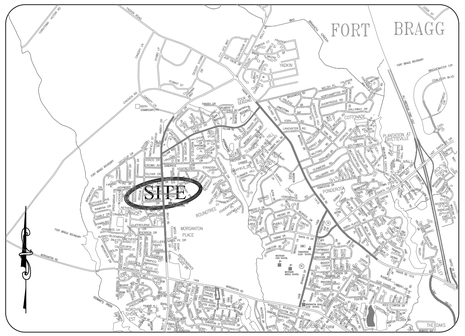
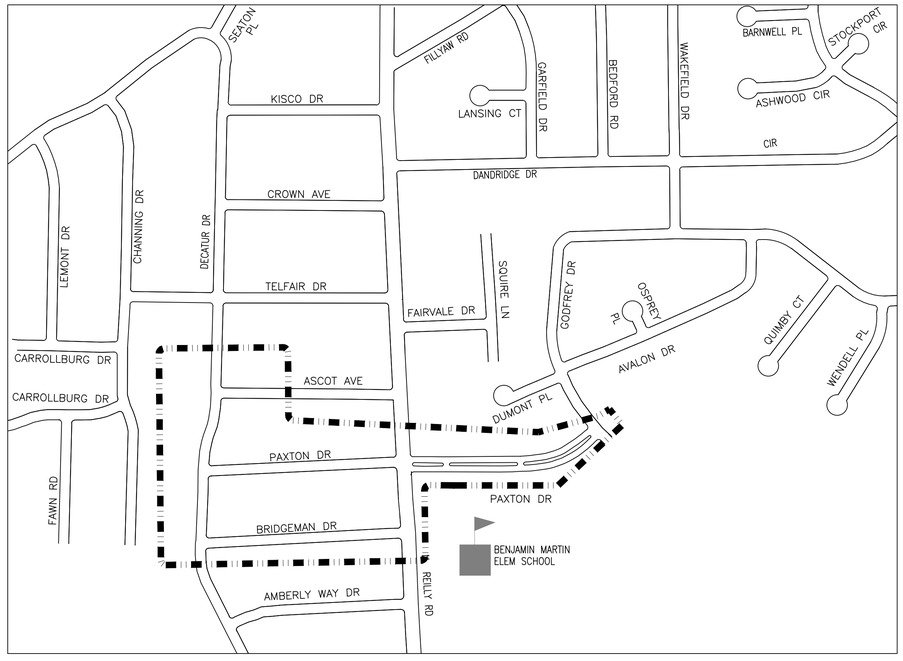


VICINITY MAP

City of Fayetteville North Carolina

ENGINEERING & INFRASTRUCTURE

GODFREY OUTFALL DRAINAGE IMPROVEMENTS*



LOCATION MAP

INDEX

*ALSO KNOWN AS:
CITY OF FAYETTEVILLE ANNEXATION PHASE V PAXTON, BRIDGEMAN, & GODFREY OUTFALL LAGRANGE DRAINAGE IMPROVEMENTS

PROJECT CONTACTS
CITY OF FAYETTEVILLE

Engineering (Project Manager)	Giselle Rodriguez, PE City Engineer 433 Hay Street, Fayetteville, NC 28301 (910) 433-1656 grodriguez@ci.fay.nc.us
Construction Management	Jeff Riddle, PLS Construction Manager 339 Alexander Street, Fayetteville, NC 28301 (910) 433-1613 jriddle@ci.fay.nc.us
Traffic Services	Lee Jernigan, PE City Traffic Engineer 339 Alexander Street, Fayetteville, NC 28301 (910) 433-1660 ljernigan@ci.fay.nc.us

811

Know what's below.
Call before you dig.

GODFREY OUTFALL
DRAINAGE IMPROVEMENTS

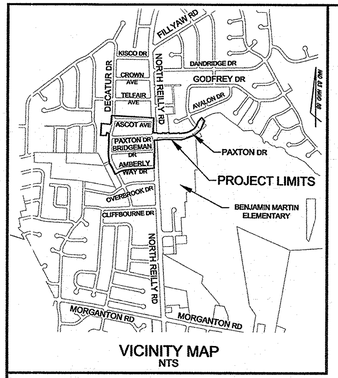
PLAN TYPE: COVER

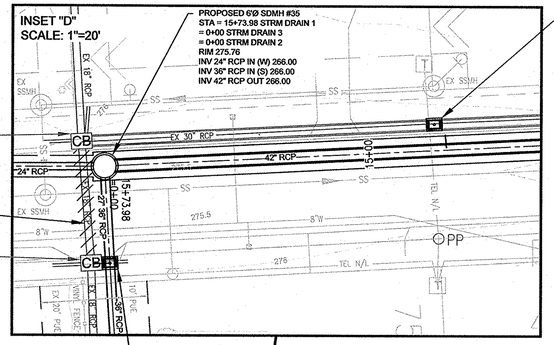
SHEET NUMBER

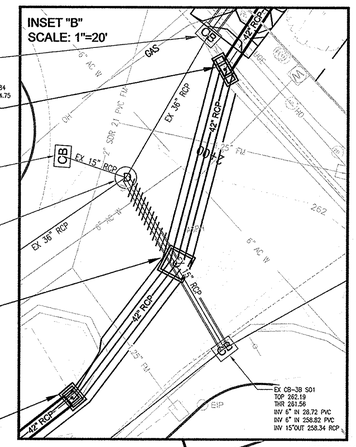
City of Fayetteville North Carolina
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

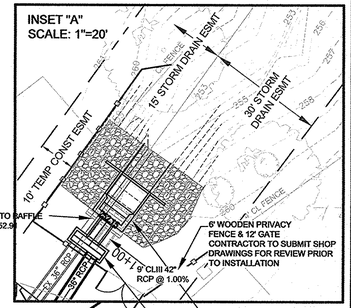
REVISIONS

REV. #	DESCRIPTION	REV.BY	DATE









Key Symbol (00) Typical Notes Key

1. Clear and grub permanent easement dispose off site – clear only trees necessary in temporary easements and dispose offsite.
2. Temporary silt fence (Typical).
3. Do not disturb wetlands outside easements (Typical)
4. Remove existing fence as necessary for construction and replace to existing or better condition. Place temporary 4' tall chain-link fence at edge of easement or tie in opening of fence to secure contents previously secured by permanent fence removed for construction. (Typical)
5. Strip topsoil in areas to be disturbed, add amendments and re-spread topsoil prior to installation of sod. Sod shall be same species as existing and shall be placed by a Licensed Landscape Contractor in all disturbed areas not otherwise improved. No payment shall be made for sod required to restore areas disturbed outside of areas indicated to receive sod. (Typical).
6. Existing Sewer lateral 4" diameter unless otherwise indicated (Typical).
7. Do not disturb structures etc. outside of easements (Typical).
8. Soil Boring (Typical)
9. NA
10. Contractor shall repair damage due to construction to septic tanks and/or drain field to existing or better conditions immediately upon occurrence of damage. Contractor shall obtain permits and pump and haul septic tank contents as necessary during the interim between septic system damage and repair. No separate payment (Typical).
11. Limits of construction are edge of easements and boundary of existing street right of way. (Typical).
12. Contact City Engineering Representative for inspection of storm drain prior to and after SD crossing (Typical).
13. Repair water laterals disturbed by construction. Laterals shall be replaced in accordance with PWC standards and specifications. All materials shall be submitted and approved by PWC prior to incorporation into the work. No separate payment. (Typical) See Details
14. Strip topsoil, stockpile, install storm utility, add amendments to topsoil seed disturbed turf area with seed mixture similar to existing lawn and place curled wood matting anchored to soil. Submit curled wood matting samples for approval to Water Resources.
15. Contractor shall mill with zipper type equipment existing pavement along new storm drain (6' max. payment width for 24" dia. pipe and smaller, 8' max. payment width for 30" to 42" dia. pipe) Base Bid shall be permanent pavement patch. No overage allowed. (Typical)
16. Storm Basin Inlet protection (Typical)
17. N/A
18. Cross underground electric in accordance with N.E.C., Typical), no separate payment.
19. Contractor shall pay any and all cost/fees etc. necessary to support utility pole and shall be responsible for repair/payment to utility owner for damage due to construction (Typical).
20. Do not disturb driveways; repair damage due to construction to existing or better conditions with no separate payment unless quantity for payment in square yards is indicated on plans. (Typical).
21. Maintain min 18" separation between top of sanitary sewer and bottom of water (Typical).
22. Maintain min. 24" separation between top of sanitary sewer and bottom of storm drain (Typical).
23. Maintain min. 12" separation between top of sanitary sewer and bottom of gas (Typical).

