN ENGINEER.
(E) FOR PIPES, EMBEDMENT SHALL BE PER THE STREET BACKFILL & REPAIR DETAIL ON THIS SHEET. FOR BOX CULVERTS, EMBEDMENT SHALL BE PER THE BOX CULVERT EMBEDMENT DETAIL ON THIS SHEET. NOTE THAT FLOWABLE BACKFILL IS ONLY REQUIRED BELOW AREAS TO BE PAVED.
(F) THE CONTRACTOR SHALL SEAL ALL JOINTS ON CLOSED CONDUITS WITH OMNI–FLEX JOINT SEALS, OR EQUAL; UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(G) THE MINIMUM SIZE FOR LATERALS IS 18 INCHES IN DIAMETER. THE MINIMUM SIZE FOR MAINS IS 24 INCHES IN DIAMETER.
(H) DRIVEWAY CULVERTS SHALL BE 18 INCH DIAMETER RCP OR LARGER AND SHALL HAVE 4 TO 1 SLOPED PRECAST CONCRETE END SECTIONS OR APPROVED EQUAL.
(I) STORM DRAIN PIPES AND CULVERTS WITH SLOPES EXCEEDING 10% SHALL BE BACKFILLED WITH FLOWABLE FILL MATERIAL BETWEEN SPRING LINE AND 6" (INCHES) ABOVE THE STORM DRAIN PIPE.

FITTINGS COLLARS AND CONNECTIONS:
(A) THE CONTRACTOR SHALL USE ONLY PRE–FABRICATED FITTINGS ON NEW CONSTRUCTION PROJECTS. FIELD CONNECTIONS SHALL BE MADE ONLY TO EXISTING PIPE WITH CITY APPROVAL. THE CONNECTION SHALL BE A SMOOTH CONNECTION AND CONCRETE WRAPPED ON THE OUTSIDE AND INSIDE.
(B) CONCRETE COLLARS SHALL BE CONSTRUCTED PER THE DETAILS ON THIS SHEET AT ALL STORM DRAIN SIZE, GRADE CHANGES, AT PROPOSED–EXISTING PIPE CONNECTIONS AND IN CURVES WHERE THE JOINT IS BEING PULLED MORE THAN RECOMMENDED BY THE MANUFACTURER. PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 508.3.4.1.

INLETS:
(A) ALL INLETS SHALL BE POURED IN PLACE OR PRECAST. INLETS SHALL HAVE SHOP DRAWINGS PRE–APPROVED BY THE CITY ENGINEER.
(B) INLETS SHALL NOT BE USED AS JUNCTION BOXES OR PLACED ON A MAIN, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
(C) THE MINIMUM OPENING FOR A CURB INLET SHALL BE 5 FEET. CURB INLETS SHALL BE CONSTRUCTED IN 5 FOOT INCREMENTS. ALL CURB INLETS WITH 15 FEET WIDE OR LARGER OPENINGS SHALL HAVE A CENTER SUPPORT. ALL CURB INLETS GREATER THAN 7 FEET DEEP HALL BE DESIGNED AND SEALED BY AN ENGINEER.
(D) INLETS SHALL BE STAGED IN 2 POURS:
FIRST POUR: INLET BOTTOM AND WALLS
SECOND POUR: INLET TOP AND WINGS MONOLITHIC
(E) CURB INLET BOTTOMS SHALL BE POURED PRIOR TO ANY PAVING.
(F) CURB INLETS SHALL HAVE 10 LINEAR FEET OF VARIABLE HEIGHT CURB ON BOTH SIDES OF THE INLET OPENING.
(G) FRAME AND COVER ON CURB INLETS TO BE LOCATED DIRECTLY OVER THE OUTLET PIPE.
(H) OPENINGS FOR TYPE Y AND SPECIAL TYPE Y INLETS SHALL BE A MINIMUM OF 3 FT. ALL TYPE Y AND SPECIAL TYPE Y INLETS GREATER THAN 7 FEET DEEP SHALL BE DESIGNED AND SEALED BY AN ENGINEER.
(I) ALL CURB INLETS SHALL BE RECESSED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

CONCRETE:
(A) CURB INLETS SHALL BE MADE WITH A MINIMUM OF 6 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. ALL OTHER CONCRETE SHALL BE MADE WITH A MINIMUM OF 5 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
(B) ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET–STEEL PER ASTM DESIGNATION –615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP–88 ND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.
(C) THE CONTRACTOR SHALL USE A LIQUID MEMBRANE–FORMING CURING COMPOUND PER OG ITEM ITEM 303.2.13.1.1.
(D) GROUT SHALL BE MIN. 5–SACK 2000 PSI CONCRETE.

TESTING:
A) CONTRACTOR RESPONSIBLE FOR THE FOLLOWING:
1. T.V. INSPECTION SHALL BE AS PER THE N.C.T.C.O.G. ITEM 507.5.2. METHOD AND BE COMPLETED PRIOR TO PLACING PAVEMENT.
2. ALL T.V. INSPECTIONS OF EXISTING OR PROPOSED PIPES SHALL BE PROVIDED ON DVD.
B) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN–01 – GN 04. FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
C) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS IN CITY R.O.W. OR EASEMENT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

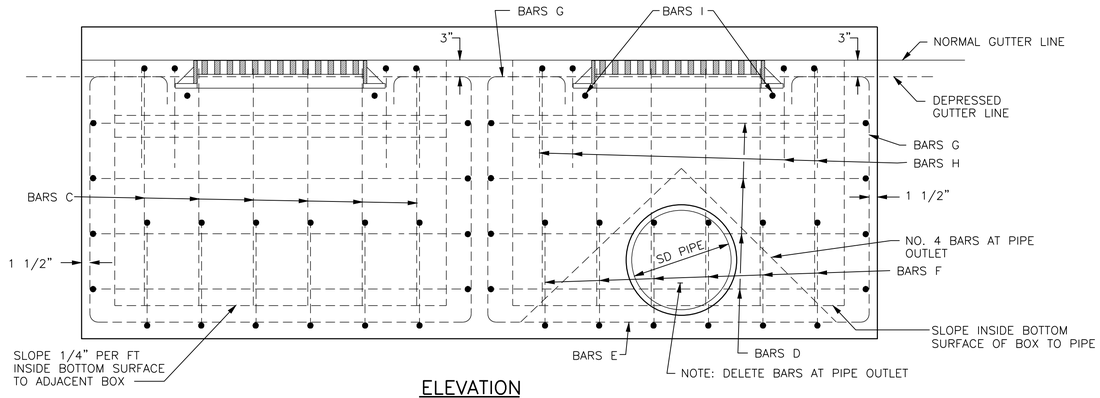
MATERIAL:
ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

PRIVATE DEVELOPMENT PROJECTS:
A. THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.
B. WELD CHAINS ON COVER OR TACK WELD

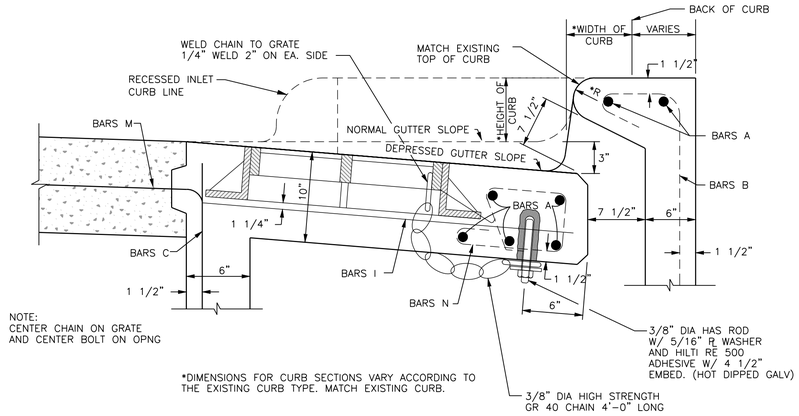
CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

STORM DRAIN AND INLET STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM–03	21 OF 53



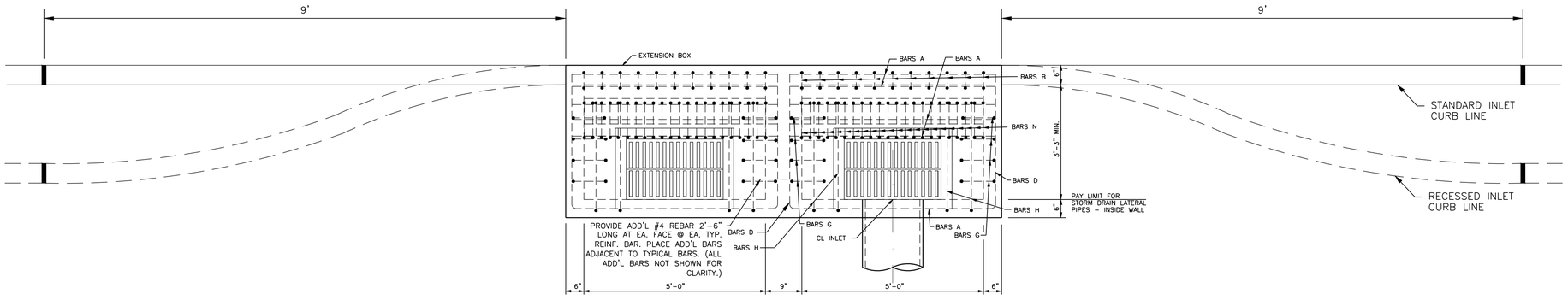
ELEVATION
NOT TO SCALE



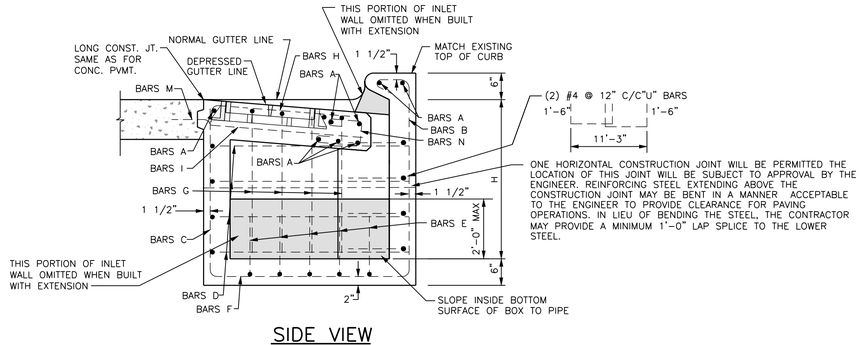
NOTE:
CENTER CHAIN ON GRATE AND CENTER BOLT ON OPNG

*DIMENSIONS FOR CURB SECTIONS VARY ACCORDING TO THE EXISTING CURB TYPE. MATCH EXISTING CURB.

TOP OF INLET DETAIL
NOT TO SCALE

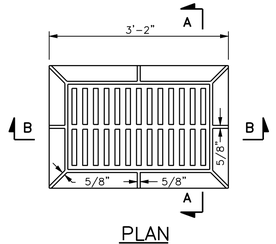


PLAN
NOT TO SCALE



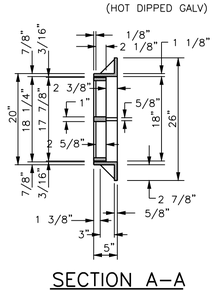
ONE HORIZONTAL CONSTRUCTION JOINT WILL BE PERMITTED THE LOCATION OF THIS JOINT WILL BE SUBJECT TO APPROVAL BY THE ENGINEER. REINFORCING STEEL EXTENDING ABOVE THE CONSTRUCTION JOINT MAY BE BENT IN A MANNER ACCEPTABLE TO THE ENGINEER TO PROVIDE CLEARANCE FOR PAVING OPERATIONS. IN LIEU OF BENDING THE STEEL, THE CONTRACTOR MAY PROVIDE A MINIMUM 1'-0" LAP SPLICE TO THE LOWER STEEL.

SIDE VIEW
NOT TO SCALE

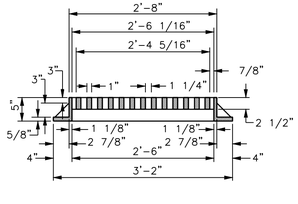


PLAN

NOTE:
FRAME AND GRATE TO BE OF GRAY CAST IRON CONFORMING TO A.S.T.M. SPEC. A-48 FOR CLASS NO. 30 CAST IRON.



SECTION A–A



SECTION B–B

FRAME AND GRATE
NOT TO SCALE

GENERAL:
(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888, (817) 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM

CLOSED CONDUITS:
(A) CLOSED CONDUITS SHALL BE INSTALLED PER N.C.T.C.O.G. ITEM 508
(B) ONLY REINFORCED CONCRETE PIPE (RCP) OR REINFORCED CONCRETE BOX (RCB) IS APPROVED FOR USE, UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(C) CLASS IV RCP SHALL BE USED WHERE THE PIPE COVER IS GREATER THAN 1 FEET AND LESS THAN 2 FEET. CLASS III RCP SHALL BE USED WHERE THE PIPE COVER VARIES FROM 2 FEET TO 6 FEET. THE CLASS OF ALL OTHER RCP SHALL DETERMINED BY AN ENGINEER PER LOADS AND SUPPORTING STRENGTHS, AMERICAN CONCRETE PIPE ASSOCIATION.
(D) REINFORCED CONCRETE BOX CULVERTS (RCB) SHALL BE ASTM C-1433. THE DESIGN OF ALL OTHER RCB SHALL BE DETERMINED BY AN ENGINEER.
(E) FOR PIPES, EMBEDMENT SHALL BE PER THE STREET BACKFILL & REPAIR DETAIL ON STORM DRAIN & INLET STANDARD DETAIL SHEET. FOR BOX CULVERTS, EMBEDMENT SHALL BE PER THE BOX CULVERT EMBEDMENT DETAIL ON STORM DRAIN & INLET STANDARD DETAIL SHEET. NOTE THAT FLOWABLE BACKFILL IS ONLY REQUIRED BELOW AREAS TO BE PAVED.
(F) THE CONTRACTOR SHALL SEAL ALL JOINTS ON CLOSED CONDUITS WITH OMNI-FLEX JOINT SEALS, OR EQUAL; UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(G) THE MINIMUM SIZE FOR LATERALS IS 18 INCHES IN DIAMETER. THE MINIMUM SIZE FOR MAINS IS 24 INCHES IN DIAMETER.

FITTINGS COLLARS AND CONNECTIONS:
(A) THE CONTRACTOR SHALL USE ONLY PRE-FABRICATED FITTINGS ON NEW CONSTRUCTION PROJECTS. FIELD CONNECTIONS SHALL BE MADE ONLY TO EXISTING PIPE WITH CITY APPROVAL. THE CONNECTION SHALL BE A SMOOTH CONNECTION AND CONCRETE WRAPPED ON THE OUTSIDE AND INSIDE.
(B) CONCRETE COLLARS SHALL BE CONSTRUCTED PER THE CONCRETE COLLAR DETAIL ON THE STORM DRAIN AND INLET STANDARD SHEET AT ALL STORM DRAIN SIZE AND AT GRADE CHANGES OR IN CURVES WHERE THE JOINT IS BEING PULLED MORE THAN RECOMMENDED BY THE MANUFACTURER. PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 508.3.4.1.

INLETS:
(A) ALL INLETS SHALL BE POURED IN PLACE OR PRECAST. PRECAST INLETS, JUNCTION BOXES, MANHOLES, AND HEADWALLS SHALL HAVE SHOP DRAWINGS PRE-APPROVED BY THE CITY ENGINEER.
(B) INLETS SHALL NOT BE USED AS JUNCTION BOXES OR PLACED ON A MAIN, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
(C) THE MINIMUM OPENING FOR A CURB INLET SHALL BE 5 FEET. CURB INLETS SHALL BE CONSTRUCTED IN 5 FOOT INCREMENTS. ALL CURB INLETS WITH 15 FEET WIDE OR LARGER OPENINGS SHALL HAVE A CENTER SUPPORT. ALL CURB INLETS GREATER THAN 7 FEET DEEP SHALL BE DESIGNED AND SEALED BY AN ENGINEER.
(D) BOTTOMS, TOPS, AND VARIABLE HEIGHT CURB TO BE SEPARATE POURS (3 POURS) FOR CURB INLETS.
(E) CURB INLET BOTTOMS SHALL BE POURED PRIOR TO ANY PAVING. (F) CURB INLETS SHALL HAVE 10 LINEAR FEET OF VARIABLE HEIGHT CURB ON BOTH SIDES OF THE INLET OPENING.
(G) FRAME AND COVER ON CURB INLETS TO BE LOCATED DIRECTLY OVER THE OUTLET PIPE.

CONCRETE:
(A) CONCRETE SHALL BE MADE WITH A MINIMUM OF 6 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS.
(B) ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET-STEEL PER ASTM DESIGNATION A-615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP-88 AND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.
(C) THE CONTRACTOR SHALL USE A LIQUID MEMBRANE-FORMING CURING COMPOUND PER N.C.T.C.O.G. ITEM ITEM 303.2.13.1.1.

TESTING:
1.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:
(A) ALL CLOSED CONDUITS SHALL BE T.V. INSPECTED PER N.C.T.C.O.G. ITEM 507.5.2 METHOD AND BE COMPLETED PRIOR TO PLACING PAVEMENT.
(B) ALL UTILITY DITCH LINES WITHIN CITY R.O.W. OR EASEMENT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY PER 6"-8" LIFTS (NOT TO EXCEED 12") AT STAGGERED 100' INTERVALS. ALL LATERALS OR SERVICES SHALL HAVE A MINIMUM OF ONE DENSITY TEST PER FOOT OF LIFT. THE INSPECTOR SHALL HAVE THE RIGHT TO REQUEST ADDITIONAL RANDOM TESTS AS HE/SHE DEEMS NECESSARY.
2.) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
3.) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

MATERIAL: ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

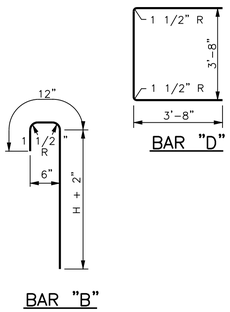
PRIVATE DEVELOPMENT PROJECTS: THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

MODIFIED COMBINATION CURB INLET STANDARD DETAILS

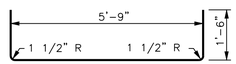
1 OF 2

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM-04	22 OF 53

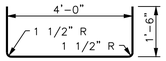


BAR "B"

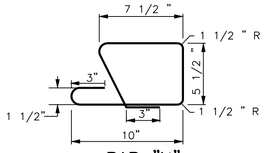
BAR "D"



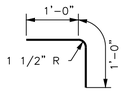
BAR "E"



BAR "F"



BAR "N"



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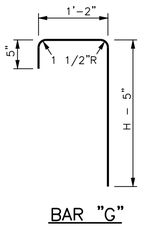

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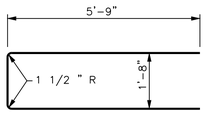

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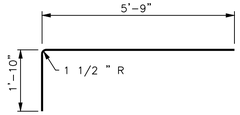
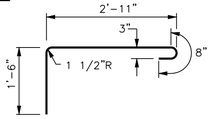


BAR "K"

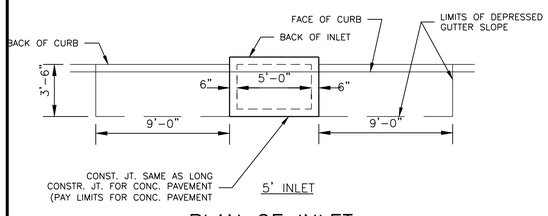


BAR "H"

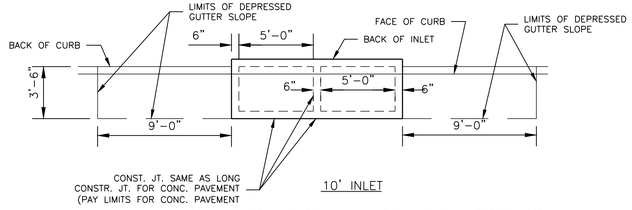
GENERAL NOTES:

1. ALL CONCRETE SHALL BE 4000 PSI
2. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
3. INLET STEPS SPACED 14" c.c. AND LOCATED AS DIRECTED BY THE ENGINEER, SHALL BE PROVIDED AND INSTALLED IN ALL INLETS WHERE THE DEPTH EXCEEDS 5'-0".
4. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO THE CENTER OF THE BARS.
5. TOTAL QUANTITIES SHOWN FOR CONCRETE AND REINFORCING STEEL ARE APPROXIMATE AND ARE PLACED HEREON FOR INFORMATIONAL PURPOSES ONLY.
6. BAR DETAILS SHALL BE ADJUSTED AS NECESSARY TO ACCOMMODATE A HORIZONTAL CONSTRUCTION JOINT IF USED REINFORCING STEEL QUANTITIES SHOWN DO NOT INCLUDE LAP STEEL REQUIRED FOR CONSTRUCTION JOINTS.

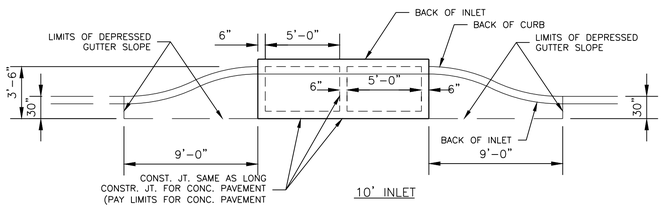
REINFORCING STEEL AND CONCRETE FOR 5' INLET



PLAN OF INLET



PLAN OF INLET AND EXTENSIONS



PLAN OF RECESSED INLET AND EXTENSIONS

INLET SIZE		STEEL																													
HEIGHT FT.	WIDTH FT.	BAR 'A'						BAR 'B'						BAR 'C'						BAR 'D'						BAR 'E'					
		No.	SIZE	Ty	SPACING	LENGTH	Wt.	No.	SIZE	Ty	SPACING	LENGTH	Wt.	No.	SIZE	Ty	SPACING	LENGTH	Wt.	No.	SIZE	Ty	SPACING	LENGTH	Wt.	No.	SIZE	Ty	SPACING	LENGTH	Wt.
2.5	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	3'-8"	27	6	4	ST	10" cc	2'-4"	9	2	4	ST	12" cc	11'-0"	28	5	4	ST	7" cc	8'-9"	29
3.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	4'-2"	31	6	4	ST	10" cc	3'-0"	11	4	4	ST	12" cc	11'-0"	42	5	4	ST	7" cc	8'-9"	29
3.5	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	4'-8"	34	6	4	ST	10" cc	3'-4"	13	6	4	ST	12" cc	11'-0"	42	5	4	ST	7" cc	8'-9"	29
4.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	5'-2"	38	6	4	ST	10" cc	3'-10"	15	8	4	ST	12" cc	11'-0"	56	5	4	ST	7" cc	8'-9"	29
4.5	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	5'-8"	42	6	4	ST	10" cc	4'-4"	17	8	4	ST	12" cc	11'-0"	56	5	4	ST	7" cc	8'-9"	29
5.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	6'-2"	45	6	4	ST	10" cc	4'-10"	19	10	4	ST	12" cc	11'-0"	70	5	4	ST	7" cc	8'-9"	29
5.5	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	6'-8"	49	6	4	ST	10" cc	5'-4"	21	10	4	ST	12" cc	11'-0"	70	5	4	ST	7" cc	8'-9"	29
6.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	7'-2"	53	6	4	ST	10" cc	5'-10"	23	12	4	ST	12" cc	11'-0"	84	5	4	ST	7" cc	8'-9"	29
7.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	8'-2"	60	6	4	ST	10" cc	6'-10"	27	14	4	ST	12" cc	11'-0"	99	5	4	ST	7" cc	8'-9"	29
8.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	9'-2"	67	6	4	ST	10" cc	7'-10"	31	16	4	ST	12" cc	11'-0"	112	5	4	ST	7" cc	8'-9"	29
9.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	10'-2"	75	6	4	ST	10" cc	8'-10"	35	18	4	ST	12" cc	11'-0"	120	5	4	ST	7" cc	8'-9"	29
10.0	3.0	8	6	ST	AS SHOWN	5'-9"	69	11	4	ST	6" cc	11'-2"	82	6	4	ST	10" cc	9'-10"	39	20	4	ST	12" cc	11'-0"	140	5	4	ST	7" cc	8'-9"	29

INLET SIZE		STEEL																						TOTALS	
HEIGHT FT.	WIDTH FT.	BAR 'H'						BAR 'I'						BAR 'M'						BAR 'N'					
		No.	SIZE	Ty	SPACING	LENGTH	Wt.	No.	SIZE	Ty	SPACING	LENGTH	Wt.	No.	SIZE	Ty	SPACING	LENGTH	Wt.	No.	SIZE	Ty	SPACING	LENGTH	Wt.	STEEL Lbs.	CONC. CY
2.5	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
3.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
3.5	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
4.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
4.5	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
5.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
5.5	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
6.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
7.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
8.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
9.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163
10.0	3.0	4	4	ST	AS SHOWN	5'-9"	13	2	4	ST	AS SHOWN	2'-9"	4	7	4	ST	24" cc	2'-0"	9	21	4	ST	3" cc	2'-7"	36	271	163

REINFORCING STEEL AND CONCRETE FOR 5' INLET TABLE

BAR	No.	SIZE	Ty	SPACING	LENGTH	Wt.
A	6	6	ST	AS SHOWN	5'-9"	23
J	1	4	ST	AS SHOWN	13'-2"	9
K	1	4	ST	AS SHOWN	7'-7"	5
L	10	4	ST	6" cc	7'-3" TO 7'-9"	50
M	4	4	ST	24" cc	2'-0"	5

REINFORCING STEEL AND CONCRETE FOR ONE 5' EXT. TABLE

PIPE DIA.	CONC. CY
15"	0.04
18"	0.05
21"	0.07
24"	0.09
27"	0.11
30"	0.14
36"	0.20

CONCRETE TO BE DEDUCTED FOR PIPES (ONE PIPE)

GENERAL:
(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888, (817) 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM

CLOSED CONDUITS:
(A) CLOSED CONDUITS SHALL BE INSTALLED PER N.C.T.C.O.G. ITEM 508
(B) ONLY REINFORCED CONCRETE PIPE (RCP) OR REINFORCED CONCRETE BOX (RCB) IS APPROVED FOR USE, UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(C) CLASS IV RCP SHALL BE USED WHERE THE PIPE COVER IS GREATER THAN 1 FEET AND LESS THAN 2 FEET. CLASS III RCP SHALL BE USED WHERE THE PIPE COVER VARIES FROM 2 FEET TO 6 FEET. THE CLASS OF ALL OTHER RCP SHALL DETERMINED BY AN ENGINEER PER LOADS AND SUPPORTING STRENGTHS, AMERICAN CONCRETE PIPE ASSOCIATION.
(D) REINFORCED CONCRETE BOX CULVERTS (RCB) SHALL BE ASTM C-1433. THE DESIGN OF ALL OTHER RCB SHALL BE DETERMINED BY AN ENGINEER.
(E) FOR PIPES, EMBEDMENT SHALL BE PER THE STREET BACKFILL & REPAIR DETAIL ON STORM DRAIN & INLET STANDARD DETAIL SHEET. FOR BOX CULVERTS, EMBEDMENT SHALL BE PER THE BOX CULVERT EMBEDMENT DETAIL ON STORM DRAIN & INLET STANDARD DETAIL SHEET. NOTE THAT FLOWABLE BACKFILL IS ONLY REQUIRED BELOW AREAS TO BE PAVED.
(F) THE CONTRACTOR SHALL SEAL ALL JOINTS ON CLOSED CONDUITS WITH OMNI-FLEX JOINT SEALS, OR EQUAL; UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(G) THE MINIMUM SIZE FOR LATERALS IS 18 INCHES IN DIAMETER. THE MINIMUM SIZE FOR MAINS IS 24 INCHES IN DIAMETER.

FITTINGS COLLARS AND CONNECTIONS:
(A) THE CONTRACTOR SHALL USE ONLY PRE-FABRICATED FITTINGS ON NEW CONSTRUCTION PROJECTS. FIELD CONNECTIONS SHALL BE MADE ONLY TO EXISTING PIPE WITH CITY APPROVAL. THE CONNECTION SHALL BE A SMOOTH CONNECTION AND CONCRETE WRAPPED ON THE OUTSIDE AND INSIDE.
(B) CONCRETE COLLARS SHALL BE CONSTRUCTED PER THE CONCRETE COLLAR DETAIL ON THE STORM DRAIN AND INLET STANDARD SHEET AT ALL STORM DRAIN SIZE AND AT GRADE CHANGES OR IN CURVES WHERE THE JOINT IS BEING PULLED MORE THAN RECOMMENDED BY THE MANUFACTURER. PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 508.3.4.1.

INLETS:
(A) ALL INLETS SHALL BE POURED IN PLACE. PRECAST INLETS, JUNCTION BOXES, MANHOLES, AND HEADWALLS SHALL HAVE SHOP DRAWINGS PRE-APPROVED BY THE CITY ENGINEER.
(B) INLETS SHALL NOT BE USED AS JUNCTION BOXES OR PLACED ON A MAIN, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
(C) THE MINIMUM OPENING FOR A CURB INLET SHALL BE 5 FEET. CURB INLETS SHALL BE CONSTRUCTED IN 5 FOOT INCREMENTS. ALL CURB INLETS WITH 15 FEET WIDE OR LARGER OPENINGS SHALL HAVE A CENTER SUPPORT. ALL CURB INLETS GREATER THAN 7 FEET DEEP SHALL BE DESIGNED AND SEALED BY AN ENGINEER.
(D) BOTTOMS, TOPS, AND VARIABLE HEIGHT CURB TO BE SEPARATE POURS (3 POURS) FOR CURB INLETS.
(E) CURB INLET BOTTOMS SHALL BE POURED PRIOR TO ANY PAVING. (F) CURB INLETS SHALL HAVE 10 LINEAR FEET OF VARIABLE HEIGHT CURB ON BOTH SIDES OF THE INLET OPENING.
(G) FRAME AND COVER ON CURB INLETS TO BE LOCATED DIRECTLY OVER THE OUTLET PIPE.

CONCRETE:
(A) CONCRETE SHALL BE MADE WITH A MINIMUM OF 6 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS.
(B) ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET-STEEL PER ASTM DESIGNATION A-615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP-88 AND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.
(C) THE CONTRACTOR SHALL USE A LIQUID MEMBRANE-FORMING CURING COMPOUND PER N.C.T.C.O.G. ITEM ITEM 303.2.13.1.1.

TESTING:
1.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:
(A) ALL CLOSED CONDUITS SHALL BE T.V. INSPECTED PER N.C.T.C.O.G. ITEM 507.5.2 METHOD AND BE COMPLETED PRIOR TO PLACING PAVEMENT.
(B) ALL UTILITY DITCH LINES WITHIN CITY R.O.W. OR EASEMENT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY PER 6"-8" LIFTS (NOT TO EXCEED 12") AT STAGGERED 100' INTERVALS. ALL LATERALS OR SERVICES SHALL HAVE A MINIMUM OF ONE DENSITY TEST PER FOOT OF LIFT. THE INSPECTOR SHALL HAVE THE RIGHT TO REQUEST ADDITIONAL RANDOM TESTS AS HE/SHE DEEMS NECESSARY.
2.) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
3.) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

MATERIAL: ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

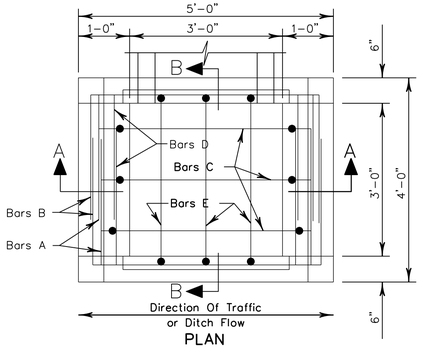
PRIVATE DEVELOPMENT PROJECTS: THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

MODIFIED COMBINATION CURB INLET STANDARD DETAILS

2 OF 2

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM-05	23 OF 53

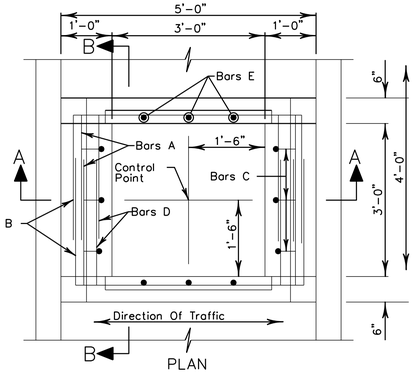


PLAN

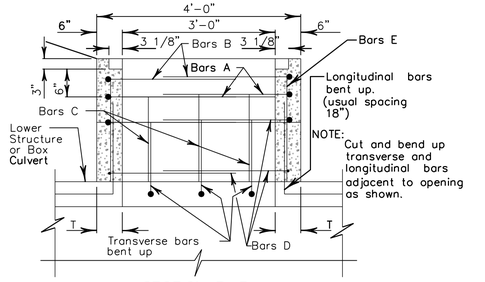
TABLE OF QUANTITIES–TYPE 1 INLET																
Bar	Size	Spacing	D=3'–0"			D=10'–0"			D=20'–0"			D=30'–0"		
			No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight
A	4	–	2	8'–4"	11	2	8'–4"	11	2	8'–4"	11	2	8'–4"	11
B	4	–	2	9'–0"	12	2	9'–0"	12	2	9'–0"	12	2	9'–0"	12
C1	4	12"	3	9'–8"	19	3	23'–8"	47	–	–	–	–	–	–
C2	4	12"	–	–	–	–	–	–	6	22'–6"	90	6	32'–6"	130
D1	4	12"	4	7'–10"	21	18	7'–10"	94	28	7'–10"	146	28	7'–10"	146
D2	4	9"	–	–	–	–	–	–	14	8'–6"	79	40	8'–6"	227
E1	4	12"	3	9'–4"	19	3	23'–4"	47	–	–	–	–	–	–
E2	4	12"	–	–	–	–	–	–	6	22'–4"	89	6	32'–4"	130
Steps	6	12"	1	2'–10"	4	8	2'–10"	34	18	2'–10"	77	28	2'–10"	119
Total Steel – Lbs.					86			245			505			775
Class "A" Concrete – Cu.Yds.					1.223			3.036			6.210			9.830

D=3' to D=15' → Steel 86.35 Lb + 22.73 Lb/LF; Conc. 1.223 CY + 0.259 CY/LF

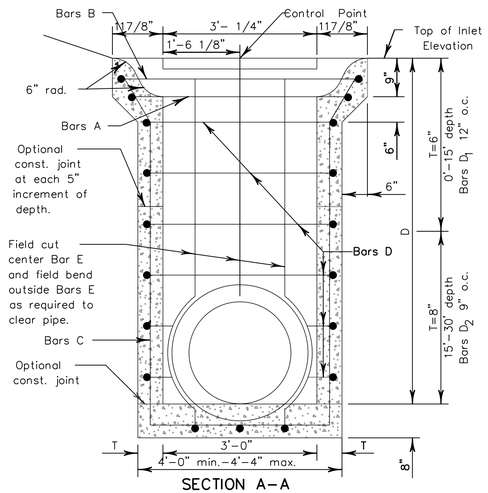
D>15' → Steel 364.49 Lb + 27.03 Lb/LF; Conc. 4.400CY + 0.362 CY/LF

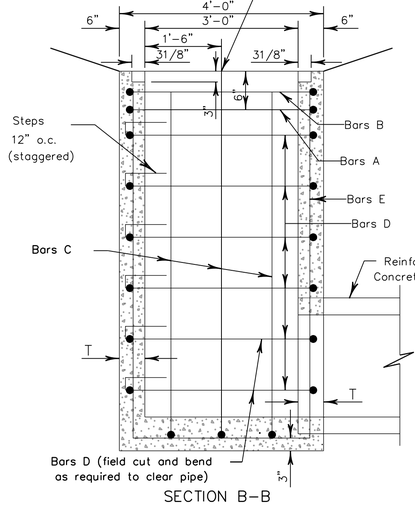


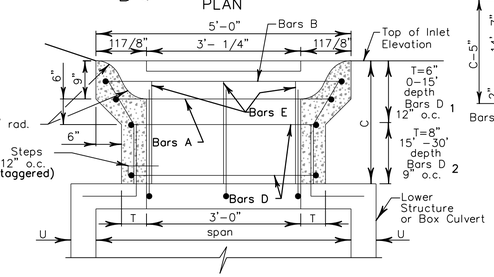
PLAN



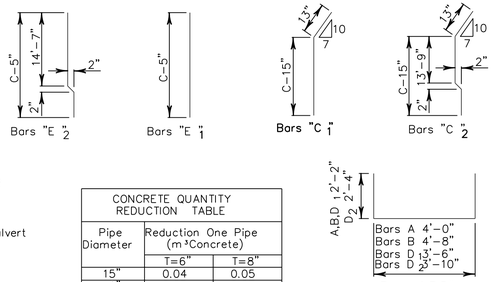
SECTION B–B







SECTION A–A



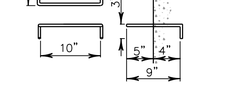
CONCRETE QUANTITY REDUCTION TABLE		
Pipe Diameter	Reduction One Pipe (m³Concrete)	
	T=6"	T=8"
15"	0.04	0.05
18"	0.05	0.07
21"	0.08	0.10
24"	0.09	0.12
27"	0.11	0.15
30"	0.14	0.18
33"	0.17	0.22
36"	0.20	0.26

TYPE 1–C

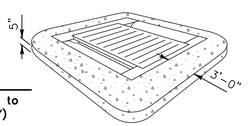
TABLE OF QUANTITIES–TYPE 1–C INLET																
Bar	Size	Spacing	C–1'–3"			C–10'–0"			C–20'–0"			C–30'–0"		
			No.	Length	Wt.	No.	Length	Wt.	No.	Length	Wt.	No.	Length	Wt.
A	4	–	2	8'–4"	11	2	8'–4"	11	2	8'–4"	11	2	8'–4"	11
B	4	–	2	9'–0"	12	2	9'–0"	12	2	9'–0"	12	2	9'–0"	12
C1	4	12"	–	–	–	6	9'–10"	39	–	–	–	–	–	–
C2	4	12"	–	–	–	–	–	–	6	19'–11"	80	6	29'–11"	120
D1	4	12"	–	–	–	18	7'–10"	94	28	7'–10"	146	28	7'–10"	146
D2	4	9"	–	–	–	–	–	–	14	8'–6"	80	40	8'–6"	227
E1	4	12"	–	–	–	6	9'–7"	38	–	–	–	–	–	–
E2	4	12"	–	–	–	–	–	–	6	19'–8"	79	6	29'–8"	119
Steps	6	12"	–	–	–	8	2'–10"	34	18	2'–10"	77	28	2'–10"	119
Total Steel (Lbs)					23			228			485			754
Class "A" Conc.–Cu. Yds.					0.375			2.641			5.746			9.366

C=1'–3" to C=15' → Steel 30.84 Lb + 22.73 Lb/LF; Conc. 0.375 CY + 0.259 CY/LF

C >15' → Steel 343.38 Lb+27.03 Lb/LF; Conc.3.936 CY + 0.362 CY/LF

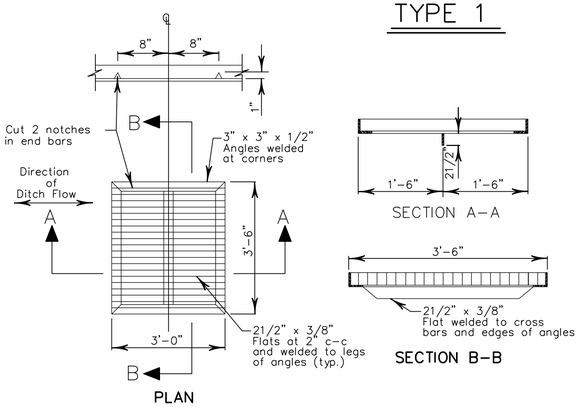


STEP DETAIL



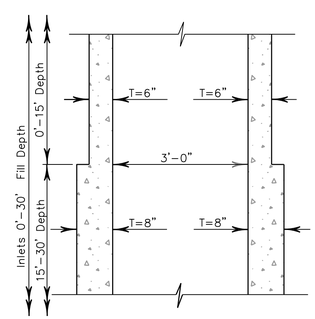
RIPRAP DETAIL

Riprap to be placed at each inlet to conform to adjacent slopes (1 CY)



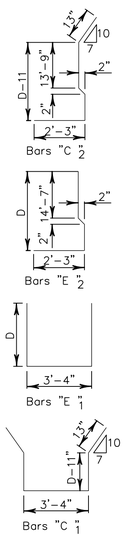
GRATE DETAIL

TYPE 1



TYPICAL SECTION

Showing transition section from wall thickness of 6" to 8" Type "E" and Type "F" inlets



GENERAL:

(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888. (817) 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM

(B) GRATE SHALL CONFORM TO TXDOT STANDARD SPECIFICATION FOR CONSTRUCTION ITEM 471.

(C) LOCATION OF INLET AS SHOWN IN THE PLANS REFERS TO CONTROL POINT SHOWN ON THIS SHEET. INLET SHALL BE ALIGNED SO THAT GRATE VANES ARE PARALLEL TO DITCH FLOW. FOR TYPE 1–C STRUCTURES NOT ON CULVERTS, LOWER STRUCTURE MAY BE POSITIONED AS REQUIRED TO ALIGN WITH TOP STRUCTURE, STORM DRAIN PIPES, OR OTHER ADJACENT STRUCTURES.

