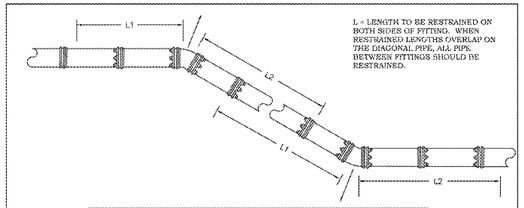


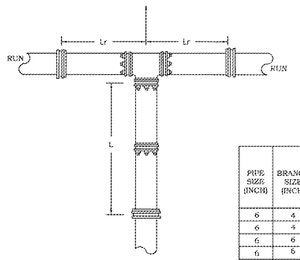
L = LENGTH TO BE RESTRAINED ON BOTH SIDES OF FITTING. WHEN RESTRAINED LENGTHS OVERLAP ON THE DIAGONAL PIPE, ALL PIPE BETWEEN FITTINGS SHOULD BE RESTRAINED.

PIPE SIZE (INCH)	BEND ANGLE (DEG)	LOW SIDE DEPTH	L1 UPPER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI	L2 LOWER BEND RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
6	45	3	24	8
6	22.5	5	12	4
6	11.25	5	6	2
6	45	10	24	5
6	22.5	10	12	2
6	11.25	10	6	1
8	45	5	32	11
8	22.5	5	15	5
8	11.25	5	8	3
8	45	10	32	7
8	22.5	10	15	3
8	11.25	10	8	2
12	45	5	45	16
12	22.5	5	22	7
12	11.25	5	11	4
12	45	10	45	10
12	22.5	10	22	5
12	11.25	10	11	2

NOTES:
1. RESTRAINED LENGTH CALCULATIONS ARE FOR PVC PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE.
2. THE NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY.
3. DEPTH OF BURY IS ASSUMED TO BE 4 FEET.
4. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION.

NO REVISION OR MODIFICATION OF THIS DETAIL SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL FROM AUGUSTA UTILITIES DEPARTMENT. REVISED: JANUARY 2018

RESTRAINED LENGTHS FOR VERTICAL BENDS	AUGUSTA UTILITIES DEPARTMENT 452 WALKER STREET, SUITE 200 AUGUSTA, GA 30901	Water Is Life AUGUSTA UTILITIES
AUD DETAIL 3.2.2		



Lr = LENGTH OF PIPE ALONG THE RUN FREE OF JOINTS
L = LENGTH TO BE RESTRAINED

PIPE SIZE (INCH)	BRANCH SIZE (INCH)	LENGTH OF RUN (FT.)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
6	4	5	7
6	4	10	1
6	6	5	35
6	6	10	11
8	4	5	42
8	6	5	59
8	6	5	1
8	8	10	77
8	8	5	30
12	8	10	6
12	4	15	42
12	6	5	59
12	6	5	1
12	8	10	77
12	8	5	7
12	8	10	1
12	12	15	109
12	12	5	86
12	12	10	63
12	12	15	39

NOTES:
1. RESTRAINED LENGTH CALCULATIONS ARE FOR PVC AND DIP PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE.
2. THE NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY.
3. DEPTH OF BURY IS ASSUMED TO BE 4 FEET.
4. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION.

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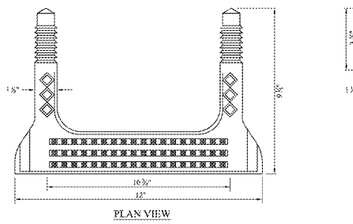
RESTRAINED LENGTHS FOR TEES	AUGUSTA UTILITIES DEPARTMENT 452 WALKER STREET, SUITE 200 AUGUSTA, GA 30901	Water Is Life AUGUSTA UTILITIES
AUD DETAIL 3.2.3		



NOTE: STEP SHALL BE MANUFACTURED BY OLIVER FIRE AND RUBBER COMPANY OR APPROVED EQUAL

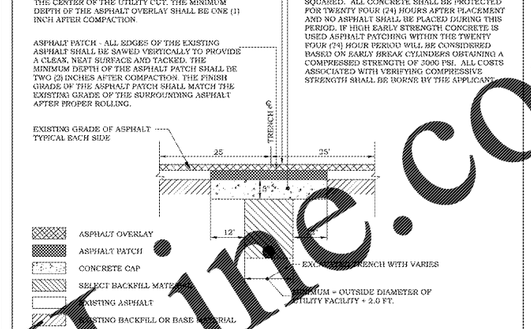
NO REVISION OR MODIFICATION OF THIS DETAIL SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL FROM AUGUSTA UTILITIES DEPARTMENT. REVISED: JANUARY 2018

MANHOLE STEP	AUGUSTA UTILITIES DEPARTMENT 452 WALKER STREET, SUITE 200 AUGUSTA, GA 30901	Water Is Life AUGUSTA UTILITIES
AUD DETAIL 3.5		

ASPHALT OVERLAY - ALL UTILITY ROAD CUTS WILL REQUIRE AN ASPHALT OVERLAY. THE MINIMUM WIDTH SHALL BE ONE (1) LANE WIDTH AND THE MINIMUM LENGTH SHALL BE FIFTY (50) FEET WHICH IS A MINIMUM TWENTY FIVE (25) FEET ON EACH SIDE OF THE CENTER OF THE UTILITY CUT. THE MINIMUM DEPTH OF THE ASPHALT OVERLAY SHALL BE ONE (1) INCH AFTER COMPACTION.