LEGEND (TYPICAL ALL SHEETS)

▣	PROPOSED OVERSIZED DROP INLET STRUCTURE SIZE AS REQUIRERD
▤	PROPOSED STANDARD DROP INLET
▣	PROPOSED OVERSIZED CATCH BASIN STRUCTURE SIZE AS REQUIRERD
▣	PROPOSED STANDARD CATCH BASIN
◎	PROPOSED STORM MANHOLE
▤	EXISTING DROP INLET
⊞	EXISTING OPEN THROAT CATCH BASIN
SD	EXISTING JUNCTION BOX
CB	EXISTING CATCH BASIN

NOTES:

1. ALL PIPE DISCHARGE END CONDITIONS SHALL BE REINFORCED CONCRETE FLARED END SECTIONS WITH RIP RAP PLACED ON FILTER FABRIC UNDERLAYMENT AS INDICATED.

2.. PRECAST DRAINAGE STRUCTURES SHALL NOT BE UTILIZED ON THIS PROJECT.

3.. CONTRACTOR SHALL REVIEW THE DETAILS OF EACH DRAINAGE STRUCTURE AND SATISFY HIM OR HERSELF THAT HE/SHE IS FULLY AWARE OF THE TIGHT FIT BETWEEN TOP OF PIPE, REDUCING SLAB AND FRAME GRATE AND/OR HOOD.

4.. ALL DRAINAGE STRUCTURES, PIPING AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF FAYETTEVILLE N.C.

Drawn by
D. Vaughn
Checked
Jeffrey B Reitzel,PE,PLS
Reviewed
Jeffrey B Reitzel,PE,PLS
Date
July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
Storm Drainage Utility Plan

Revision	By	Date

CAROLINA JEFFREY B. REITZEL

115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

M&R
ENGINEERS PLANNERS SURVEYORS
MOORMAN, KIZER & REITZEL, INC.

Scale 1" = 100'
Book no.
Sheet C-1

G:\Current Jobs\Fayetteville City of\11-1033-02 Paxton, Bridgeman & Godfrey Outfall - Lagrange Drainage Improvements\Plans - Revised 2016\Cover,Utility, Erosion.dwg,
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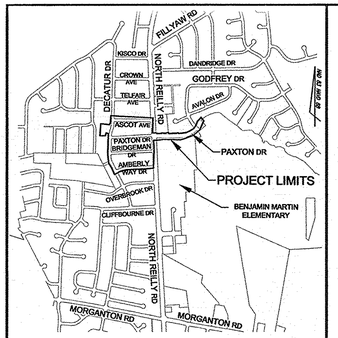


VICINITY MAP
NTS

GENERAL NOTES SEDIMENT POLLUTION CONTROL ACT

See sheet D-3 for Erosion Control Details

Minimum requirements for erosion control are shown on the drawings, based on the Designer's anticipated construction methods and sequences. Individual Contractors shall supplement, adjust or provide additional measures to compliment his/her type of construction and/or phasing and sequencing to prevent transmittal of silt. Individual Contractors are required to maintain minimum standards for erosion control as approved or required by the North Carolina Department of Environment and Natural Resources. All fines, penalties, fines for noncompliance and all civil actions resulting there from shall be the Contractors responsibility and in no way involves the Owner or Designer. The Contractor may be required to modify or supplement measures at no additional cost to the Owner. All erosion control measures shall remain serviceable until the site is restored and stabilized, upon such time the measures shall be removed by the Contractor. The site must be restored, stabilized and any off site sedimentation must have been removed and areas affected restored prior to the Designer's approval for Final Request for Payment.

The Contractor shall be required to prepare and obtain an approved erosion control plan amending the original permitted plan submitted by the Owner. The supplemental plan shall address staging/storage areas, haul roads, borrow pit operations and/or disposal/waste areas regardless of the size of disturbance. The Contractor shall pay all fees associated with the supplemental plan and a copy of the NCDENR approved plan shall be furnished to the Designer. Work cannot begin until the plan is approved. Permanent and temporary erosion control measures proposed by the Contractor for staging areas, haul roads, etc. shall be at the Contractor's expense and shall not constitute additional compensation.

The Contractor shall be required to display at the job-site office (or readily available on the project site), both the Owner's Erosion Control Permit and the Contractor's Supplement Erosion Control Permit. A copy of the amended Permit or evidence of an approval shall be furnished to the Designer prior to beginning work.

NPDES Storm water Discharge Permit for Construction Activities: Regulations adopted by the US Environmental Protection Agency (US EPA) and by the North Carolina Division of Water Quality require that a National Pollutant Discharge Elimination System (NPDES) permit be obtained for storm water discharges from construction activities with land disturbance of 1 or more acres. This permit is in addition to the approved erosion and sedimentation control plan approved by the Division of Water Quality is delegated by the US EPA to administer the NPDES permit program in North Carolina. This project is subject to these NPDES general permitting requirements. The Contractor shall comply with the application terms and conditions of this General Permit and is subject to enforcement by the Division of Water Quality for any violations of the General Permit.

The General Permit is tied to an approved Erosion and Sediment Control Plan issued by the North Carolina Division of Land Resources. Adherence to the Erosion and Sedimentation Control Plan is an enforceable component to the General Permit. The General Permit not only requires adherence to the approved Erosion and Sedimentation Control Plan, but also includes other limitations and controls. Some of the major items are outlined below.

* Coverage: The permit covers projects that disturb one or more acre of land.
* Inspections: The Contractor shall inspect all erosion and sedimentation control facilities and also shall observe runoff at storm water discharges in accordance with the general permit (See Part I below for specific frequencies, etc.) Discharges to certain impaired waters require more frequent inspections.
* Records: Records of inspections shall be maintained by the Contractor with a copy of the approved Erosion and Sedimentation Control Plan at the project site.
* The General Permit has other provisions that address areas that could affect storm water runoff from construction activity that are not a part of an erosion and sedimentation control plan. These areas include matters such as demolition debris, chemical usage, and oil spills that may contaminate storm water runoff on a construction site.

1. Minimum Monitoring and Reporting Requirements

* All sedimentation and erosion control of facilities shall be inspected and documented by the Contractor at least once every seven calendar days and within 24 hours after any storm event of greater than 0.5 inches of rain per 24 hour period. The Contractor shall install and maintain a rain gauge on the site and a record of the rainfall amounts and dates.