(D) WHEN USED WITH JUNCTION BOX, MEASURE AND PAY FOR DROP INLET AND JUNCTION BOX SEPARATELY.

FITTINGS COLLARS AND CONNECTIONS:

(A) THE CONTRACTOR SHALL USE ONLY PRE–FABRICATED FITTINGS ON NEW CONSTRUCTION PROJECTS. FIELD CONNECTIONS SHALL BE MADE ONLY TO EXISTING PIPE WITH CITY APPROVAL. THE CONNECTION SHALL BE A SMOOTH CONNECTION AND CONCRETE WRAPPED ON THE OUTSIDE AND INSIDE.

(B) CONCRETE COLLARS SHALL BE CONSTRUCTED PER THE DETAILS ON THIS SHEET AT ALL STORM DRAIN SIZE, GRADE CHANGES, AT PROPOSED–EXISTING PIPE CONNECTIONS AND IN CURVES WHERE THE JOINT IS BEING PULLED MORE THAN RECOMMENDED BY THE MANUFACTURER. PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 508.3.4.1.

GRATE INLETS:

(A) ALL INLETS SHALL BE POURED IN PLACE OR PRECAST. PRECAST INLETS, JUNCTION BOXES, MANHOLES, AND HEADWALLS SHALL HAVE SHOP DRAWINGS PRE–APPROVED BY THE CITY ENGINEER.

(B) INLETS SHALL NOT BE USED AS JUNCTION BOXES OR PLACED ON A MAIN, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

(C) INLETS SHALL BE STAGED IN 2 POURS:
FIRST POUR: INLET BOTTOM AND WALLS
SECOND POUR: INLET TOP

CONCRETE

(A) GRATE INLETS SHALL COMPLY WITH THE FOLLOWING.
1. STANDARD SPECIFICATION ITEM 702 CONCRETE STRUCTURES CLASS H STRUCTURAL CONCRETE
2. SHALL BE MADE WITH A MINIMUM OF 6 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS.
3. ALL OTHER CONCRETE SHALL BE MADE WITH A MINIMUM OF 5 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.

(A) ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET–STEEL PER ASTM DESIGNATION –615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP–88 ND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.

(B) THE CONTRACTOR SHALL USE A LIQUID MEMBRANE–FORMING CURING COMPOUND PER OG ITEM 303.2.13.1.1. GROUT SHALL BE MIN. 5–SACK 2000 PSI CONCRETE.

TESTING:

(A) CONTRACTOR RESPONSIBLE FOR THE FOLLOWING:
1. T.V. INSPECTION SHALL BE AS PER THE N.C.T.C.O.G. ITEM 507.5.2. METHOD AND BE COMPLETED PRIOR TO PLACING PAVEMENT.
2. ALL T.V. INSPECTIONS OF EXISTING OR PROPOSED PIPES SHALL BE PROVIDED ON DVD.

(A) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN–01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.

(B) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS IN CITY R.O.W. OR EASEMENT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

MATERIAL:

ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

PRIVATE DEVELOPMENT PROJECTS:

(A) THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

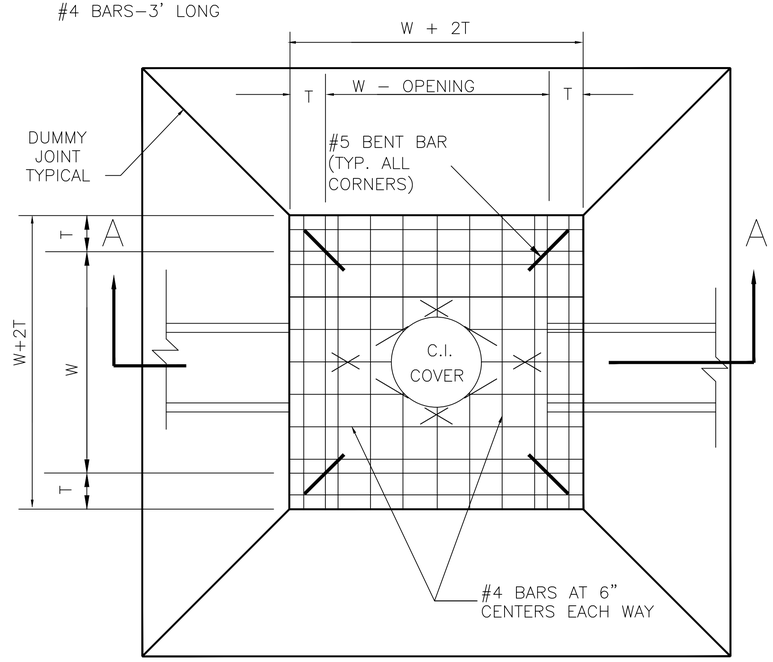
(B) WELD CHAINS ON GRATE OR TACK WELD

CERTIFICATION:

THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

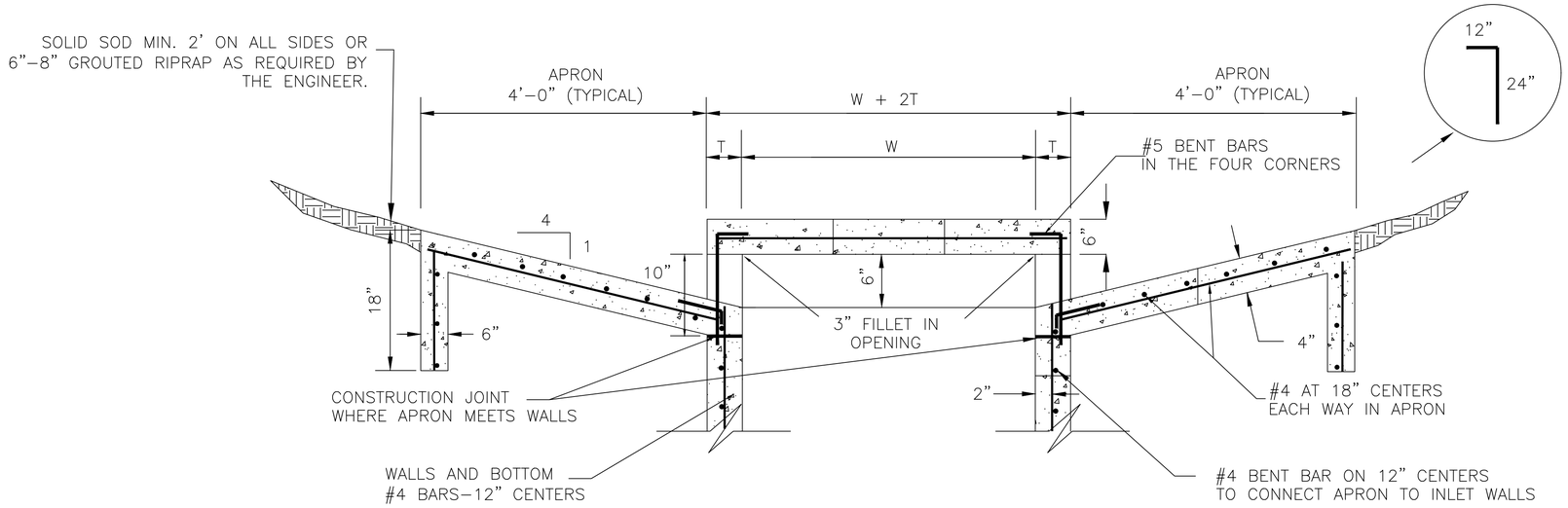
GRATE DROP INLET
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM–06	24 OF 53



PLAN OF TOP SLAB

N.T.S.



INLET SIZE	T	W
4' SQUARE	7"	4'–0"
5' SQUARE	8"	5'–0"
6' SQUARE	9"	6'–0"

SECTION "A"

N.T.S.

DROP INLET

N.T.S.

INLET FRAME & COVER NOTES:

1. THE STD. INLET COVER SHALL BE BASS & HAYES FRAME & COVER PATTERN No. 226 OR APPROVED EQUAL.
2. APPROXIMATE WEIGHT OF FRAME=75 lbs. AND COVER=155 lbs.
3. TACK WELD COVER IN 4 SPOTS AFTER FINAL INSPECTION

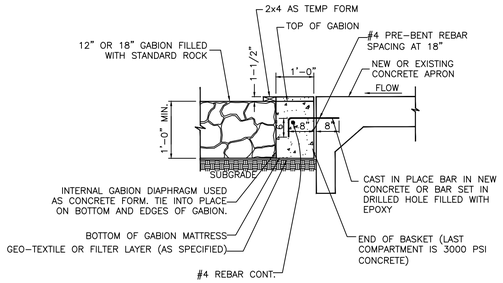
GENERAL NOTES:
REINFORCING STEEL SHALL BE #4 BARS ON 12" CENTERS EACH WAY FOR BOTTOM SLAB AND WALLS, AND #4 BARS ON 6" CENTERS EACH WAY FOR TOP SLAB. ADDITIONAL REINFORCING STEEL SHALL BE PLACED AROUND MANHOLES AS SHOWN.

1. ALL REINFORCING STEEL SHALL BE GRADE 60.
2. ALL CONCRETE SHALL BE CLASS "A" 4000 PSI AT 28 DAYS. 5 1/2 SACK MINIMUM.
3. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4"
4. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 2" ON INSIDE FACE WALL.
5. ALL BACKFILLING SHALL BE PERFORMED BY MECHANICAL TAMPING TO 95% STANDARD PROCTOR DENSITY.
6. ALL DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON PLANS.
7. PROVIDE LIGHT BROOM FINISH ON ALL SURFACES.

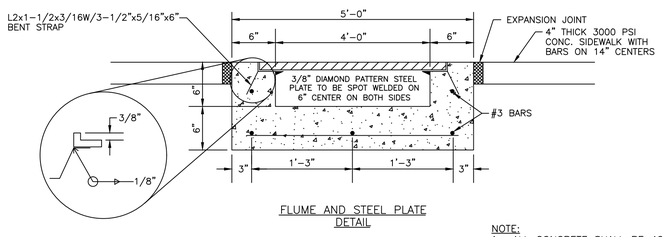
CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

STORM DRAIN
DROP INLET
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM–07	25 OF 53

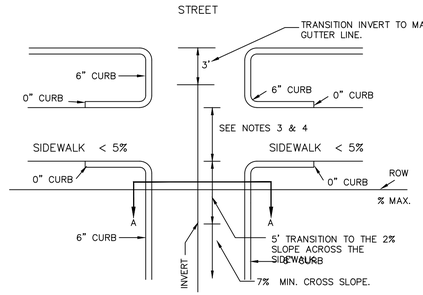


GABION MATTRESS TO CONCRETE ATTACHMENT DETAIL
NTS



FLUME AND STEEL PLATE DETAIL

NOTE:
1. ALL CONCRETE SHALL BE 4000 PSI AT 28 DAYS.
2. ALL STEEL SHALL BE ASTM A36.
3. TOUCH UP SPOT WELDED AREAS W/GAL_V_BAR



FLUME AND SIDEWALK DETAIL

Note:
1. FLOW IS TOWARD STREET, OTHERWISE THE FLUME WILL HAVE TO BE FLARED AT THE STREET.
2. FOR FLUMES 5 FEET OR LESS IN WIDTH A METAL PLATE MAY BE CONSIDERED FOR UNIQUE SITUATIONS IF AUTHORIZED BY THE PUBLIC WORKS DEPARTMENT.
3. LONGITUDINAL FLUME SLOPE ACROSS SIDEWALK MUST BE NO GREATER THAN 2%.
4. THE TRANSVERSE SLOPE OF THE FLUME AT THE SIDEWALK MUST BE LESS THAN 5%.
5. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
6. ALL STEEL SHALL BE ASTM A36.

GENERAL NOTES:

(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888. (817) 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM

(B) ALL MANHOLES SHALL BE POURED IN PLACE OR PRECAST. PRECAST JUNCTION BOXES OR MANHOLES SHALL HAVE SHOP DRAWINGS PRE-APPROVED BY THE CITY ENGINEER.

(C) CONCRETE SHALL BE MADE WITH A MINIMUM OF 5 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.

(D) ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET-STEEL PER ASTM DESIGNATION A-615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP-88 AND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.

(E) THE CONTRACTOR SHALL USE A LIQUID MEMBRANE-FORMING CURING COMPOUND PER N.C.T.C.O.G. ITEM 303.2.13.1.1

(F) LIGHT BROOM FINISH REQUIRED ON ALL EXPOSED MANHOLE TOPS.

(G) MANHOLE FRAME AND COVER SHALL BE INSTALLED AS PER THE DETAILS ON THIS SHEET.

(H) STACKED MANHOLE EXTENSION SHALL BE INSTALLED, WHERE SPECIFIED ON THE PLANS AND AS PER THE DETAILS ON THIS SHEET.

(I) MANHOLES SHALL BE CONSTRUCTED PER DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 502.1

(J) SOIL TESTING TECHNICIAN MUST PROVIDE WRITTEN PROOF OF 18-24 MONTHS OF RELATED FIELD EXPERIENCE.

(K) PREFABRICATED ROUND MANHOLES SHALL CONFORM TO ASTM C478 SPECIFICATIONS.

(L) PREFABRICATED SQUARE MANHOLES SHALL CONFORM TO ASTM C890 AND ASTM C913 SPECIFICATIONS.

(M) ALL UTILITY DITCH LINES WITHIN CITY R.O.W. OR EASEMENT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY PER 6"-8" LIFTS (NOT TO EXCEED 12") AT STAGGERED 100' INTERVALS. ALL LATERALS OR SERVICES SHALL HAVE A MINIMUM OF ONE DENSITY TEST PER FOOT OF LIFT. THE INSPECTOR SHALL HAVE THE RIGHT TO REQUEST ADDITIONAL RANDOM TESTS AS HE/SHE DEEMS NECESSARY.

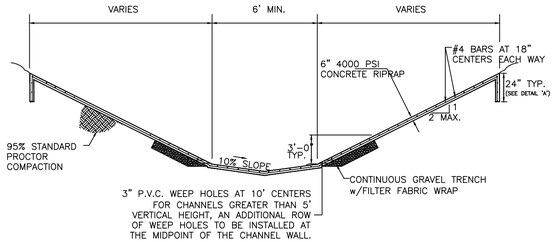
(N) ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

(O) CONTRACTOR SHALL CONTACT TRANSPORTATION DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

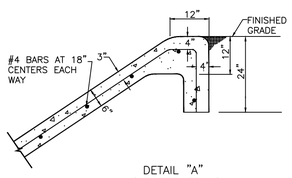
(P) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.

(Q) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

(R) PRIVATE DEVELOPMENT PROJECTS: THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.



CONCRETE CHANNEL
LESS THAN 8 VERTICAL FEET IN HEIGHT
NTS



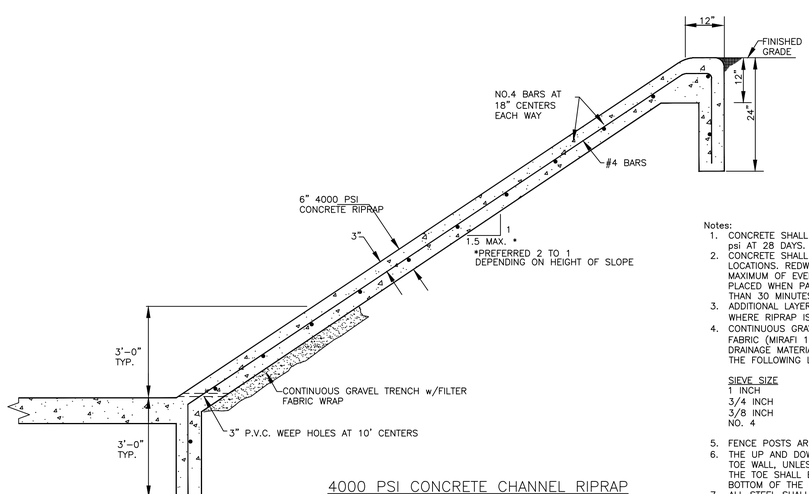
DETAIL "A"
(HEADER BEAM)
NTS

Notes:
1. CONCRETE SHALL HAVE COMPRESSIVE STRENGTH OF 4,000 psi AT 28 DAYS.
2. CONCRETE SHALL HAVE TRANSVERSE JOINTS AT WEEP HOLE LOCATIONS. REDWOOD EXPANSION JOINTS ARE REQUIRED A MAXIMUM OF EVERY 200 FEET. CONSTRUCTION JOINTS PLACED WHEN PAVING OPERATION HAS CEASED FOR MORE THAN 30 MINUTES.
3. ADDITIONAL LAYER OF WEEP HOLES SHALL BE REQUIRED WHERE RIPRAP IS GREATER THAN 5' VERTICAL HEIGHT.
4. CONTINUOUS GRAVEL TRENCH 6' THICK WRAPPED IN FILTER FABRIC (MIRAFI 140 NS OR FUNCTIONAL EQUIVALENT). DRAINAGE MATERIAL TO CONSIST OF GRAVEL GRADED WITHIN THE FOLLOWING LIMITS:

SIEVE SIZE	% BY WEIGHT PASSING
1 INCH	100
3/4 INCH	90-100
3/8 INCH	20-55
NO. 4	0-5

5. FENCE POSTS ARE NOT PERMITTED IN THE CONCRETE.
6. THE UP AND DOWNSTREAM ENDS SHALL HAVE A 3' DEEP TOE WALL, UNLESS CONNECTING TO ANOTHER STRUCTURE. THE TOE SHALL EXTEND FROM TOP OF BANK TO THE BOTTOM OF THE RIPRAP.
7. ALL STEEL SHALL BE ASTM A36

CONCRETE CHANNEL
LESS THAN 8 VERTICAL FEET IN HEIGHT
NTS



4000 PSI CONCRETE CHANNEL RIPRAP
NTS

Notes:
1. CONCRETE SHALL HAVE COMPRESSIVE STRENGTH OF 4,000 psi AT 28 DAYS.
2. CONCRETE SHALL HAVE TRANSVERSE JOINTS AT WEEP HOLE LOCATIONS. REDWOOD EXPANSION JOINTS ARE REQUIRED A MAXIMUM OF EVERY 200 FEET. CONSTRUCTION JOINTS PLACED WHEN PAVING OPERATION HAS CEASED FOR MORE THAN 30 MINUTES.
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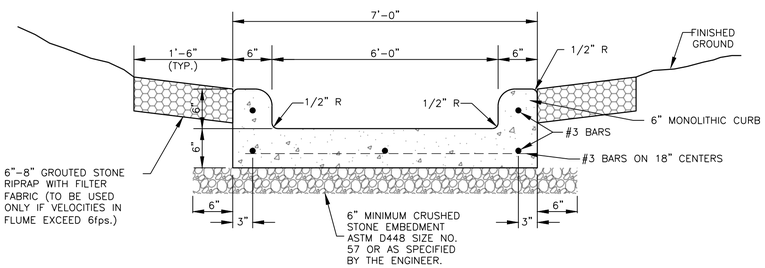
NO. 4	0-5

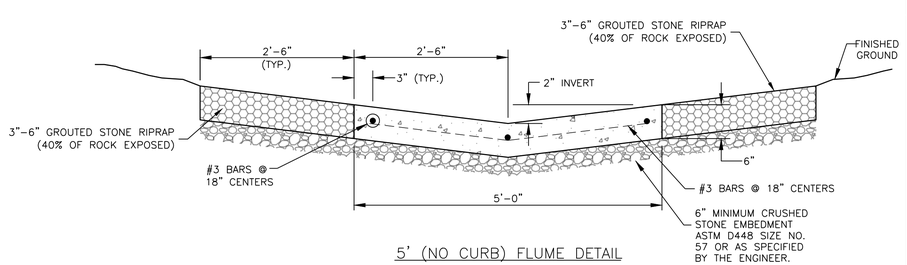
5. FENCE POSTS ARE NOT PERMITTED IN THE CONCRETE.
6. THE UP AND DOWNSTREAM ENDS SHALL HAVE A 3' DEEP TOE WALL, UNLESS CONNECTING TO ANOTHER STRUCTURE. THE TOE SHALL EXTEND FROM TOP OF BANK TO THE BOTTOM OF THE RIPRAP.
7. ALL STEEL SHALL BE ASTM A36

FLUME WITH SIDEWALK CROSSING
NTS

NOTE:
1. ALL CONCRETE SHALL BE 4000 PSI AT 28 DAYS.
2. ALL STEEL SHALL BE ASTM A36.
3. GROUT SHALL BE MIN. 5-SACK 2000 PSI



TYPICAL FLUME CROSS SECTION

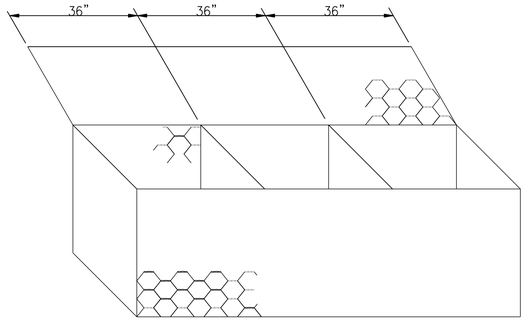


5' (NO CURB) FLUME DETAIL

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

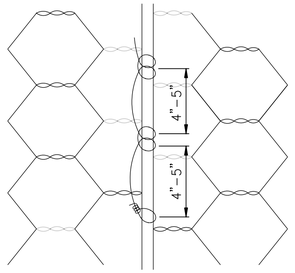
STORM DRAIN CHANNEL AND FLUME STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM-08	26 OF 53



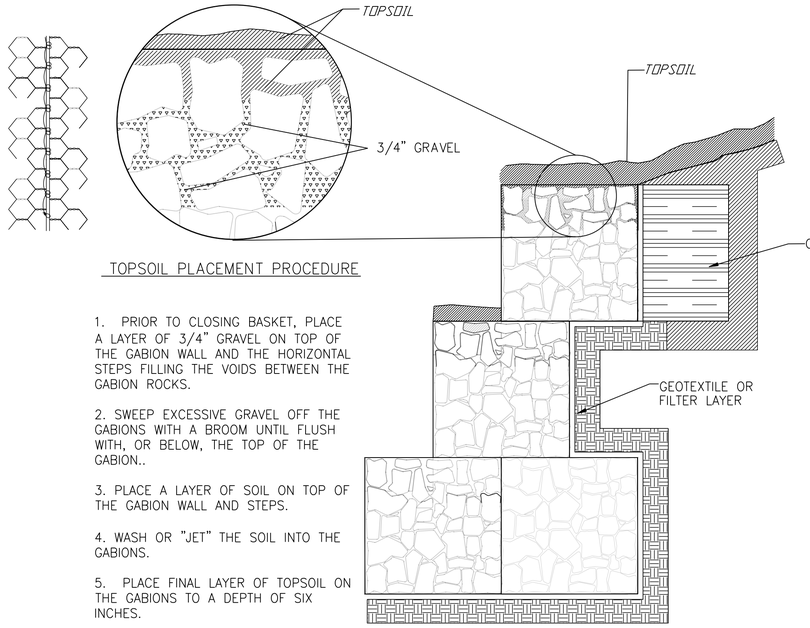
GABION CONTAINER
N.T.S.

NOTE: GABION MAY BE CUT BUT SHALL BE RETIED IN A MANNER TO PRODUCE A CLOSED CELL AND ALL TIES SHALL BE IN CONFORMANCE WITH DETAILS



GABION TIE
N.T.S.

NOTE: ALL TYING OF GABIONS SHALL BE AS SHOWN



TOPSOIL PLACEMENT PROCEDURE

1. PRIOR TO CLOSING BASKET, PLACE A LAYER OF 3/4" GRAVEL ON TOP OF THE GABION WALL AND THE HORIZONTAL STEPS FILLING THE VOIDS BETWEEN THE GABION ROCKS.

2. SWEEP EXCESSIVE GRAVEL OFF THE GABIONS WITH A BROOM UNTIL FLUSH WITH, OR BELOW, THE TOP OF THE GABION..

3. PLACE A LAYER OF SOIL ON TOP OF THE GABION WALL AND STEPS.

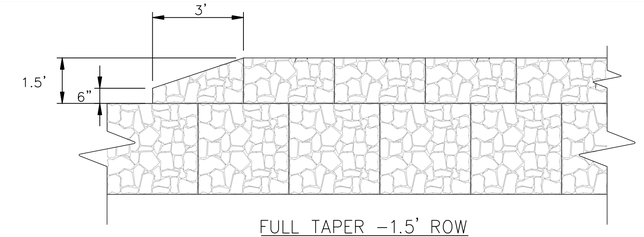
4. WASH OR "JET" THE SOIL INTO THE GABIONS.

5. PLACE FINAL LAYER OF TOPSOIL ON THE GABIONS TO A DEPTH OF SIX INCHES.

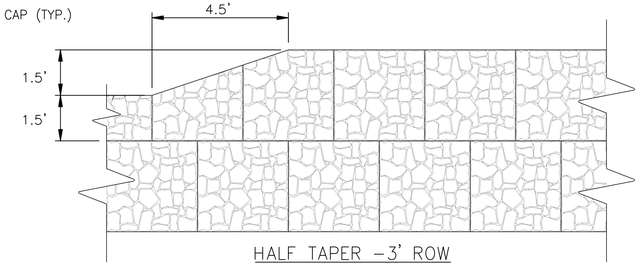
SECTION

NOTE: DO NOT USE SHARP TOOLS WHEN SPREADING TOPSOIL ON GABIONS

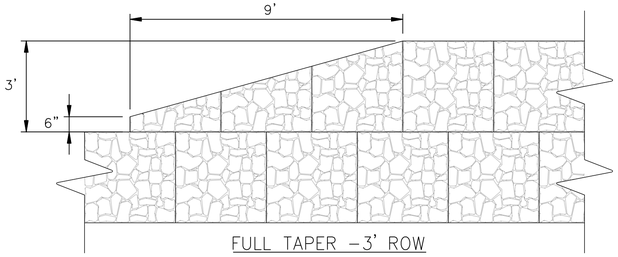
VEGETATED GABION WALL TOPSOIL PLACEMENT



FULL TAPER -1.5' ROW

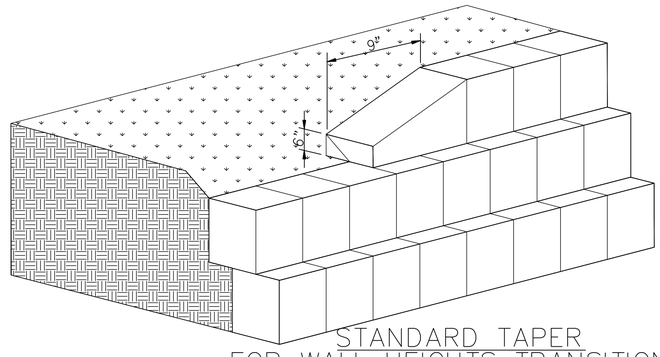


HALF TAPER -3' ROW

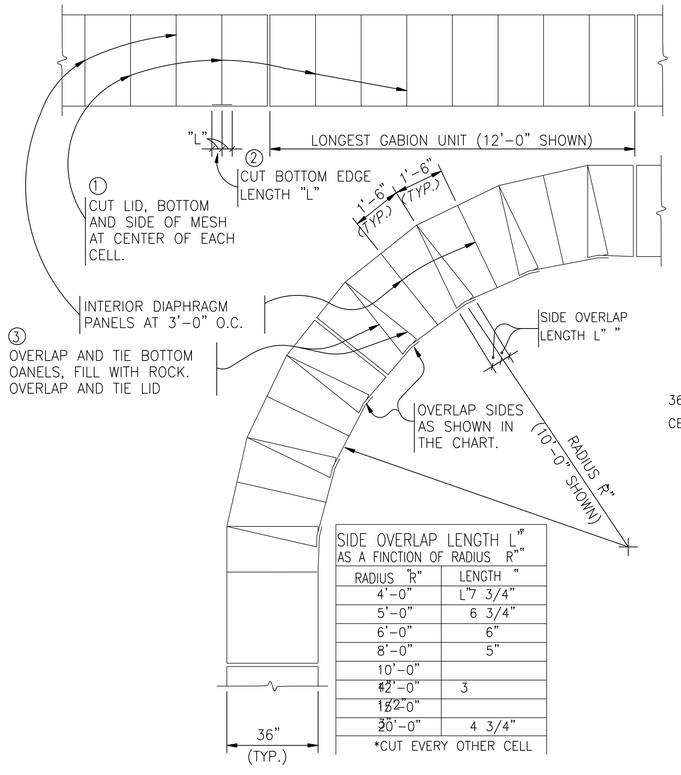


FULL TAPER -3' ROW

TAPERED WALL HEIGHT TRANSITION

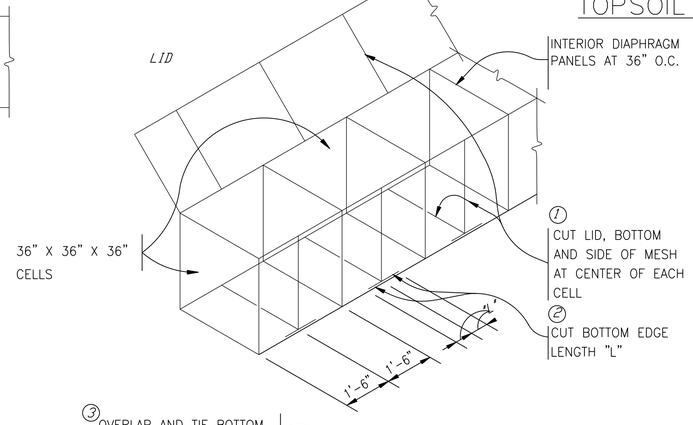


STANDARD TAPER FOR WALL HEIGHTS TRANSITIONS

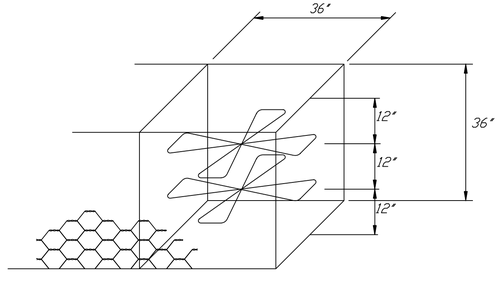


SIDE OVERLAP LENGTH L" AS A FINCTION OF RADIUS R""	
RADIUS "R"	LENGTH "
4'-0"	L"7 3/4"
5'-0"	6 3/4"
6'-0"	6"
8'-0"	5"
10'-0"	
~~12~~2'-0"	3
~~15~~2'-0"	
~~20~~20'-0"	4 3/4"
*CUT EVERY OTHER CELL	

GABION RADIUS PROCEDURE



GABION RADIUS PROCEDURE



INNER TIE WIRE
N.T.S.

CERTIFICATION:
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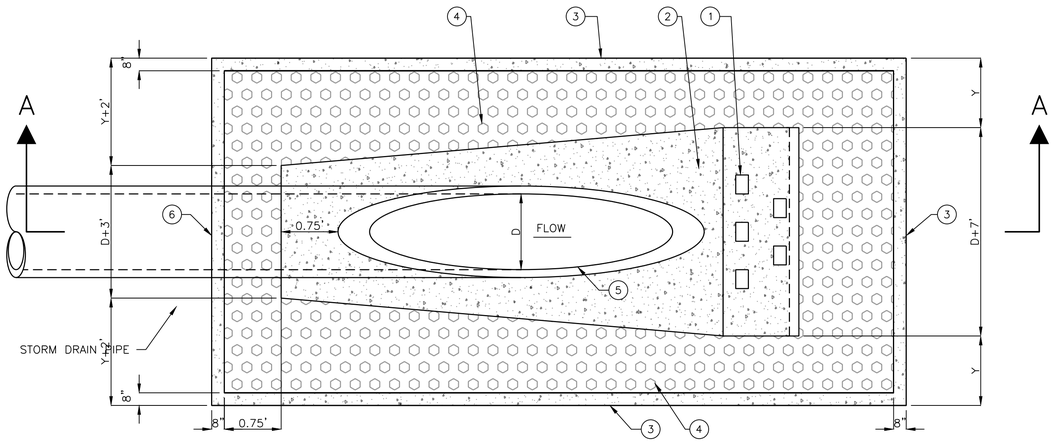
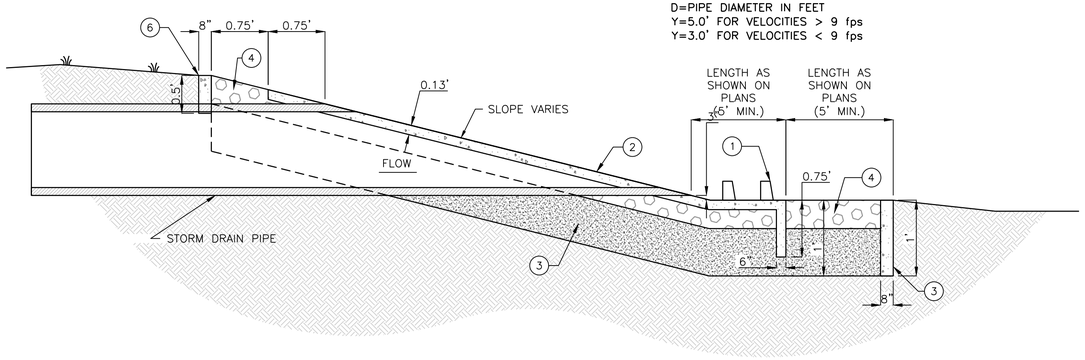
STORM DRAIN CHANNEL AND GABIONS STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM-09	27 OF 53

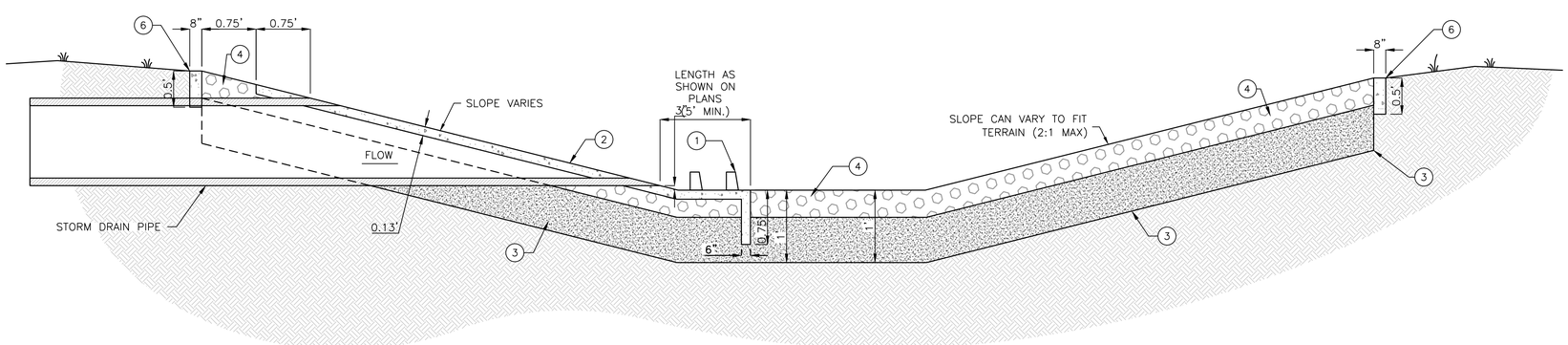


PLAN

D=PIPE DIAMETER IN FEET
Y=5.0' FOR VELOCITIES > 9 fps
Y=3.0' FOR VELOCITIES < 9 fps



SECTION A–A (WITHOUT CREEK BANKS)



SECTION A–A (WITH CREEK BANKS)

NOTES	
1	BAFFLES REQUIIRED FOR VELOCITY > 6 fps. SPECIALLY DESIGNED ENERGY DISSIPATION STRUCTURE REQUIRED IF VELOCITIES EXCEED 12 fps. DESIGN PER HEC–14 "HYDRAULIC DESIGN OF ENERGY DISSIPATERS FOR CULVERTS AND CHANNELS"
2	6" THICK REINFORCED CONCRETE CHANNEL LINING. SEE STANDARD DETAIL STORM DRAIN CHANNEL AND FLUME FOR DETAILS
3	8" WIDE, 4' DEEP REINFORCED CONCRETE TOE WALL (REQUIRED ALONG ALL GROUTED RIPRAP EDGES EXCEPT WHERE NOTED OTHERWISE.)
4	12"–18" GROUTED STONE RIPRAP ON FILTER FABRIC (40% OF ROCKEXPOSED). 10" MIN. STONE GRADATION PERMITTED WHEN DETAILED DESIGN PROVIDED BY ENGINEER OF RECORD
5	MAX. 48" DIA. RCP. FOR PIPES LARGER THAN 48" DIA. USE TXDOT FLARED WING WALLS WITH A 4:1 SLOPE.
6	8" WIDE, 2' DEEP REINFORCED CONCRETE TOE WALL FOR TOP OF SLOPE APPLICATIONS

GENERAL:
(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005–5888. (817) 640–3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
(B) ALL CONCRETE HEADWALLS WITH FLARED WING WALLS SHALL BE CONSTRUCTED AS PER TxDOT STANDARD DETAILS AND SPECIFICATIONS WITH A 4:1 SLOPE.

CULVERTS:
(A) CLOSED CONDUITS SHALL BE INSTALLED PER N.C.T.C.O.G. ITEM 508
(B) ONLY REINFORCED CONCRETE PIPE (RCP) OR REINFORCED CONCRETE BOX (RCB) IS APPROVED FOR USE, UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(C) CLASS IV RCP SHALL BE USED WHERE THE PIPE COVER IS GREATER THAN 1 FEET AND LESS THAN 2 FEET. CLASS III RCP SHALL BE USED WHERE THE PIPE COVER VARIES FROM 2 FEET TO 6 FEET. THE CLASS OF ALL OTHER RCP SHALL DETERMINED BY AN ENGINEER PER LOADS AND SUPPORTING STRENGTHS, AMERICAN CONCRETE PIPE ASSOCIATION.
(D) C–850 RCB SHALL BE USED WHERE THE COVER IS LESS THAN 3 FEET. C–789 SHALL BE USED WHERE THE COVER VARIES FROM 3 FEET TO 6 FEET. THE DESIGN OF ALL OTHER RCB SHALL BE DETERMINED BY AN ENGINEER.
(E) FOR PIPES, EMBEDMENT SHALL BE PER THE STREET BACKFILL & REPAIR DETAIL.
(F) THE CONTRACTOR SHALL SEAL ALL JOINTS ON CLOSED CONDUITS WITH OMNI–FLEX JOINT SEALS, OR EQUAL; UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
(G) THE MINIMUM SIZE FOR LATERALS IS 18 INCHES IN DIAMETER. THE MINIMUM SIZE FOR MAINS IS 24 INCHES IN DIAMETER.
(H) DRIVEWAY CULVERTS SHALL BE 18 INCH DIAMETER RCP OR LARGER AND SHALL HAVE 4 TO 1 SLOPED PRECAST CONCRETE END SECTIONS OR APPROVED EQUAL.
(I) STORM DRAIN PIPES AND CULVERTS WITH SLOPES EXCEEDING 10% SHALL BE BACKFILLED WITH FLOWABLE FILL MATERIAL BETWEEN SPRING LINE AND 6" (INCHES) ABOVE THE STORM DRAIN PIPE.

CONCRETE:
(A) CONCRETE LINING SHALL BE MADE WITH A MINIMUM OF 5 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
(B) ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET–STEEL PER ASTM DESIGNATION –615, GRADE 60, AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP–88 ND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.
(C) THE CONTRACTOR SHALL USE A WHITE LIQUID MEMBRANE–FORMING CURING COMPOUND PER OG ITEM ITEM 303.2.13.1.1.
(D) GROUT SHALL BE MIN. 5–SACK 2000 PSI CONCRETE.