ASPHALT PATCH - ALL EDGES OF THE EXISTING ASPHALT SHALL BE SAWED VERTICALLY TO PROVIDE A CLEAN, NEAT SURFACE AND TACKED. THE MINIMUM DEPTH OF THE ASPHALT PATCH SHALL BE TWO (2) INCHES AFTER COMPACTION. THE FINISH GRADE OF THE ASPHALT PATCH SHALL MATCH THE EXISTING GRADE OF THE SURROUNDING ASPHALT AFTER PROPER ROLLING.

CONCRETE CAP - AN EIGHT (8) INCH THICK PORTLAND CEMENT CONCRETE CLASS 'A' OR BETTER CONCRETE CAP, SHALL BE PLACED TWELVE (12) INCHES WIDER EACH SIDE THAN THE EXCAVATED TRENCH/DITCH. ALL EDGES SHALL BE SQUARED. ALL CONCRETE SHALL BE PROTECTED FOR TWENTY FOUR (24) HOURS AFTER PLACEMENT AND NO ASPHALT SHALL BE PLACED DURING THIS PERIOD. IF HIGH EARLY STRENGTH CONCRETE IS USED ASPHALT PATCHING WITHIN THE TWENTY FOUR (24) HOUR PERIOD WILL BE CONSIDERED BASED ON EARLY BREAK CYLINDERS OBTAINING A COMPRESSED STRENGTH OF 2500 PSI. ALL COSTS ASSOCIATED WITH VERIFYING COMPRESSIVE STRENGTH SHALL BE BORNE BY THE APPLICANT.



BACKFILL - ALL BACKFILL SHALL BE COMPACTED IN LIFTS NO MORE THAN EIGHT (8) INCHES LOOSE MEASURE, SPREAD AND COMPACTED UNIFORMLY. IN ADDITION THE BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM LABORATORY DRY DENSITY, TO WITHIN TWELVE (12) INCHES OF THE TOP OF SUBGRADE. THE TOP TWELVE (12) INCHES OF THE BACKFILL SHALL BE COMPACTED TO AT LEAST 100% OF THE MAXIMUM LABORATORY DRY DENSITY. THE TOP OF THE SUBGRADE IS THAT ELEVATION LOCATED IMMEDIATELY BENEATH ALL BASE AND PAVING MATERIALS. THE MAXIMUM LABORATORY DRY DENSITY SHALL BE DETERMINED FROM THE STANDARD PROCTOR TEST. A MECHANICAL COMPACTOR SHALL BE ON SITE PRIOR TO BEGINNING ANY EXCAVATIONS, IN NO CASE WILL BACKFILLING WITH SAND, USING JETTING AND/OR FLOODING TO ACHIEVE COMPACTION BE ALLOWED.

NOTES:
1. A MINIMUM ONE (1) HOUR ADVANCE NOTICE DURING REGULAR WORKING HOURS (8:30 A.M. TO 5:00 P.M.), MONDAY THRU FRIDAY SHALL BE GIVEN TO AUD & ASD INSPECTORS PRIOR TO BEGINNING ANY BACKFILL OPERATION OR ANY CONCRETE OR ASPHALT PAVEMENT.
2. THE APPLICANT MUST OBTAIN PERMISSION FROM THE COUNTY ENGINEER BEFORE PLACING CONCRETE OR ASPHALT.
3. THE DETAIL SUPERCEDES THE GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD 1401 - 'PAVEMENT PATCHING DETAIL'.
4. IN WET AREAS, TYPE 3 FOUNDATION BACKFILL MATERIAL (#57 STONE) WILL BE REQUIRED AS DIRECTED BY THE COUNTY ENGINEER.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE 'AUGUSTA RICHMOND COUNTY RIGHTS-OF-WAY ENCROACHMENT FOR UTILITIES ORDINANCE'.