* Storm water runoff discharges shall be inspected by visual observation for color, foam, outfall, staining, visible sheens, dry weather flows and muddy water (at the frequency described above) to evaluate the effectiveness of the pollution control facilities or practices. If any visible off-site sedimentation is leaving the site, corrective action shall be taken to reduce the discharge of sediments.

* The Contractor shall submit with each Request for Payment, a written report of weekly inspections. A sample report log is included in the Contract Documents. Visible sedimentation found off the site shall be recorded with a brief explanation as to the measures taken to prevent future releases as well as any measures taken to clean up the sediment that has left the site. These records shall be made available to DEM or authorized agent upon request.

2. Maintenance and Inspections

* The Contractor shall provide the necessary operation and maintenance to keep all erosion control devices and materials in good repair and operating at optimum efficiency. The Owner reserves the right, within 24 hours prior notice to the Contractor to repair any erosion control measures or materials as required, and deduct the cost of those repairs from the Contractor's Request for Payment.

* The Owner, Designer or DEM representatives may periodically evaluate the project for compliance with these requirements.

* The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this general permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more that $10,000 per violation, or by imprisonment for not more than two years per violation, or by both.

The Contractor shall insure that the streets connecting to the project are protected from mud, sand, stone, litter or debris in any form. All mud collected on vehicle wheels shall be removed or cleaned off before leaving the construction site. Should any mud or debris from the project collect on the streets the mud or debris shall be removed immediately to prevent any hazards to vehicular or pedestrian traffic as well as from entering the storm drainage system. The Contractor is required to clean the streets daily of construction related debris, dust and mud and is required to clean the storm drainage system (and downstream systems) affected by construction run off completely prior to final acceptance and payment. The Owner reserves the right to proceed with street cleaning should the Contractor fail to comply with this requirement and deduct the costs from the Contractor's Request for Payment.

CONSTRUCTION PHASE

1. OBTAIN ALL PERMITS AND PLAN APPROVALS
2. PRE-CONSTRUCTION CONFERENCE
3. STAKE AND FLAG CONSTRUCTION LIMITS FOR CLEARING.
4. INSTALL GRAVEL CONSTRUCTION ENTRANCES.
5. INSTALL SEDIMENT FENCING WHERE POSSIBLE.
6. INSTALL TEMPORARY HIGH FLOW SILT SACKS.
7. CLEAR AND GRUB PERMANENT EASEMENTS AND ONLY THOSE PORTIONS OF TEMPORARY EASEMENTS NECESSARY FOR CONSTRUCTION.
8. INSTALL DIVERSION (WATER BARS).
9. INSTALL ALL REMAINING SEDIMENT FENCING.
10. STRIP TOPSOIL DURING TRENCH EXCAVATION AND SEPARATE FROM EXCAVATED MATERIAL.
11. REMOVE ASPHALT IN STREETS BY MILLING PLACE CUTTINGS ON ROAD.
12. INSTALL STORM DRAINAGE SYSTEM. PLACE ABC STONE WHERE PAVEMENT CUTTINGS ARE REMOVED AS CONSTRUCTION PROGRESSES TO PAVEMENT SURFACE.
13. TEST AND INSPECT SEWER MAIN AND LATERALS.
14. PATCH STREETS WITH PERMANENT ASPHALT PATCH.
15. SEED AND MULCH OR SOD ALL DISTURBED AREAS NOT OTHERWISE IMPROVED AND ESTABLISH PERMANENT GROUNDCOVER AS INDICATED.
16. PREFINAL INSPECTION BY CONTRACTOR.
17. PREFINAL INSPECTION BY OWNER AND CONTRACTOR (PUNCH LIST).
18. FINAL INSPECTION (ALL PUNCH LIST ITEMS COMPLETED)WITH NCDENR, PWC, OWNER AND DESIGNER PRESENT.
19. REMOVE TEMPORARY MEASURES.
20. CLOSEOUT PROJECT.

NOTES (TYPICAL FOR ALL SHEETS)

1. SEE THIS SHEET FOR POLLUTION CONTROL NOTES
2. TOTAL DISTURBED ACREAGE: 1.3 ACRES
3. APPROX. TOTAL AREA TO BE VEGETATIVELY STABILIZED: 0.13 AC SEED, 0.83 AC SOD. APPROX AREA TO BE ASPHALT PERMANENTLY PATCHED 0.28 AC. (SEE TABLE THIS SHEET FOR BREAK DOWN BY PHASE)

4a. SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:

i) ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAT 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
ii) ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

4b. CONDITIONS - IN MEETING THE STABILIZATION REQUIREMENTS ABOVE, THE FOLLOWING CONDITIONS OR EXEMPTIONS SHALL APPLY:

i) EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE.
ii) ALL SLOPES 50' IN LENGTH OR GREATER SHALL APPLY THE GROUND COVER WITHIN 7 DAYS EXCEPT WHEN THE SLOPE IS FLATTER THAT 4:1. SLOPES LESS THAN 50' SHALL APPLY COVER WITHIN 14 DAYS EXCEPT WHEN SLOPES ARE STEEPER THAN 3:1, THE 7 DAY-REQUIREMENT APPLIES.
iii) ANY SLOPED AREA FLATTER THAN 4:1 SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT.
iv) SLOPES 10' OR LESS IN LENGTH SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT EXCEPT WHEN THE SLOPE IS STEEPER THAN 2:1.
v) ALTHOUGH STABILIZATION IS USUALLY SPECIFIED AS GROUND COVER, OTHER METHODS, SUCH AS CHEMICAL STABILIZATION, MAY BE ALLOWED ON A CASE-BY-CASE BASIS.
vi) FOR PORTIONS OF PROJECTS WITHIN THE SEDIMENT CONTROL COMMISSION-DEFINED "HIGH QUALITY WATER ZONE" (15A NCAC 04A .0105), STABILIZATION WITH GROUND COVER SHALL BE ACHIEVED AS SOON AS PRACTICABLE BUT IN ANY EVENT ON ALL AREAS OF THE SITE WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACT.
vii) PORTIONS OF A SITE THAT ARE LOWER IN ELEVATION THAN ADJACENT DISCHARGE LOCATIONS AND ARE NOT EXPECTED TO DISCHARGE DURING CONSTRUCTION MAY BE EXEMPT FROM THE TEMPORARY GROUND COVER REQUIREMENTS IF IDENTIFIED ON THE APPROVED E&SC PLAN OR ADDED BY THE PERMITTING AUTHORITY.