TESTING:
A) CONTRACTOR RESPONSIBLE FOR THE FOLLOWING:
1. T.V. INSPECTION SHALL BE AS PER THE N.C.T.C.O.G. ITEM 507.5.2. METHOD AND BE COMPLETED PRIOR TO PLACING PAVEMENT.
2. ALL T.V. INSPECTIONS OF EXISTING OR PROPOSED PIPES SHALL BE PROVIDED ON DVD.
B) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN–01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
C) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS IN CITY R.O.W. OR EASEMENT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

MATERIAL:
ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

PRIVATE DEVELOPMENT PROJECTS:
A. THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

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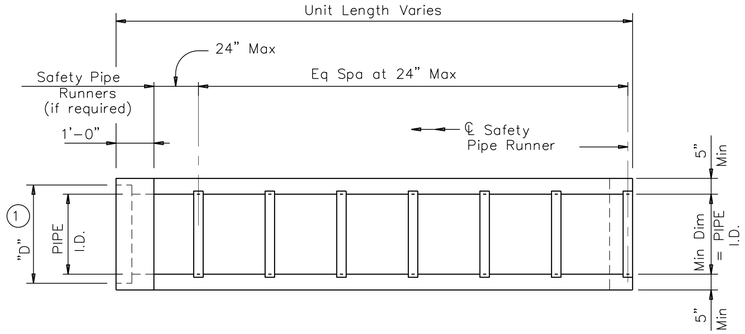
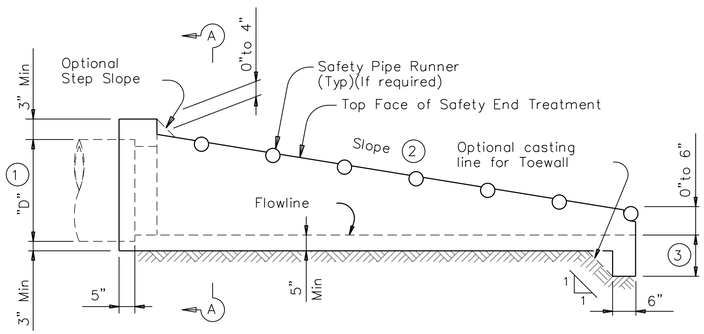
STORM DRAIN OUTFALL WITH SLOPED HEADWALL STANDARD DETAILS

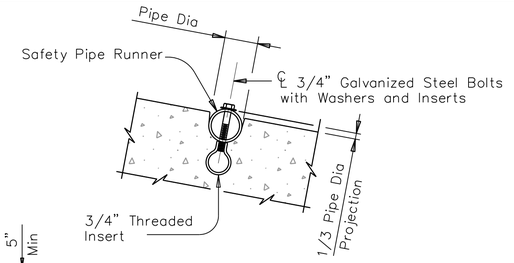
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM–10	28 OF 53



PLAN

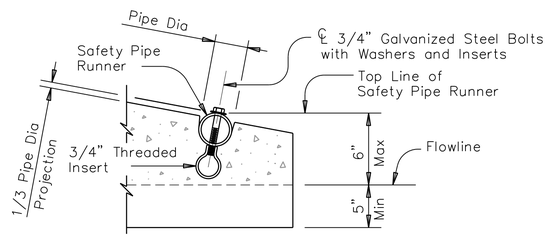


LONGITUDINAL ELEVATION

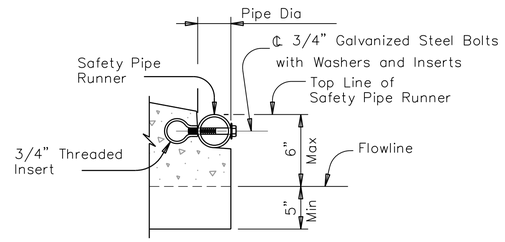


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



OPTION A



OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

PIPE I.D.	PIPE WALL "B" THICKNESS	"D" (1)	MAXIMUM SLOPE	MINIMUM LENGTH OF UNIT	PIPE RUNNERS REQUIRED		REQUIRED PIPE RUNNER SIZES		
					SINGLE PIPE	MULTIPLE PIPE	NOMINAL DIA.	O.D.	I.D.
12"	2"	17"	6:1	4'-9"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
15"	2 1/4"	20 1/2"	6:1	6'-5"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
18"	2 1/2"	24"	6:1	8'-0"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
24"	3"	31"	6:1	11'-3"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
30"	3 1/2"	38 1/2"	6:1	14'-8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	45 1/2"	6:1	17'-11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 1/2"	52 1/2"	6:1	21'-2"	Yes	Yes	4" STD	4.500"	4.026"

GENERAL NOTES:

1. Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item "Safety End Treatment".
2. When Precast Safety End Treatment is used as a Contractor's alternate to mitered RCP, Riprap will not be required unless noted otherwise on the plans.
3. Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
4. Manufacture of this product shall conform to requirements of Item "Safety End Treatment" except as noted below :
   A. Minimum reinforcing shall be #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6 x 6 – W12 x W12 or 5 x 5 – W10 x W10 welded wire reinforcement (WWR).
   B. Concrete for precast (steel formed) sections shall be Class "C" with a minimum compressive strength of 3600 psi. At the option and expense of the Contractor the next larger size of Safety End Treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.
11. Pipe Runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March Pipe Runners shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.
12. All steel components except reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

(1) Dimension "D" is based on ASTM C-76, Class III, Wall "B" thickness. If any other wall thickness is used, dimension "D" must be adjusted accordingly.

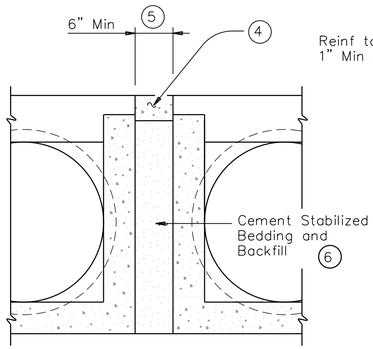
(2) Slope as shown elsewhere in the plans.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

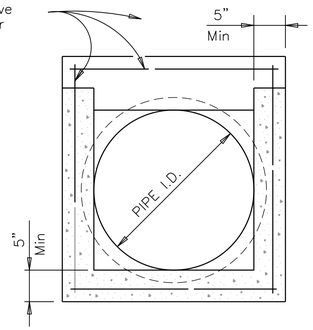
(4) The top 4" of void between Precast End Treatments shall be filled with concrete Riprap and shall be considered subsidiary to Safety End Treatment.

(5) Clear distance between pipes shall be adjusted to provide for the minimum distance between safety end treatments.

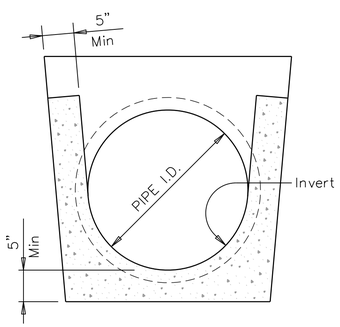
(6) Cement stabilized bedding and backfill shall be in accordance with the Item, "Excavation and Backfill for Structures". Bedding and backfill shall be considered subsidiary to the Item "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill shall be as directed by Engineer.



MULTIPLE PIPE INSTALLATION

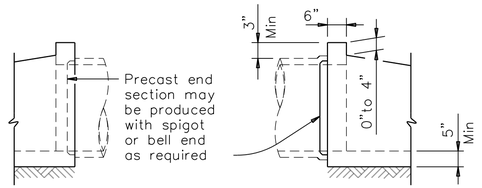


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



OPTIONAL JOINT

(Showing joint between RCP and Precast Safety End Treatment)

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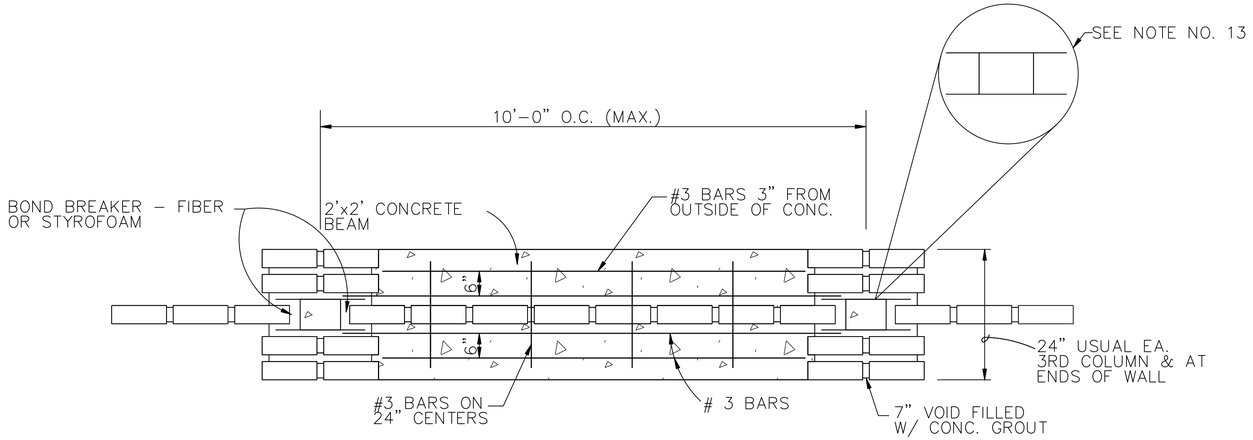
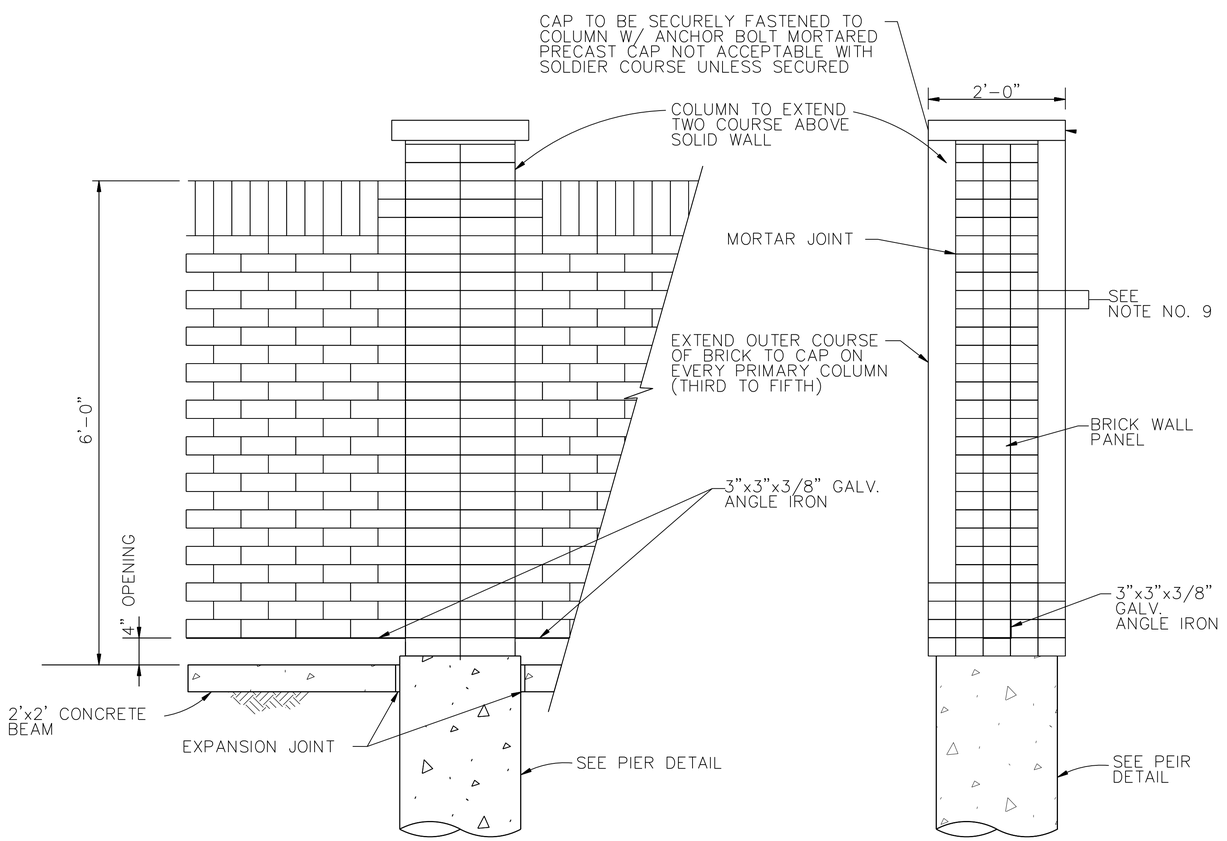
PRECAST SAFETY END TREATMENT

TYPE II – PARALLEL DRAINAGE

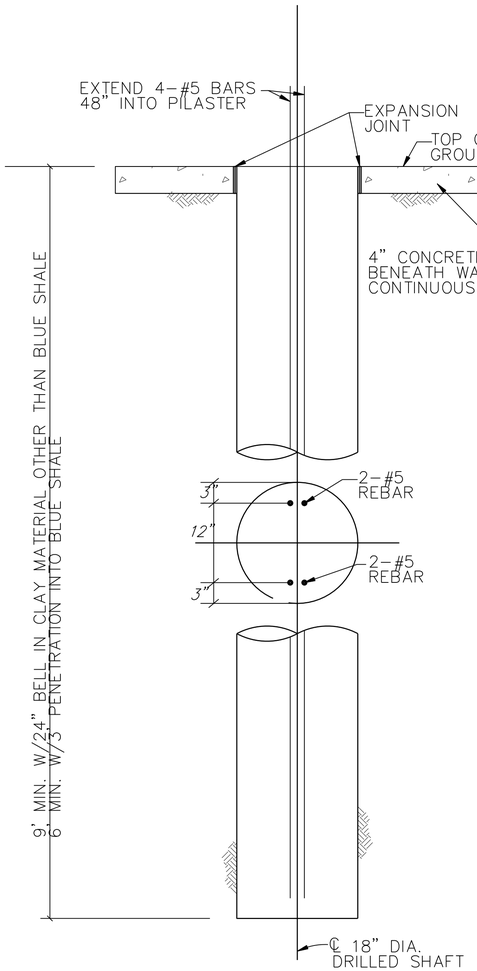
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM-11	29 OF 53



PLAN



ELEVATION



PIER DETAIL

NOTES:
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 P.S.I. AT 28 DAYS.

2. REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TH THE REQUIREMENTS OF ASTM A-615-GR.60

3. CONCRETE FOR DRILLED PIERS SHALL BE PLACED WITHIN 8 HOURS OF DRILLING PIER HOLES.

4 CLEAN BOTTOM OF HOLE PRIOR TO PLACMENT OF CONCRETE.

5. BRICK MASONRY SHALL BE AS SPECIFIED IN ITEM 2.3.6 OF THE SPECIAL PROVISIONS.

6. MORTAR SHALL BE TYPE "S".

7. DESIGN WIND PRESSURE - 20 PSF.

8. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE "RECOMMENDED PRACTICE FOR ENGINEERED BRICK MASONRY" -- BRICK INSTITUTE OF AMERICA.

9. USE # 9 GAUGE 1-3/4" WIDE GALVANIZED LADDER WIRE TO EXTEND HORIZONTAL IN WALL PANEL DURAWALL CORP. EVERY COURSE.

10. # 9 GAUGE WIRE FABRICATED AS SHOWN BETWEEN EACH COURSE OF COLUMN BRICK.

11. THE WALL SHALL BE OF SIX FEET IN HEIGHT AS MEASURED FROM THE NEAREST ALLEY EDGE OR SIDEWALK GRADE, WHICHEVER IS HIGHER. THE COLOR OF SCREEN WALL SHALL BE SELECTED BY THE CITY.

12. MAXIMUM PILASTER SPACING - 10'-0"

13. EXTEND REBAR 48" INTO PILASTER AND COLUMN.

14. CONTRACTOR SHALL PROVIDE MID PANEL BRICK SUPPORT. SUCH SUPPORT SHALL BE COMPOSED OF BRICK AND MORTAR.

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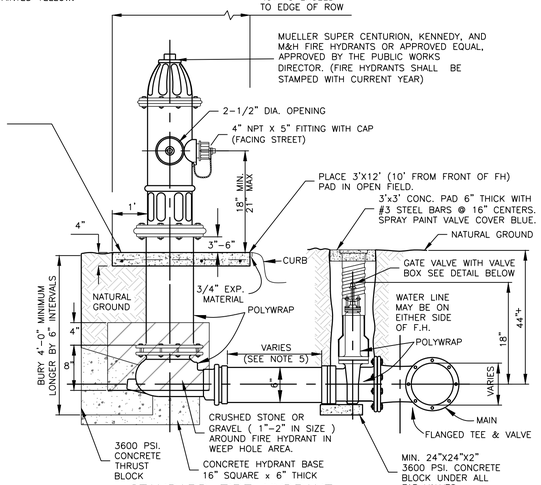
THIN BRICK SCREENING WALL
STANDARD DETAILS

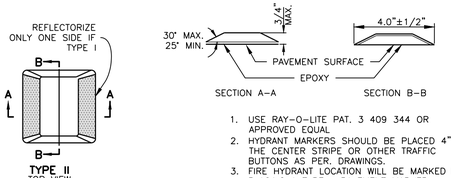
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	STM-12	30 OF 53

FIRE HYDRANT NOTE:
1. FIRE HYDRANTS SHALL BE LOCATED INSIDE ROW. CONFIRM SETBACK WITH CITY ENGINEER PRIOR TO PLACEMENT.
2. FIRE HYDRANT PAINT AND COLORS:
   a. PUBLIC FIRE HYDRANTS SHALL BE COATED WITH BRUSHED ALUMINUM QUICK DRY ENAMEL PAINT. NO SPRAY PAINT ALLOWED.
   b. PRIVATE FIRE HYDRANT BONNETS SHALL BE PAINTED CHROME YELLOW QUICK DRY ENAMEL. FIRE HYDRANT BARREL SHALL BE PAINTED MACHINERY RED QUICK DRY ENAMEL. F-77RH.
3. ALL FIRE HYDRANTS SHALL BE PAINTED AFTER INSTALLATION.
4. FIRE HYDRANT LEAD SHALL BE 150' MAXIMUM AS MEASURED FROM THE MAIN UNLESS APPROVED BY THE CITY FIRE MARSHAL.
5. PLACE 3'X12' PAD IN OPEN FIELD.

CONCRETE PAD NOTE:
1. CONCRETE SPLASH PAD SHALL SLOPE TO CURB A MAXIMUM OF 2%, GREATER SLOPE APPROVED ON A CASE BY CASE BASIS.
2. CONCRETE PAD SHALL BE 6" THICK BY 3' WIDE WITH #3 STEEL BARS @ 12" CENTERS AROUND F.H. TO GO FROM BACK OF CURB TO 1' BEHIND F.H. REINFORCED TO CITY SPECS.
3. MINIMUM 2" DISTANCE BETWEEN CONCRETE SLAB AND FLANGE BOLTS @ 1/4" TO 12" TO BACK OF CURB.
4. CONCRETE SHALL BE MINUMUM 5-1/2 SACKS AND HAVE COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
5. CONCRETE PAD SHALL BE DOWELED INTO CURB.
6. FIRE LINE VALVES SHALL BE IDENTIFIED BY THE LETTERS FLV STAMPED OR ETCHED INTO THE CURB
7. USE VALVE MARKERS FOR OFFSITE FIRE HYDRANTS.
8. 6" DIAMETER BOLLARDS MUST BE PLACED AROUND THE FIRE HYDRANT WHEN IT CANNOT BE INSTALLED AS PER THIS FIRE HYDRANT DETAIL. BOLLARD SHALL BE 3' ABOVE & BELOW GROUND. POSTS ABOVE GROUND SHALL BE PAINTED YELLOW.

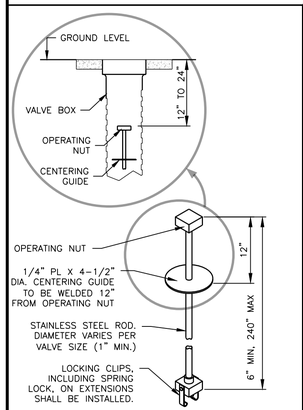


STANDARD FIRE HYDRANT DETAIL (N.T.S.)



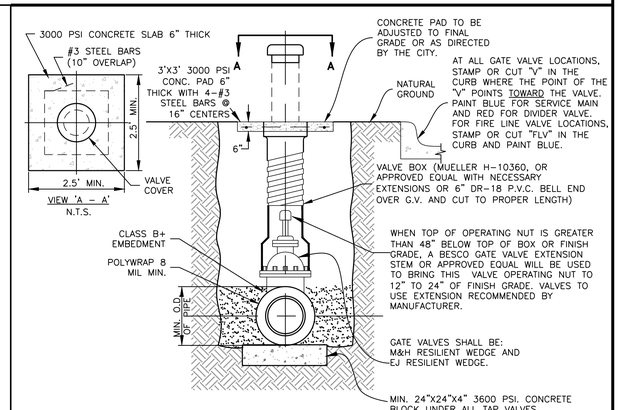
1. USE RAY-O-LITE PAT. 3 409 344 OR APPROVED EQUAL.
2. HYDRANT MARKERS SHOULD BE PLACED 4" OFF THE CENTER STRIPE OR OTHER TRAFFIC BUTTONS AS PER. DRAWINGS.
3. FIRE HYDRANT LOCATION WILL BE MARKED BY PLACING A TYPE II PAVEMENT MARKER REFLECTORIZED BLUE 4" OFF OF THE TRAFFIC LANE BUTTONS. THE MARKER WILL BE IN THE LANE NEAREST TO THE FIRE HYDRANT. ALL MARKERS AT INTERSECTIONS SHOULD BE 10 FEET BACK FROM THE INTERSECTION.

PAVEMENT MARKERS (REFLECTORIZED) TYPE II

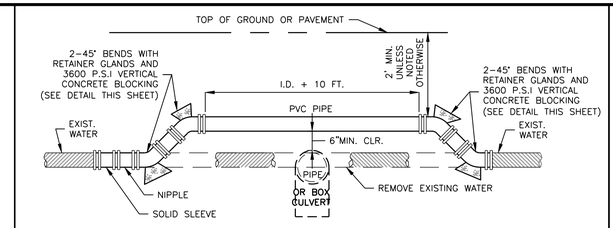


NOTES
1. GATE VALVE EXTENSION RODS SHALL BE ONE PIECE CONSISTING OF 304 STAINLESS STEEL.
2. A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE WHOSE OPERATING NUT IS LOCATED IN EXCESS OF 4' BELOW THE TOP OF THE VALVE BOX. THIS EXTENSIONS SHALL BRING THIS VALVE OPERATING NUT TO 12" TO 24" OF FINISH GRADE. VALVES TO USE EXTENSION RECOMMENDED BY MANUFACTURER.

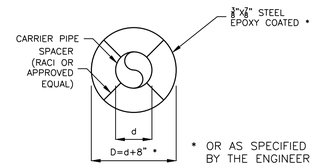
GATE VALVE EXTENSION STEM (N.T.S.)



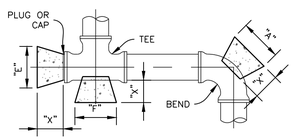
TYPICAL GATE VALVE SETTING AND BOX (N.T.S.)



WATER MAIN ADJUSTMENT DETAILS (N.T.S.)



STEEL PIPE ENCASEMENT DETAIL(N.T.S.)

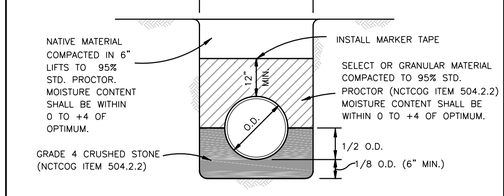


PIPE SIZE	X DIA. FT.	11.25° "A"	11.25° MIN. AREA	22.5° "A"	22.5° MIN. AREA	45° "A"	45° MIN. AREA	90° "A"	90° MIN. AREA	TEE & PLUG "E"	TEE & PLUG MIN. AREA
4"	1.5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.00	1.00
6"	1.5	1.00	1.00	1.00	1.00	1.14	1.30	1.55	2.40	1.30	1.70
8"	1.5	1.00	1.00	1.08	1.18	1.52	2.31	2.07	4.27	1.74	3.02
10"	1.5	1.00	1.00	1.35	1.84	1.90	3.61	2.58	6.66	2.17	4.71
12"	1.5	1.00	1.33	1.63	2.65	1.86	5.19	3.10	9.60	2.61	6.79
14"	1.5	1.03	1.81	1.90	3.60	2.66	7.07	3.61	13.06	3.04	9.246
16"	2.0	1.18	2.36	2.17	4.71	3.04	9.23	4.13	17.06	3.47	12.06
18"	2.0	1.33	2.99	2.44	5.96	3.42	11.69	4.65	21.59	3.91	15.27
20"	2.0	1.48	3.70	2.71	7.35	3.80	14.43	5.16	26.86	4.34	18.85
21"	2.0	1.55	4.07	2.85	8.11	3.99	15.91	5.42	29.39	4.56	20.78
24"	2.0	1.77	5.32	3.25	10.59	4.56	20.77	6.20	38.39	5.21	27.14
27"	2.5	1.99	6.73	3.66	13.40	5.13	26.29	6.97	48.58	5.86	34.35
30"	2.5	2.22	8.31	4.07	16.55	5.70	32.46	7.74	59.98	6.51	42.41
33"	2.5	2.44	10.06	4.47	20.02	6.27	39.28	8.52	72.57	7.16	51.31
36"	2.5	2.66	11.97	4.88	23.83	6.84	46.74	9.29	86.37	7.81	61.07
39"	3.0	2.88	14.05	5.29	27.97	7.41	54.86	10.07	101.36	8.47	71.68
42"	3.0	3.10	16.30	5.69	32.43	7.98	63.62	10.85	117.56	9.12	83.13

HORIZONTAL THRUST BLOCK NOTES:

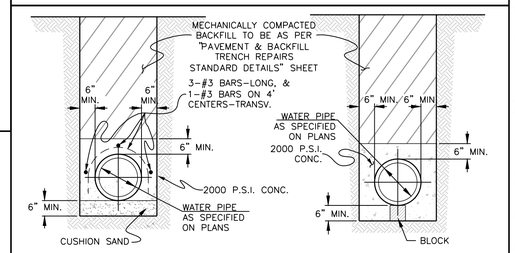
RETAINER GLANDS OR OTHER RESTRAINING DEVICES MAY BE REQUIRED AS NEEDED.
1. ALL CALCULATIONS ARE BASED ON A WATER LINE PRESSURE OF 150 p.s.i. AND AN ALLOWABLE SOIL BEARING VALUE OF 2,500 POUNDS PER SQUARE FOOT.
2. 3600 PSI. CONCRETE SHALL BE USED FOR ALL BLOCKING.
3. THE MINIMUM VERTICAL DIMENSIONS OF ALL BLOCKING SHALL BE 1.5 TIMES THE PIPE DIAMETER WITH AT LEAST 0.75 TIMES THE PIPE DIAMETER EXTENDING BOTH ABOVE AND BELOW THE PIPE CENTERLINE. THIS DIMENSION DETERMINES THE "X" DIMENSION FOR 11-1/4° BENDS.
4. FOR 22-1/2°, 45°, 90°, TEES AND PLUGS, THE VERTICAL DIMENSION SHALL BE EQUAL TO THE HORIZONTAL DIMENSION SHOWN TO PRODUCE THE REQUIRED MINIMUM AREA.
5. ALL MINIMUM AREAS ARE IN SQUARE FEET.

DIMENSIONS OF CONCRETE FOR HORIZONTAL THRUST CONCRETE BLOCKING AT FITTINGS (N.T.S.)



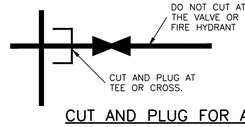
PIPE EMBEDMENT DETAIL - CLASS B+ EMBEDMENT

N.T.S.



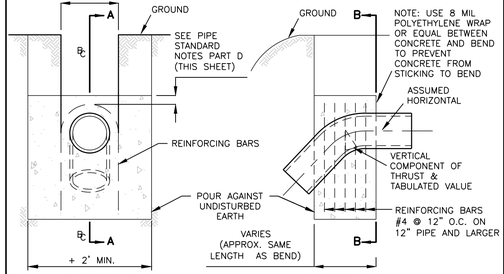
CAP DETAIL (N.T.S.)

ENCASEMENT DETAIL (N.T.S.)



1. TEES SHALL BE STRAIGHT PIPED WITH MJ SLEEVES.
2. CUT AND PLUG AT A TEE OR CROSS FITTING.
3. PLUG CAN BE USED AS LONG AS THE CROSS IS MJ OR FLANGED.
4. IF PUSH-ON FITTING IS FOUND, THE CROSS SHALL BE REMOVED AND PIPED WITH PROPER MJ FITTINGS.

CUT AND PLUG FOR ABANDONED WATER LINES, VALVES, AND FIRE HYDRANTS



Δ	11.25°		22.50°		30°		45°		67.50°		90°	
I.D. (IN)	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.
4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7
16,18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7
20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7
24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6
30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5
36	14.9	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	38.2
42	20.3	10.1	39.8	19.9	52.0	26.0	73.5	36.7	96.0	48.0	104.0	52.0
48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9
54	33.5	16.8	65.7	32.9	85.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9
60	41.4	20.7	81.2	40.6	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0
66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0
72	59.6	29.8	117.0	58.4	153.0	76.3	216.0	108.0	282.0	141.0	305.0	153.0
78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	166.0	358.0	179.0
84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0
90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0
96	106.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0

VERTICAL THRUST BLOCK NOTES:

1. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 P.S.I. FOR 24" I.D. PIPE AND SMALLER AND 150 P.S.I. ON 30" I.D. AND LARGER.
2. VOLUMES OF VERTICAL BEND THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THRUST ON THE VERTICAL BEND.
3. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
4. CONCRETE FOR BLOCKING SHALL BE 3600 P.S.I. CONCRETE.
5. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.

DIMENSIONS OF CONCRETE FOR VERTICAL THRUST BLOCKS AT FITTINGS (N.T.S.)

GENERAL NOTES:
A. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION - NORTH CENTRAL TEXAS" HEREIN REFERRED TO AS "N.C.T.C.O.G." SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888, (817) 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
B. PLEASE ALSO REFER TO N.C.T.C.O.G. ITEM 501, 502, 503, 504, 505, 506 & 509 SPECIFICATIONS.
C. WHERE SPECIFIED NAME BRANDS ARE INDICATED, PRODUCTS OF EQUAL OR BETTER MAY BE CONSIDERED FOR APPROVAL UPON SUBMITTAL OF ALL SUPPORTING DATA TO THE CITY ENGINEER FOR REVIEW.
D. THE CONTRACTOR SHALL PROVIDE FOR TEMPORARY 3" COLD MIX ASPHALTIC CONCRETE AS PER N.C.T.C.O.G. ITEM 403.2.3 TO BE PLACED OVER ALL VEHICULAR TRAVELED AREAS UNTIL THE FINAL REPAIRS/IMPROVEMENTS ARE MADE.
E. ALL VALVES, VALVE STACKS AND COVERS ON ABANDONED WATER MAINS SHALL BE REMOVED COMPLETELY; SURFACE SHALL BE REPAIRED TO MATCH EXISTING.
F. CONTRACTOR SHALL CONTACT STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

PIPE:
A. WATER MAINS UP TO 12" DIAMETER SHALL BE POLYVINYL CHLORIDE PVC DR18 C900 (CLASS 150), OR DR14 C900 (CLASS 200). WATER MAINS GREATER THAN 12" IN DIAMETER MAY BE ONE OF THE FOLLOWING:
   1. REINFORCED CONCRETE CYLINDER PIPE (RCCP) C303 PRESSURE CLASS 150 OR GREATER AS SPECIFIED BY THE ENGINEER.
   2. PVC PIPE SHALL BE DR18 C900 (CLASS 235) OR AS APPROVED BY THE ENGINEER.
B. PVC PIPE SHALL NOT BE USED FOR MAINS GREATER THAN 24" IN DIAMETER.
C. EMBEDMENT:
   1. EMBEDMENT SHALL BE AS PER THE "PIPE EMBEDMENT DETAIL" ON THIS SHEET UNLESS SPECIFIED OTHERWISE BY THE ENGINEER.
   2. FOR PIPE SIZES LARGER THAN 12", MINIMUM EMBEDMENT SHALL BE 1/4"-3/4" CROSED STONE 6" BELOW PIPE TO 6" ABOVE PIPE UNLESS SPECIFIED OTHERWISE BY THE ENGINEER.
D. COVER: THE FOLLOWING MINIMUM COVERS OVER THE WATERLINE ARE REQUIRED:
   1. 42" OF COVER OVER WATER LINES 8" IN DIAMETER OR LESS
   2. 48" OF COVER OVER WATER LINES 12" IN DIAMETER.
   3. 60" TO 72" OF COVER OVER WATER LINES LARGER THAN 12" IN DIAMETER. NOTE: WATER MAINS BURIED WITH OVER 72" OF COVER SHALL BE APPROVED BY THE CITY ENGINEER.
E. STORAGE: PVC WATER PIPE IS ALLOWED TO BE STORED A MAXIMUM OF SIX (6) MONTHS WITHOUT COVER. THEREAFTER ALL PIPES SHALL BE COVERED OR KEPT AWAY FROM SUNLIGHT AND SHALL BE PROTECTED FROM OTHER ELEMENTS.
F. INSTALLATION:
   1. BLUE PVC WATER PIPE IS ACCEPTABLE FOR THE INSTALLATION, HOWEVER, THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE PIPE IN A WAY THAT THE WRITING ON THE PIPE IS INSTALLED ON THE SIDE UP AND IS READABLE FROM THE TOP OF THE DITCH.
   2. ALL WATER MAINS, VALVES, FITTINGS, ETC. MADE WITH DUCTILE IRON OR FERROUS METAL SHALL BE WRAPPED WITH 8 MIL POLYWRAP.
G. BEVELED ENDS OF THE PIPE SHALL BE REMOVED WHEN USED IN MJ FITTING
H. CASINGS: WHEN PVC WATER PIPE IS INSTALLED IN CASING, SKIDS MUST BE USED TO PREVENT DAMAGE TO THE PIPE AND BELL DURING INSTALLATION. PVC PIPE SHOULD NOT REST ON THE BELLS. PLASTIC SPACERS SUCH AS RACI OR APPROVED EQUAL SHALL BE USED.
I. MUST STUB OUT AT LEAST ONE FULL JOINT (20 FEET MIN.) OF PIPE AT ALL STUB OUTS. NO SERVICES SHALL BE LOCATED ON THE STUB OUT.
J. PLACE PIPE WITH LETTERING FACING UP (ON TOP OF PIPE)
K. MAXIMUM PIPE DEFLECTION SHALL BE AS RECOMMENDED BY MANUFACTURER
L. DUCTILE IRON PIPE WHERE SPECIFIED BY THE ENGINEER SHALL HAVE CEMENT-MORTER LINING PER AWWA C104 SPECIFICATIONS AND SHALL BE OF A MINIMUM THICKNESS CLASS 51 OR GREATER AND HAVE A MINIMUM 8 MILS POLYWRAP.

FITTINGS:
A. THE CONTRACTOR MAY USE CAST IRON OR DUCTILE IRON FITTINGS, COMPLETE WITH EPOXY COATING AND 8 MIL. (MIN.) POLYWRAP
B. ALL FITTINGS SHALL BE BLOCKED AS PER DETAILS ON THIS SHEET.
C. ALL FITTINGS SHALL BE MJ UNLESS SPECIFIED OTHERWISE. PVC FITTINGS ARE NOT ALLOWED
D. PLEASE ALSO REFER TO N.C.T.C.O.G. ITEM 501 SPECIFICATIONS.
E. ALL BENDS, TEES AND PLUGS SHALL HAVE RETAINER GLANDS.
F. USE AWWA C110 DUCTILE IRON FITTINGS FOR PIPES 3"-48" IN DIAMETER AND AWWA C153 FOR DUCTILE IRON COMPACT FITTINGS FOR PIPES 3"-16" IN DIAMETER.
G. DUCTILE IRON INTEGRAL RESTRAINED JOINT FITTINGS ARE PERMISSIBLE FOR PVC AND DUCTILE IRON PIPE SIZES 4"-12" IN DIAMETER; NOTE: CONCRETE BLOCKING IS NOT REQUIRED WITH THESE FITTINGS.
H. ALL DUCTILE IRON AND CAST IRON FITTINGS SHALL BE MANUFACTURED IN THE UNITED STATES.
I. POLYWRAP SADDLES WITH 8 MIL POLYWRAP.

VALVES:
A. VALVES INSTALLED ON WATER LINES 12" IN DIAMETER OR LESS SHALL BE VERTICAL GATE VALVES.
B. VALVES INSTALLED ON WATER LINES LARGER THAN 12" IN DIAMETER SHALL BE DIRECT BURY BUTTERFLY VALVES WITH A VALVE BOX. PLEASE NOTE THAT SPECIAL FITTINGS SHALL BE INSTALLED TO ALLOW POLY-PIGGING OF NEW INSTALLATIONS. COST INCIDENTAL TO PROJECT OVERALL.
C. BUTTERFLY VALVES SHALL CONFORM TO AWWA C504 STANDARDS LATEST REVISION.
D. BUTTERFLY VALVES SHALL BE MUELLER, CLOW, PRATT, M&H OR AN APPROVED EQUAL.
E. ALL GATE VALVES SHALL HAVE NON-RISING STEMS AND RESILIENT SEATED WEDGE.
F. ALL VALVES AND FIRE HYDRANTS SHALL BE IN LINE WITH THE PROPERTY LINE, WHERE POSSIBLE.
G. ALL VALVE LOCATIONS SHALL BE MARKED WITH "V" STAMPED OR CUT ON THE CURB.
H. PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 502.6. SPECIFICATIONS.
I. ALL STUB-OUT VALVES TO HAVE A MINIMUM 20' JOINT OF PIPE.
J. ALL VALVES TO BE FLANGED VALVES OR ANCHOR COUPLE TO TEE WHERE APPLICABLE.

TESTING:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:
   1. PURGING BY USING THE "POLY-PIG" METHOD TO ENTER AND EXIT AT APPROVED STRATEGIC LOCATIONS AND AS PER N.C.T.C.O.G. ITEM 506.7.3.1 SPECIFICATIONS, TO INCLUDE ALL EQUIPMENT, MATERIAL, FITTINGS, AND LABOR.
   2. HYDROSTATIC TEST AS PER GENERAL NOTES SHEETS, GN-01 - GN 04, FOR TESTING REQUIREMENTS FOR WATER.
   3. THE CONTRACTOR WILL FLUSH AND STERILIZE LINES AND PERFORM BACTERIOLOGICAL TESTS AS DIRECTED BY THE CITY INSPECTOR AND TO PROVIDE LINES TO BE FREE OF COLIFORM ORGANISMS..
   4. ALL TEMPORARY TEST POINTS TO HAVE CORPORATION STOPS AT THE MAIN.
   5. ALL TEMPORARY TESTING & CHLORINATION POINTS AND ASSOCIATED CORPORATION STOPS SHALL BE REMOVED AND PLUGGED, PRIOR TO FINAL ACCEPTANCE.
   6. ONE WATER SAMPLE PER EACH STREET NAME, OR AS APPROVED BY THE CITY ENGINEER.
   (a) PLEASE REFER TO THE GENERAL NOTES SHEETS, GN-01 - GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
   (b) THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED IN TO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS.

MATERIAL:
A. ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

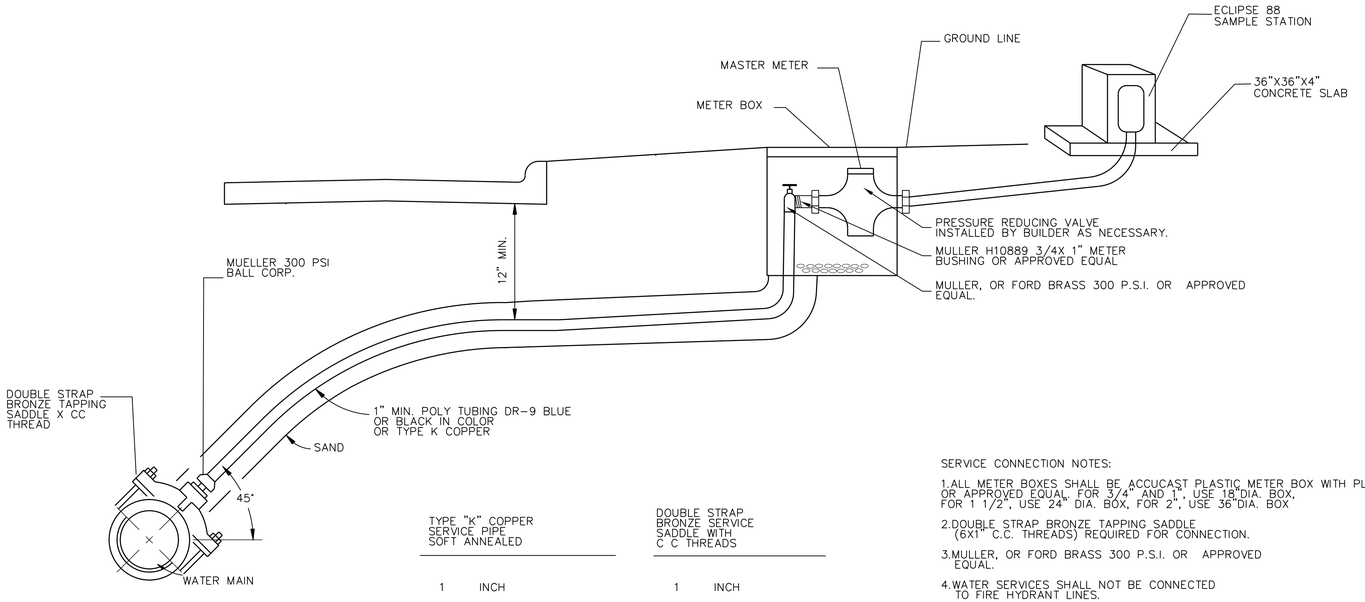
PRIVATE DEVELOPMENT PROJECTS:
A. THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.