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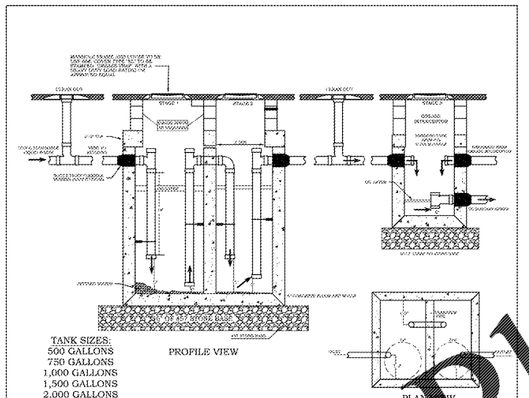
AED UTILITY ROAD CUT DETAIL	AUGUSTA UTILITIES DEPARTMENT 452 WALKER STREET, SUITE 200 AUGUSTA, GA 30901	Water Is Life AUGUSTA UTILITIES
AUD DETAIL 4.1.2		



TANK SIZES:
500 GALLONS
750 GALLONS
1,000 GALLONS
1,500 GALLONS
2,000 GALLONS

NOTES:
1. THERE SHALL BE A 2" DIFFERENCE IN THE INFLUENT AND EFFLUENT INVERT OF THE GREASE INTERCEPTOR.
2. REINFORCING SHALL BE PROVIDED AS REQUIRED FOR TOP, SIDES AND BOTTOM OF CONCRETE VAULT IN ACCORDANCE WITH ASTM C-890.
3. TANK AND MANHOLE ASSEMBLY SHALL BE CERTIFIED AS DESIGNED FOR 4 PSI PRESSURE, SURCHARGE AND H-20 LOADING.
4. VAULT SHALL BE SET BEDDED WITH #57 STONE, 6" OF STONE WHEN PLACED ON HARD SURFACE, 12" OF STONE WHEN PLACED ON SANDY SURFACE.
5. THE MINIMUM COMPRESSIVE STRENGTH OF CONCRETE PRODUCTS SHALL BE 4000 PSI.
6. SWEEP 90° BENDS ARE TO BE USED ON SEWER CONNECTION.
7. TANK MUST BE COATED WITH CS-55 BY CONDEA, WITH AT LEAST 3 COATS OF THICK (INSIDE ONLY).
8. MUST BE PUMPED OUT EVERY 6 MONTHS MINIMUM OR AS SPECIFIC RATED.
9. IF CLEANOUT INSTALLED WITHIN PAVEMENT AREA, MUST BE H-20 SPECIFIC RATED.
10. MUST CONTACT SYSTEMS PROTECTION DEPARTMENT FOR INSPECTIONS BEFORE INSTALLATION.
11. ALL PIPING TO BE 4" UNLESS OTHERWISE SPECIFIED.
12. THE FINISHING TANK THIRD STAGE MAY BE ELIMINATED IF YOU CONNECT THE FINISHING TANK THIRD STAGE OF A GREASE TRAP.

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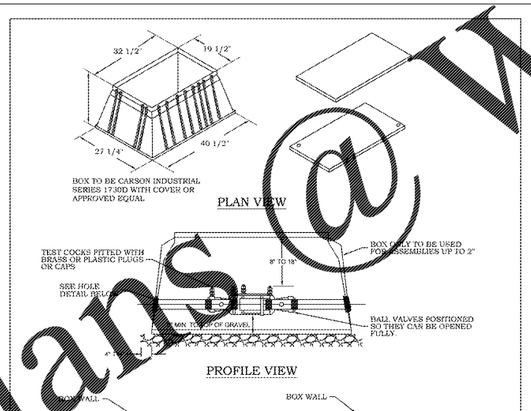
THREE STAGE OIL / GRIT INTERCEPTOR	AUGUSTA UTILITIES DEPARTMENT 452 WALKER STREET, SUITE 200 AUGUSTA, GA 30901	Water Is Life AUGUSTA UTILITIES
AUD DETAIL 4.5		



BOX TO BE CARSON INDUSTRIAL SERIES 17.300 WITH COVER OR APPROVED EQUAL

NOTE: PIPE CUTOUT HOLES MUST BE LARGER THAN WATER LINE AND SEALED WITH EXPANSION FOAM OR SILICONE CAULK INSIDE AND OUTSIDE THE BOX TO PREVENT DIRT AND WATER FROM ENTERING

HOLE DETAIL VIEW

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DOUBLE CHECK VALVE ASSEMBLY BELOW GROUND (2" AND SMALLER)	AUGUSTA UTILITIES DEPARTMENT 452 WALKER STREET, SUITE 200 AUGUSTA, GA 30901	Water Is Life AUGUSTA UTILITIES
AUD DETAIL 5.2.1		

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CLIENT: AUGUSTA, GA
535 TELFAIR STREET, AUGUSTA, GA 30901

PROJECT NAME: **FIRE STATION #2**

PROJECT LOCATION: 928 TELFAIR ST., AUGUSTA, GA 30901

GEORGIA — PROFESSIONAL ENGINEER — No. 27555 — 9/29/18 — CERTIFICATE OF AUTHORIZATION

REV	DATE	BY	DESCRIPTION
0	09/29/18	WTB	ISSUED FOR PERMITTING

PROJECT NO. 3042.1604
DRAWN BY : WTB
CHECKED BY : WLD
DATE: 10/18/17
SHEET TITLE : **CONSTRUCTION DETAILS - 6 OF 6**
SCALE: AS NOTED
DRAWING NO. **C-606** REV. 0

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K:\3042\1604\Civil\Station No. 2\C-600.dwg Plotted:8/30/2018 1:03 PM By:Jillian Ready