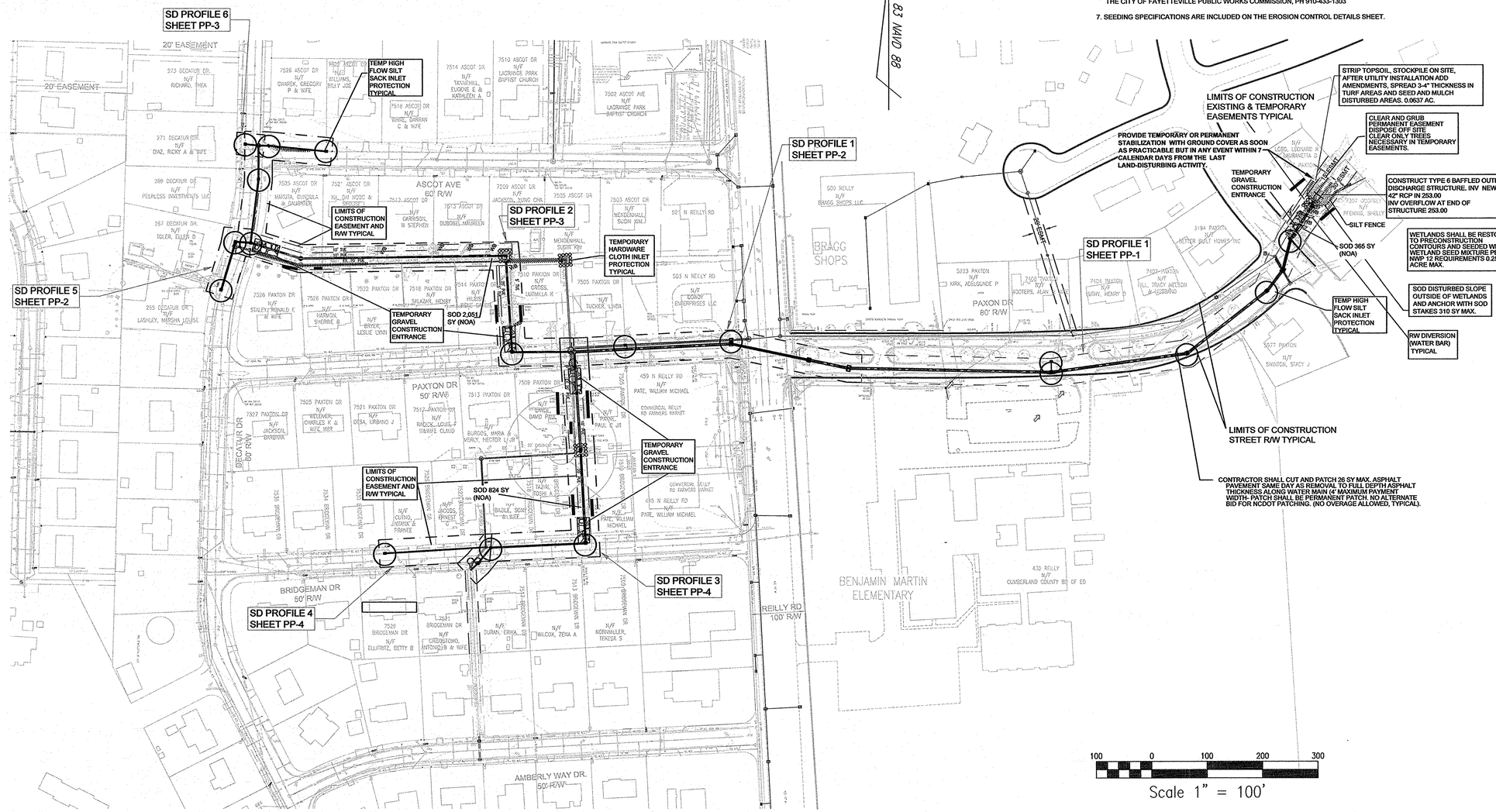
5. TOPSOIL SHALL BE STOCKPILED ALONG UPPER SIDE OF TRENCH WITH TRENCH SEPARATING THE TOPSOIL FROM DOWNSLOPE SIDE OF EASEMENT. FOR ADDITIONAL INFORMATION SEE SPECIFICATIONS.

6. CONTACT PERSON RESPONSIBLE FOR MAINTENANCE IS GISELLE RODRIGUEZ, PE OF THE CITY OF FAYETTEVILLE PUBLIC WORKS COMMISSION, PH 910-433-1303

7. SEEDING SPECIFICATIONS ARE INCLUDED ON THE EROSION CONTROL DETAILS SHEET.

LEGEND

- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- TEMPORARY SILT FENCE
- TEMPORARY REINFORCED SILT FENCE
- SOD
- TEMP HIGH FLOW SILT SACK INLET PROTECTION
- TEMP HARDWARE CLOTH INLET PROTECTION
- Limits of Construction (Easements)
- WB RW DIVERSION (WATER BAR)



POLLUTION PREVENTION (Typical for all sheets)

1. Equipment utilized during the construction activity on a site must be operated and maintained in a manner as to prevent the potential or actual pollution of the surface or ground waters. Fuels, lubricants, coolants, and hydraulic fluids, or any other petroleum products, shall not be discharged on the ground or into surface waters. Spent fluids shall be disposed of in a manner so as not to enter the waters, surface or ground, and in accordance with applicable and federal disposal regulations. Any spilled fluids shall be cleaned up to the extent practicable and disposed of in a manner so as not to allow their entry into the waters, surface or ground, storm sewers, or drains on private or public (State) property. The Contractor is required to provide primary and secondary containment system for fluid storage, fueling and servicing equipment.

2. The Contractor, his Subcontractors and material suppliers are prohibited from discharging any waste products from concrete trucks to include wash down water or from concrete coring and sawing work or any other unsuitable construction materials or products into the storm sewer system or discharge onto the Owner's property.

3. The Contractor shall control the management and disposal of litter and sanitary waste from the site such that no adverse impacts to water quality occur.

4. The Contractor shall pay all costs of the clean up and removal of any such unauthorized discharge and pay any and all fines, penalties and/or damages.

AREA TO BE DISTURBED

TOTAL DISTURBED ACREAGE = 1.3 ACRES

CONSISTING OF:

VEGETATIVELY STABILIZED
SEED = 646 SY
SOD = 4,017 SY
PERMANENT ASPHALT PATCH = 1,365 SY

GROUND STABILIZATION REQUIREMENTS

Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exceptions
Perimeter dikes, swales, ditches and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	17-days for slopes greater than 50 feet in length
All other areas with slopes flatter than 4:1	14 days	None (except for perimeters and HQW Zones)

Permanent ground cover shall be established for all disturbed areas within 15 working days or 90 calendar days (whichever is shorter) following completion of construction or development

Drawn by
D. Vaughn
Checked
Jeffrey B Reitzel,PE,PLS
Reviewed
Jeffrey B Reitzel,PE,PLS
Date
July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
Erosion Control Plan

Revision	By	Date

115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

M&R
ENGINEERS
PLANNERS
SURVEYORS
MOORMAN, KIZER & REITZEL, INC.

Scale 1" = 100'
Book no.
Sheet C-2

PROPOSED OVERSIZED 6'- 6" JB WITH REDUCING SLAB AND MANHOLE RING AND COVER
STA = 2+31.53
RIM = 262.10
INV EX 15" RCP IN = 257.50
INV NEW 42" RCP IN = 255.63
INV NEW 42" RCP OUT = 255.63

CONTRACTOR SHALL CONSTRUCT BOX AROUND EX. 15" RCP TO MAINTAIN OPERATION INTIL 36" IS COMPLETED. ONCE COMPLETED, REMOVE 15" RCP FROM INSIDE OF BOX, PLUG ENDS FROM NEW JB TO EX. MH W/ BRICK & MORTAR AND FILL W/ GROUT.

PROPOSED OVERSIZED CB W/ REDUCING SLAB
STA = 2+77.60 LA = 2+78.53 LB
HOOD = 262.91
GRATE = 262.41
INV 42" RCP IN = 256.37
INV 42" RCP OUT = 256.37

PROPOSED OVERSIZED CB W/ REDUCING SLAB
STA = 4+59.81
HOOD = 266.86
GRATE = 266.36
INV 42" RCP IN = 260.00
INV 42" RCP OUT = 260.00

REMOVE 50' ASPH CURB
REPLACE 46' ASPH CURB

REMOVE/REPLACE 676 SY ASPHALT (NOA)

TBM ELEV 270.99 RR SPIKE IN POWER POLE @ SIDE ENTRANCE TO SCHOOL ACROSS PAXTON FROM 7404

NOTE: SEED DISTURBED AREAS UNLESS OTHERWISE IMPROVED.