TYPICAL WATER CURB MARKINGS
- "V" - VALVE (WATER MAIN LINE)
- "FHV" - FIRE HYDRANT VALVE
- "BOV" - BLOW OFF VALVE
- "ARV" - AIR RELEASE VALVE
- "W" - WATER METER
- ALL "V" MARKINGS POINT TOWARD LOCATION OF VALVE
  EXAMPLE: FH (FIRE HYDRANT VALVE BEHIND THE CURB)

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

WATER 1 OF 2
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-01	31 OF 53



TYPE "K" COPPER SERVICE PIPE SOFT ANNEALED	
1	INCH
1 1/2	INCH
2	INCH

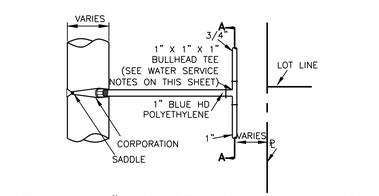
DOUBLE STRAP BRONZE SERVICE SADDLE WITH C C THREADS	
1	INCH
1 1/2	INCH
2	INCH

SERVICE CONNECTION NOTES:

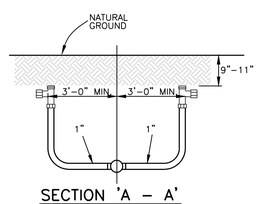
1. ALL METER BOXES SHALL BE ACCUCAST PLASTIC METER BOX WITH PLASTIC COVER OR APPROVED EQUAL. FOR 3/4" AND 1", USE 18"DIA. BOX. FOR 1 1/2", USE 24" DIA. BOX, FOR 2", USE 36"DIA. BOX
2. DOUBLE STRAP BRONZE TAPPING SADDLE (6X1" C.C. THREADS) REQUIRED FOR CONNECTION.
3. MULLER, OR FORD BRASS 300 P.S.I. OR APPROVED EQUAL.
4. WATER SERVICES SHALL NOT BE CONNECTED TO FIRE HYDRANT LINES.
5. EMBEDMENT FOR SERVICE LINE SHALL BE 6" ALL AROUND OF SAND OR SANDY TYPE MATERIAL.

NOTES:
1. PROPOSED PIPING & FITTINGS ARE SYMMETRIC ABOUT CENTER OF PROP. SAN. SEW. OR ST. SEW. PIPE AND SHALL RETAIN TEST PRESSURES.
2. CROSSING OF SANITARY SEWER SHALL BE IN ACCORDANCE WITH TCEQ REQUIREMENTS.
3. SAN. SEWER SHALL BE DR 26 PRESSURE RATED PIPE 10' EACH DIRECTION FROM CENTER LINE OF CROSSING.
4. MEGALUGS SHALL BE USED ON ALL FITTINGS AND ANCHOR ALL BENDS.
5. ALL BENDS MUST BE SUPPORTED BY 3600 P.S.I. CONCRETE THRUST BLOCK.

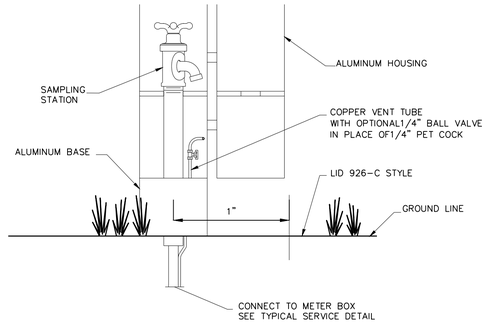
TYPICAL SERVICE CONNECTION WITH METER BOX



DETAIL OF 1" SERVICE WITH BULLHEAD TEE.
5/8" METER MAX. (N.T.S.)



SECTION 'A – A'
(ROTATED 90°)



NOTE:
1. SAMPLING STATIONS SHALL BE 1.0' BURY, WITH A 3/4 " FIP INLET AND A (3/4 " HOSE OR UNTHREADED) NOZZLE,
2. ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE ALUMINUM-CAST HOUSING.
3. WHEN OPENED, THE STATION SHALL REQUIRE NO KEY FOR OPERATION AND THE WATER WILL FLOW IN AN ALL BRASS WATERWAY.
4. ALL WORKING PARTS WILL ALSO BE OF BRASS AND BE REMOVABLE FROM ABOVE GROUND WITH NO DIGGING. EXTERIOR PIPING SHALL BE GALVANIZED STEEL (BRASS PIPE ALSO AVAILABLE).
5. A COPPER VENT TUBE WILL ENABLE EACH STATION TO BE PUMPED FREE OF STANDING WATER TO PREVENT FREEZING AND TO MINIMIZE BACTERIA GROWTH.
6. ECLIPSE NO. 88 SAMPLING STATION SHALL BE MANUFACTURED BY KUPFERLE FOUNDRY, ST. LOUIS, MO. 63102. OR APPROVED EQUAL.
7. ALL PIPING TO BE BRONZE, NOT GALVANIZED.

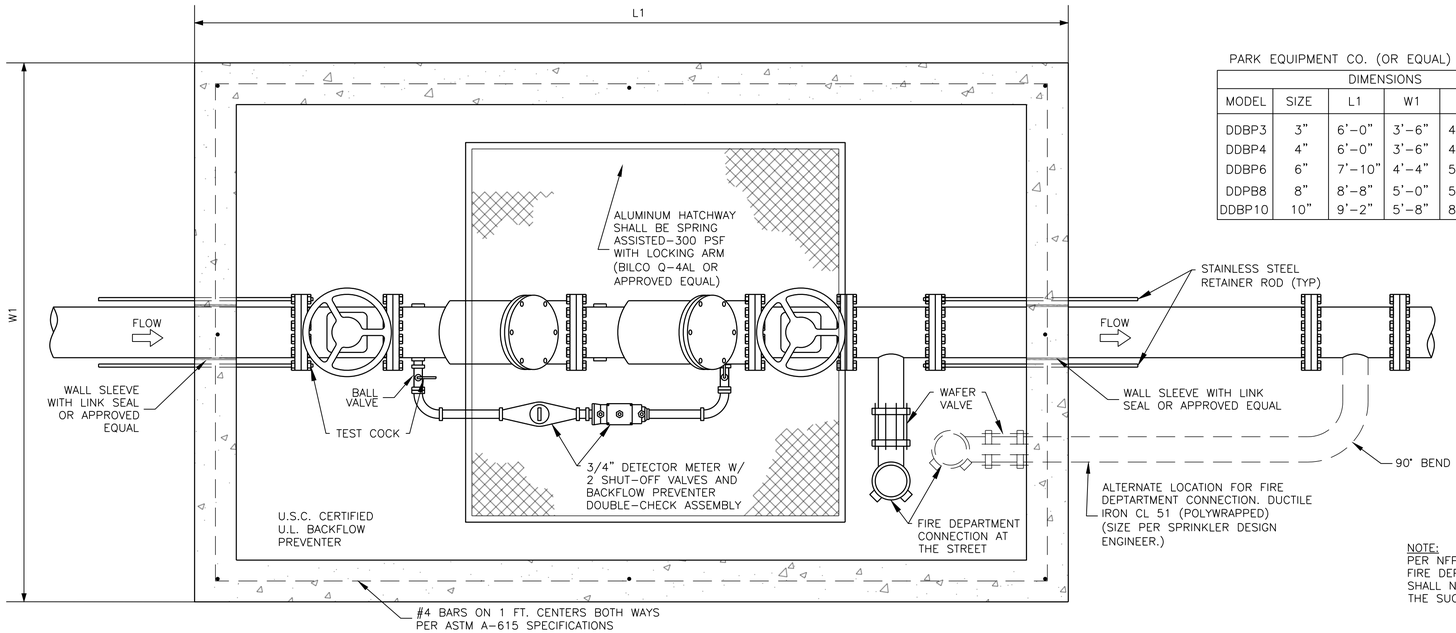
ECLIPSE NO. 88 SAMPLING STATION

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

WATER 2 OF 2

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-02	32 OF 53

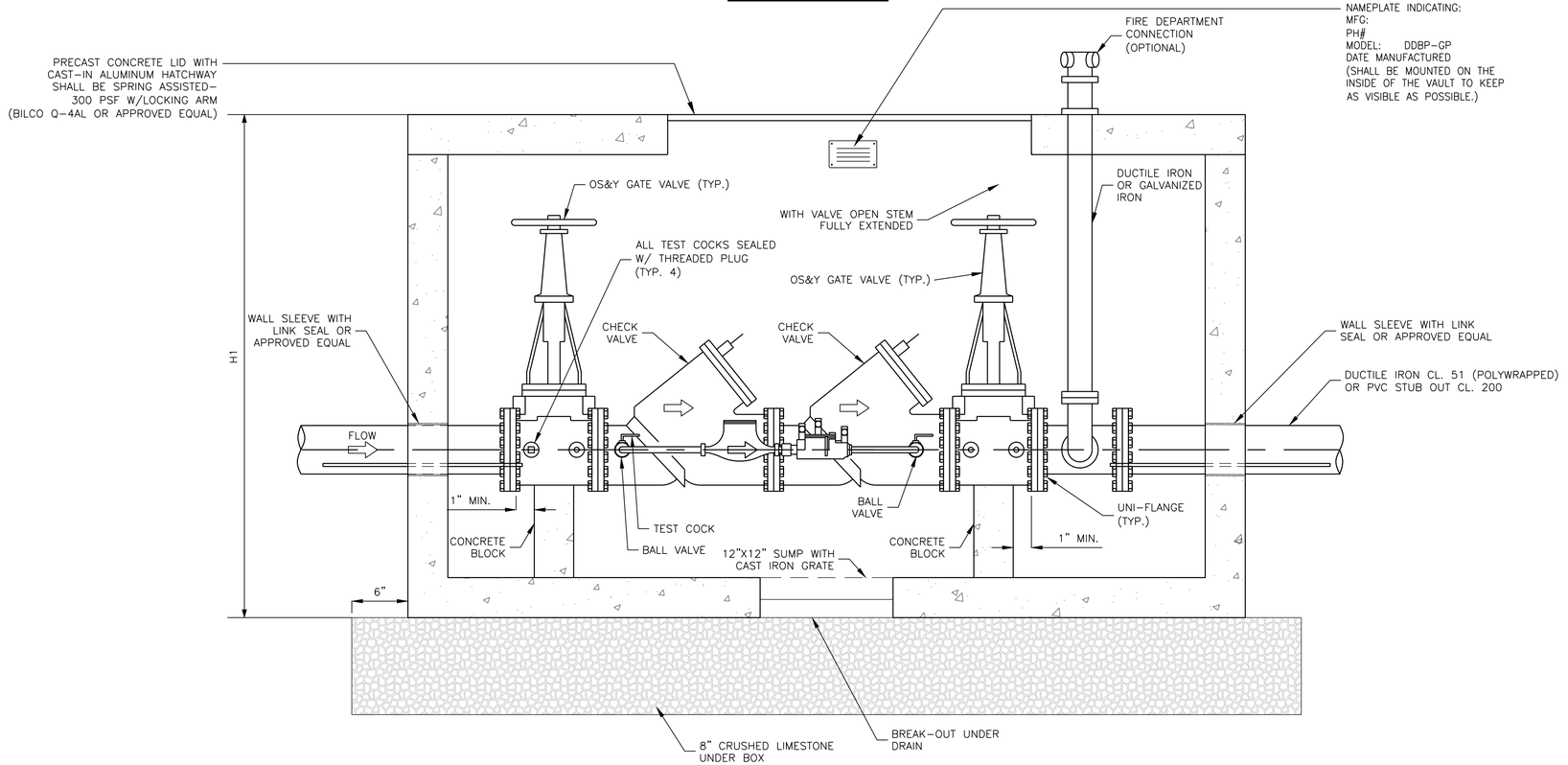


PLAN VIEW

PARK EQUIPMENT CO. (OR EQUAL) VAULT DETAIL

DIMENSIONS					
MODEL	SIZE	L1	W1	H1	WEIGHT LBS.
DDBP3	3"	6'-0"	3'-6"	4'-0"	2,700
DDBP4	4"	6'-0"	3'-6"	4'-0"	2,900
DDBP6	6"	7'-10"	4'-4"	5'-5"	9,000
DDPB8	8"	8'-8"	5'-0"	5'-6"	15,000
DDBP10	10"	9'-2"	5'-8"	8'-6"	18,000

NOTE:
PER NFPA 13,SEC.5-15.2.3.6, FIRE DEPARTMENT CONNECTIONS SHALL NOT BE CONNECTED ON THE SUCTION SIDE OF FIRE PUMPS



ELEVATION

N.T.S.

GENERAL NOTES:

GENERAL:

A. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS" HEREIN REFERRED TO AS "N.C.T.C.O.G." SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888. (817)640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
B. PLEASE ALSO REFER TO N.C.T.C.O.G. ITEM 502 SPECIFICATIONS.
C. THE ASSEMBLY SHALL MEET THE BASIC REQUIREMENTS OF ASCE 1048 FOR DOUBLE CHECK VALVES AND MEET REQUIREMENTS OF AWWA, CSA, UL CLASSIFIED, FM APPROVED. ASSEMBLY SHALL ALSO BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.
D. ALL DETAILS AND SPECIFICATIONS SHOWN ON THIS SHEET WILL GOVERN FOR THE INSTALLATION OF THE ASSEMBLY.

LOCATION:

A. THE VAULT SHALL BE LOCATED ON THE OWNER'S PROPERTY AND NOT WITHIN CITY RIGHT-OF-WAY OR EASEMENT.
B. THE OWNER AT HIS OPTION AND THE APPROVAL OF THE CITY OF LANCASTER MAY BE PERMITTED TO INSTALL THE DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY INSIDE THE BUILDING. THE INSTALLATION WOULD BE REQUIRED TO BE PERMITTED WITH THE BUILDING INSPECTION DEPARTMENT AND WILL BE INSPECTED BY THE ENVIRONMENTAL SERVICES DEPARTMENT AND THE BUILDING INSPECTION DEPARTMENT. THE FIRE DEPARTMENT CONNECTION IS TO BE LOCATED AT THE STREET. FIRE DEPARTMENT CONNECTION SHALL BE WITHIN 6 FT. OF CURB, UNOBSTRUCTED AND IN CLEAR VIEW. WATER UTILITY PERSONNEL TO HAVE ACCESS DURING NORMAL BUSINESS HOURS.
C. THE FIRE DEPARTMENT CONNECTION MAY BE INSTALLED OUTSIDE THE VAULT WITH THE APPROVAL OF THE FIRE DEPARTMENT.
D. VAULT WITH FIRE DEPARTMENT SHALL BE LOCATED A DISTANCE AWAY FROM THE STRUCTURE OF THE SPRINKLED BUILDING AS DIRECTED BY THE FIRE DEPARTMENT. ALTERNATE LOCATIONS FOR THE FIRE DEPARTMENT CONNECTION SHALL BE APPROVED BY THE FIRE DEPARTMENT PRIOR TO INSTALLATION.

VAULT:

A. THE VAULT CAN BE EITHER POURED IN PLACE OR PRE-CAST.
B. THE VAULT SHALL BE PLACED ON 8" CRUSHED LIMESTONE AND THE VAULT SHALL HAVE A SUMP WITH A MINIMUM OF A 12" X 12" GRATE IN THE BOTTOM OF THE VAULT FOR DRAIN PURPOSES.
C. CONCRETE SHALL BE A MINIMUM 6.5 SACK, WITH 4200 P.S.I. AT 28 DAYS.
D. UNIT IS TO BE OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.
E. REINFORCEMENT SHALL BE GRADE 60 STEEL REBAR CONFORMING TO ASTM A-615 ON REQUIRED CENTERS OR EQUAL.
F. HATCHWAY SHALL BE 1/4" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK AND BRASS HINGES.

PERMIT AND INSPECTION:

A. THE INSTALLATION OF THE CHECK VALVES AND VAULT SHALL BE PERMITTED AND INSPECTED BY THE THE CITY. THE APPLICANT WILL BE REQUIRED TO OBTAIN A MAINTENANCE BOND FOR TWO (2) YEARS FROM DATE OF ACCEPTANCE OF INSTALLATION.
B. THE PIPE LINE FROM THE CHECK VALVE VAULT TO THE BUILDING SHALL BE PERMITTED AND INSPECTED BY THE CITY.

INSTALLATION:

A. THE DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY SHALL CONSIST OF A SINGLE COMPLETE ASSEMBLY CONTAINING TWO INDEPENDENT ACTING CHECK VALVES AND FOUR PROPERLY PLACED RESILIENT TEST COCKS FOR TEST OF THE ASSEMBLY.
B. ASSEMBLY SHALL ALSO INCLUDE TWO (2) U.L. LISTED RESILIENT SEATED OS & Y SHUTOFF VALVES AND TEST COCKS.
C. UNIT SHALL BE UL/FM APPROVED WITH UL/FM APPROVED OS & Y SHUTOFF VALVES.
D. OS & Y VALVES SHALL BE MUELLER, WATEROUS, KENNEDY OR AN APPROVED EQUAL.
E. THE AUXILIARY LINE SHALL CONSIST OF AN APPROVED BACKFLOW PREVENTER (DOUBLE CHECK ASSEMBLY COMPLETED WITH TEST COCKS) AND A 5/8" X 3/4" WATER METER.
F. THE BYPASS AUXILIARY LINE SHALL HAVE A DOUBLE CHECK ASSEMBLY, WATTS SERIES 007, AMES 2000 SS BV OR FEBCO 805 Y OR AN APPROVED EQUAL.
G. THE BYPASS AUXILIARY LINE 5/8" X 3/4" METER SHALL BE HERSEY, NEPTUNE OR BADGER.
H. THE BACKFLOW PREVENTER SHALL HAVE
1. AN EPOXY COATED CAST IRON BODY, EPOXY COATED DUCTILE IRON BODY OR STAINLESS STEEL BODY WITH REPLACEMENT BRONZE SEATS AND/OR
2. A UNITIZED STAINLESS AND PLASTIC CHECK ASSEMBLY.
I. THE DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY SHALL BE A WATTS SERIES 709 DCDA OSYRW, AMES MODEL 3000 SS OR FEBCO MODEL 856 OR AN APPROVED EQUAL.
J. 4" WAFER CHECK VALVES SHALL BE KENNEDY, RELIABLE MODEL DW, MUELLER A 2102 OR NBCO W-900W OR AN APPROVED EQUAL.

TESTING:

A. THE UNIFORM PLUMBING CODE REQUIRES THAT THIS ASSEMBLY MUST BE TESTED IMMEDIATELY UPON INSTALLATION. COPIES OF THE TEST REPORT MUST BE FORWARDED TO THE FIRE MARSHAL'S OFFICE.
B. UPON INSTALLATION AND APPROVAL OF FIRE SPRINKLER LINE/FIRE DEPARTMENT CONNECTION, THE OWNER SHALL BE REQUIRED TO SUBMIT A YEARLY TEST REPORT FROM A REPUTABLE TESTING COMPANY STATING THAT THE CHECK VALVES ARE IN GOOD WORKING CONDITION. THESE TEST REPORTS SHALL BE SUBMITTED TO THE CITY OF LANCASTER FIRE MARSHAL'S OFFICE ONCE A YEAR. THE TESTING OF BACKFLOW PREVENTER ASSEMBLIES WHICH ARE INSTALLED TO PROVIDE PROTECTION AGAINST HEALTH HAZARDS ARE TO BE COMPLETED BY CERTIFIED FIRELINE TESTERS THAT ARE QUALIFIED TO TEST AND REPAIR BACKFLOW PREVENTER ASSEMBLIES ON FIRE LINES ONLY.

MAINTENANCE:

THE MAINTENANCE OF THE DOUBLE CHECK DETECTOR BACKFLOW ASSEMBLY SHALL BE BY THE PROPERTY OWNER.

MATERIAL: ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

HATCH SIZE:

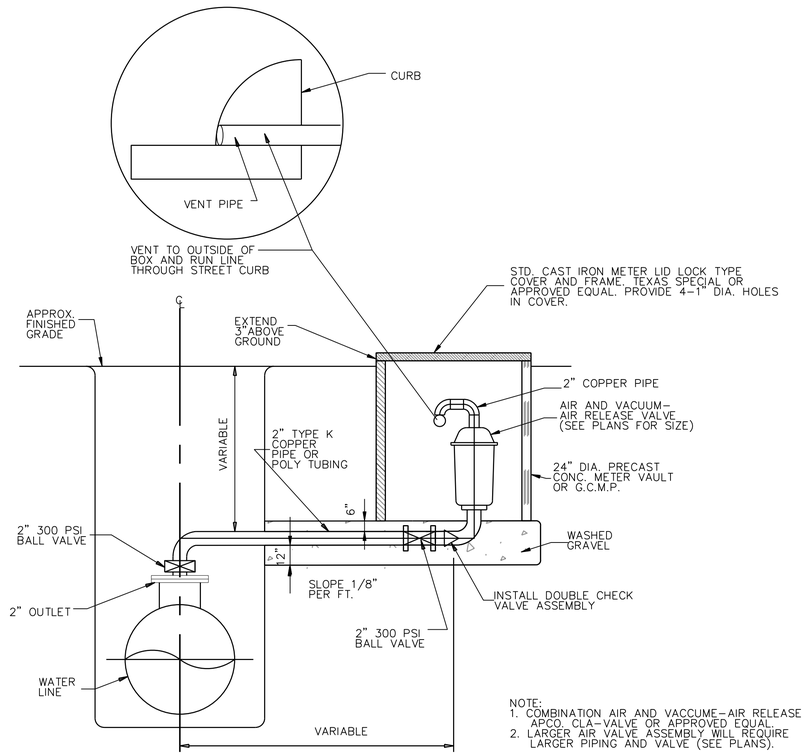
SEE DOUBLE CHECK DETECTOR ASSEMBLY AND/OR CHECK VALVE ASSEMBLY DETAIL SHEETS FOR ALUMINUM HATCHWAY SIZING.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

VAULT AND APPURTENANCES

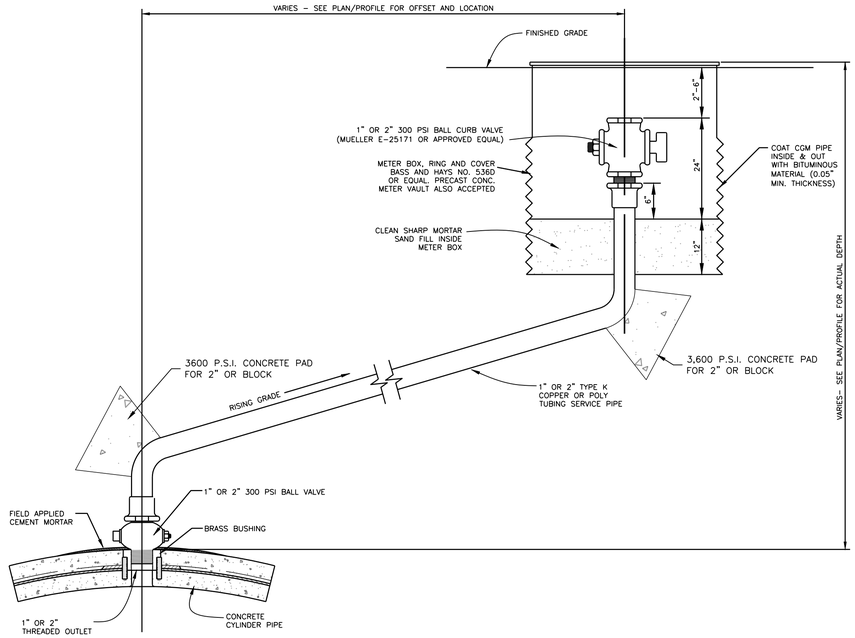
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-03	33 OF 53



NOTE:
1. COMBINATION AIR AND VACCUME-AIR RELEASE APCO CLA-VALVE OR APPROVED EQUAL.
2. LARGER AIR VALVE ASSEMBLY WILL REQUIRE LARGER PIPING AND VALVE (SEE PLANS).

AIR AND VACUUM – AIR RELEASE VALVE INSTALLATION

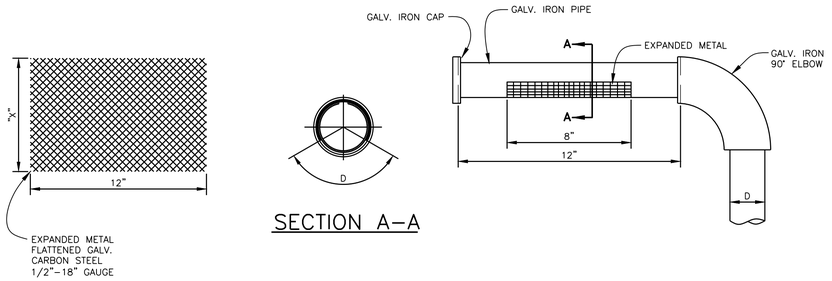


MANUALLY OPERATED FLUSH POINT

(SIZES DESIGNATED ON PLANS)

NOT TO SCALE

NOTE: EXPANDED METAL PIPE SHALL BE TACK WELDED



DETAIL "A"

NOT TO SCALE

GENERAL NOTES:

GENERAL:

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(B) PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 502 SPECIFICATIONS.

(C) AIR AND VACUUM RELEASE VALVES FOR WASTEWATER APPLICATIONS SHALL BE MADE OF NON-CORROSIVE MATERIAL.

(D) ALL UTILITY DITCH LINES WITHIN CITY R.O.W. OR EASEMENT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY PER 6"-8" LIFTS (NOT TO EXCEED 12") AT STAGGERED 100' INTERVALS. ALL LATERALS OR SERVICES SHALL HAVE A MINIMUM OF ONE DENSITY TEST PER FOOT OF LIFT. THE INSPECTOR SHALL HAVE THE RIGHT TO REQUEST ADDITIONAL RANDOM TESTS AS HE/SHE DEEMS NECESSARY.

(E) ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

(F) ALL DUCTILE IRON SHALL BE CLASS 51 AND POLYWRAPPED.

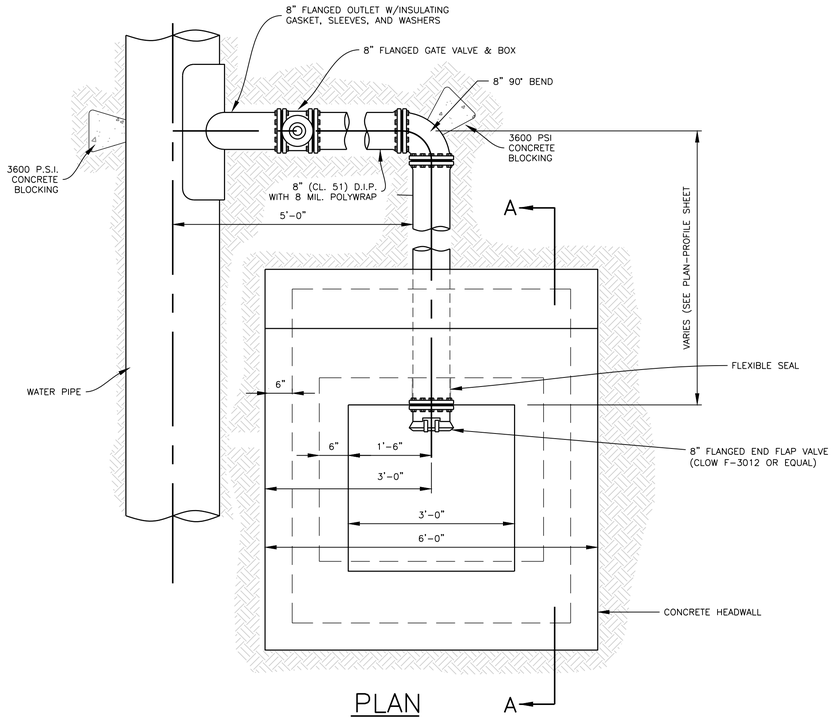
(G) CONTRACTOR SHALL CONTACT STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

(H) SERVICE CONNECTION FOR AIR AND VACUUM RELEASE OR MANUALLY OPERATED FLUSH POINTS SHALL BE K COPPER TUBING. HD POLYETHELYNE IS NOT ALLOWED.

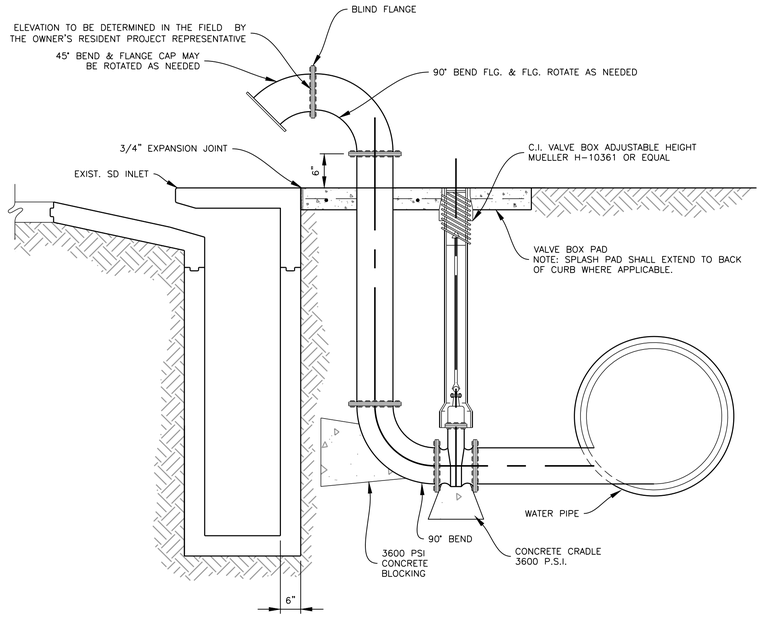
CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

WATER, AIR AND VACUUM RELEASE VALVE STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-04	34 OF 53

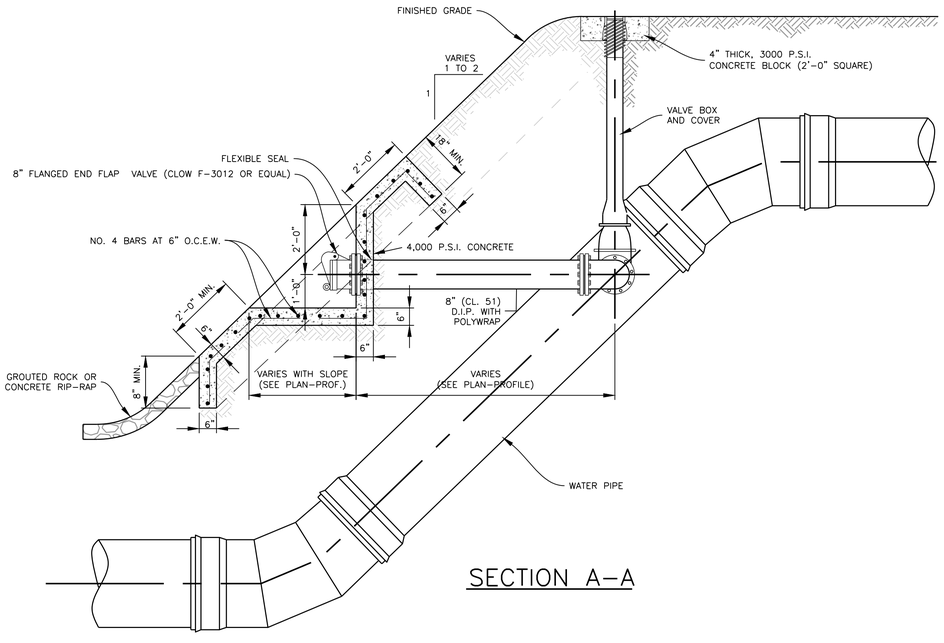


PLAN



BLOW-OFF VALVE CONNECTION AT EX. STORM DRAIN INLET

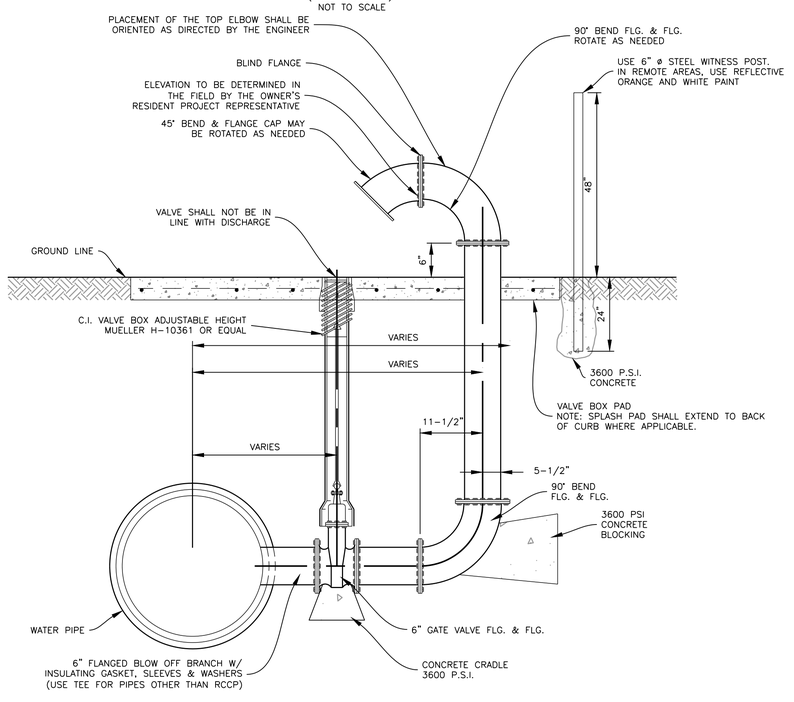
(SEE NOTE J.)
NOT TO SCALE



SECTION A-A

IRON PIPE BLOW-OFF DETAIL

NOT TO SCALE



IRON PIPE BLOW-OFF DETAIL

NOT TO SCALE

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(B) ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE CLASS 51, AND POLYWRAPPED.

(C) PLEASE ALSO REFER TO THE "WATER STANDARD DETAIL" SHEET FOR VALVE AND BLOCKING AND TESTING SPECIFICATIONS.

(D) PLEASE ALSO REFER TO THE DETAILS ON THIS SHEET AND N.C.T.C.O.G. ITEM 502 SPECIFICATIONS.

(E) SOIL TESTING TECHNICIAN MUST PROVIDE WRITTEN PROOF OF 18-24 MONTHS OF RELATED FIELD EXPERIENCE

(F) ALL UTILITY DITCH LINES WITHIN CITY R.O.W. OR EASEMENT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY PER 6"-8" LIFTS (NOT TO EXCEED 12") AT STAGGERED 100' INTERVALS. ALL LATERALS OR SERVICES SHALL HAVE A MINIMUM OF ONE DENSITY TEST PER FOOT OF LIFT. THE INSPECTOR SHALL HAVE THE RIGHT TO REQUEST ADDITIONAL RANDOM TESTS AS HE/SHE DEEMS NECESSARY.

(G) ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

(H) CONTRACTOR SHALL CONTACT STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

(I) ALL NEW WATER BLOW-OFF ASSEMBLIES WITHIN FIFTY FEET FROM THE NEAREST STORM DRAIN INLET BE SHALL INSTALLED AT THE INLET AS PER DETAILS ON THIS SHEET.

(J) WATER BLOW-OFF'S SHALL NOT BE INSTALLED IN SIDEWALKS.

CERTIFICATION:
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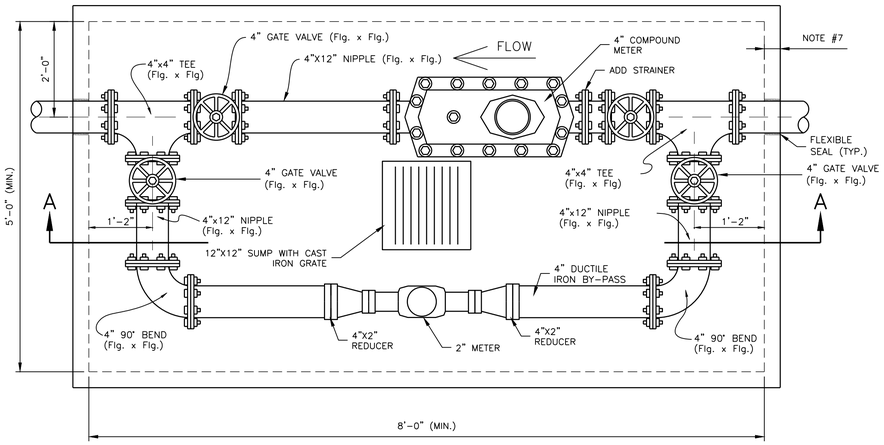
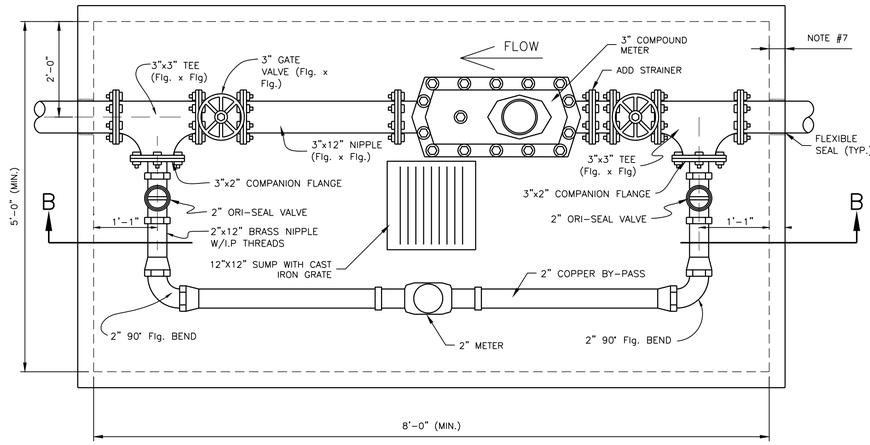
WATER BLOW-OFF
STANDARD DETAILS

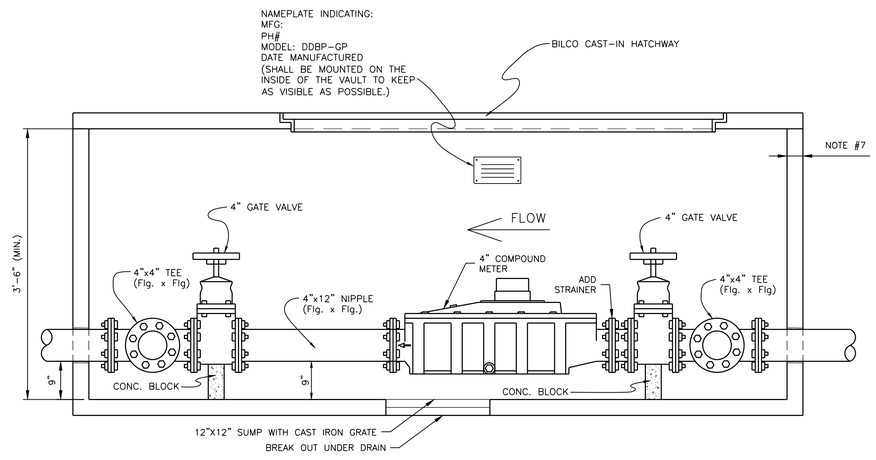
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-05	35 OF 53



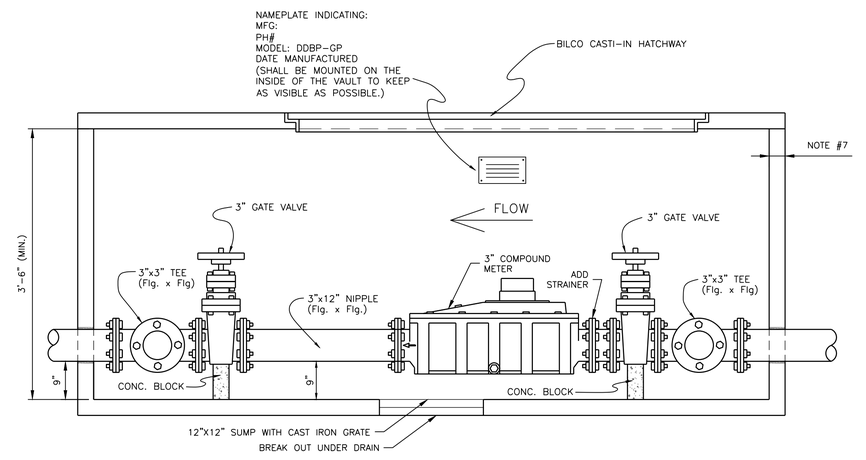
PLAN VIEW
4" COMPOUND WATER METER
N.T.S.



PLAN VIEW
3" COMPOUND WATER METER
N.T.S.



SECTION 'A-A'
N.T.S.



SECTION 'B-B'
N.T.S.

GENERAL NOTE

1. MASTER METER DBC METER OR APPROVED EQUAL. ALL METERS MUST BE OUTFITTED WITH ITRON 60WP OR 60W ERT'S WITH INLINE CONNECTOR. ERT MUST BE MOUNTED JUST UNDER VAULT LID FOR DRIVE-BY READING.

2. THE METER VAULT CAN BE EITHER POURED IN PLACE OR PRE-CAST. ALL WALLS, EITHER POURED IN PLACE OR PRE-CAST, SHALL BE MONOLITHIC POUR. NO SEAMS OR EXTENSIONS WILL BE ALLOWED. CONCRETE SHALL BE 5000 PSI AT 28 DAYS. REINFORCEMENT IS GRADE 60 STEEK REBER CONFORMING TO ASTM A615.