PROPOSED OVERSIZED CB W/ REDUCING SLAB
STA = 7+07.39
HOOD = 274.83
GRATE = 274.33
INV EX 15" RCP IN = 268.50
INV NEW 42" RCP IN = 262.90
INV NEW 42" RCP OUT = 262.90

NOTE: CONTRACTOR SHALL PROVIDE ALL MEANS NECESSARY TO PROTECT EXISTING UTILITIES FROM HARM AND SHALL COORDINATE WITH AND CROSS EXISTING UTILITIES IN THE PRESENCE OF THE UTILITY OWNER AND PROJECT REP. (TYP)

NAD 83 NAVD 88

MATCHLINE STA 10+50

PROPOSED OVERSIZED JB #37 W/ REDUCING SLAB AND MANHOLE RING & COVER
STA = 10+73.86
RIM = 280.84
INV 42" RCP IN = 263.63
INV 42" RCP OUT = 263.63

REMOVE/REPLACE 49' ASPH. CURB
REMOVE/REPLACE 12 SY ASPHALT (NOA)

REMOVE AND RESTORE STACKED STONE BEHIND CURB WHERE DISTURBED BY CONSTRUCTION

NOTE: DO NOT DISTURB HOME AND OR A/C UNITS ETC. REPAIR DAMAGE DUE TO CONSTRUCTION TO HOMEOWNERS SATISFACTION AT CONTRACTORS EXPENSE.

NOTE: CONTRACTOR SHALL ASCERTAIN LOCATION OF WATER MAIN AND SERVICE AND LOWER MAIN IF IN CONFLICT WITH STORM DRAINAGE IN ACCORDANCE WITH CITY OF FAYETTEVILLE & PWC STANDARDS

EX CB-3B S01
TOP 262.19
THR 261.56
INV 7" IN 28.72 PVC
INV 6" IN 258.82 PVC
INV 15" OUT 258.34 RCP

EX CB-2 S01
TOP 261.72
THR 260.65
INV 36" IN 254.84 RCP
INV 36" OUT 254.75 RCP

SOD DISTURBED AREA

PROPOSED BAFFLE OUTLET STRUCTURE
INV 42" RCP INTO BAFFLE STRUCTURE 252.91
(SEE OUTLET BAFFLE STRUCTURE DETAILS SHT D-3)

74' - 42" CL III RCP @ 2.38%

30' STORM DRAIN ESMT

TBM ELEV 262.17 RR SPIKE IN POWER POLE @ INTERSECTION OF PAXTON AND GODFREY @ FRONT CORNER BETWEEN 7307 AND 7309

7307 GODFREY
N/F
PFENNIG, SHELLY

4' CL FENCE

EX SILT FENCE

PROVIDE TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

SOD DISTURBED SLOPE OUTSIDE OF WETLANDS AND AND COVER WITH BIODEGRADABLE NETTING IMMEDIATELY AFTER DISTURBAMCE (310 SY MAX.)

7303 GODFREY
N/F
LOBO, LEONARD R & LAURANETTA D

9' - 42" CL III RCP @ 1.00%

REMOVE 33' EX 36" RCP TO JB STA 1+03

REMOVE 15' EX 36" PIPE TO JB STA 1+03

PROPOSED OVERSIZED WITH MH RING & COVER OVER INV OUT W/ STEPS
STA = 1+03.02
TOP = 260.00
INV EX 36" IN = 253.71
INV NEW 42" RCP IN = 253.00
INV 42" RCP OUT = 253.00

REMOVE 150' ASPH CURB
REPLACE 146' ASPH CURB

5977 PAXTON
N/F
SWINTON, STACY J

182' - 42" CL III RCP @ 1.99%

47' - 42" CL III RCP @ 1.58%

EX SDMH 3
RIM 262.40
INV 15" IN 257.41
INV 15" IN 3B 256.65
INV 36" IN 255.55
INV 36" OUT 255.35

EX CB 3A S01
TOP 261.66
THR 260.74
INV 6" IN 259.26
INV 6" IN 259.04
INV 15" OUT 258.53

3194 PAXTON

REMOVE EX 15" RCP BETWEEN PROP JUNCTION BOX & EX SMH 3. AND SEAL VOIDS

REMOVE 15' ASPH CURB
REPLACE 7' ASPH CURB

55' - 42" RCP @ 1.58%

PROPOSED OVERSIZED CB W/ REDUCING SLAB
STA = 1+76.53
HOOD = 261.56
GRATE =261.06
INV 42" RCP IN = 254.76
INV 42" RCP OUT = 254.76

NOTE: CONTRACTOR SHALL ASCERTAIN LOCATION OF WATER MAIN AND SERVICE. IF CONFLICT BETWEEN WATER AND NEW STORM EXISTS, REPLACE 6" AC WATER WITH ONE FULL JOINT DIP. LOWER MAIN IN ACCORDANCE WITH CITY OF FAYETTEVILLE & PWC STANDARDS

NOTE: PRECAST STRUCTURES EXCEPT MANHOLES AND BAFFLE OUTLET ARE NOT ACCEPTABLE

NOTE: CONTRACTOR SHALL POTHOLE UTILITIES BETWEEN STA 0+00 AND 2+77 AND NOTIFY ENGINEER FOR ASCERTAINING ELEVATION AND LOCATION TO ALLOW FOR ADJUSTMENT SHOULD CONFLICT OCCUR..

NOTE: CONTRACTOR SHALL COORDINATE GAS RELOCATION BY UTILITY OWNER WHERE CONFLICTS WITH CONSTRUCTION. (TYP)

7402 PAXTON
N/F
HILL, TRACY NELSON & HUSBAND

7404 PAXTON
N/F
LUTHY, HENRY D

BETTER BUILT HOMES INC

7406 PAXTON
N/F
WOOTERS, ALAN & WIFE

5223 PAXTON
N/F
KIRK, ADELQUNDE P

430 REILLY
N/F
CUMBERLAND COUNTY BD OF ED

500 REILLY

BRAGG SHOPS

DO NOT DISTURB TREES (TYP)

DO NOT DISTURB TREES IN ISLANDS (TYP)

DO NOT DISTURB S.S. (TYP)

DO NOT DISTURB WATER (TYP)

EX SSMH STA 8+96.75
RIM 278.69
SHELF 270.18
INV 6" IN 269.85 (S)
INV 8" IN 269.83 (N)
INV 8" IN 268.61 (NE)
INV 8" OUT 268.60