3. A 6" ROCK SHALL BE INSTALLED UNDER THE SLAB. IF A PRE-FABRICATED VAULT TO BE USED, A LAYER OF RAM-NEX SHALL BE INSTALLED BETWEEN THE WALLS AND BOTTOM SLAB.

4. THE VAULT SHALL NOT BE INSTALLED IN ANY DRIVEWAY OF PARKING AREA AND MUST BE LOCATED IN A UTILITY EASEMENT DEDICATED TO THE CITY OF LANCASTER.

5. THE VAULT LID SHALL BE BILCO TYPE Q-4A L LEAF LID. ANGLE FRAME IS 1/4" ALUMINUM OR STAINLESS STEEL WITH STRAP ANCHORS BOLTED TO THE EXTERIOR. THE LEAF IS 1/4" STEEL DIAMOND PATTERN PLATE, PIVOTING ON TORSION BARS FOR EASY OPERATIONS. THE MINIMUM LIVE LOAD CAPACITY IS 150 LBS.PER SQ.FOOT. THE LID SIZE SHALL BE 30"X48". THE LID SHALL BE PAINTED WITH 43-38 TNEMEC DIFFUSED ALUMINUM PAINT OR APPROVED EQUAL.

6. CONTRACTOR SHALL HAVE THE OPTION TO USE WHEEL VALVE OR HUB VALVE INSIDE METER VAULT.

7. THICKNESS OF VAULT WALLS TOP AND BASE MAY VARY AND ARE SPECIFIED BY THE PRECAST VAULT MANUFACTURING COMPANY.

CERTIFICATION:
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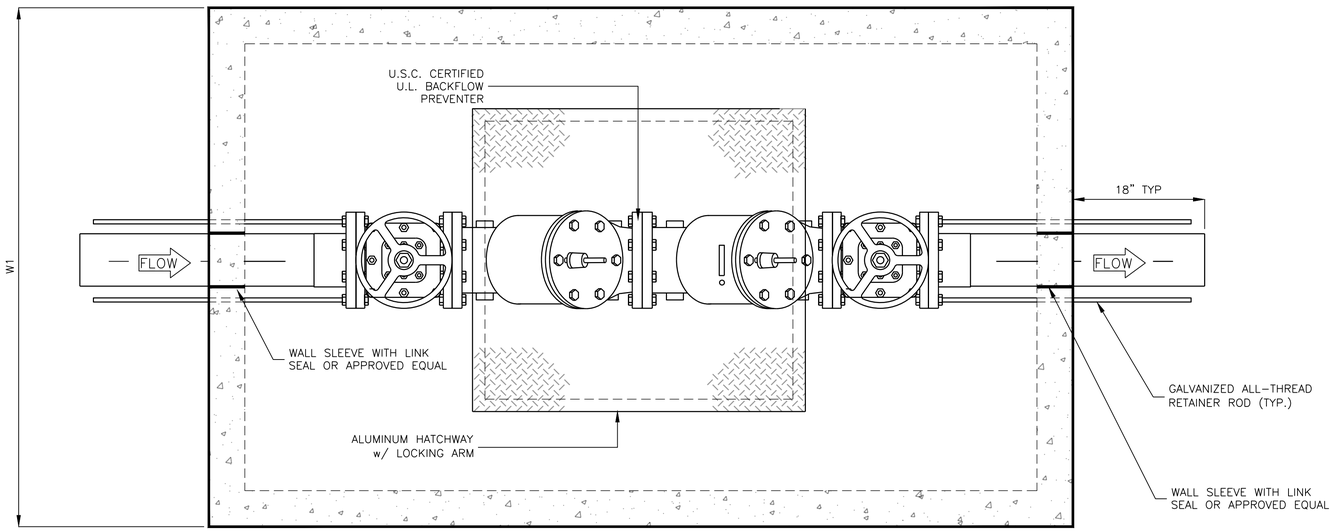
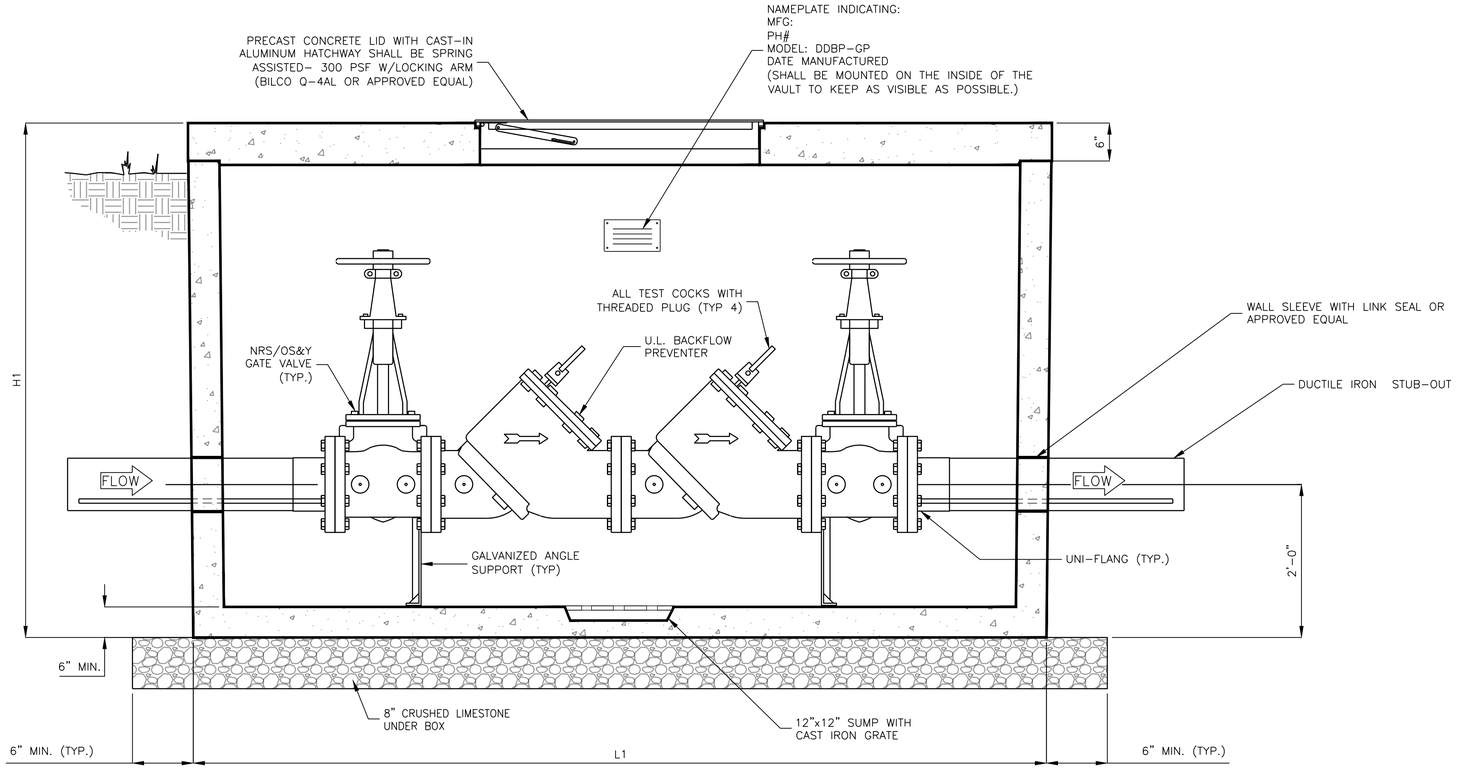
3" METER – 4" METER
VAULT & APPURTENANCES
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-06	36 OF 53



PLAN VIEW



ELEVATION

NOTE: ALSO SEE "VAULT AND APPURTENANCES" STANDARD DETAIL SHEET

SPECIFICATIONS

CONCRETE: CONCRETE SHALL BE MINIMUM 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

REINFORCEMENT: GRADE 60 REINFORCED. STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

HATCHWAY: 1/4" ALUMINUM DIAMOND PLATE COVER, WITH 1/4" EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK & BRASS HINGES.

ENGINEERING DATA: FIELD EXCAVATION AND PREPARATION SHALL BE COMPLETED PRIOR TO DELIVERY OF ASSEMBLY. USE DIMENSIONAL DATA AS SHOWN. PIPE, VALVES AND FITTINGS OF THE ASSEMBLY ARE APPROVED BY ONE OR MORE OF THE FOLLOWING ASSOCIATIONS:

MODEL	SIZE	L1	W1	H1	ALUMINUM HATCHWAY	WEIGHT LBS
BP-GP3	3"	6'-0"	3'-6"	5'-0	30"x36"	4,000
BP-GP4	4"	6'-0"	3'-6"	5'-0"	30"x36"	4,200
BP-GP6	6"	7'-10"	4'-4"	6'-0"	30"x48"	12,000
BP-GP8	8"	8'-8"	5'-0"	6'-0"	30"x48"	15,000
BP-GP10	10"	9'-0"	6'-0"	6'-6"	36"x60"	18,000

GENERAL NOTES:

GENERAL:
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(B) PLEASE ALSO REFER TO N.C.T.C.O.G. ITEM 502 SPECIFICATIONS.
(C) THE ASSEMBLY SHALL MEET THE BASIC REQUIREMENTS OF ASCE 1048 FOR DOUBLE CHECK VALVES AND MEET REQUIREMENTS OF AWWA, CSA, UL CLASSIFIED, FM APPROVED. ASSEMBLY SHALL ALSO BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.
(D) ALL DETAILS AND SPECIFICATIONS SHOWN ON THIS SHEET WILL GOVERN FOR THE INSTALLATION OF THE ASSEMBLY.

LOCATION:
(A) THE VAULT SHALL BE LOCATED ON THE OWNER'S PROPERTY AND NOT WITHIN CITY RIGHT-OF-WAY OR EASEMENT.
(B) THE OWNER AT HIS OPTION AND THE APPROVAL OF THE CITY OF LANCASTER MAY BE PERMITTED TO INSTALL THE DOUBLE CHECK VALVE ASSEMBLY INSIDE THE BUILDING. THE INSTALLATION WOULD BE REQUIRED TO BE PERMITTED WITH THE BUILDING INSPECTION DEPARTMENT AND WILL BE INSPECTED BY THE BUILDING INSPECTION DEPARTMENT. THE FIRE DEPARTMENT CONNECTION IS TO BE LOCATED IN ACCORDANCE WITH THE CURRENT FIRE CODE. FIRE DEPARTMENT CONNECTION SHALL BE WITHIN 6 FT. OF CURB, UNOBSTRUCTED AND IN CLEAR VIEW. WATER UTILITY PERSONNEL TO HAVE ACCESS DURING NORMAL BUSINESS HOURS.

VAULT:
(A) THE VAULT CAN BE EITHER POURED IN PLACE OR PRE-CAST.
(B) THE VAULT SHALL BE PLACED ON 8" CRUSHED LIMESTONE AND THE VAULT SHALL HAVE A SUMP WITH A MINIMUM OF A 12" X 12" GRATE IN THE BOTTOM OF THE VAULT FOR DRAIN PURPOSES.
(C) CONCRETE SHALL BE A MINIMUM 6.5 SACK, WITH 4500 P.S.I. AT 28 DAYS.
(D) UNIT IS TO BE OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.
(E) REINFORCEMENT SHALL BE GRADE 60 STEEL REBAR CONFORMING TO ASTM A-615 ON REQUIRED CENTERS OR EQUAL.
(F) (F) HATCHWAY SHALL BE 1/4" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK AND BRASS HINGES.

PERMIT AND INSPECTION:
(A) THE INSTALLATION OF THE CHECK VALVES AND VAULT SHALL BE PERMITTED AND INSPECTED BY THE PUBLIC WORKS DEPARTMENT OF THE CITY OF LANCASTER. THE APPLICANT WILL BE REQUIRED TO PAY A PERMIT FEE AND OBTAIN A MAINTENANCE BOND PER THE UNIFIED DEVELOPMENT CODE (UDC), ARTICLE 22, FOR TWO (2) YEARS FROM DATE OF ACCEPTANCE OF INSTALLATION.
(B) THE INSTALLATION OF THE CHECK VALVES BE PERMITTED AND INSPECTED BY THE ENVIRONMENTAL SERVICES DEPARTMENT OF THE CITY OF LANCASTER THE APPLICANT WILL BE REQUIRED TO PAY AN INSPECTION FEE OF $100.00 PER DEVICE.
(C) THE PIPE LINE FROM THE CHECK VALVE VAULT TO THE BUILDING SHALL BE PERMITTED AND INSPECTED BY THE BUILDING INSPECTION DIVISION OF THE CITY OF LANCASTER.

INSTALLATION:
(A) THE DOUBLE CHECK VALVE ASSEMBLY SHALL CONSIST OF A SINGLE COMPLETE ASSEMBLY CONTAINING TWO INDEPENDENT ACTING CHECK VALVES AND FOUR PROPERLY PLACED RESILIENT TEST COCKS FOR TEST OF THE ASSEMBLY. ASSEMBLY SHALL ALSO INCLUDE TWO (2) U.L. LISTED RESILIENT SEATED OS & Y SHUTOFF VALVES AND TEST COCKS.
(B) UNIT SHALL BE UL/FM APPROVED WITH UL/FM APPROVED OS & Y SHUTOFF VALVES.
(C) OS & Y VALVES SHALL BE MUELLER, WATEROUS, KENNEDY OR AN APPROVED EQUAL.
(D) THE BACKFLOW PREVENTER SHALL HAVE A EPOXY COATED CAST IRON BODY, EPOXY COATED DUCTILE IRON BODY OR STAINLESS STEEL BODY WITH REPLACEMENT BRONZE SEATS AND/OR A UNITIZED STAINLESS AND PLASTIC CHECK ASSEMBLY.
(E) THE DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY SHALL BE A WATTS SERIES 709 DCDA OSYRW, AMES MODEL 3000 SS OR FEBCO MODEL 856 OR AN APPROVED EQUAL.
(F) 4" WAFER CHECK VALVES SHALL BE KENNEDY, RELIABLE MODEL DW, MUELLER A 2102 OR NBCO W-90W OR AN APPROVED EQUAL.

TESTING:
(A) THE UNIFORM PLUMBING CODE REQUIRES THAT THIS ASSEMBLY MUST BE TESTED IMMEDIATELY UPON INSTALLATION. COPIES OF THE TEST REPORT MUST BE FORWARDED TO THE CITY OF LANCASTER FIRE MARSHAL'S OFFICE.

(B) UPON INSTALLATION AND APPROVED OF FIRE SPRINKLER LINE/FIRE DEPARTMENT CONNECTION, THE OWNER SHALL BE REQUIRED TO SUBMIT AN ANNUAL TEST REPORT FROM A REPUTABLE TESTING COMPANY STATING THAT THE CHECK VALVES ARE IN GOOD WORKING CONDITION. THESE TEST REPORTS SHALL BE SUBMITTED TO THE CITY OF LANCASTER FIRE MARSHAL'S OFFICE. THE TESTING OF BACKFLOW PREVENTER ASSEMBLIES WHICH ARE INSTALLED TO PROVIDE PROTECTION AGAINST HEALTH HAZARDS ARE TO BE COMPLETED BY CERTIFIED FIRELINE TESTERS THAT ARE QUALIFIED TO TEST AND REPAIR BACKFLOW PREVENTER ASSEMBLIES ON FIRE LINES ONLY.

MAINTENANCE:
THE MAINTENANCE OF THE DOUBLE CHECK VALVE ASSEMBLY SHALL BE BY THE PROPERTY OWNER.

MATERIAL: USE UNIVERSITY OF SOUTHERN CALIFORNIA (U.S.C.)APPROVED DEVICE. (WWW.USC.EDU/DEPT/FCCCHR/LIST.HTML)

NOTE: CHECK VALVES SMALLER THAN 3" WILL NOT REQUIRE A VAULT.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

3" THRU 10" DOUBLE DETECTOR CHECK VALVE ASSEMBLY

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	*WAT-07*	*37* OF *53*

SPECIFICATIONS

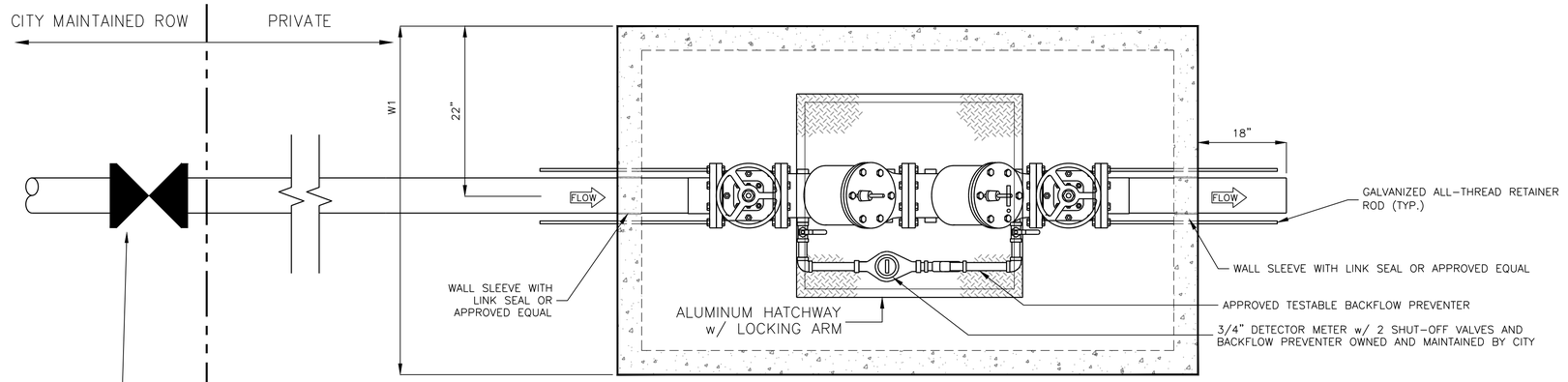
CONCRETE: CONCRETE SHALL BE MINIMUM 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

REINFORCEMENT: GRADE 60 REINFORCED STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

HATCHWAY: 1/4" ALUMINUM DIAMOND PLATE COVER, WITH 1/4" EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK & BRASS HINGES.

ENGINEERING DATA

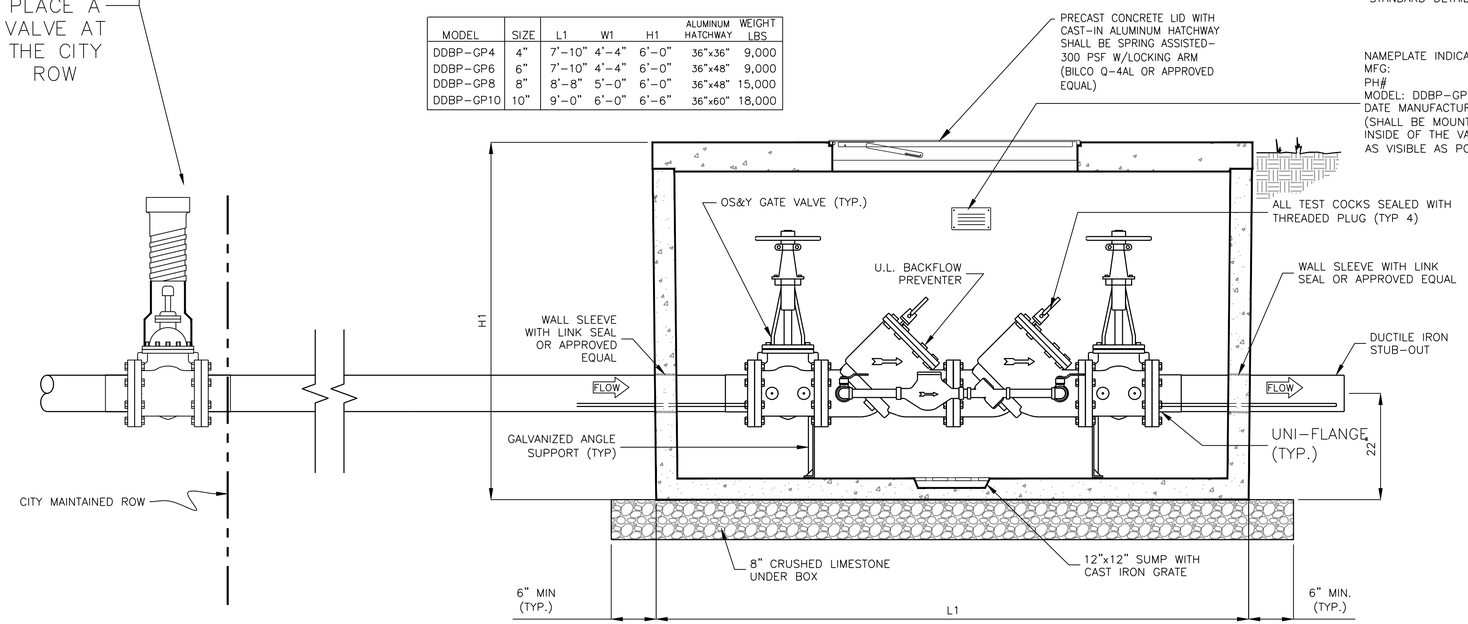
FIELD EXCAVATION AND PREPARATION SHALL BE COMPLETED PRIOR TO DELIVERY OF ASSEMBLY. USE DIMENSIONAL DATA AS SHOWN. PIPE, VALVES AND FITTINGS OF THE ASSEMBLY ARE APPROVED BY ONE OR MORE OF THE FOLLOWING ASSOCIATIONS:



PLAN VIEW

NOTE:
ALSO SEE "VAULT AND APPURTENANCES" STANDARD DETAIL SHEET

MODEL	SIZE	L1	W1	H1	ALUMINUM HATCHWAY	WEIGHT LBS
DDBP-GP4	4"	7'-10"	4'-4"	6'-0"	36"x36"	9,000
DDBP-GP6	6"	7'-10"	4'-4"	6'-0"	36"x48"	9,000
DDBP-GP8	8"	8'-8"	5'-0"	6'-0"	36"x48"	15,000
DDBP-GP10	10"	9'-0"	6'-0"	6'-6"	36"x60"	18,000



ELEVATION

GENERAL NOTES:

GENERAL:
(A) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS" HEREIN REFERRED TO AS "N.C.T.C.O.G." SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888. (817) 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
(B) PLEASE ALSO REFER TO N.C.T.C.O.G. ITEM 502 SPECIFICATIONS.
(C) THE ASSEMBLY SHALL MEET THE BASIC REQUIREMENTS OF ASCE 1048 FOR DOUBLE CHECK VALVES AND MEET REQUIREMENTS OF AWWA, CSA, UL CLASSIFIED, FM APPROVED. ASSEMBLY SHALL ALSO BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.
(D) ALL DETAILS AND SPECIFICATIONS SHOWN ON THIS SHEET WILL GOVERN FOR THE INSTALLATION OF THE ASSEMBLY.

LOCATION:
(A) THE VAULT SHALL BE LOCATED ON THE OWNER'S PROPERTY AND NOT WITHIN CITY RIGHT-OF-WAY OR EASEMENT.
(B) THE OWNER AT HIS OPTION AND THE APPROVAL OF THE CITY OF LANCASTER MAY BE PERMITTED TO INSTALL THE DOUBLE CHECK VALVE ASSEMBLY INSIDE THE BUILDING. THE INSTALLATION WOULD BE REQUIRED TO BE PERMITTED WITH THE BUILDING INSPECTION DEPARTMENT AND WILL BE INSPECTED BY THE BUILDING INSPECTION DEPARTMENT. THE FIRE DEPARTMENT CONNECTION IS TO BE LOCATED AT THE STREET. FIRE DEPARTMENT CONNECTION SHALL BE WITHIN 6 FT. OF CURB, UNOBSTRUCTED AND IN CLEAR VIEW. WATER UTILITY PERSONNEL TO HAVE ACCESS DURING NORMAL BUSINESS HOURS.

VAULT:
(A) THE VAULT CAN BE EITHER POURED IN PLACE OR PRE-CAST.
(B) THE VAULT SHALL BE PLACED ON 8" CRUSHED LIMESTONE AND THE VAULT SHALL HAVE A SUMP WITH A MINIMUM OF A 12" X 12" GRATE IN THE BOTTOM OF THE VAULT FOR DRAIN PURPOSES.
(C) CONCRETE SHALL BE A MINIMUM 6.5 SACK, WITH 4500 P.S.I. AT 28 DAYS.
(D) UNIT IS TO BE OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.
(E) REINFORCEMENT SHALL BE GRADE 60 STEEL REBAR CONFORMING TO ASTM A-615 ON REQUIRED CENTERS OR EQUAL.
(F) HATCHWAY SHALL BE 1/4" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK AND BRASS HINGES.

PERMIT AND INSPECTION:
(A) THE INSTALLATION OF THE CHECK VALVES AND VAULT SHALL BE PERMITTED AND INSPECTED BY THE PUBLIC WORKS DEPARTMENT OF THE CITY OF LANCASTER. THE APPLICANT WILL BE REQUIRED TO PAY A PERMIT FEE AND OBTAIN A MAINTENANCE BOND PER THE UNIFIED DEVELOPMENT CODE (UDC), SECTION 22, FOR TWO (2) YEARS FROM DATE OF ACCEPTANCE OF INSTALLATION.
(B) THE INSTALLATION OF THE CHECK VALVES SHALL BE PERMITTED AND INSPECTED BY THE ENVIRONMENTAL SERVICES DEPARTMENT OF THE CITY OF LANCASTER THE APPLICANT WILL BE REQUIRED TO PAY AN INSPECTION FEE OF $100.00 PER DEVICE.
(C) THE PIPE LINE FROM THE CHECK VALVE VAULT TO THE BUILDING SHALL BE PERMITTED AND INSPECTED BY THE BUILDING INSPECTION DIVISION OF THE CITY OF LANCASTER.

INSTALLATION:
(A) THE DOUBLE CHECK DETECTOR ASSEMBLY SHALL CONSIST OF A SINGLE COMPLETE ASSEMBLY CONTAINING TWO INDEPENDENT ACTING CHECK VALVES AND FOUR PROPERLY PLACED RESILIENT TEST COCKS FOR TEST OF THE ASSEMBLY. ASSEMBLY SHALL ALSO INCLUDE TWO (2) U.L. LISTED RESILIENT SEATED OS & Y SHUTOFF VALVES AND TEST COCKS.
(B) UNIT SHALL BE UL/FM APPROVED WITH UL/FM APPROVED OS & Y SHUTOFF VALVES.
(C) OS & Y VALVES SHALL BE MUELLER, WATEROUS, KENNEDY OR AN APPROVED EQUAL.
(D) THE AUXILIARY LINE SHALL CONSIST OF AN APPROVED BACKFLOW PREVENTER (DOUBLE CHECK ASSEMBLY COMPLETED WITH TEST COCKS) AND A 5/8" X 3/4" WATER METER.
(E) THE BYPASS AUXILIARY LINE SHALL HAVE A DOUBLE CHECK ASSEMBLY, WATTS SERIES 007, AMES 2000 SS BV OR FEBCO 805 Y OR AN APPROVED EQUAL.
(F) THE BYPASS AUXILIARY LINE 5/8" X 3/4" METER SHALL BE HERSEY, NEPTUNE OR BADGER.
(G) THE BACKFLOW PREVENTER SHALL HAVE A EPOXY COATED CAST IRON BODY, EPOXY COATED DUCTILE IRON BODY OR STAINLESS STEEL BODY WITH REPLACEMENT BRONZE SEATS AND/OR A UNITIZED STAINLESS AND PLASTIC CHECK ASSEMBLY.
(H) THE DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY SHALL BE A WATTS SERIES 709 DCDA OSYRW, AMES MODEL 3000 SS OR FEBCO MODEL 856 OR AN APPROVED EQUAL.
(I) 4" WAFER CHECK VALVES SHALL BE KENNEDY, RELIABLE MODEL DW, MUELLER A 2102 OR NBCO W-900W OR AN APPROVED EQUAL.

TESTING:
(A) THE UNIFORM PLUMBING CODE REQUIRES THAT THIS ASSEMBLY MUST BE TESTED IMMEDIATELY UPON INSTALLATION. COPIES OF THE TEST REPORT MUST BE FORWARDED TO THE CITY OF LANCASTER FIRE MARSHAL'S OFFICE.
(B) UPON INSTALLATION AND APPROVAL OF FIRE SPRINKLER LINE/FIRE DEPARTMENT CONNECTION, THE OWNER SHALL BE REQUIRED TO SUBMIT AN ANNUAL TEST REPORT FROM A REPUTABLE TESTING COMPANY STATING THAT THE CHECK VALVES ARE IN GOOD WORKING CONDITION. THESE TEST REPORTS SHALL BE SUBMITTED TO THE CITY OF LANCASTER FIRE MARSHAL'S OFFICE. THE TESTING OF BACKFLOW PREVENTER ASSEMBLIES WHICH ARE INSTALLED TO PROVIDE PROTECTION AGAINST HEALTH HAZARDS ARE TO BE COMPLETED BY CERTIFIED FIRELINE TESTERS THAT ARE QUALIFIED TO TEST AND REPAIR BACKFLOW PREVENTER ASSEMBLIES ON FIRE LINES ONLY.

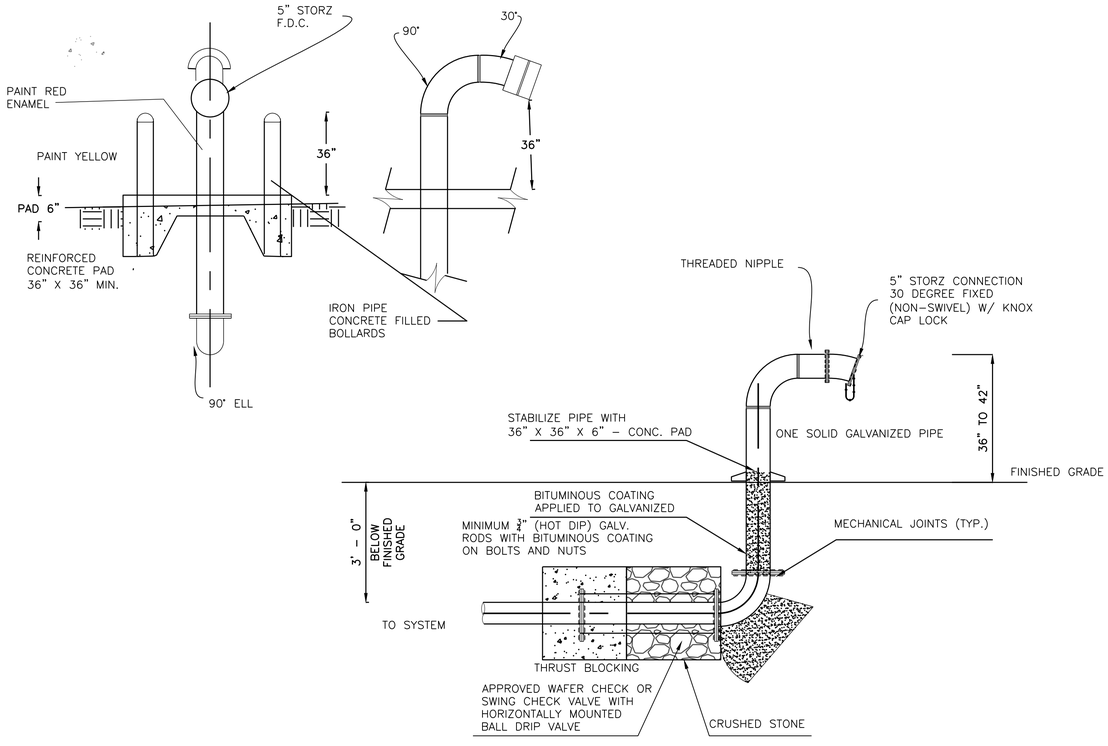
MAINTENANCE:
THE MAINTENANCE OF THE DOUBLE CHECK VALVE ASSEMBLY SHALL BE BY THE PROPERTY OWNER.

MATERIAL:
USE UNIVERSITY OF SOUTHERN CALIFORNIA (U.S.C.) APPROVED DEVICE. (WWW.USC.EDU/DEPT/FCCCHR/LIST.HTML)

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

4" THRU 10" DOUBLE CHECK DETECTOR ASSEMBLY FOR FIRE SERVICE STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-08	38 OF 53



FDC DETAIL REQUIREMENTS

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

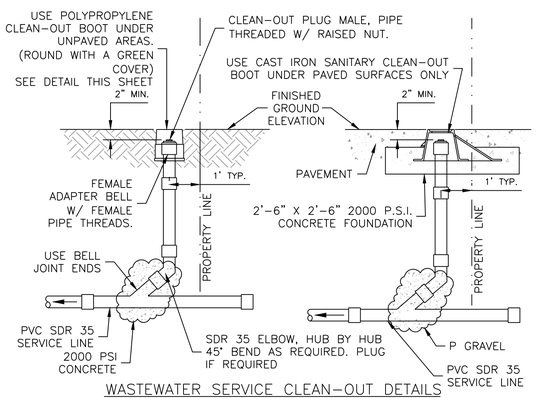
FDC DETAIL REQUIREMENTS

STANDARD DETAILS

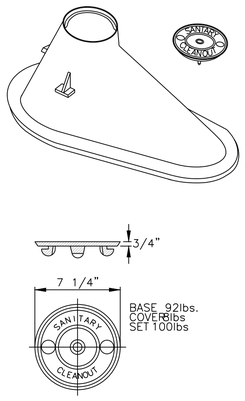
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	WAT-09	39 OF 53

WASTEWATER SERVICE CLEAN-OUT NOTES:

1. FOR NEW DEVELOPMENT EXTEND PVC CLEAN-OUT ABOVE FINISHED GRADE WITH PLUG.
2. AT THE TIME OF SERVICE CONNECTION THE CLEAN-OUT EXTENSION SHALL BE ADJUSTED AND THE APPROPRIATE CLEAN-OUT BOOT INSTALLED AT THE FINISHED GROUND ELEVATION.
3. ALL FITTINGS SHALL BE SOLVENT WELD
4. ALL FITTINGS SHALL BE PVC SDR 35 OR SCHEDULE 40
5. CENTER LINE OF CLEAN-OUTS TO BE PLACED 6 INCHES INSIDE CITY RIGHT-OF-WAY LINE UNLESS SPECIFIED OTHERWISE.
6. ALL NEW SERVICE LATERALS SHALL HAVE CLEAN-OUTS AS PER STANDARD WASTEWATER SERVICE CONNECTION (SHOWN ON THIS SHEET)
7. CLEAN-OUT DOES NOT REPLACE SAMPLING PORT FOR COMMERCIAL AND INDUSTRIAL SERVICES

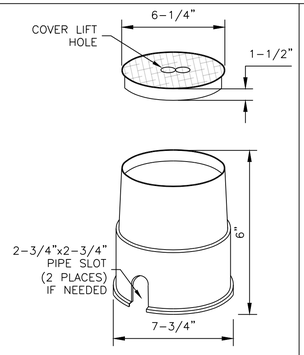


WASTEWATER SERVICE CLEAN-OUT DETAILS
N.T.S.



NOTE: CLEAN-OUTS FOR NEW CONSTRUCTION ARE NOT PERMISSIBLE INSIDE DRIVEWAYS

CAST IRON CLEAN-OUT BOOT
N.T.S.
BASS & HAYS # 339 OR EQUAL
(TO BE USED UNDER PAVED SURFACES ONLY)

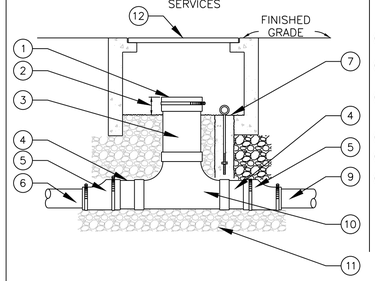


SPECIFICATIONS:
1. SNAP IN GREEN LID
2. LOWER BODY BLACK ONLY
3. CAN BE NESTED, IS EXTENDABLE TO ANY DEPTH BY USE OF 6" PVC PIPE FOR EXTENSION.
4. DALLAS SPECIALTY DS-109 OR EQUAL.

POLYPROPYLENE CLEAN-OUT BOOT
N.T.S.
(TO BE USED UNDER UNPAVED SURFACES ONLY)

PRIVATE INDUSTRIAL WASTE SAMPLING POINT IN PAVED AREA

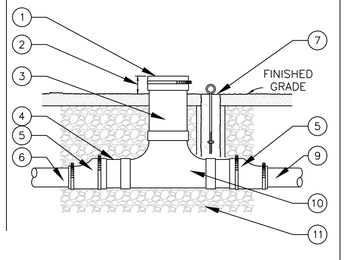
* NOT TO BE PLACED IN CITY R.O.W. OR EASEMENT LOCATION MUST BE AUTHORIZED BY DEVELOPMENT SERVICES



1. 8" NEOPRENE CAP WITH STAINLESS STEEL BAND OR SCREW PLUG AND FEMALE ADAPTER
2. 3" ABOVE GROUND LEVEL
3. 8" PVC OR CAST IRON PIPE
4. 6" PVC OR CAST IRON PIPE
5. REDUCING ECCENTRIC NEOPRENE COUPLING ON OUTLET SIDE WITH STAINLESS STEEL BANDS
6. 6" SEWER PIPE
7. 1/2 X 8" EYE BOLT PLACED IN CONCRETE. EYE BOLT TO BE PLACED WITHIN 6" OF SAMPLE POINT. (FOOTING FOR EYE BOLT SHALL BE 6" DIA. X 18")
9. 6" BUILDING SEWER

PRIVATE INDUSTRIAL WASTE SAMPLING POINT

* NOT TO BE PLACED IN CITY R.O.W. OR EASEMENT LOCATION MUST BE AUTHORIZED BY DEVELOPMENT SERVICES



10. 6" X 6" X 8" PVC OR 8" X 8" X 8" PVC
11. USE CRUSHED STONE (PER "WASTEWATER PIPE EMBEDMENT DETAIL" THIS SHEET) LEVELING PAD FOR SUPPORT A DEPTH OF 12" BELOW FLOW LINE OF PIPE OR PER THE STANDARD DETAIL THIS SHEET. WHICHEVER IS GREATER.
12. RE: MANHOLE FRAME AND COVER DETAIL PER WASTEWATER STANDARD DETAIL SHEET 2 OF 2

*SHALL BE PLACED ON OWNER'S PROPERTY AT MINIMUM DISTANCE OF FOUR (4') FEET FROM R.O.W./EASEMENT LINE INDUSTRIAL WASTE SAMPLE POINT DOES NOT REPLACE THE CITY CLEAN-OUT

GENERAL NOTES

A. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS" HEREIN REFERRED TO AS "N.C.T.C.O.G." SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005-5888. 817 640-3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
B. PLEASE ALSO REFER TO N.C.T.C.O.G. ITEM 501, 502, 503, 504, 505, 507 AND 509 SPECIFICATIONS.
C. CONTRACTOR SHALL CONTACT STREETS DEPARTMENT FOR THE REMOVAL OF CITY SIGNS IN RIGHT-OF-WAY.