EX DI STA 8+97.56
TOP 279.48
INV 12" IN 277.97
INV 12" OUT 277.93

EX SSMH STA 9+83.47
RIM 273.06
SHELF 269.48
INV 4" IN 269.06 (NW)
INV 4" IN 269.05 (NE)
INV 8" OUT 269.04

EX SSMH STA 9+15.78
RIM 276.97
SHELF 270.83
INV 8" IN 270.37
INV 8" OUT 270.30

EX SDMH 5
RIM 270.73
INV 24" IN 264.60
INV 30" IN 266.53
INV 36" OUT 264.31

EX CB 5A S01
TOP 271.14
THR 270.18
INV 24" IN 264.85
INV 24" OUT 264.65

PROPOSED CB
STA = 7+05.16
HOOD = 274.67
GRATE = 274.17
INV 15" OUT = 268.90

19' - 15" RCP @ 2.06%

366' - 42" CL III RCP @ 0.20%

248' - 42" CL III RCP @ 1.17%

EX 8" PVC SD

EX 12" PVC SD

EX SPLASH BLOCK

EX SDMH 4
RIM 264.89
INV 36" IN 259.84 RCP
INV 36" OUT 259.71 RCP

2" SDR 21 PVC FM

6" AC W

36" RCP

EX 6" AC WATER

WATER VALVE

RPZ IN ENCLOSURE

WOOD SPLIT RAIL FENCE

ASPH. PARKING W/BUMPER BLOCKS

CONC PAD

EX 6" PVC SS

EX 8" PVC SS

EX 8" VCP SS

EX 10" VCP SS

EX 12" VCP SS

EX 15" RCP

42" RCP

24" RCP

18" RCP

12" RCP

TREE

HEDGE

OHP

UGP

GUY

SIDEWALK

CONC DRIVE

MAILBOX

EP

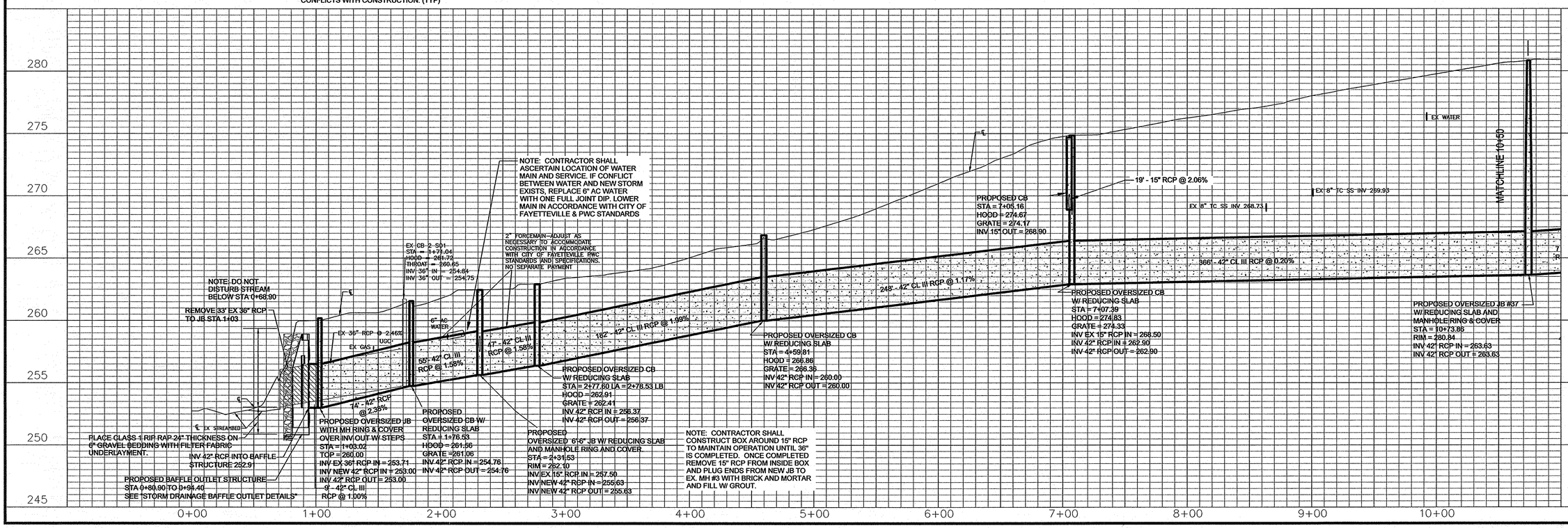
SS

OHP

00 SEE SHEET C-1 FOR TYPICAL NOTE KEY

STORM DRAIN PROFILE 1
PAXTON DR - 80' R/W
STA 0+00 to 10+50

40 20 0 40 80 120
SCALE: 1" = 40'



Drawn by
D. Vaughn,PE,PLS / F. M.
Checked
Jeffrey B Reitzel,PE,PLS
Reviewed
Jeffrey B Reitzel,PE,PLS
Date
JULY 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Dreainage Improvements
Plan Profile SD PROFILE 1 Sta 0+00 - 10+50

no.	revision	by	date

M&R
ENGINEERS PLANNERS SURVEYORS
MOORMAN, KIZER & REITZEL, INC.
115 Broadfoot Ave.
P.O. Box 53774
Fayetteville, N.C., 28305
Phone 910-484-5191
License #: F-0106

scale 1" = 40' HOR
1" = 4' VER
Field Book No.
SHEET
PP - 1

G:\Current Jobs\Fayetteville City of\13-1033-02 Paxton, Bridgeman & Godfrey Outfall - LaGrange Drainage Improvements\Plans - Revised 2016\PP-1 RCp01003.dwg, 7/28/2016 4:51:34 PM, Canon iR7105 (Downstairs)BW.pc3

PROPOSED OVERSIZED JB #37
TOP REDUCING SLAB ELEV. 268.38
AT WHICH POINT JB TRANSITIONS TO STANDARD JB
STA = 10+73.86
RIM = 280.84
INV 42" RCP IN = 263.63
INV 42" RCP OUT = 263.63

STA 11+48.96
OVERSIZE JB #37A
W/RING AND COVER.
BOX SHALL BE MIN. 5'L
X 6'W I.D. FROM BASE
TO TOP OF REDUCING
SLAB AT ELEV. 268.89
RIM 282.00
INV 42" STEEL CARRIER
PIPE IN 264.14
INV 42" CLIII RCP OUT
264.14

TBM ELEV 281.15 RR
SPIKE IN POWER POLE
IN FRONT OF SCHOOL
@ INTERSECTION OF
PAXTON AND REILLY

TBM ELEV 275.82 RR
SPIKE ON BACK OF
CURB @ CATCH BASIN
IN FRONT OF 7505
PAXTON Dr

STORM DRAIN PROFILE 3
SEE SHT PP-4

NOTE: SEED DISTURBED AREAS
UNLESS OTHERWISE IMPROVED.

REILLY RD
100' R/W

STA 12+89.73
OVERSIZE JB #36 W/RING AND COVER.
BOX SHALL BE 6'L X 6' W I.D. FROM
BASE TO TOP OF REDUCING SLAB AT
ELEV. 273.86
RIM 280.79
INV 36" CL III RCP IN FROM NORTH 269.61
INV 42" CL III RCP FROM WEST 265.15
INV 42" STEEL CARRIER PIPEOUT 265.14

MATCHLINE STA 10+50

NAD 83 NAVD 88

STORM DRAIN PROFILE 1
PAXTON DR 80' R/W
SEE SHT PP-1

EX SSMH STA 8+96.75
RIM 278.69
SHELF 270.18
INV 6" IN 269.85 (S)
INV 8" IN 269.83 (N)
INV 8" IN 268.61 (NE)
INV 8" OUT 268.60

REMOVE/REPLACE 49 ASPH CURB
REMOVE/REPLACE 12 SY ASPHALT
(NOA TYP.)