PIPE:

A. 12" DIAMETER OR SMALLER PVC PIPE SHALL BE AS FOLLOWS UNLESS SPECIFIED AND APPROVED OTHERWISE BY THE CITY ENGINEER:
   1. SDR 35 FOR DEPTH OF LESS THAN 10'.
   2. SDR 26 OR PIPE STIFFNESS OF 46 PSI FOR DEPTH OF 10' OR GREATER.
B. 15"-27" PVC PIPE SHALL BE AS FOLLOWS :
   1. ASTM DESIGNATION F-794, "PVC RIBBED GRAVITY SEWER PIPE AND FITTING BASED ON CONTROLLED INSIDE DIAMETER." PER ITEM 501.18 OF N.C.T.C.O.G. SPECIFICATIONS
   2. ASTM DESIGNATION F-949, "PVC CORRUGATED SEWER PIPE WITH SMOOTH INTERIOR AND FITTINGS" PER ITEM 501.18 OF N.C.T.C.O.G. SPECIFICATIONS
   3. ASTM DESIGNATION F-679 TYPE T-2B FOR DEPTH LESS THAN 20' PER ITEM 501.17 OF N.C.T.C.O.G. SPECIFICATIONS
   4. ASTM DESIGNATION F-679 TYPE T-1A FOR DEPTH GREATER THAN 20' PER ITEM 501.17 OF N.C.T.C.O.G. SPECIFICATIONS
C. 30" PVC AND LARGER SHALL BE AS FOLLOWS:
   1. ASTM DESIGNATION F-794, "PVC RIBBED GRAVITY SEWER PIPE AND FITTING BASED ON CONTROLLED INSIDE DIAMETER." PER ITEM 501.18 OF N.C.T.C.O.G. SPECIFICATIONS.
   2. ASTM DESIGNATION F-949, "PVC CORRUGATED SEWER PIPE WITH SMOOTH INTERIOR AND FITTINGS" PER ITEM 501.18 OF N.C.T.C.O.G. SPECIFICATIONS.
   3. POLYVINYL CHLORIDE PVC CLOSED PROFILE GRAVITY PIPE AND FITTINGS AS PER ASTM F1803 PER ITEM 501.18 OF N.C.T.C.O.G. SPECIFICATIONS
D. FOR AERIAL CROSSINGS, UNENCASED PIPE SHALL BE DUCTILE IRON CLASS 52 WITH POLYETHYLENE LINER. ALL BURIED SECTION OF THE DUCTILE IRON PIPE SHALL BE WRAPPED WITH 8 MIL. POLYWRAP.
E. FORCE MAINS SHALL BE MINIMUM SDR26, PRESSURE CLASS 200 PSI, AND PIPE STIFFNESS OF 72 PSI.
F. EMBEDMENT SHALL BE AS PER THE "WASTEWATER PIPE EMBEDMENT DETAIL" ON THIS SHEET.
G. THE MINIMUM COVER OVER ALL WASTEWATER MAINS IS 4 FEET, UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER. APPROVED MAINS WITH LESS THAN 3.5 FEET OF COVER SHALL BE CAPPED AS PER THE "CAP DETAIL" ON THIS SHEET.
H. CLAY CUT-OFF WALLS SHALL BE CONSTRUCTED AS PER THE DETAILS AND SPECIFICATIONS ON THIS SHEET.
I. STORAGE: WHEN EXPOSURE IN EXCESS OF SIX MONTHS TO DIRECT SUNLIGHT IS ANTICIPATED, PVC PIPE SHOULD BE COVERED WITH AN OPAQUE MATERIAL WHILE PERMITTING ADEQUATE AIR CIRCULATION ABOVE AND AROUND THE PIPE AS REQUIRED PREVENTING EXCESSIVE HEAT ACCUMULATION.
J. CASINGS: WHEN PVC WASTEWATER PIPE IS INSTALLED IN CASING, SPACERS MUST BE USED TO PREVENT DAMAGE TO THE PIPE AND BELL DURING INSTALLATION. PVC PIPE SHALL NOT REST ON THE BELLS. PLASTIC SPACERS SUCH AS RACI OR APPROVED EQUAL SHALL BE USED.
K. PLACE PIPE WITH LETTERING FACING UP ON TOP OF PIPE
L. MAXIMUM PIPE DEFLECTION SHALL BE AS RECOMMENDED BY MANUFACTURER

FITTINGS:

A. ALL FITTINGS SHALL BE SOLVENT WELD.
B. ALL FITTINGS SHALL BE BLOCKED AS PER THE DETAILS ON THIS SHEET.
C. ALL PIPE CONNECTION FITTINGS SUCH AS ADAPTORS AND COUPLINGS SHALL BE COMPATIBLE WITH THE SAME PIPE MATERIAL. FLEXIBLE ADAPTORS AND COUPLINGS SHALL NOT BE PERMITTED UNLESS PRE-APPROVED BY THE ENGINEER.

WASTEWATER SERVICE NOTES:

A. ALL PROPERTY CORNERS SHALL BE LOCATED PRIOR TO THE INSTALLATION OF ANY WASTEWATER SERVICES.
B. THE LOCATIONS OF THE WASTEWATER SERVICE SHALL BE STAKED ACCORDING TO THE PLANS.
C. COMMERCIAL AND INDUSTRIAL SERVICES SHALL BE 6" DIAMETER PIPE AND SHALL ENTER AT THE MANHOLE AND SHALL HAVE A CLEAN-OUT AT THE PROPERTY OR EASEMENT LINE
D. WASTEWATER SERVICES TO BE MARKED WITH "S" STAMPED OR CUT IN THE CURB. PLEASE ALSO REFER TO THE DETAILS AND NOTES ON THIS SHEET.
E. COMMERCIAL AND INDUSTRIAL LOCATIONS SHALL HAVE 6" SERVICE CONNECTED AT A MANHOLE.
F. ALL NEW 4" HOUSE SERVICE LINES SHALL EXTEND 5' BEYOND PROPERTY LINE.

TYPICAL WASTEWATER CURB MARKINGS

- "MH" – MANHOLE
- "C/O" – SANITARY CLEAN-OUT

CERTIFICATION:
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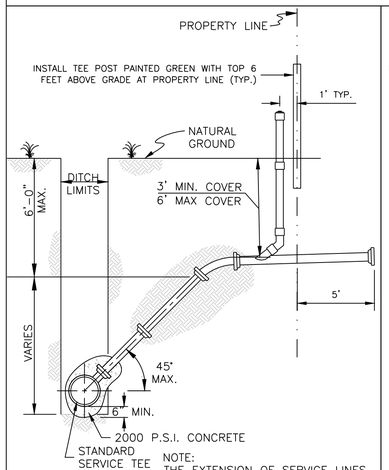
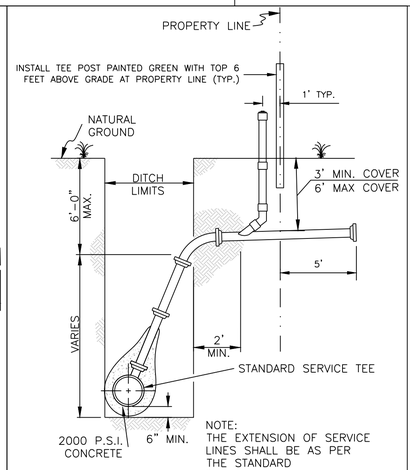


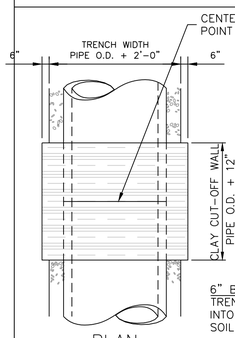
NOTE: THE EXTENSION OF SERVICE LINES SHALL BE AS PER THE STANDARD "WASTEWATER SERVICE CONNECTION" DETAIL, ON THIS SHEET.

STANDARD RESIDENTIAL DEEP CUT CONNECTION
N.T.S.

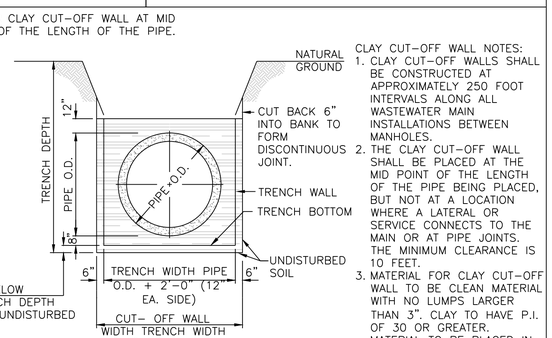


NOTE: THE EXTENSION OF SERVICE LINES SHALL BE AS PER THE STANDARD "WASTEWATER SERVICE CONNECTION" DETAIL, ON THIS SHEET.

STANDARD RESIDENTIAL STACKED DEEP CUT CONNECTION
N.T.S.



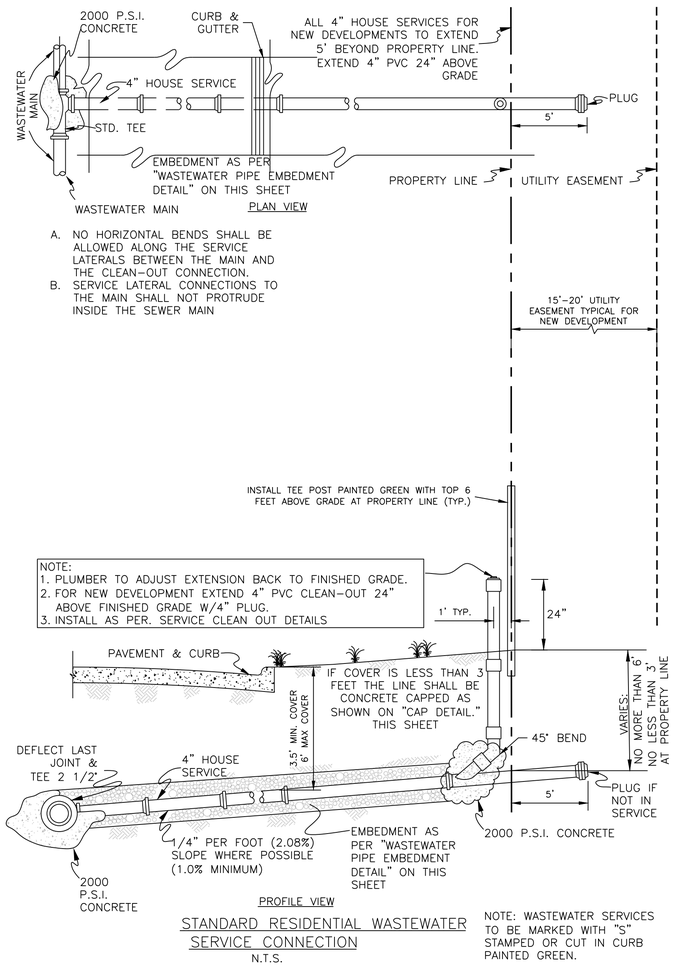
PLAN



TYP. SECTION

CLAY CUT-OFF WALL NOTES:
1. CLAY CUT-OFF WALLS SHALL BE CONSTRUCTED AT APPROXIMATELY 250 FOOT INTERVALS ALONG ALL WASTEWATER MAIN INSTALLATIONS BETWEEN MANHOLES.
2. THE CLAY CUT-OFF WALL SHALL BE PLACED AT THE MID POINT OF THE LENGTH OF THE PIPE BEING PLACED, BUT NOT AT A LOCATION WHERE A LATERAL OR SERVICE CONNECTS TO THE MAIN OR AT PIPE JOINTS. THE MINIMUM CLEARANCE IS 10 FEET.
3. MATERIAL FOR CLAY CUT-OFF WALL TO BE CLEAN MATERIAL WITH NO LUMPS LARGER THAN 3". CLAY TO HAVE P.I. OF 30 OR GREATER. MATERIAL TO BE PLACED IN LIFTS, MOISTENED TO OPTIMUM MOISTURE CONTENT AND COMPACTED WITH HAND HELD MECHANICAL TAMPERS, WITHOUT DAMAGING THE PIPE.

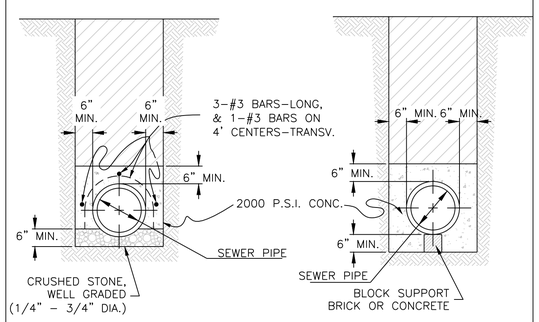
CLAY CUT-OFF WALL
N.T.S.



PROFILE VIEW

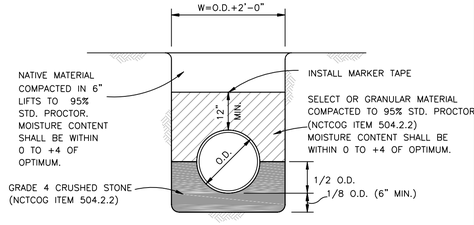
STANDARD RESIDENTIAL WASTEWATER SERVICE CONNECTION
N.T.S.

NOTE: WASTEWATER SERVICES TO BE MARKED WITH "S" STAMPED OR CUT IN CURB PAINTED GREEN.



CAP DETAIL
N.T.S.

ENCASEMENT DETAIL
N.T.S.

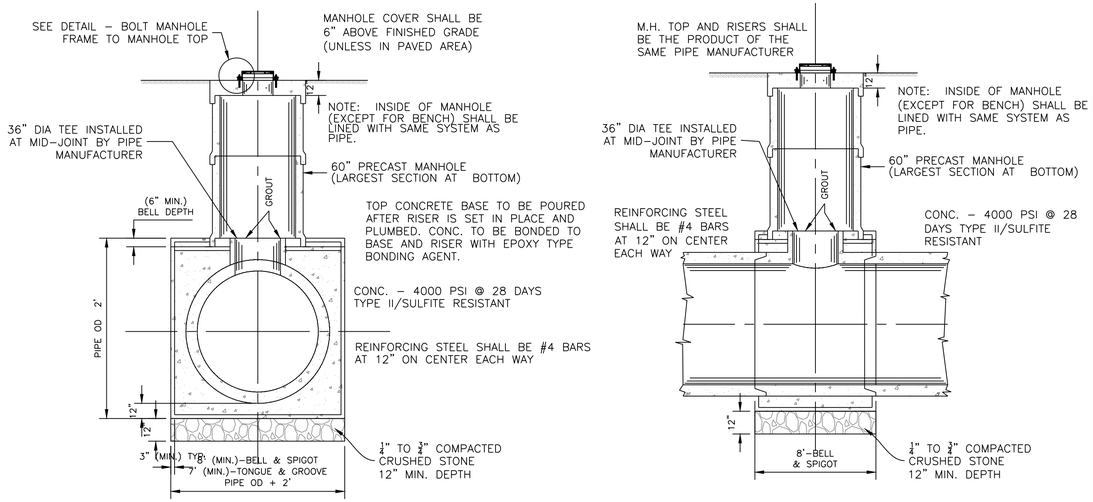


PIPE EMBEDMENT DETAIL – CLASS B+ EMBEDMENT
N.T.S.

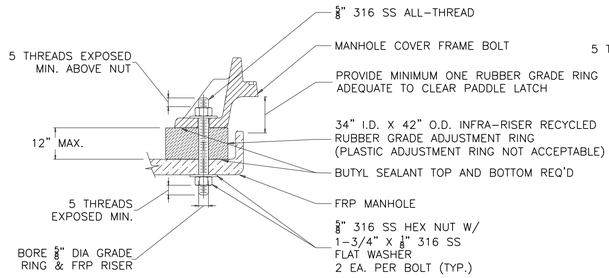
WASTEWATER 1 OF 3

STANDARD DETAILS

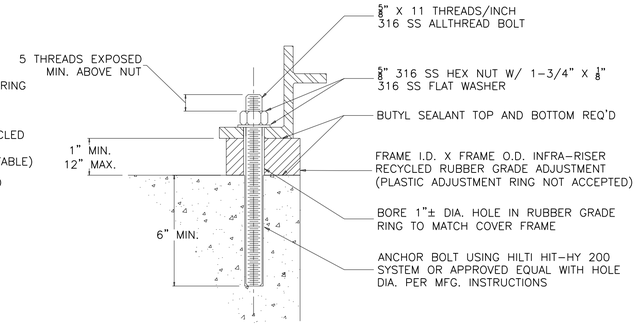
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	*SAN-01*	*40 OF 53*



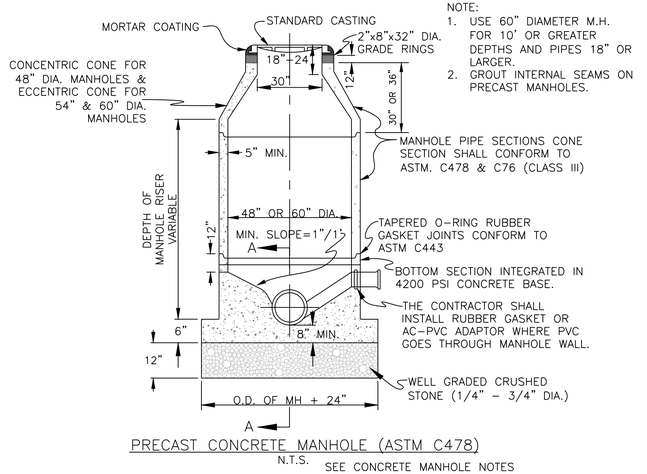
PRECAST RCP "TEE" TYPE MANHOLE
N.T.S.



BOLTED MANHOLE FRAME TO FRP MAHOLE
N.T.S.

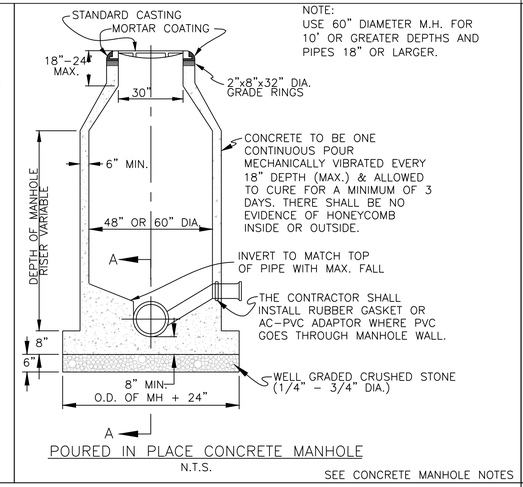


BOLT FRAME TO CONCRETE MANHOLE
N.T.S.



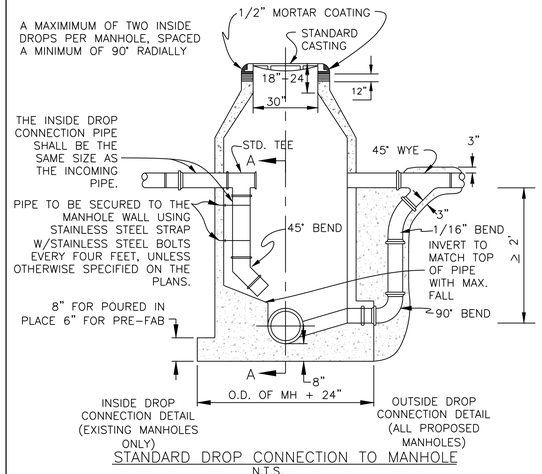
PRECAST CONCRETE MANHOLE (ASTM C478)
N.T.S.

SEE CONCRETE MANHOLE NOTES



POURED IN PLACE CONCRETE MANHOLE
N.T.S.

SEE CONCRETE MANHOLE NOTES



STANDARD DROP CONNECTION TO MANHOLE
N.T.S.

MANHOLES:
A. ONLY CONCRETE MANHOLES ARE APPROVED FOR USE ON THE MAIN AND AT THE ENDS OF THE PIPE.
B. ALL NEW MANHOLE LOCATIONS SHALL BE MARKED WITH "MH" STAMPED OR CUT ON THE CURB.
C. MANHOLES SHALL BE INSTALLED AT ALL ANGLE POINTS AND SHALL HAVE A MAXIMUM SPACING OF 500' FOR MAINS SMALLER THAN 18" IN DIAMETER. THE MANHOLE SPACING MAY BE INCREASED TO 750' FOR MAINS 18" AND LARGER IN DIAMETER.
D. MANHOLE BASES PLACED ON EXISTING ACTIVE MAINS SHALL BE POURED IN PLACE UNLESS WRITTEN PERMISSION IS GRANTED BY THE CITY OF LANCASTER OR SPECIFICALLY NOTED IN THE PLANS.
E. PLEASE ALSO REFER TO THE DETAILS AND NOTES ON THIS SHEET AND N.C.T.C.O.G. ITEM 502.1. SPECIFICATIONS.
F. ALL MANHOLES SHALL BE MINIMUM 6–SACK 4,000 P.S.I SULPHATE RESISTANT CONCRETE. SUCH AS: TYPE II OR TYPE V CEMENT.

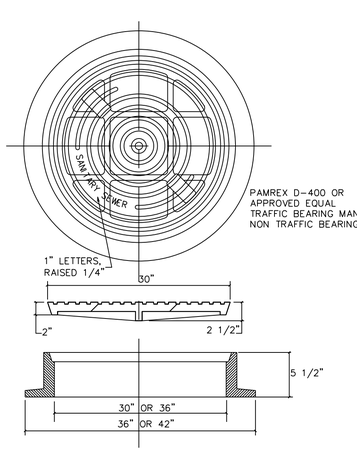
TESTING:
A. THE FOLLOWING TESTS SHALL BE PERFORMED BY THE CONTRACTOR:
   1. LOW PRESSURE AIR TESTING AS PER N.C.T.C.O.G. ITEM 507.5.1.3 SPECIFICATIONS.
   2. DEFLECTION TEST AS PER N.C.T.C.O.G. ITEM 507.5.1.4. SPECIFICATIONS.
   3. TELEVISING SHALL BE AS PER THE N.C.T.C.O.G. ITEM 507.5.2. PRIOR TO PLACING PAVEMENT.
   4. ALL T.V. INSPECTIONS OF EXISTING OR PROPOSED PIPES SHALL BE PROVIDED ON DVD AND ACCEPTED PRIOR TO PAVING.
B. PLEASE REFER TO THE GENERAL NOTES SHEETS, GN–01 – GN 04, FOR TESTING REQUIREMENTS FOR WATER, WASTEWATER, STORM DRAIN AND PAVEMENT CONSTRUCTION.
C. THE CONTRACTOR WILL PROVIDE BACKFILL, DENSITY AND CONCRETE TESTING FOR ALL CITY PROJECTS UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE 5 WORKING DAYS.

MATERIAL:
ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.

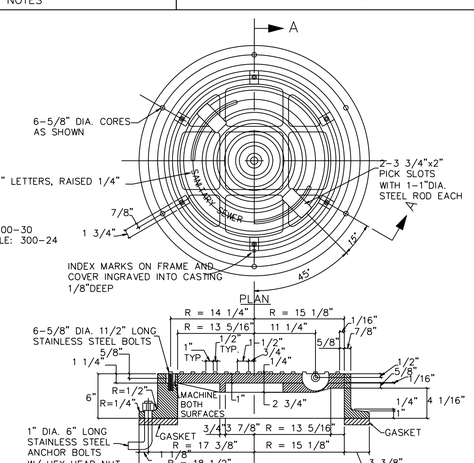
PRIVATE DEVELOPMENT PROJECTS:
A. THE DEVELOPER/OWNER SHALL PROVIDE TESTING FOR ALL PROJECT UNLESS SPECIFIED OTHERWISE. ALL REPORTS SHALL BE TURNED INTO THE INSPECTOR WITHIN FIVE (5) WORKING DAYS. THE DEVELOPER/OWNER SHALL PROVIDE GEOTECHNICAL TESTING PRIOR TO CONSTRUCTION COMMENCING.
B. COVERS FOR PRIVATE MANHOLES SHALL NOT UTILIZE THE CITY LOGO

CONCRETE MANHOLE NOTES:
1. CONCRETE FOR ALL PRECAST AND POURED IN PLACE MANHOLES SHALL BE MIN. 6 SACK 4000 P.S.I. SULFATE RESISTANT CONCRETE, SUCH AS : TYPE II OR TYPE V CEMENT
2. THE DIAMETER OF THE CONCRETE BASE SHALL NOT BE LESS THAN THE INSIDE DIAMETER OF THE MANHOLE PLUS 2 FT.
3. STEPS SHALL NOT BE INSTALLED IN MANHOLE.
4. ALL NEW MANHOLES SHALL BE MARKED WITH "MH" STAMPED OR CUT IN THE CURB PAINTED GREEN.
5. USE DROP CONNECTIONS WHEN CONNECTING LINE EXCEEDS 24" ABOVE THE MANHOLE FLOW LINE.
6. USE OUTSIDE DROP CONNECTIONS ON ALL NEW MANHOLES.
7. USE INSIDE DROP CONNECTION ON EXISTING MANHOLES ONLY, MUST BE APPROVED BY CITY ENGINEER.
8. MANHOLE WALLS SHALL BE CORE DRILLED FOR SEWER CONNECTIONS.

MANHOLE ABANDONMENT
1. REMOVE FRAME, COVER AND CONE.
2. CUT AND PLUG ALL ABANDONED SEWER MAINS AT MANHOLE.
3. FILL BOTTOM 12" OF MANHOLE WITH 2000 PSI CONCRETE.
4. BACKFILL AND COMPACT MANHOLE CAVITY WITH SAND AND/OR GRAVEL.
5. REPAIR SURFACE TO MATCH EXISTING AS PER CITY STANDARDS.

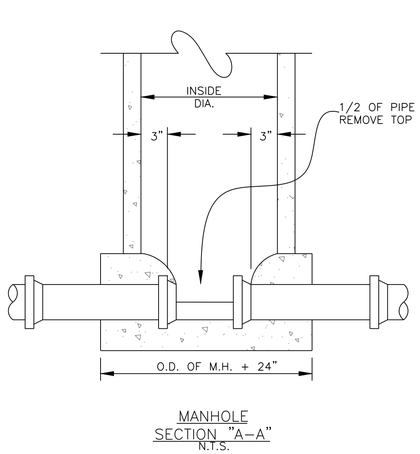


PAM–REX MANHOLE RING AND COVER
WITH LOCKING DEVICE & PICK SLOTS – HINGED LID



PRESSURE TYPE MANHOLE FRAME AND COVER

NOTE:
FOR SEAL BETWEEN FRAME & COVER WITH A 1/4" DIA NEOPRENE O–RING GASKET. (LOCATION OF O–RING GASKET IS LEFT TO MANUFACTURER, BUT SUBJECT TO APPROVAL BY OWNER.)



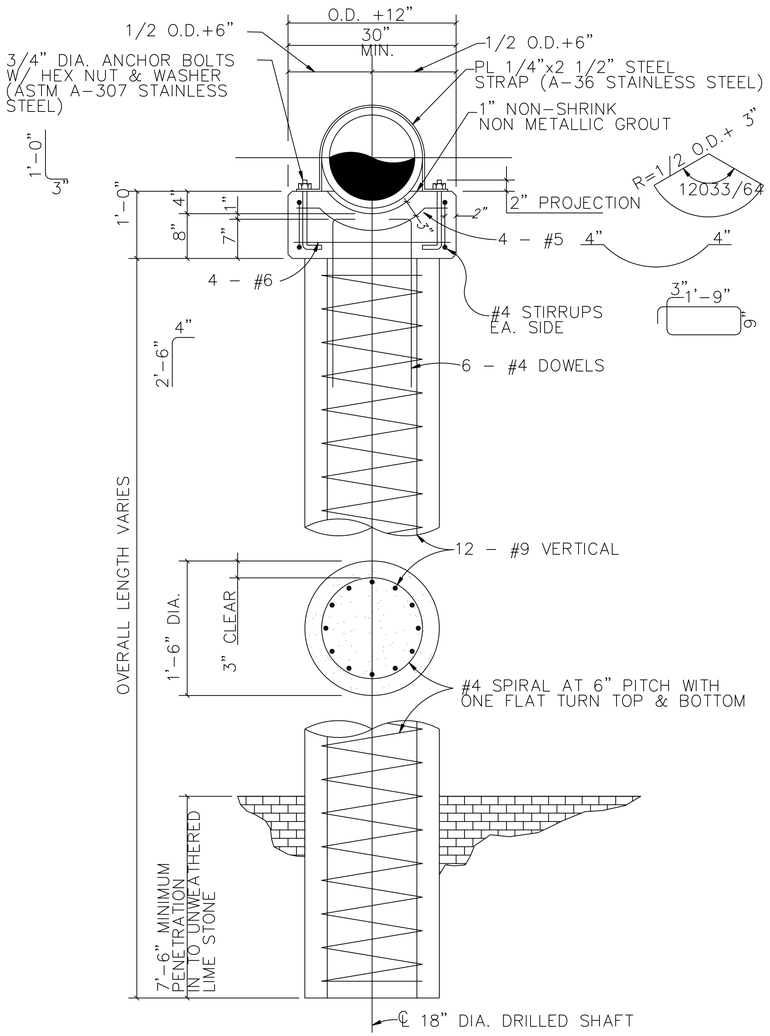
MANHOLE SECTION "A–A"
N.T.S.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

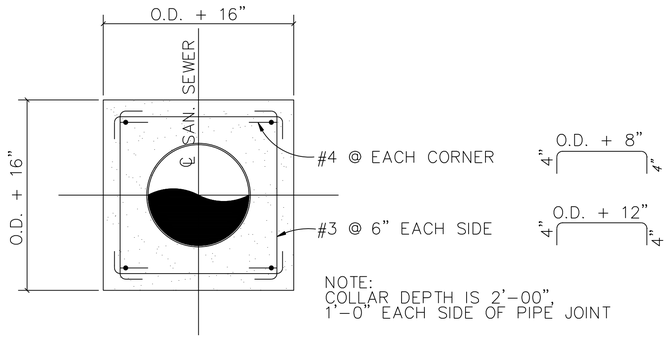
WASTEWATER 2 OF 3

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	SAN–02	41 OF 53

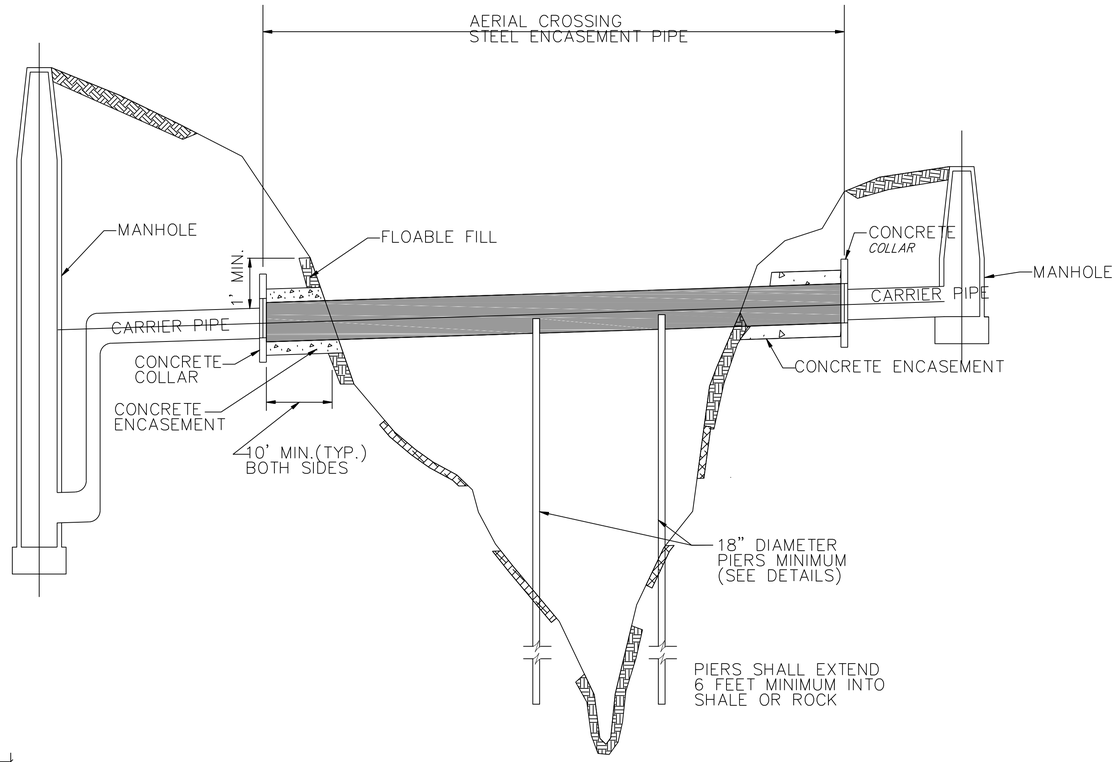


AERIAL CROSSING PIER & PIER CAP



NOTE:
COLLAR DEPTH IS 2'-00", 1'-0" EACH SIDE OF PIPE JOINT

AERIAL CROSSING CONCRETE COLLAR



AERIAL CROSSING

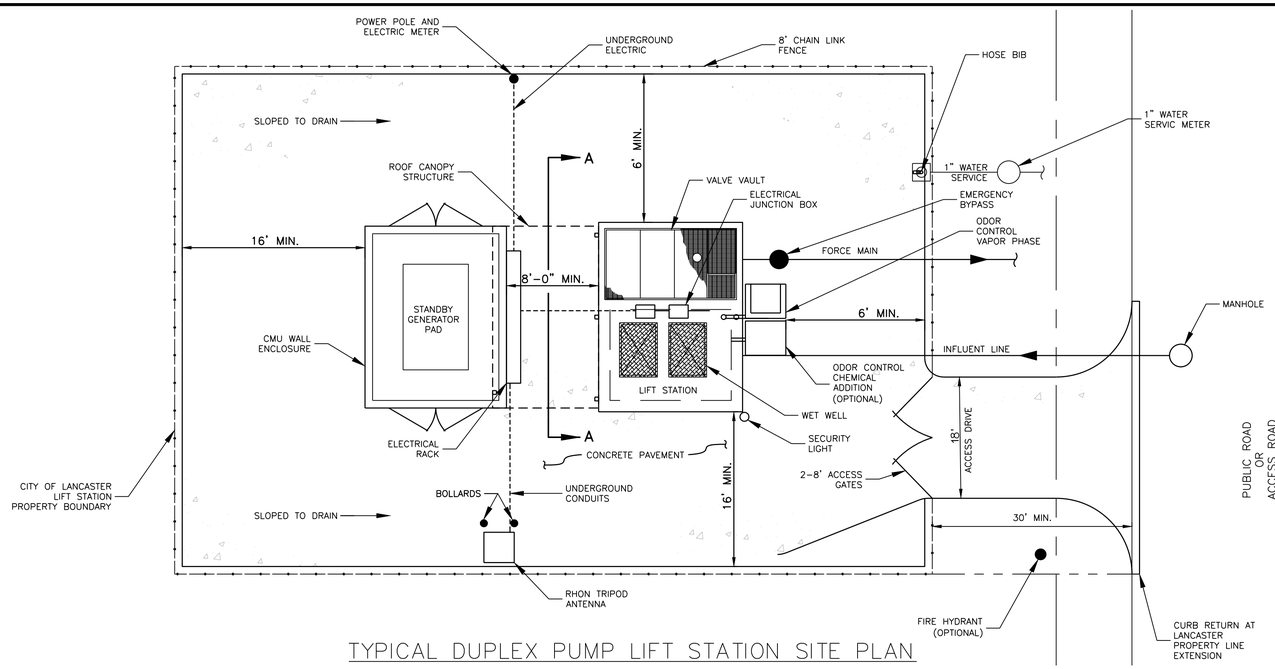
NOTE:
1. PIER PLACEMENT & SPACING SHALL BE SUBMITTED TO CITY FOR APPROVAL.
2. STEEL PIPE SHALL BE OF THE TYPE SHOWN IN THE SPECIFICATIONS. STEEL PIPE SHALL HAVE A THICKNESS REQUIRED FOR SIZE AND SPAN WITH MINIMUM WALL THICKNESS OF 3/8 INCHES.
3. PIPE COUPLINGS SHALL BE PLACED A MAXIMUM OF 5 FEET CENTERLINE OF PIERS.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

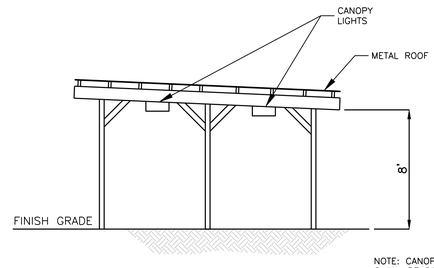
WASTEWATER 3 OF 3

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	SAN-03	42 OF 53

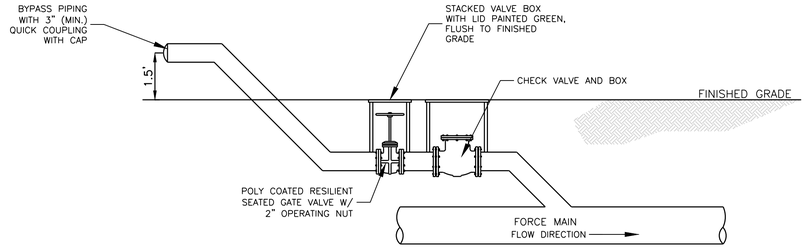


TYPICAL DUPLEX PUMP LIFT STATION SITE PLAN



NOTE: CANOPY LIGHTS SHALL BE DAMP LOCATION RATED LED OR APPROVED EQUAL

SECTION A-A
TYPICAL CANOPY DETAIL
NTS



EMERGENCY BYPASS DETAIL
NTS

ALL SPECS SHALL COMPLY WITH THE CITY OF LANCASTER CONSTRUCTION STANDARDS. A COPY MAY BE OBTAINED FROM THE CITY OF LANCASTER WATER UTILITIES. ALL WASTEWATER LIFT STATIONS SHALL BE DESIGNED IN ACCORDANCE WITH 30 TAC §217.59-63.

THE FOLLOWING ARE REQUIRED FOR LIFT STATIONS DEDICATED FOR MAINTENANCE AND OWNERSHIP AND OPERATIONS BY THE PUBLIC WORKS DEPARTMENT:

1. THE DEVELOPER/OWNER SHALL HAVE PROPERTY FOR THE STATION SITE DEDICATED TO THE CITY FEE SIMPLE PRIOR TO ACCEPTANCE.
2. THE DEVELOPER SHALL ESTABLISH AND MAINTAIN PERMANENT POWER PRIOR TO ACCEPTANCE.
3. THE CONTRACTOR/DEVELOPER SHALL CONTACT THE ENGINEERING DEPT. FOR THE PREFERRED SERVICE PROVIDER PRIOR TO ESTABLISHING ELECTRICAL SERVICE ACCOUNT.

SCADA SPECS (CONTACT CITY SCADA CONTRACTOR FOR ADDITIONAL SPECS AND PROGRAMING):

1. SCADA PACK 357.
2. ALL I/O WILL HAVE FUSED LINK ON BUSS BAR PROPERLY MARKED FOR INPUT/OUTPUT.
3. ALL CABINETS ARE REQUIRED TO HAVE COPY OF COMPLETE WIRE DIAGRAM TO INCLUDE WIRE SIZE AND ANY OPERATION MANUALS FOR ALL EQUIPMENT INSTALLED IN A SEALED WATER PROOF CONTAINER. (INCLUDING RELAYS, FUSES, POWER SUPPLIES, SWITCHES AND LIGHTS)
4. BATTERY BACK UP (A STANDARD 2 HR RUN TIME FOR SCADA).
5. FREEWAVE RADIO MODEL # FGR2-CE-U.
6. FREEWAVE YAGI ANTENNA, 4 ELEMENT, 8DBI PART #EAN096YA.
7. RADIO MOUNTING BRACKET.
8. RADIO POWER ADAPTER.
9. SIEMENS SITRANS LR200 EXPLOSION PROOF LEVEL INDICATOR.
10. ALL PROGRAMING TO BE DONE BY CURRENT CITY SCADA CONTRACTOR.
11. BACKUP FLOAT SYSTEM WITH RELAYS AND LOW LEVEL OVERRIDE SWITCH
12. HOA SWITCH AND RUN INDICATION LIGHT FOR EACH PUMP.
13. CLIMATE CONTROL FAN ON TOP AND BOTTOM OF PANEL MOUNTED IN SIDE WALL WITH RAIN GUARD.
14. COM FAILURE.
15. POWER FAILURE RELAY 230AC/24DC.
16. INTRUDER DETECTION ON HATCH DOORS AND PANEL DOORS.
17. ANTENNA AND CONTROL PANELS MUST BE GROUNDED TO GROUND ROD WITH COPPER WIRE.
18. ALL SITES REQUIRE TOSHIBA VFD (SIZE TO BE DETERMINED BY PUMP SIZE) UNLESS OTHERWISE APPROVED BY THE CITY.
19. ALL VFD'S WILL HAVE OPERATION MANUALS AND ALL ACCESSORIES FOR FULL INTEGRATION TO SCADA.
20. ALL PUMPS MUST HAVE ENGINEERS STAMPED PLANS SHOWING THEY WILL BE COMPATIBLE FOR STATION AND FLOWS.
21. ALL PANELS WILL HAVE ENGINEERS STAMP ON PLANS. AND MUST BE PRE-APPROVED BY THE CITY BEFORE INSTALLATION.
22. ANY PANELS OR SPECS NOT FOLLOWED WILL BE CHANGED TO MEET THE CITY OF LANCASTER'S WATER UTILITIES SPECS AT THE CONTRACTORS COST.
23. ANTENNA HEIGHT SHOULD BE PRE-APPROVED BY THE CITY BEFORE INSTALLATION AND SHALL BE MOUNTED ON RHON TRI-POD ANTENNA MAST.

CONCRETE SPECS:

1. DRIVEWAY MINIMUM REQUIREMENTS SHALL BE AS FOLLOWS:

   RESIDENTIAL:
   - 16' WIDE, 6" THICK 4000 PSI REINFORCED CONCRETE WITH #4 BARS 24" OC
   - EXPANSION JOINTS SHALL BE PLACED EVERY 12', AT RADIUS POINTS, BETWEEN DRIVEWAY APPROACH AND STREET AND AT DRIVEWAY/CONCRETE PAD AROUND WET-WELL.
   - THE DRIVEWAY SHALL NOT BE INTEGRAL WITH PAVING ON-SITE, THE WET WELL OR VALVE PIT STRUCTURES.
   - DRIVEWAY APPROACH SHALL BE 22'-6" WIDE AT STREET.

   COMMERCIAL/INDUSTRIAL:
   - DRIVEWAY REQUIREMENTS SHALL CONFORM TO CITY'S UNIFIED DEVELOPMENT CODE (UDC) AND /OR STREETS DEPARTMENT REQUIREMENTS.

2. A CONCRETE PAD SHALL SURROUND THE WET WELL AND VALVE VAULT ACCORDING TO THE FOLLOWING SPECIFICATIONS:
   - CONCRETE PAD SHALL BE 6" THICK.
   - CONCRETE PAD SURFACE ELEVATION SHALL BE 1" ABOVE THE SURROUNDING FINISHED GRADE ELEVATION.
   - CONCRETE PAD SHALL EXTEND A MINIMUM OF 4' AROUND WET WELL AND VALVE VAULT.
   - A 3'X3' ACCESS HATCH WITH SAFETY GRATE SHALL BE PROVIDED FOR EACH PUMP/ VALVE VAULT
3. FOR ALL CONCRETE PAVING AND DRIVEWAY SPECIFICATIONS PLEASE REFER TO CITY OF LANCASTER STANDARD DETAILS.
4. ALL ACCESS DRIVEWAYS OR ROADS INCLUDING LIFT STATIONS SHALL BE CONSTRUCTED INSIDE DEDICATED CITY EASEMENT OR RIGHT-OF-WAY.