RPZ IN ENCLOSURE

WATER METER

DO NOT DISTURB H/C ACCESS

EX SSMH STA 11+48.58
RIM 281.12
SHELF 268.18
INV 8" IN 267.41
INV 8" OUT 267.39

366' - 42" RCP @ 0.20%

BEGIN BORE & JACK
STA 11+48.96
INV 262.64

REMOVE STUMP & DISPOSE OF OFFSITE

RECEIVING PIT

BORE & JACK
141' - 42" STEEL CARRIER PIPE
0.50" THICKNESS @ 0.71%

PAXTON DR
80' R/W

ASPH. PARKING W/BUMPER BLOCKS

SAN MH STA 9+15.78
RIM 276.60
SHELF 270.85
INV 8" IN 270.37
INV 8" OUT 270.30

NOTE: SEED DISTURBED AREAS
UNLESS OTHERWISE IMPROVED.

BRAGG SHOPS

STORM MH 6
RIM 282.35
INV 30" IN 272.90 RCP FROM 7
INV 30" IN 269.22 RCP FROM 6B
INV 30" OUT 269.22 RCP

STORM MH 7
RIM 282.60
INV 24" IN 278.25 RCP FROM 7A
INV 30" IN 276.16 RCP FROM 8
INV 30" OUT 276.10 RCP

CB-6C-2001

DI-6D

NOTE: BORE PIT & RECEIVING
PIT SHALL BE SHORED PER
OSHA STANDARDS

PROPOSED 6'Ø SDMH #35
STA = 15+73.98 STRM DRAIN 1
= 0+00 STRM DRAIN 2
= 0+00 STRM DRAIN 3
RIM = 275.76
INV NEW 24" IN = 266.00
INV NEW 36" RCP IN = 266.00
INV NEW 42" RCP OUT = 266.00

459 N REILLY RD
COMMERCIAL REILLY RD FARMERS MARKET
WILLIAM M. PATE

EX SSMH
RIM 280.74
INV 8" IN 268.55
INV 8" OUT 268.50

PLUG PIPE ENDS WITH
BRICK & MORTAR AND
FILL W/ GROUT
BETWEEN EX CB 20 &
EX CB STA 15+80.12 RT
& ABANDON EX 15"
RCP

REMOVE 20' ASPH CURB
REPLACE 16' ASPH CURB

276.0UH
276.5GRCS

9498-59-4043-
7505 PAXTON DR
N/F
PAYNE, PAUL C JR

SFRES. BLDG.

PROPOSED
CB 20A

EX CB 20 &
PROPOSED 20A SEE
SEC B-B, SHT PP-4

EX CB 20
TOP 275.95
FLOWLINE 275.05
18" IN 272.18
18" OUT 272.16

EX SSMH
STA = 15+90.17
RIM = 275.80
INV 8" IN (N) = 270.46
INV 8" IN (W) = 270.46
INV 8" OUT = 270.46

TBM Elev. 275.82 RR spike
on back of curb @ catch basin
in front of 7505 Paxton Dr.

284' - 42" RCP @ 0.30%

EX 8" D.I.P. SS

8'X32' BORE PIT

PROPOSED OVERSIZED CB W/
REDUCING SLAB AS
REQUIRED ON
EX 30" RCP
STA = 14+80.94
HOOD = MATCH EX TC
INV EX 30" = 270.72

PAXTON DR
50' R/W

REMOVE & REPLACE ASPHALT DRIVE TO W/A

REMOVE & REPLACE ASPHALT DRIVE TO N/A

EX SSMH
STA = 13+01.74
RIM = 279.81
INV 8" IN (W) = 269.36
INV 8" OUT = 269.25

EX SSMH
STA = 14+80.94
RIM 276.30
INV 4" IN 271.90
INV 8" OUT 271.16

503 N REILLY RD
N/F
DOWDY ENTERPRISES LLC

REMOVE 8' ASPH CURB
REMOVE/REPLACE 333 SY ASPHALT

EX CB STA = 15+80.12
RIM = 275.92
INV 18" IN (S) = 271.77
INV 18" IN (N) = 271.73
INV 30" OUT = 271.23

276.8UH
277.8GRCS
278.2GRCS

EX SSMH
STA = 15+90.17
RIM = 276.10
INV 8" IN = 270.67
INV 8" OUT = 270.57

7506 PAXTON DR
N/F
TUCKER, LINDA

OTCB TOP 279.08
FLOWLINE 278.08
INV 18" IN 273.41
INV 18" OUT DOWN
PROP LINE 273.39

SMH 6A
STA 12+61.09 RIM 282.33
INV 30" IN FROM PAXTON 269.57
INV 30" OUT 269.55

NOTE: REMOVE 30" OUT FROM CB EX. ON 30"
MAIN & REBUILD WALL. PLUG & GROUT 30" TO
MH6A AFTER ALL CONSTRUCTION HAS BEEN
COMPLETED & ACCEPTED. 30" WILL THEN BE
DIVERTED TO NEW 36" OUTFALL.

PROPOSED OVERSIZED CB W/
REDUCING SLAB ON EX 30" RCP
STA = 12+89.73
HOOD = MATCH EX TC
INV 36" RCP OUT = 269.71
INV EX 30" INV IN/OUT = 269.71
SEE NOTE LRHC

REAL ESTATE OFFICES

DOWDY ENTERPRISES LLC
511 N REILLY RD

END CASING
STA 12+89.73

PROPOSED OVERSIZED JB #36
STA = 12+89.73

EX 8" PVC SS

42" STEEL CARRIER PIPE

42" RCP

7' 36" RCP

EX 30" RCP

EX 42" RCP

PLUG & GROUT 30" RCP
TO MH6A AFTER NEW
SYSTEM IS OPERATIONAL

PROPOSED OVERSIZED CB
ON EX 30" RCP
STA = 12+89.73

8" ABAN. WM

INSET SCALE
1" =10'

00 SEE SHEET C-1 FOR TYPICAL NOTE KEY

SCALE: 1" = 40'

STORM DRAIN PROFILE 1
STA 10+50 to 15+74

STORM DRAIN PROFILE 2
SEE SHT PP-3

STORM DRAIN PROFILE 2
SEE SHT PP-3

OTCB TOP 276.61
FLOWLINE 274.79
INV 18" IN 272.53
INV 18" OUT DOWN
PROP LINE 272.54

EX OTCB
Top=276.77
Thr 276.67

EX 20' PUE

12" BUSHES THIS AREA

6' WOOD FENCE

WOOD SHED'S

METAL SHED ON CONC SLAB

METAL SHED

6' PVC FEN

4' CHAINLINK FENCE

6' WOOD FENCE

PLANTER

TRSH

R100' WELL

DO NOT DISTURB HEAT PUMP. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE.

276.9UH
276.5GRCS

9498-59-4043-
7505 PAXTON DR
N/F
PAYNE, PAUL C JR

LANCE, DAVID PAUL
9498-69-3043-

276.3UH
277.1GRCS

4" PVC FENCE

7509 PAXTON DR

SFRES. BLDG.

FENCE 6" BROKEN BRICK 10"H" WOOD

7513 PAXTON

PROPOSED
CB 20A

12" TREE

27' 36" RCP

EX SSMH
STA = 15+90.17
RIM = 275.80
INV 8" IN (N) = 270.46
INV 8" IN (W) = 270.46
INV 8" OUT = 270.46

TBM Elev 275.82 RR spike
on back of curb @ catch basin
in front of 7505 Paxton Dr.