FENCE:

1. FENCE SHALL BE 8' VINYL COATED STEEL CHAIN LINK FENCING WITH TOP RAIL.
2. MESH FENCING FABRIC- POLYVINYL CHLORIDE EXTRUDED OVER AND FUSED COATED STEEL CHAIN LINK FABRIC SHALL BE FURNISHED IN ACCORDANCE WITH ASTM F-669, TYPE 2A. THE CORE WIRE AND BREAK LOAD WILL DETERMINE THE GAUGE OF THE WIRE. THE STEEL CORE WIRE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-A641-71A. THE COLOR SHALL BE BLACK. MESH SIZE 2" WITH 9 GAUGE WIRE.
3. FRAMING- ALL STEEL PARTS SHALL BE HOT DIPPED GALVANIZED PER ASTM.
4. ROUND POST SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM A569 OR ASTM A446, COLD ROLLED, WELDED AND HAVE A MINIMUM YIELD STRENGTH OF 50,000 PSI, GIVEN CORROSION PROTECTION BY AN EXTERIOR TRIPLE COATING CONSISTING OF ZINC APPLIED BEFORE OR AFTER WELDING, CHROMATE CONVERSION AND CLEAR POLYMER OVERCOAT. 4" CORNER AND GATE POSTS, 2 3/8" LINE POSTS.
5. THE INSIDE SURFACE SHALL BE GIVEN CORROSION PROTECTION. THE INTERNAL COATING SHALL BE APPLIED BEFORE OR AFTER WELDING AND SHALL PROTECT THE METAL FROM CORROSION WHEN SUBJECTED TO THE SALT SPRAY TEST OF ASTM B117 FOR 300 HOURS WITH THE END POINT OF 5% RED RUST.
6. POST SHALL BE OF SUFFICIENT LENGTH TO ALLOW FOR INSTALLATION TO A DEPTH OF APPROXIMATELY 3' BELOW GROUND LEVEL. EACH POST SHALL HAVE A POST TOP SO DESIGNED AS TO EXCLUDE MOISTURE FROM THE POST.
7. TOP RAIL- FENCE SHALL HAVE A CONTINUOUS 1-5/8" O.D. TOP RAIL. THE TOP RAIL SHALL PASS THROUGH OPENINGS PROVIDED IN THE LINE POST TOP. EACH LENGTH SHALL BE COUPLED WITH AN OUTSIDE SLEEVE, 6" LONG. THE CHAIN LINK FABRIC SHALL BE ATTACHED TO THE TOP RAIL BY MEANS OF A 13[.091"] GAUGE VINYL COATED TIE WIRE, DOUBLE WRAPPED, AT INTERVALS OF APPROXIMATELY 24".
8. TENSION BAR- FABRIC SHALL BE HELD IN PLACE AT ALL TERMINAL POSTS BY MEANS OF A METAL VINYL COATED TENSION BAR NOT LESS 3/16" X ¾" AND NOT LESS THAN THE FABRIC HEIGHT. THE TENSION BAR SHALL BE ATTACHED TO THE POSTS BY MEANS OF CLIPS AT INTERVALS NOT TO EXCEED 15".
9. WHERE PIPE POSTS ARE USED, POWDER COATED TENSION BANDS NOT TO EXCEED INTERVALS OF 15" SHALL BE USED. ATTACHMENT BOLTS FOR BANDS SHALL BE 5/16"X 1-1/2" GALVANIZED CARRIAGE BOLTS WITH NUTS. BOLTS AND NUTS SHALL BE FIELD PAINTED TO MATCH VINYL COLOR. ONE TENSION BAR SHALL BE PROVIDED FOR EACH END GATEPOST AND TWO FOR EACH CORNER.
10. ALTERNATE CONSTRUCTION FOR FENCE MATERIALS PRE-APPROVED BY CITY PRIOR TO INSTALLATION.

FENCE GATES:

1. EIGHT (8') TALL DOUBLE SWING VINYL-COATED GATES WITH 16' OPENING.
2. GATE FRAMES SHALL BE CONSTRUCTED OF 2" ROUND GALVANIZED MEMBER WEIGHING 2.60LBS./LF. GALVANIZED MEMBERS WILL BE VINYL COATED. ALL FRAMES SHALL BE WELDED TO FORM A RIGID PANEL. INTERNAL BRACING, WHEN REQUIRED, SHALL BE 1-1/4" ROUND.
3. THE FABRIC SHALL BE ATTACHED TO THE FRAME ON ALL SIDES BY MEANS OF HOOK BOLTS AND TENSION RODS.
4. GATES SHALL BE EQUIPPED WITH GALVANIZED STEEL HINGES, LATCH, DROP BAR AND GATE HOLD BACKS.
5. POSTS SHALL BE SUFFICIENT LENGTH TO ALLOW FOR DEPTH OF APPROXIMATELY 3' BELOW GROUND LEVEL.
6. TWO TIE BACK VINYL COATED POLES TO BE LOCATED AT THE OPEN SWING POSITION OF 2 3/8" POSTS. TIE BACK POLES TO HAVE TOP PAINTED TO MATCH VINYL FENCING.
7. SLEEVE FOR CENTER LATCH DEVICE SHALL BE INSTALLED INTO GROUND.

SECURITY LIGHT:

1. 4"X6" SECURITY LIGHT WITH DUSK TILL DAWN LIGHT ELEMENT.
2. 120 VOLT.
3. MUST BE GROUNDED TO GROUND ROD WITH COPPER WIRE.
4. MUST BE MOUNTED ON A GALVANIZED 4" ROUND POLE 16' IN TOTAL LENGTH WITH 12' ABOVE GROUND.
5. MUST BE LED

CONDUIT:

1. ALL CONDUITS AND FITTINGS MUST BE NEW.
2. ALL CONDUITS AND FITTINGS SHALL BE WEATHER PROOF.
3. ALL CONDUITS AND FITTINGS MUST BE RIGID STEEL AND CONFORM IN RESPECTS TO ANSI C80.1 AND UNDERWRITERS' LABORATORIES SAFETY STANDARD #6.
4. ALL CONDUITS AND BOXES MUST BE GROUNDED TO AN 8' COPPER GROUND ROD IN A METAL BOX MARKED GROUND ROD. WIRE SIZE TO BE BASED ON AMERICAN WIRE GAUGE (AWG) CONDUCTORS, HARD, MEDIUM-HARD, OR SOFT ASTM B3 AND B8 RESPECTIVELY.

CHECK VALVES:

1. MUST BE IN VAULT SEPARATE AND SEALED FROM WET WELL.
2. INSTALL VAULT WITH HATCH AND NEW CHECK VALVES.
3. HATCH DOOR SHALL BE AT LEAST 3'X3' GALVANIZED SPRING OPEN WITH BILCO KEY LOCK
4. ALL VALVES MUST BE SWING GATE CHECK VALVES WITH INDICATOR ARM.

BYPASS:

1. BYPASS SHOULD PROTRUDE FROM GROUND 1.5' AND HAVE 3" QUICK CONNECT COUPLING WITH CAP.
2. BYPASS SHUTOFF VALVE SHOULD BE POLY COATED RESILIENT SEAT GATE VALVE WITH 2" OPERATING NUT AND VALVE STACK AND LID AT GROUND LEVEL PAINTED GREEN.

PROJECT DESCRIPTION:

1. CONTRACTOR IS RESPONSIBLE FOR DURING AND AFTER JOB CLEANLINESS.

A FINAL WALK THRU AND CHECK LIST WILL BE COMPLETED AT END OF JOB.

1. A FINAL TEST RUN WILL BE DONE DURING WALK THRU AND MUST BE ACCEPTED BEFORE FINALIZATION OF JOB.

PUMPS:

1. PUMPS SHALL BE HYDROMATIC, ABS, OR FLYGHT UNLESS APPROVED BY THE CITY.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

WASTEWATER LIFT STATION 1 OF 3

STANDARD DETAILS

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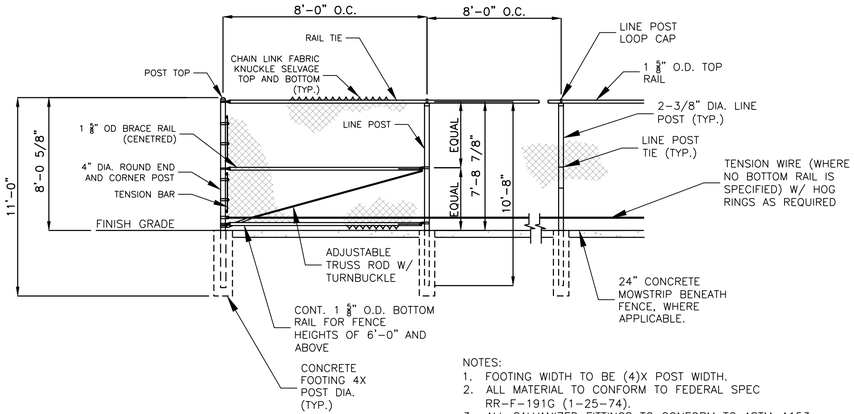
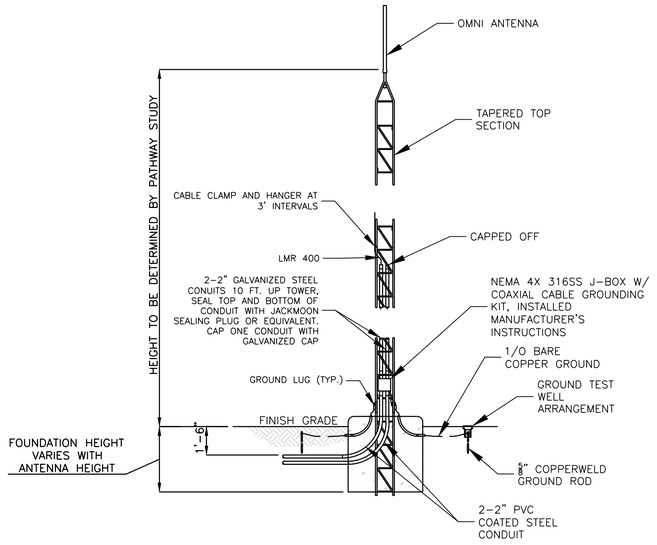
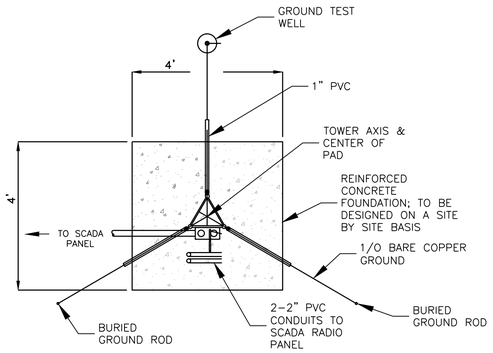


NOTES:
1. FOOTING WIDTH TO BE (4)X POST WIDTH.
2. ALL MATERIAL TO CONFORM TO FEDERAL SPEC RR-F-191G (1-25-74).
3. ALL GALVANIZED FITTINGS TO CONFORM TO ASTM-A153.
4. ALL FENCE COMPONENTS TO BE VINYL COATED.
5. VINYL COATING COLOR TO BE BLACK.
6. NO ALUMINUM TIES SHALL BE PERMITTED.
7. POST AND RAIL SIZES MAY REQUIRE MODIFICATION TO MEET SPECIFIC PROJECT REQUIREMENTS.

CHAIN LINK FENCE DETAIL

NTS





ANTENNA DETAIL

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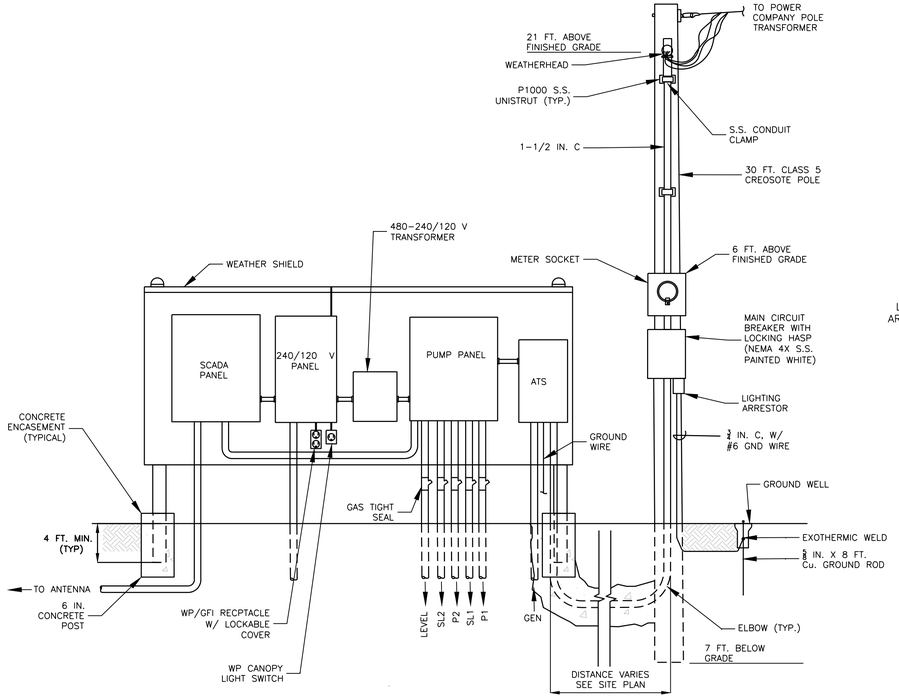

ELECTRICAL RACK DETAIL

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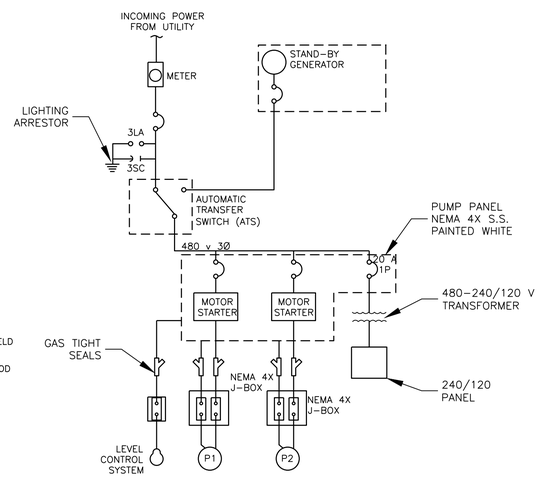

ELECTRICAL ONE LINE DIAGRAM

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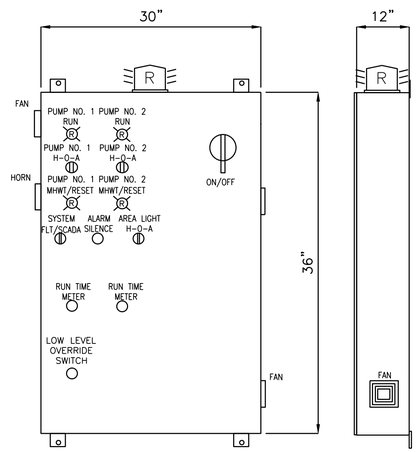
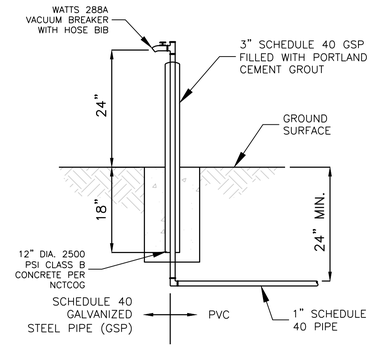


NEMA 4X STAINLESS STEEL DEADFRONT WITH CONTROLS MOUNTED ON INNER SAFETY DOOR

PUMP CONTROL PANEL

NTS



HOSE BIB

NTS

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WASTEWATER LIFT STATION 2 OF 3

STANDARD DETAILS

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LIFT STATION INPUTS\OUTPUTS (IOS)

ANALOG

1. WET WELL LEVEL
2. FLOW METER

DIGITAL

1. PUMP #1 START/STOP
2. PUMP #1 RUNNING
3. PUMP #2 START/STOP
4. PUMP #2 RUNNING
5. PUMP #3 START/STOP
6. PUMP #3 RUNNING
7. HIGH LEVEL ALARM
8. FLOAT CONTROLS ON
9. COMMUNICATIONS FAIL

STANDBY GENERATOR / AUTOMATIC TRANSFER SWITCH

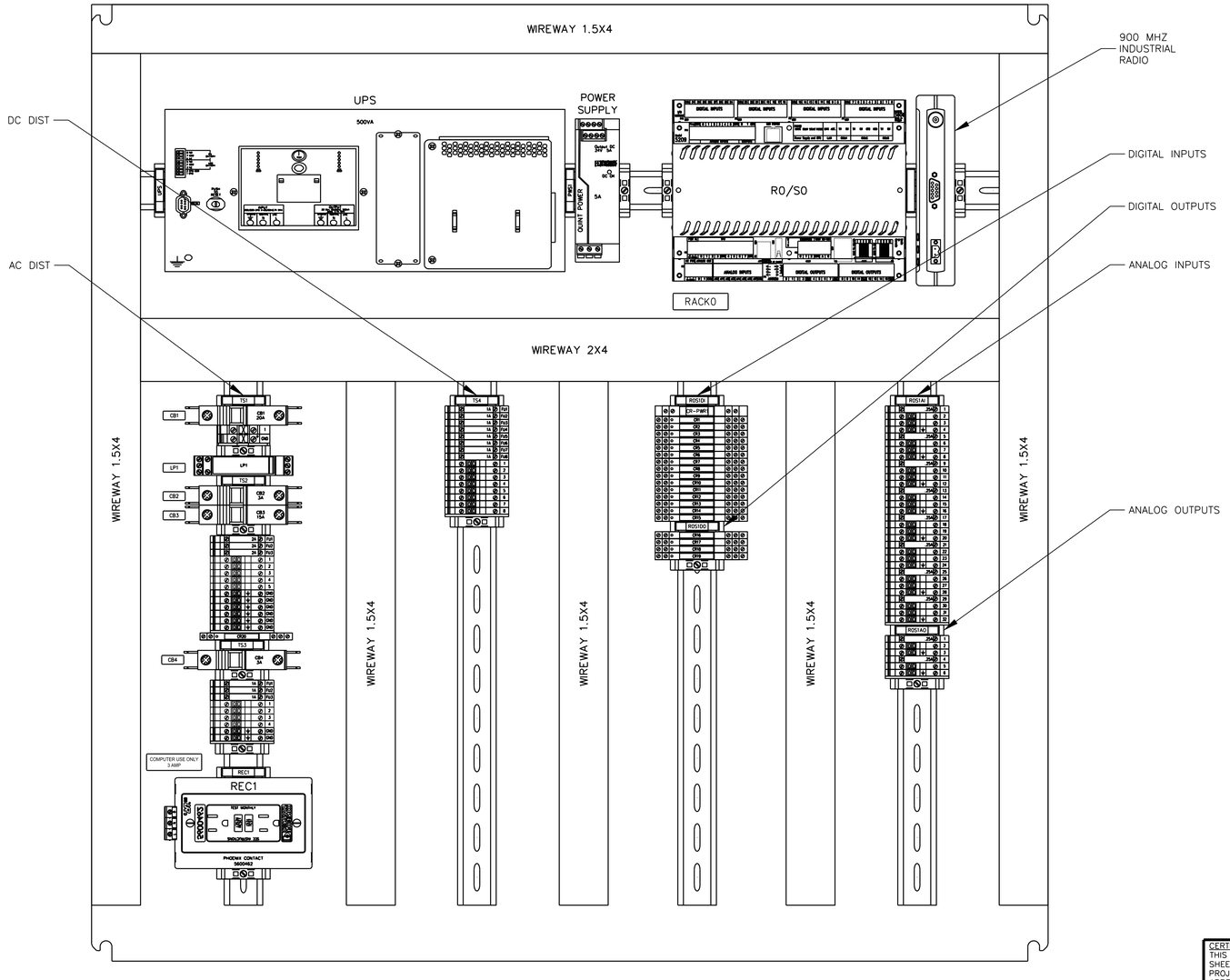
1. COMMERCIAL POWER FAIL
2. GENERATOR RUNNING
3. TRANSFER SWITCH POSITION
4. GENERATOR FAIL TO START
5. LOW OIL PRESSURE
6. HIGH COOLANT TEMPERATURE

SECURITY

1. HATCH DOOR
2. PUMP PANEL DOOR
3. SCADA PANEL DOOR
4. ATS DOOR

NOTES:

1. ENCLOSURE SHALL BE NEMA 4X, 316 STAINLESS STEEL 36"X36"X12" MINIMUM SIZE, WITH PADLOCKING HANDLE.
2. ALL I/O'S WILL HAVE FUSED LINK ON BUSS BAR PROPERLY MARKED FOR INPUT/OUTPUT.
3. ALL CONNECTIONS SHALL BE LANDED ON TERMINAL BLOCKS.
4. A COPY OF THE COMPLETE WIRING DIAGRAM AND OPERATIONAL MANUALS FOR ALL EQUIPMENT LOCATED IN THE PANEL SHALL BE PLACED IN A SEALED WATERPROOF CONTAINER AND PLACED IN THE ENCLOSURE DOOR.



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WASTEWATER LIFT STATION 3 OF 3

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
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GENERAL NOTES:

1. ALL EROSION CONTROL DEVICES SHOWN ON THE PLANS RELEASE FOR CONSTRUCTION SHALL BE INSTALLED IN ACCORDANCE WITH THE SWP3 SEQUENCING PRIOR TO COMMENCING ANY EARTH DISTURBING ACTIVITIES.
2. EROSION CONTROL DEVICES SHALL BE INSTALLED AND MAINTAINED IN COMPLIANCE WITH THE PROJECT PLANS, CITY STORMWATER ORDINANCE AND/OR SWP3 AND CONSTRICTION GENERAL PERMIT.
3. CONTRACTOR(S) SHALL COMPLY WITH THE SQW3 AS SPECIFIED, INCLUDING INSTALLING, MAINTAINING, AND REMOVING ALL TEMPORARY CONTROL MEASURES.
4. CONTRACTOR(S) SHALL CONDUCT AND DOCUMENT WEEKLY SWP3 INSPECTIONS AND INSPECTION AFTER A HALF INCH (0.5") RAIN EVENT IF BMP'S AND CONTROL MEASURES AND REVISE THE SWP3 WITHIN SEVEN(7) CALENDAR DAYS FOLLOWING THE INSPECTION.
5. HAY PRODUCTS, ORGANIC OR OTHER TYPES ARE NOT ACCEPTED FOR USE AS BMP'S WITHIN THE CITY OF LANCASTER.
6. DUST CONTROL SHALL BE UTILIZED ON A REGULAR BASIS DURING DRY CONDITIONS OR AS WEATHER DICTATES THE NEED.
7. CURB CUT–BACKS SHALL NOT BE PERMITTED FOR THE PURPOSE OF BMP'S ONLY.
8. CURB CUT–BACKS FOR THE PURPOSE OF DRIVEWAY INSTALLATION WILL BE ALLOWED FOR A PERIOD NOT TO EXCEED 72 HOURS (MAXIMUM) PRIOR TO POURING CONCRETE. BACKFILLING AREAS SHALL BE PERFORMED WITHIN 48 HOURS (MAXIMUM).
9. STREETS SHALL BE KEPT FREE FROM MUD, DIRT, OR ANY OTHER CONSTRUCTION TYPE DEBRIS DURING THE CONSTRUCTION OPERATION.
10. CONCRETE WASH–OUT AREAS SHALL BE DESIGNED AND MAINTAINED WITH PROPER SIGNAGE/MARKINGS IN COMPLIANCE WITH THE CITY STORMWATER ORDINANCE AND/OR SWP3 AND CONSTRUCTION GENERAL PERMIT.
11. GRASS SOD SHALL BE REQUIRED FOR STABILIZATION WITH THE CITY RIGHT–OF–WAY. VARIATIONS FOR STABILIZATION IN RIGHT–OF–WAY SHALL BE IN WRITING AND SUBMITTED TO CITY ENGINEER FOR APPROVAL.

STORMWATER POLLUTION PREVENTION PLAN (SWP3) REQUIREMENTS:
PRIOR TO ANY EARTH DISTURBING ACTIVIES THE FOLLOWING CONDITIONS NEED TO BE ADDRESSED AND ACCEPTED THROUGH THE CITY OF LANCASTER STORMWATER DEPARTMENT:

1. A FULLY EXECUTED SWP3 WILL BE SUBMITTED FOR REVIEW AND ACCEPTED THROUGH THE STORMWATER DEPARTMENT. FULLY EXECUTED MEANS ALL SIGNATURES WILL BE REQUIRED WITH THE SUBMITTAL AND AUTHORIZED IN ACCORDANCE WITH THE 30 TEXAS ADMINISTRATIVE CODE (TAC) SUBCHAPTERS 305.44 & 305.128. THE OWNER OF THE PROJECT AND THE OPERATOR (CONTRACTOR) HIRED BY THE OWNER ARE THE REQUIRED SIGNATURES NEEDED FOR A FULLY EXECUTED SWP3.
2. LAND DISTURBING ACTIVITIES THAT EQUAL ONE (1) ACRE AND LESS THAN FIVE (5) ACRES ARE REQUIRED BY THE TPDES CONSTRUCTION GENERAL PERMIT AND THE CITY OF LANCASTER (MS4) TO SUBMIT A SWP3. A SIGNED SMALL CONSTRUCTION SITE NOTICE FROM THE OWNER AND THE OPERATOR (CONTRACTOR) OF THE PROJECT SITE WILL ALSO NEED TO BE INCLUDED WITH THE SWP3 SUBMITTAL. THE CONDITIONS DESCRIBED IN ITEM 1 (ABOVE) APPLY TO ALL SWP3 SUBMITTALS.
3. LAND DISTURBING ACTIVITIES THAT EQUAL FIVE (5) ACRES OR MORE, OR INCLUDED IN A LARGER PROJECT OR COMMON PLAN OF DEVELOPMENT THAT EQUALS (5) OR MORE ACRES ARE REQUIRED BY THE TPDES CONSTRUCTION GENERAL PERMIT AND THE CITY OF LANCASTER (MS4) TO SUBMIT A SWP3, NOTICE OF INTENT (NOI) AND CONSTRUCTION SITE NOTICE PROVIDED BY THE PRIMARY OPERATOR (CONTRACTOR) AS DEFINED IN THE TPDES CONSTRUCTION GENERAL PERMIT AS HAVING DAY TO DAY OPERATIONAL CONTROL OVER THE SITE. AND IF THERE IS A PRIMARY OPERATOR (OWNER) HAVING CONTROL OVER CONSTRUCTION PLANS OR SPECIFICATIONS, THEY WILL ALSO NEED TO SUBMIT A NOI AND SITE NOTICE AS DEFINED IN THE TPDES CONSTRUCTION GENERAL PERMIT. IF A SECONDARY OPERATOR IS PART OF THIS PLAN AND MEETS THE DEFINITIONS GUIDELINES IN ACCORDANCE WITH THE TPDES CONSTRUCTION GENERAL PERMIT, THEN THEY CAN OR SHOULD FALL UNDER THE PRIMARY OPERATORS NOI AND SIGN THE SECONDARY OPERATOR CONSTRUCTION SITE NOTICE.

NOTICE OF TERMINATION (NOT) REQUIRED:
EACH OPERATOR THAT HAS SUBMITTED A NOTICE OF INTENT (NOI) FOR AUTHORIZATION UNDER THE CONSTRUCTION GENERAL PERMIT MUST APPLY TO TERMINATE THAT AUTHORIZATION. THE NOT MUST BE SUBMITTED TO TCEQ, AND A COPY OF THE NOT PROVIDED TO THE MS4 RECEIVING THE DISCHARGE (LANCASTER), WITHIN 30 DAYS AFTER ANY OF THE FOLLOWING CONDITIONS ARE MET:

1. FINAL STABILIZATION HAS BEEN ACHIEVED AND MEETS THE CONDITIONS OF 80% COVERAGE WITH NO LARGE BARE AREAS ON ALL PORTIONS OF THE SITE THAT ARE THE RESPONSIBILITY OF THE PERMITEE.
2. A TRANSFER OF OPERATION CONTROL HAS OCCURRED, OR
3. THE OPERATOR HAS OBTAINED ALTERNATIVE AUTHORIZATION UNDER AN INDIVIDUAL TPDES PERMIT OR ALTERNATIVE TPDES GENERAL PERMIT.
4. FOR SMALL CONSTRUCTION SITES AND SECONDARY OPERATORS THAT FALL UNDER THE PROVISIONS OF THE CONSTRUCTION GENERAL PERMIT, COMPLETE THE APPLICABLE PORTION OF THE SITE NOTICE RELATED TO REMOVAL OF THE SITE NOTICE, AND SUBMIT A COPY OF THE COMPLETED SITE NOTICE TO THE OPERATOR OF THE MS4 (CITY) RECEIVING THE DISCHARGE.

VEGETATION MANAGEMENT:
VEGETATION IS USED AS A TEMPORARY OR FINAL STABILIZATION MEASURE FOR AREAS DISTURBED BY CONSTRUCTION. AS A TEMPORARY CONTROL, VEGETATION IS USED TO STABILIZE STOCKPILES, EARTHEN DIKES, AND BARREN AREAS THAT ARE INACTIVE FOR LONGER THAN TWO WEEKS. AS A FINAL CONTROL AT THE END OF CONSTRUCTION, GRASSES AND OTHER VEGETATION PROVIDE GOOD PROTECTION FROM EROSION ALONG WITH SOME FILTERING FOR OVERLAND RUNOFF.

TEMPORARY VEGETATION:
THE FOLLOWING TABLE LISTS RECOMMENDED PLANT SPECIES FOR THE NORTH CENTRAL TEXAS REGION DEPENDING ON THE SEASON FOR PLANTING.
AREAS RECEIVING TEMPORARY SEEDING AND VEGETATION SHALL BE LANDSCAPED, RE–SEEDED OR SODDED WITH PERENNIAL SPECIES TO ESTABLISH FINAL VEGETATION AT THE END OF CONSTRUCTION.

RECOMMENDED GRASS MIXTURE FOR TEMPORARY VEGETATION

SEASON	COMMON	PURE LIVE SEE RATE (LBS/ACRE)
SEPT 1–NOV 30	TALL FESCUE WESTERN WHEAT GRASS WHEAT (RED,WINTER)	4.5 5.6 34.0
MAY 1–AUG 31	FOXTAIL MILLET	34.0
FEB 15– MAY 31 SEPT 1– DEC 31	ANNUAL RYE	20.0

VEGETATION FOR FINAL STABILIZATION:
SODDING OR SEEDING MAY BE USED TO ESTABLISH VEGETATION FOR FINAL STABILIZATION OF AREAS DISTURBED BY CONSTRUCTION ACTIVITY. THE VEGETATION MUST ACHIEVE A COVER THAT IS 80 PERCENT OF THE NATIVE BACKGROUND VEGETATIVE COVERT TO BE CONSIDERED FINAL STABILIZATION. GRASS SEED FOR ESTABLISHING FINAL STABILIZATION CAN BE SOWN AT THE SAME TIME AS SEEDING FOR TEMPORARY (ANNUAL) VEGETATION. DROUGHT TOLERANT NATIVE VEGETATION IS RECOMMENDED RATHER THAN EXOTICS AS A LONG–TERM WATER CONSERVATION MEASURE.
FOR CONSTRUCTION ACTIVITIES THAT INCLUDE LANDSCAPING IN THE DEVELOPMENT PLANS, THE LANDSCAPE ARCHITECT SHOULD BE CONSULTED WHEN SPECIFYING VEGETATION FOR TEMPORARY OR FINAL STABILIZATION OF DISTURBED.
WHERE VEGETATION IS USED IN SWALES AND CHANNELS IT MAY BE NECESSARY TO USED SOD, RATHER THAN SEEDING, TO ESTABLISH AN EROSION RESISTANT SURFACE THAT ACCOMMODATES RAINFALL RUNOFF FLOWS.

DEBRIS AND TRASH MANAGEMENT:
DEBRIS AND TRASH MANAGEMENT IS USED TO MINIMIZE FLOATABLE AND OTHER WASTES IN STORMWATER. BY CONTROLLING THE TRASH AND DEBRIS ONSITE, STORMWATER QUALITY IS IMPROVED AND THE NEED FOR EXTENSIVE CLEAN UP UPON COMPLETING OF THE PROJECT IS REDUCED.

1. ALL WASTE SOURCES AND STORAGE ARES SHALL BE LOCATED A MINIMUM OF 50 FEET AWAY FROM INLETS, SWALES, DRAINAGE WAYS, CHANNEL AND OTHER WATERS, IF THE SITE CONFIGURATION PROVIDES SUFFICIENT SPACE TO DO SO. IN NO CASE SHALL MATERIAL AND WASTE SOURCES BE CLOSER THAN 20 FEET FROM INLETS, SWALES, DRAINAGE WAYS, CHANNELS, AND OTHER WATERS.
2. CONSTRUCTION WASTE AND TRASH SHALL BE STORED IN A MANNER THAT MINIMIZES ITS EXPOSURE TO PRECIPITATION AND STORMWATER RUNOFF.
3. DO NOT ALLOW TRASH CONTAINERS TO OVERFLOW. DO NOT ALLOW WASTE MATERIALS TO ACCUMULATE ON THE GROUND.
4. POLICE SITE DAILY FOR LITTER AND DEBRIS.
5. TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AT REGULAR INTERVALS THAT ARE SCHEDULED TO EMPTY CONTAINERS WHEN THEY ARE 90 PERCENT FULL OR MORE FREQUENTLY.
6. NO WASTE, TRASH, OR DEBRIS SHALL BE BURIED, BURNED OR OTHERWISE DISPOSED OF ONSITE.
7. THE FOLLOWING ARE LISTS DESCRIBING THE TYPE OF TARGETED MATERIALS.

CONSTRUCTION (AND DEMOLITION) DEBRIS:
DIMENSIONAL LUMBER
MISCELLANEOUS METAL (STUDS, PIPE, CONDUIT, SHEATHING, NAILS, ETC.)
INSULATION
BRICK AND MORTAR
SHINGLES
ROOFING MATERIALS
GYPSUM BOARD
TRASH:
PAPER AND CARDBOARD (PACKAGING, CONTAINERS, WRAPPERS)
PLASTIC (PACKAGING, BOTTLES, CONTAINERS)
STYROFOAM (CUPS, PACKING, AND FORMS)
FOOD AND BEVERAGE CONTAINERS
FOOD WASTER

DUST CONTROL:
DUST CONTROL INCLUDED THOSE MEASURE NECESSARY TO PREVENT WIND TRANSPORT OF DUST FROM DISTURBED SOIL SURFACES. DUST CONTROL IS APPLIED IN AREAS SUBJECT TO SURFACE AND AIR MOVEMENT TO DUST WHERE ON–SIRE AND OFF–SITE IMPACTS INCLUDING ROADWAYS DRAINAGE WAYS AND SURFACE WATERS.

1. LIMIT DUST GENERATION BY CLEARING ONLY THOSE AREAS WHERE IMMEDIATE ACTIVITY WILL TAKE PLACE, LEAVING THE REMAINING AREA(S) IN THE ORIGINAL CONDITION IF STABLE. MAINTAIN ORIGINAL COVER AS LONG AS PRACTICABLE.
2. CONSTRUCT NATURAL OR ARTIFICIAL WINDBREAKS OR WINDSCREENS. VEGETATE AREAS THAT WILL NOTE RECEIVE VEHICULAR TRAFFIC.
3. SPRINKLE THE SITE WITH WATER UNTIL DAMPENED SUFFICIENTLY TO PREVENT DUST AND REPEAT AS NECESSARY. DO NOT APPLY WATER IN QUANTITIES TO CAUSE RUNOFF.

Table 2.5 Recommended Grass Mixture for Final Stabilization of Upland in Rural Areas

County	Planting Date	Clay Soils Species and Pure Live Seed Rate (Lbs/Acre)		Sandy Soils Species and Pure Live Seed Rate (Lbs/Acre)	
Erath Hood Johnson Palo Pinto Parker Somervell Tarrant Wise	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Little Bluestem (Native) Blue Grama (Hachita) Illinois Bundleflower	0.3 2.7 0.9 1.0 0.9 1.0	Green Sprangletop Sand Lovegrass Bermudagrass Weeping Lovegrass (Ermelo) Sand Dropseed Partridge Peal	0.3 0.5 1.8 0.8 0.4 1.0
Collin Dallas Denton Ellis Kaufman Navarro Rockwall	February 1 – May 15	Green Sprangletop Bermudagrass Sideoats Grama (El Reno) Little Bluestem (Native) Buffalograss (Texoka) Illinois Bundleflower	0.3 1.2 2.7 2.0 1.6 1.0	Green Sprangletop Bermudagrass Weeping Lovegrass (Ermelo) Sand Lovegrass Sand Dropseed Partridge Pea	0.3 1.8 0.6 0.6 0.4 1.0
Hunt	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Little Bluestem (Native) Illinois Bundleflower	0.3 3.2 1.8 1.7 1.0	Green Sprangletop Bermudagrass Bahiagrass (Pensacola) Sand Lovegrass Weeping Lovegrass (Ermelo) Partridge Pea	0.3 1.5 6.0 0.6 0.8 1.0

(Source: TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, Item 164)

Table 2.6 Recommended Grass Mixture for Final Stabilization of Upland in Urban Areas

County	Planting Date	Clay Soils Species and Pure Live Seed Rate (Lbs/Acre)		Sandy Soils Species and Pure Live Seed Rate (Lbs/Acre)	
Erath Hood Johnson Palo Pinto Parker Somervell Tarrant Wise	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Buffalograss (Texoka)	0.3 3.6 2.4 1.6	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Sand Dropseed	0.3 3.6 2.1 0.3
Collin Dallas Denton Ellis Kaufman Navarro Rockwall	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Buffalograss (Texoka) Bermudagrass	0.3 3.6 1.6 2.4	Green Sprangletop Buffalograss (Texoka) Bermudagrass Sand Dropseed	0.3 1.6 3.6 0.4
Hunt	February 1 – May 15	Green Sprangletop Bermudagrass Sideoats Grama (Haskell)	0.3 2.4 4.5	Green Sprangletop Bermudagrass	0.3 5.4

(Source: TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, Item 164)

Vegetation for final stabilization of channels requires grasses that are tolerant of periodic inundation, such as Bermuda grass, Kentucky bluegrass or a grass-legume mixture.

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EROSION CONTROL 1 OF 4

STANDARD DETAILS

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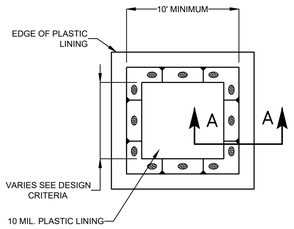
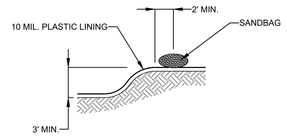
			May 2021	N.T.S.	EC–01	46 OF 53



CONCRETE WASHOUT PLAN VIEW

N.T.S.



CONCRETE WASHOUT SECTION A–A

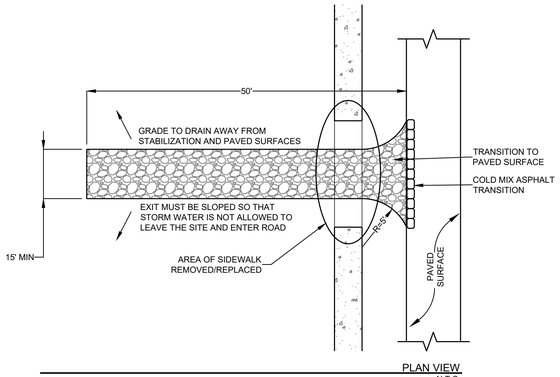
N.T.S.

CONCRETE TRUCK WASHOUT REQUIREMENTS:

1. DIRECT DISCHARGE OF CONCRETE TRUCK WASHOUT TO SURFACE WATER IN THE STATE, INCLUDING DISCHARGE TO STORM SEWERS, IS PROHIBITED.
2. CONCRETE TRUCK WASH OUT WATER SHALL BE DISCHARGED TO AREAS AT THE CONSTRUCTION SITE WHERE STRUCTURAL CONTROLS HAVE BEEN ESTABLISHED TO PREVENT DIRECT DISCHARGE TO SURFACE WATERS.
3. STRUCTURAL CONTROLS MAY CONSIST OF TEMPORARY BERMS, TEMPORARY SHALLOW PITS, TEMPORARY STORAGE TANKS WITH SLOW RATE RELEASE, OR OTHER REASONABLE MEASURES TO PREVENT RUNOFF FROM THE CONSTRUCTION SITE.
4. WASHOUT OF CONCRETE TRUCKS DURING RAINFALL SHALL BE MINIMALIZED. THE DIRECT DISCHARGE OF CONCRETE TRUCK WASH OUT WATER IS PROHIBITED AT ALL TIMES, AND THE OPERATOR SHALL INSURE THAT ITS BMP'S ARE SUFFICIENT TO PREVENT THE DISCHARGE OF CONCRETE TRUCK WASH OUT AS THE RESULT OF RAINFALL OR STORMWATER RUNOFF.
5. THE DISCHARGE OF WASH OUT WATER MIST NOT CAUSE OR CONTRIBUTE TO GROUNDWATER CONTAMINATION.
6. IF A SWP3 IS REQUIRED TO BE IMPLEMENTED, THE SWP3 SHALL INCLUDE CONCRETE WASHOUT AREAS ON THE ASSOCIATED EROSION CONTROL PLAN.

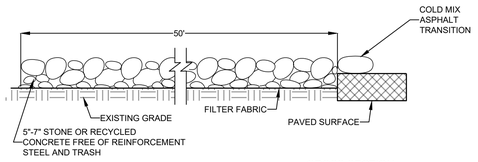
PROHIBITED CONCRETE DISPOSAL PRACTICES:

1. DUMPING IN VACANT AREAS ON THE JOB SITE.
2. ILLICIT DUMPING ONTO OFF–SITE LOTS OR ANY OTHER PLACE NOT PERMITTED TO RECEIVE CONSTRUCTION DEMOLITION DEBRIS OR WASTE.
3. DUMPING INTO DITCHED, DRAINAGE FACILITIES, OR NATURAL WATER WAYS.



PLAN VIEW

N.T.S.



CROSS SECTION

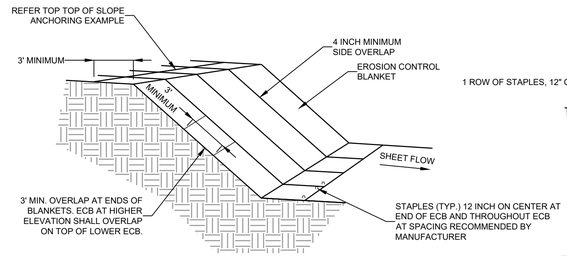
N.T.S.

NOTE: INSTALL SILT FENCE, CONSTRUCTION SAFETY FENCING OR SIMILAR BARRIER ALONG THE EXIT TO DIRECT TRAFFIC INTO THE EXIT

SCHEMATICS OF STABILIZED CONSTRUCTION EXIT

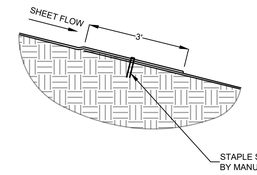
STABILIZED CONSTRUCTION ENTRANCE/EXIT:

1. STABILIZED CONSTRUCTION ACCESS SHALL BE USED ON ALL CONSTRUCTION SITES WITH A DISTURBED AREA OF ONE ACRE OR LARGER AND ARE A RECOMMENDED PRACTICE FOR SMALLER CONSTRUCTION SITES.
2. DESIGN THE ACCESS POINT(S) TO BE AT THE UPSLOPE SIDE OF THE CONSTRUCTION SUITE. DO NOT PLACE CONSTRUCTION ACCESS AT THE LOWEST POINT ON THE CONSTRUCTION SITE.
3. THE ACCESS MUST BE SLOPED AWAY FROM THE PAVED SURFACE SO THAT STORMWATER FROM THE SITE DOES NOT DISCHARGE THROUGH THE EXIT ONTO ROADWAYS.
4. MINIMUM WIDTH OF EXIT SHALL BE 15 FEET.
5. THE CONSTRUCTION ACCESS MATERIAL SHALL BE A MINIMUM THICKNESS OF 6 INCHES. THE STONE OR RECYCLED CONCRETE USED SHALL BE 3 TO 5 INCHES IN SIZE WITH LITTLE OR NO FINES.
6. THE GEOTEXTILE FABRIC SHALL BE INSTALLED PRIOR TO THE ROCK AND MUST MEET THE FOLLOWING MINIMUM CRITERIA:
   * TENSILE STRENGTH, ASTM D4632 TEST METHOD FOR GRAB BREAKING LOAD AND ELONGATION OF GEOTEXTILES, 300 LBS.
   * PUNCTURE STRENGTH, ASTM D4833 TEST METHOD FOR INDEX PUNCTURE RESISTANCE OF GEOTEXTILES, GEOMEMBRANSES, AND RELATED PRODUCTS, 120 LBS.
   * MULLEN BURST RATING, ASTM D3786 STANDARD TEST METHOD FOR HYDRAULIC BURSTING STRENGTH OF TEXTILE FABRICS–DIAPHRAGM BURSTING STRENGTH TESTER METHOD, 600 PSI.
   * APPARENT OPENING SIZE, ASTM D4751 TEST METHOD FOR DETERMINING APPARENT OPENING SIZE OF A GEOTEXTILE, U.S. SIEVE NO. 40(MAX).
7. PERIODIC RE–GRADING AND TOP DRESSING WITH ADDITIONAL STONE SHALL BE DONE TO KEEP THE EFFICIENCY OF THE EXIT FROM DIMINISHING. THE ROCK SHALL BE RE–GRADED WHEN RUTS APPEAR. ADDITION ROCK SHALL BE ADDED WHEN SOIL IS SHOWING THROUGH THE ROCK SURFACE.



ECB ISOMETRIC PLAN VIEW

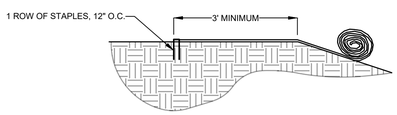
N.T.S.



ECB OVERLAP EXAMPLE

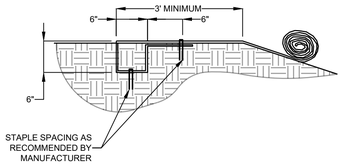
N.T.S.

NOTE: ANCHORING METHODS PROVIDED ARE EXAMPLES OF THE TYPE OF ANCHORING THE ECB MANUFACTURER MAY RECOMMEND. THERE ARE MORE THAN A DOZEN DIFFERENT TOP OF SLOPE STEEPNESS, ETC. ALWAYS FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR ANCHORING BASED ON THE SITE-SPECIFIC APPLICATION.



TOP OF SLOPE ANCHOR EXAMPLE 1

N.T.S.



TOP OF SLOPE ANCHOR EXAMPLE 2

N.T.S.

EROSION CONTROL BLANKETS:

APPLICATION: PERIMETER CONTROL, SLOPE PROTECTION, SEDIMENT BARRIER, CHANNEL PROTECTION, TEMPORARY STABILIZATION, AND FINAL STABILIZATION.

1. PRIOR TO THE INSTALLATION OF THE ECB, ALL ROCKS, DIRT CLODS, STUMPS, ROOTS, TRASH AND ANY OTHER OBSTRUCTIONS THAT WOULD PREVENT THE ECB FROM LYING IN DIRECT CONTACT WITH THE SOIL SHALL BE REMOVED.
2. INSTALLATION AND ANCHORING SHALL CONFORM TO THE RECOMMENDATIONS SHOWN WITHIN THE MANUFACTURER'S PUBLISHED LITERATURE FOR THE EROSION CONTROL BLANKET. ANCHORS (STAPLES) SHALL BE A MINIMUM OF 6 INCHES IN LENGTH AND 1 INCH WIDE. THEY SHALL BE MADE OF 11–GAUGE WIRE, OR EQUIVALENT.
3. ECBS MAY BE USED AS A SEDIMENT BARRIER BEHIND CURB IN PLACE OF SILT FENCE. FOR SINGLE FAMILY RESIDENTIAL LOTS THE WIDTH OF THE ECB SHALL BE TEN (10) FEET MINIMUM. FOR COMMERCIAL DEVELOPMENT APPLICATIONS THE WIDTH SHALL BE TWENTY (20) FEET MINIMUM, UNLESS OTHERWISE APPROVED BY THE STORMWATER DEPARTMENT.
4. EROSION CONTROL BLANKETS SHOULD BE INSPECTED WEEKLY (IN ACCORDANCE WITH THE SWP3 REQUIREMENTS AND THE TPDES CONSTRUCTION GENERAL PERMIT) FOR BARE SPOTS CAUSED BY WEATHER OR OTHER EVENTS. MISSING OR LOOSENED BLANKETS SHALL BE REPLACED OR RE–ANCHORED.
5. EROSION CONTROL BLANKETS SHALL NOT BE USED AS SEDIMENT BARRIERS IN SWALES AND CHANNELS THAT HAVE A SHEAR OF MORE THAN 2.0 POUNDS PER SQUARE FOOT OR SLOPES GREATER THAN 2%. TURF REINFORCEMENT MATS SHALL BE USED IN OPEN CHANNELS WITH HIGHER SHEAR STRESSES AND GREATER SLOPES.

CERTIFICATION:
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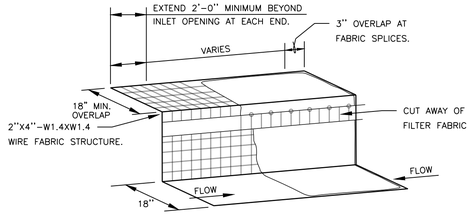
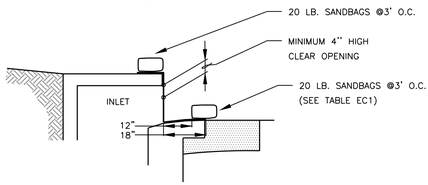
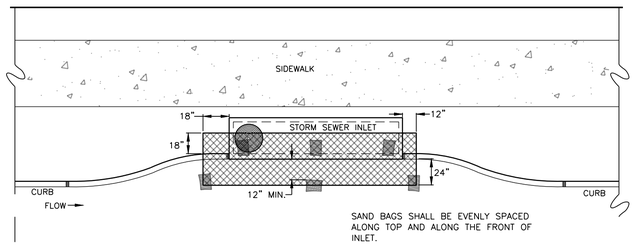
EROSION CONTROL 2 OF 4

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	EC-02	17 OF 53







CURB INLET ON GRADE PROTECTION DETAIL

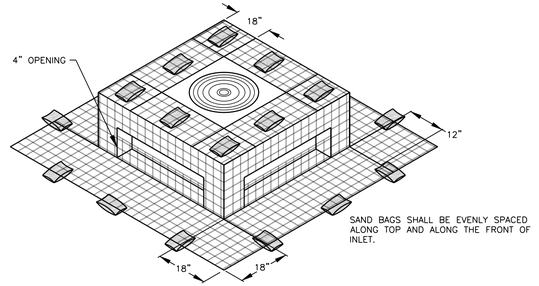
N.T.S.

NOTES:

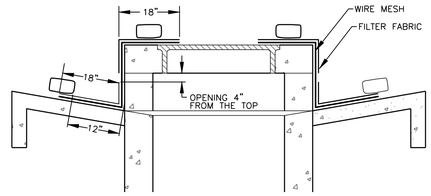
1. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL TO PROVIDE A 4" MINIMUM CLEAR OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
2. INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
3. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM-WATER BEGINS TO OVERTOP THE CURB.
4. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

TABLE EC1

INLET OPENING	MINIMUM NUMBER OF SAND BAGS	
	TOP	FRONT
5'	2	3
10'	3	3
15'	3	4
20'	4	4



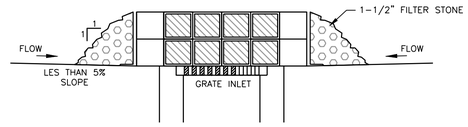
ISOMETRIC VIEW



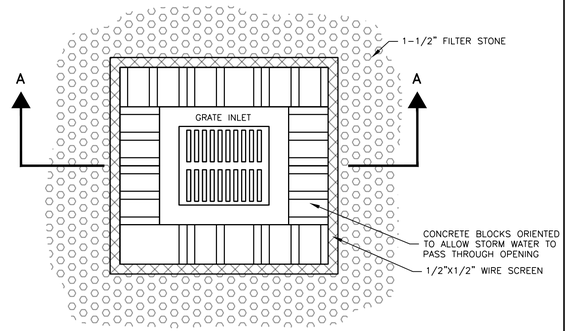
SECTION

FILTER FABRIC WYE INLET PROTECTION

N.T.S.



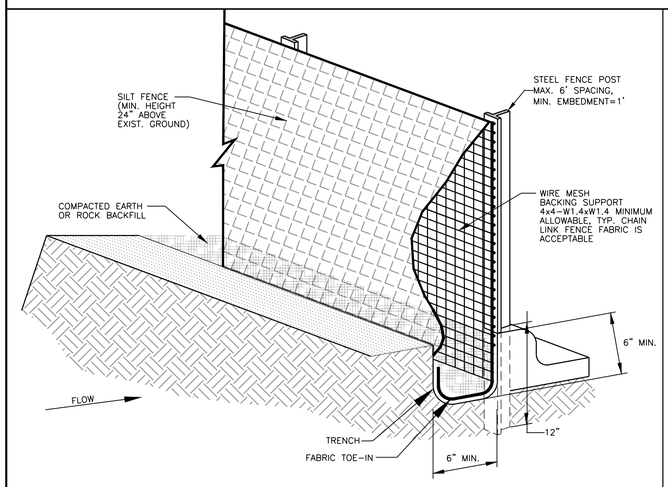
SECTION A-A



PLAN VIEW

GRATE INLET PROTECTION

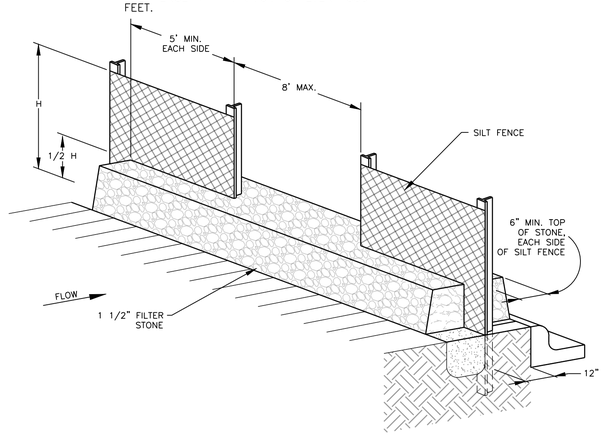
N.T.S.



ISOMETRIC PLAN VIEW

N.T.S.

NOTE: STONE OVERFLOW STRUCTURES OR OTHER OUTLET CONTROL DEVICES SHALL BE INSTALLED AT ALL LOW POINTS ALONG THE FENCE AT A MINIMUM OF EVERY 300 FEET.



SILT FENCE STONE OVERFLOW STRUCTURE

N.T.S.

Silt Fence General Notes

1. Steel posts which support the silt fence shall be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of one foot.
2. The toe of the silt fence shall be trenched-in with spade or mechanical trencher, so that the down slope face of the trench is flat and perpendicular to the line of flow. Where silt fence cannot be trenched-in (e.g. pavement or rock surface), weight fabric flap with rock on uphill side to prevent flow from seeping under fence.
3. The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.
4. Silt fence should be securely fastened to each steel support post or to woven wire which in turn is attached to the steel fence post. There shall be a 3 foot overlap, securely fastened where ends of fabric meet.
5. Reinforced silt fence shall be inspected weekly and maintained when bulges occur or when sediment accumulations reach 50% of the fabric height. The reinforced silt fence should be inspected daily for damage by construction equipment.
6. Silt fence shall be removed when the site is completely stabilized.
7. Silt fence shall not be installed and used in concentrated high flow discharge areas. Rock Filter Dams shall be installed and maintained in lieu of silt fence.

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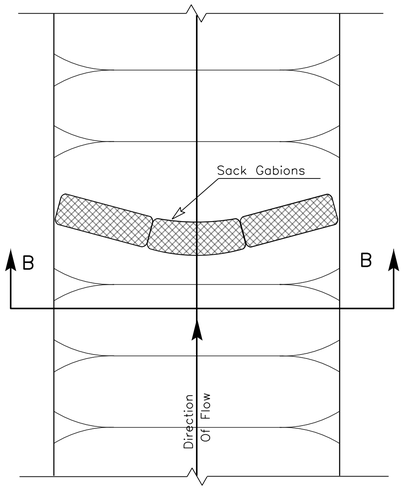
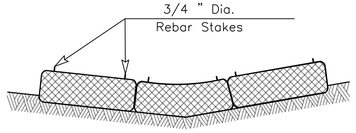
EROSION CONTROL 3 OF 4

STANDARD DETAILS

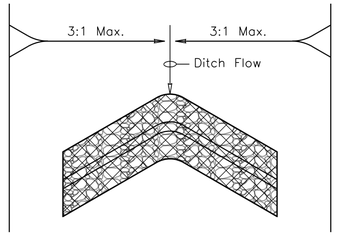
DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	*EC-03*	*48* OF *53*



PLAN VIEW



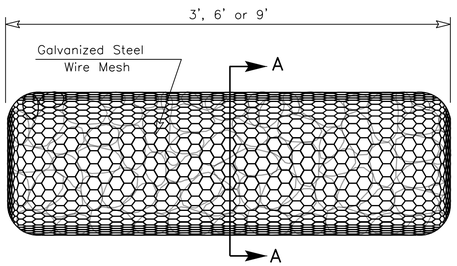
SECTION B–B



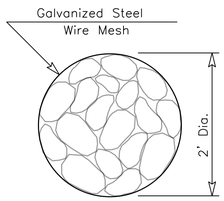
"V" SHAPE
(Plan View)

PLANS SHEET LEGEND

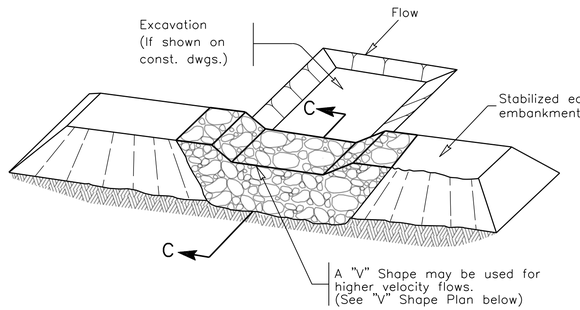
Type 1 Rock Filter Dam	RFD1
Type 2 Rock Filter Dam	RFD2
Type 3 Rock Filter Dam	RFD3



TYPE 4 (SACK GABIONS)



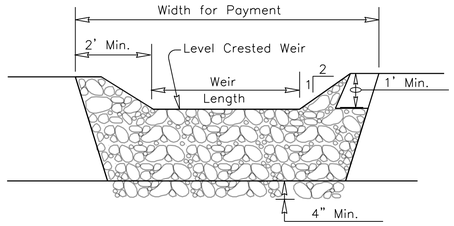
SECTION A–A



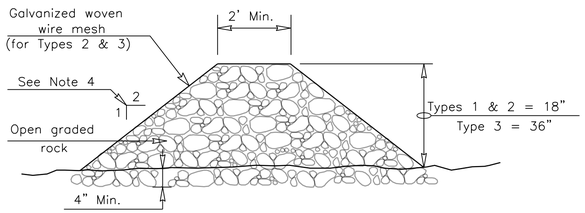
FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2

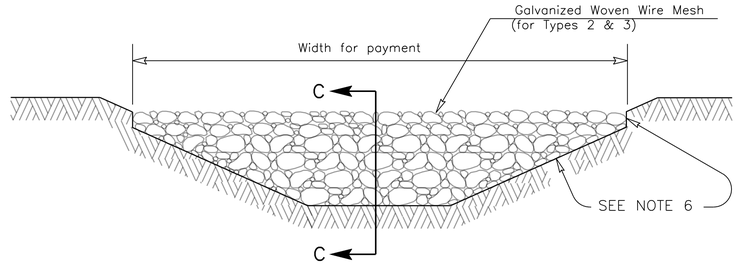
TYPE 1 OR TYPE 2



PROFILE



SECTION C–C



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

TYPE 1 OR TYPE 2

GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED, UPSTREAM AND/OR DOWNSTREAM AT DRAINAGE STRUCTURES, AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR "ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL".
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE SWP3 OR EROSION CONTROL PLANS.
4. STONE SIDE SLOPES SHOULD BE 2:1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDE SLOPES OF 6:1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT & SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3/4" DIA. REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
11. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.
12. ALL MATERIAL INCORPORATED IN THE CONSTRUCTION SHALL BE NEW.
13. MAX TEMPORARY EARTH SLOPE IS 3:1 WITH 4:1 RECOMMENDED IF PRACTICAL.

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approx. 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

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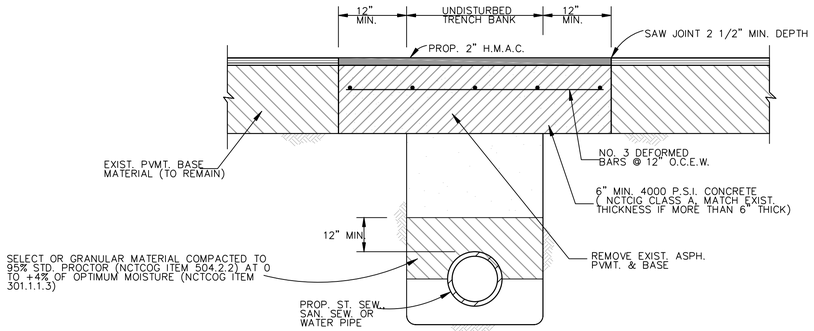
EROSION CONTROL 4 OF 4

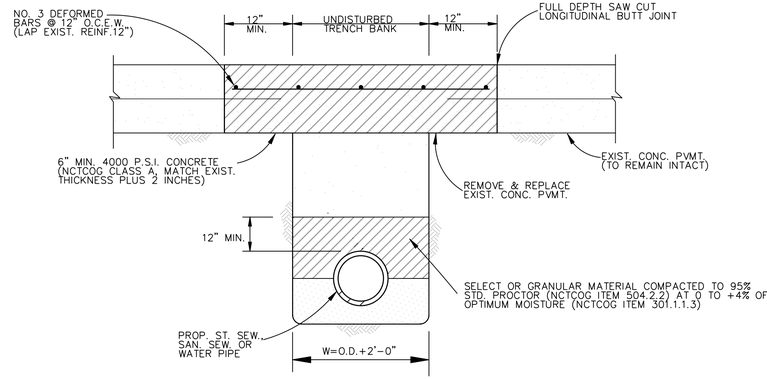
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	EC-04	49 OF 53



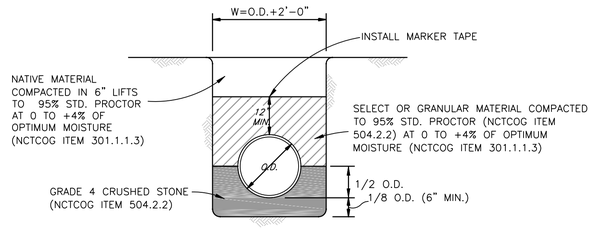
ASPHALT STREET OR DRIVEWAY REPAIR

CLASS B+ EMBEDMENT



CONCRETE STREET OR DRIVEWAY REPAIR

CLASS B+ EMBEDMENT



CLASS B+ EMBEDMENT

GENERAL NOTES:

A. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LANCASTER, WHICH HAS ALSO ADOPTED THE FOURTH EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION – NORTH CENTRAL TEXAS HEREIN REFERRED TO AS N.C.T.C.O.G. SPECIFICATIONS. COPIES MAY BE OBTAINED FROM THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS, 616 SIX FLAGS DRIVE, SUITE 200, ARLINGTON, TEXAS 76005–5888. (817) 640–3300. THESE SPECIFICATIONS ARE ALSO AVAILABLE AT WWW.PUBLICWORKS.DFWINFO.COM
B. FLEXIBLE BASE MATERIAL SHALL BE TYPE 'A' GRADE 1 PER TxDot ITEM 247 AND NCTCOG ITEM 301.5
C. MODIFIED FLOWABLE FILL (REFER TO N.C.T.C.O.G. ITEM 504.2.3.5): MODIFIED FLOWABLE BACKFILL IN AREAS OF POSSIBLE FUTURE EXCAVATION SUCH AS UTILITY INSTALLATIONS SHALL CONSIST OF A MIXTURE OF NATIVE SOILS OR MANUFACTURED MATERIALS, CEMENT AND/OR FLY ASH, AIR–ENTRAINING MATERIAL AND WATER WHICH PRODUCES A MATERIAL WITH UNCONFINED COMPRESSIVE STRENGTH OF BETWEEN 50–PSI AND 150–PSI (4 TO 11–KG/CM2) AFTER 28 DAYS. MODIFIED FLOWABLE BACKFILL MAY BE USED IN ABANDONED PIPE CLOSURES, ABUTMENTS AND EMBANKMENTS. ANY MATERIALS USED SHALL BE PRIMARILY GRANULAR WITH A PLASTICITY INDEX OF <12 AND WITH 100% PASSING A ¾ IN. SIEVE. THE FLOWABLE MIXTURE SHALL BE MIXED IN A PUG MIL, CONCRETE MIXER, OR TRANSIT MIXER AND SHALL HAVE A MINIMUM SLUMP OF 5 IN. (13 CM). THE FLOWABLE MIXTURE MUST BE ALLOWED TO SET PRIOR TO THE PLACEMENT OF ANY OVERLYING MATERIAL. REFER TO N.C.T.C.O.G. ITEM 504.2.3.5 FOR ADDITIONAL INFORMATION.
D. FRANCHISE UTILITIES:
FLOWABLE BACKFILL MAY BE USED IN PLACE OF FLEXIBLE BASE OR NATIVE MATERIAL BY FRANCHISE UTILITIES FOR LIMITED STREET REPAIRS WITH INSPECTOR APPROVAL.

SPECIFIC NOTES:

1. FULL–DEPTH SAWCUT TO REPAIR ASPHALT OR CONCRETE PAVEMENT PRIOR TO OPENING THE DITCH IN ORDER TO ENSURE A NEAT STRAIGHT EDGE.
2. MODIFIED FLOWABLE BACKFILL MAY BE UTILIZED IN–LIEU OF NATIVE MATERIAL.
3. DEPTH OF CONCRETE REPAIR SHALL MATCH EXISTING PAVING DEPTH OR 8" MINIMUM, WHICHEVER IS GREATER.
4. REFER TO THE PLANS FOR SPECIFIED WIDTH OF REPLACEMENT.
5. RECOMMENDED WIDTHS – VARIES BASED ON DEPTH AND SOIL MATERIAL.
6. MECHANICALLY TAMP NATIVE MATERIAL (6"ø CLODS OR SMALLER IN 6"–8" LIFTS) TO 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY THE STD. PROCTOR TEST, ASTM D698 WITH MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION TO BE 0 TO 4% ABOVE PROCTOR OPTIMUM VALUE.
7. CONCRETE FOR PAVING REPAIRS SHALL BE MADE WITH A MINIMUM OF 6 1/2 SACKS OF CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS.
8. ALL REINFORCING STEEL SHALL BE NEW, NEAT, BILLET–STEEL PER ASTM DESIGNATION A–615, GRADE 60 AND SHALL BE DETAILED AND PLACED PER ACI MANUALS SP–88 AND 318, LATEST ADDITIONS. ALL REINFORCING STEEL SHALL HAVE MINIMUM 15 INCH LAP SPLICES, UNLESS NOTED OTHERWISE ON THE PLANS.
9. THE CONTRACTOR SHALL USE A LIQUID MEMBRANE–FORMING CURING COMPOUND PER N.C.T.C.O.G. ITEM 303.2.13.1.1.
10. STORM DRAIN PIPES AND CULVERTS WITH SLOPES EXCEEDING 10% SHALL BE BACKFILLED WITH FLOWABLE FILL MATERIAL BETWEEN SPRING LINE AND 6" (INCHES) ABOVE THE STORM DRAIN PIPE.

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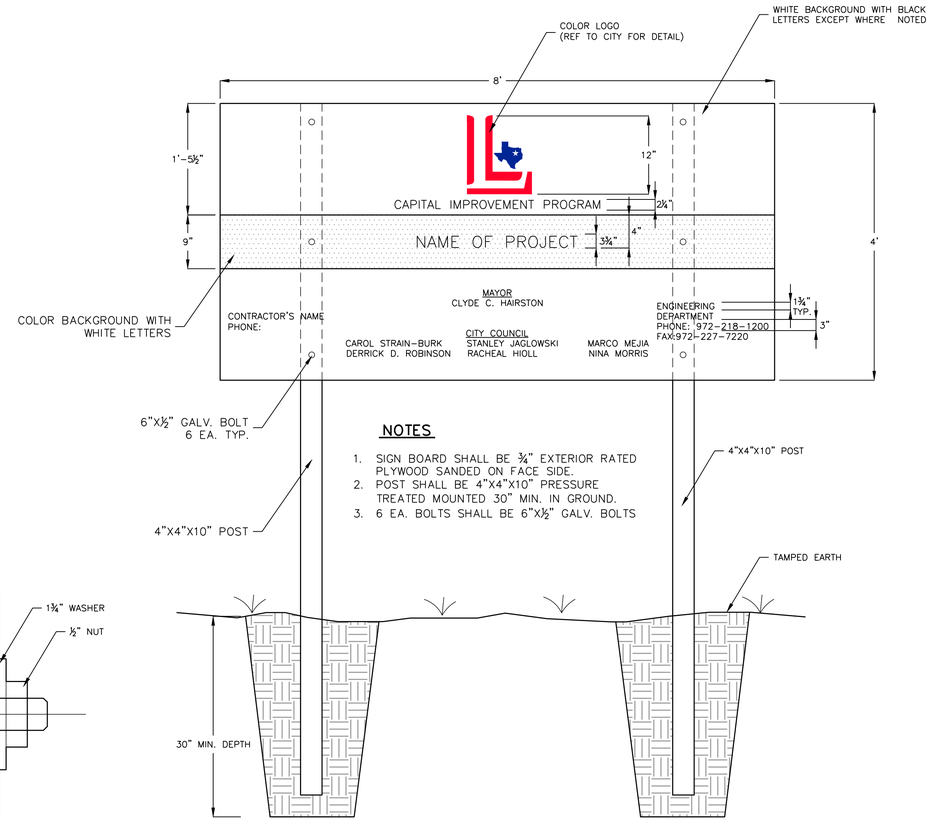
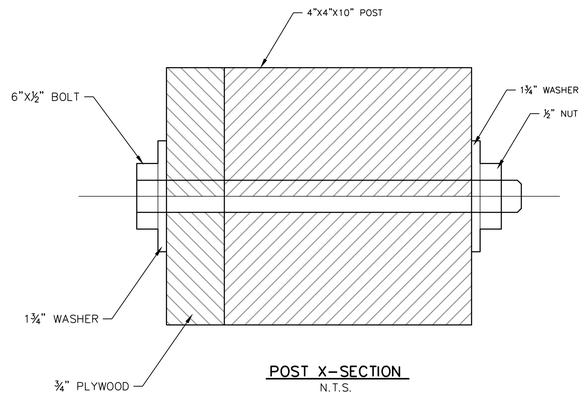
PAVEMENT AND BACKFILL TRENCH REPAIR STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	*EMB–01*	*50* OF *53*



CAPITAL IMPROVEMENT PROJECT SIGN DETAIL
N.T.S.

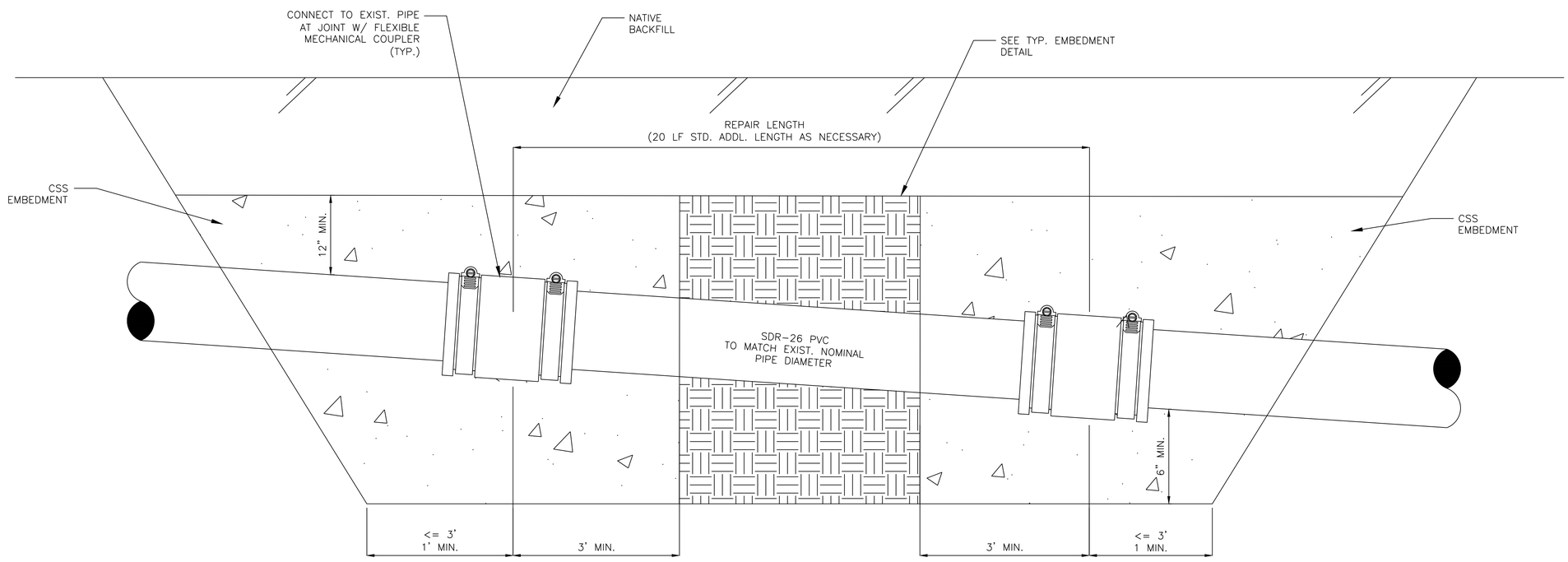


POST X-SECTION
N.T.S.

CERTIFICATION:
THIS CITY OF LANCASTER STANDARD DETAIL SHEET IS AUTHORIZED FOR USE IN THIS PROJECT BY THE ENGINEER WHOSE SEAL APPEARS ON THIS SHEET. THIS ENGINEER IS ALSO CERTIFYING THAT THE CONTENT OF THE DETAILS AND NOTES ON THIS SHEET HAVE NOT BEEN ALTERED FROM THAT RECEIVED FROM THE CITY OF LANCASTER.

CAPITAL IMPROVEMENT PROJECT SIGN STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	*SGN-01*	*51* OF *53*

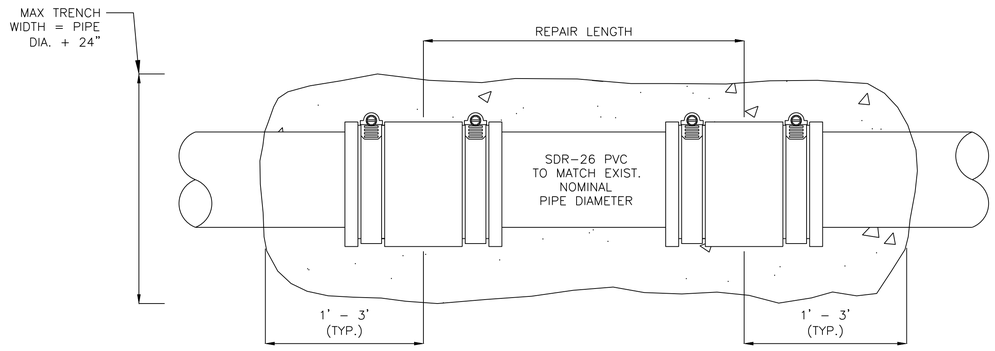


1A POINT REPAIR: PROFILE VIEW

SCALE: NONE

NOTES:

1. POINT REPAIR PIPE DIA. TO MATCH EXIST. NOMINAL PIPE DIA. BEING REPAIRED.
2. STD. REPAIR LENGTH IS UP TO 20 LF. REMOVE EXIST. PIPE TO NEAREST USABLE JOINT. POINT REPAIR GREATER THAN 20 LF WILL BE PAID WITH ADDITIONAL FOOTAGE BID ITEM. FOR EXAMPLE, A REPAIR REQUIRING 30 LF OF REPLACEMENT PIPE WILL BE PAID FOR W/1 STD. LENGTH REPAIR PLUS 10 LF OF ADDITIONAL FOOTAGE.
3. SUPPORT REPLACEMENT PIPE AS NECESSARY TO MAINTAIN CONSISTENT SLOPE.
4. FLEXIBLE COUPLING SHALL COMPLY WITH ASTM D5926, AND C1173 WITH STAINLESS STEEL BAND CLAMPS.
5. CONTRACTOR TO RESTORE SURFACE TO MATCH EXIST. SURFACE.



1B POINT REPAIR: PLAN VIEW

SCALE: NONE

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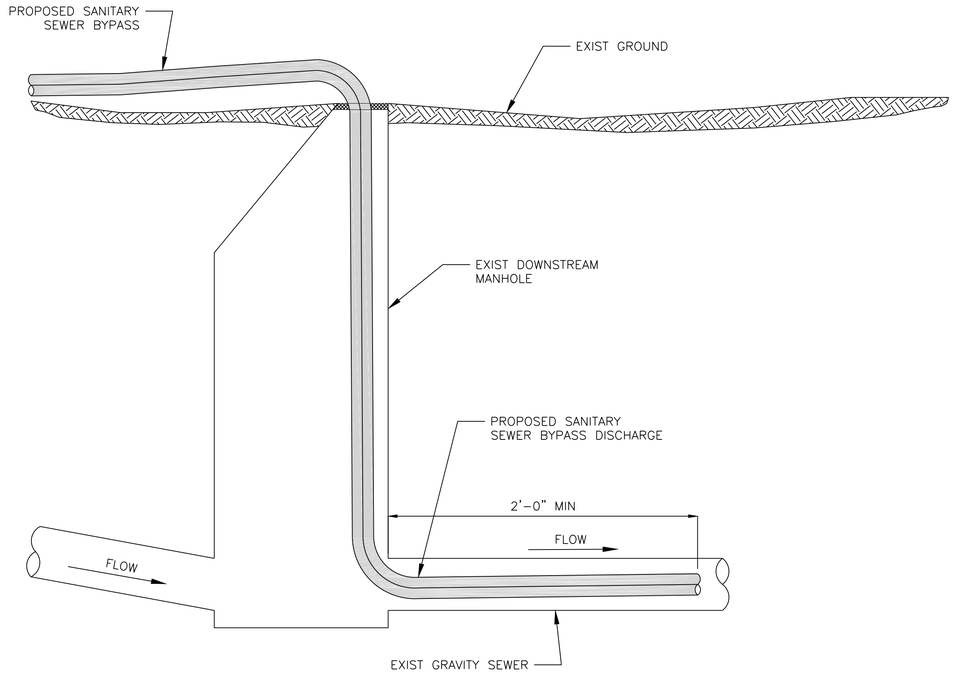
PIPEBURSTING DETAIL

SHEET 1 OF 2

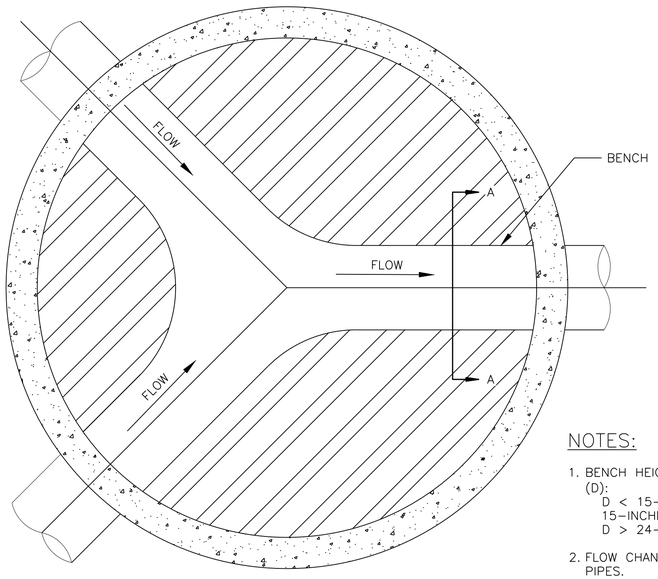
STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	MISC-1	52 OF 53

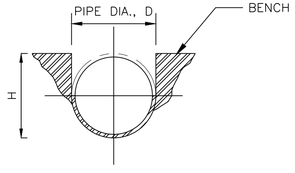


1 BYPASS DISCHARGE DETAIL

SCALE: NONE



PLAN VIEW



SECTION VIEW

NOTES:

1. BENCH HEIGHT H AS DETERMINED BY THE DIAMETER OF THE LARGEST PIPE (D):
   D < 15-INCHES: H >= 0.50D
   15-INCHES <= D <= 24-INCHES: H>=0.75D
   D > 24-INCHES: H >= D
2. FLOW CHANNEL IS TO BE A SMOOTH CONTINUATION OF INLET AND OUTLET PIPES.

2 BENCH REPAIR

SCALE: NONE

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PIPEBURSTING DETAIL

SHEET 2 OF 2

STANDARD DETAILS

DESIGN	DRAWN	CHECK	DATE	SCALE	SECTION	NO.
			May 2021	N.T.S.	MISC-2	53 OF 53