TEL N/L

OH/CTV

8"W

284' - 42" RCP @ 0.30%

EX 8" D.I.P. SS

EX SSMH
13+01.74
279.81
8" IN 269.30
8" OUT 269.25

PROPOSED
OVERSIZED CB W/
REDUCING SLAB AS
REQUIRED ON
EX 30" RCP
STA = 14+80.94
HOOD = MATCH EX TC
INV EX 30" = 270.72

PAXTON DR
50' R/W

REMOVE & REPLACE ASPHALT DRIVE TO W/A

REMOVE & REPLACE ASPHALT DRIVE TO N/A

EX SSMH
STA = 14+80.94
RIM 276.30
INV 4" IN 271.90
INV 8" OUT 271.16

EX 110' - 8" SS

EX 25' - 8" SS

6" CHERRY

N/F
GROSS, LUDMILA K
7510 PAXTON DR

9498-69-3233-

SFRES. BLDG.

2" TREE

REMOVE & REPLACE CONCRETE DRIVE 12' W/

EX CB STA = 15+80.12
RIM = 275.92
INV 18" IN (S) = 271.77
INV 18" IN (N) = 271.73
INV 30" OUT = 271.23

276.8UH
277.8GRCS
278.2GRCS

EX SSMH
STA = 15+90.17
RIM = 276.10
INV 8" IN = 270.67
INV 8" OUT = 270.57

7506 PAXTON DR
N/F
TUCKER, LINDA

OTCB TOP 279.08
FLOWLINE 278.08
INV 18" IN 273.41
INV 18" OUT DOWN
PROP LINE 273.39

REMOVE 36' ASPH CURB
REPLACE 36' ASPH CURB

10' CONC. SWALE

EX 20' PUE

N/F
HILBISH, RENE GARCIA
9498-69-2233-

00 SEE SHEET C-1 FOR TYPICAL NOTE KEY

NAD 83 NAVD 88

PAXTON DR

DECATUR DR

EX CB 18 TO REMAIN
STA = 7+48.06
HOOD = 282.95
FLOW LINE = 282.14
INV 15" IN = 279.40
INV 18" OUT = 279.38
PLUG EXISTING 15"
PIPE ENDS WITH BRICK
AND MORTAR PER
NCDOT STANDARDS
(GROUT PIPE W/
FLOWABLE FILL)

7528 PAXTON DR
N/F
STALEY, RONALD E & WIFE

EX SSMH STA 45+46
RIM 283.60
INV 4" IN 45+43 274.52
INV 4" IN 45+23 274.52
INV 8" IN 273.57 DECATUR
INV 8" OUT 273.52

REMOVE 70 lf 8"
C-900 WATER &
INSTALL 8" RJDIP W/
MEGALUGS & BENDS
AS NEEDED TO GO
OVER NEW STORM
DRAIN. SEE PROF.
W-1 BELOW

N/F
MAKUTA, GUNDULA & DAUGHTER
9498-59-8388-

EX CB 6E.4
STA = 0+35.13
HOOD 283.06
GRATE 282.37
NEW INV 24"IN/OUT 278.48
REMOVE/REPLACE EX. CB

PROPOSED CB 233
STA = 7+50.55
HOOD = 282.95
GRATE = 282.28
INV 24" IN (W) = 278.31
INV 18" IN (N) = 278.08
INV 24" OUT = 276.67

PROPOSED CB 228
STA = 1+18.00
HOOD = 283.06
GRATE = 282.39
INV 24" OUT = 278.86

TBM ELEV 285.20 BOLT
HIGHEST "M" IN MAILBAR ON
FH IN NE CORNER OF
DECATUR DR & AGOOT AVE AS
SHOWN ON PP-3

EX SSMH STA 44+16
RIM 283.12
INV 4" IN 274.91 44+06
INV 4" IN 275.16 44+11
INV 8" IN 274.21 DECATUR
INV 8" OUT 274.16

VINYL FENCE

SFRES. BLDG.

FFE 285.91

FFE 283.69

CONC.

CHAIN LINK FENCE

2" TREE

REMOVE AND REPLACE CONCRETE DRIVE 14 sy

EX CB 6E.4
STA = 0+35.13
HOOD = 283.06
GRATE = 282.37
NEW INV 24" IN/OUT = 278.48
REMOVE EX CB AND
INSTALL NEW

PROPOSED CB
STA = 0+27.90
HOOD = 282.95
GRATE = 282.28
INV 24" IN/OUT = 278.44

28' - 24" RCP @ 0.47%

7' - 24" RCP @ 0.55%

83' - 24" RCP @ 0.51%

18" RCP

N/F
LASHLEY, MARSHA LOUISE
283 DECATUR DR.

WOOD FENCE

CHAIN LINK FENCE

OH SHELTER

GARAGE

N/F
TOLER, ELLEN D
267 DECATUR DR.

REMOVE 97' ASPH CURB
REPLACE 87' ASPH CURB

STORM DRAIN PROFILE 5
STA 0+00 to 1+18

REMOVE/REPLACE
PWC WATER
PROFILE W-1

NOTE:
IN ADDITION TO 811 LOCATES, THE CONTRACTOR SHALL OBTAIN SUBSURFACE UTILITY EXPLORATION (SUE) SERVICES PERFORMED BY SUE CONTRACTOR ALONG REILLY RD. STA 11+48.96 TO STA 12+89.73 AT THE BORE CROSSING PRIOR TO BEGINNING CONSTRUCTION TO ALLOW SUFFICIENT TIME FOR ANY UTILITY ADJUSTMENTS AND/OR RELOCATIONS DUE TO CONFLICTS TO BE MADE. NO SEPARATE PAYMENT FOR SUE RELATED WORK INCLUDING BUT NOT LIMITED TO: TRAFFIC CONTROL AND PAVEMENT RESTORATION IN ACCORDANCE WITH NCDOT AND CITY OF FAYETTEVILLE STANDARDS AND REQUIREMENTS.

CONTRACTOR SHALL SUBMIT DETAILED METHOD OF TEMP. SHORING REQ'D TO THE DESIGNER FOR INFORMATION ONLY
STA 12+80 to 14+00

EX SMH
STA = 12+61.09
RIM = 282.33
INV 30" IN = 269.57
INV 30" OUT = 269.55

EX SSMH
STA = 13+01.74
RIM = 279.65
INV 8" IN = 269.27
INV 8" OUT = 269.25

EX SSMH
STA = 14+80.94
RIM = 276.31
INV 4" LAT IN = 271.90
INV 8" INV OUT = 271.14

EX SSMH
STA = 15+90.17
RIM = 276.43
INV 8" IN = 270.60
INV 8" OUT = 270.57

EX SSMH
STA = 15+90.17
RIM = 275.64
INV 8" IN (N) = 270.40
INV 8" IN (W) = 270.31
INV 8" OUT = 270.37

EX CB
STA = 15+80.12
TC = 275.92
d = 274.95
INV 18" IN (S)= 271.77
INV 18" IN (N)= 271.73
INV 30" OUT = 271.23

EX CB 6E.4
STA = 0+35.13
HOOD = 283.06
GRATE = 282.37
NEW INV 24" IN/OUT = 278.48
REMOVE EX CB AND
INSTALL NEW

PROPOSED CB 233
STA = 7+50.55
HOOD = 282.95
GRATE = 282.28
INV 15" IN (S) = 279.45
INV 24" IN (W) = 278.31
INV 18" IN (N) = 278.08
INV 24" OUT = 276.67

EX CB 18 TO REMAIN
STA 7+48.06
HOOD = 282.95
FLOW LINE = 282.14
INV 15" IN = 279.40
INV 18" OUT 279.38
PLUG EX. 15" PIPE
W/ BRICK & MORTAR
& FILL W/ GROUT
PER NCDOT
STANDARDS

EX 18" RCP

PLUG WITH BRICK & MORTAR & ABANDON EX 15" RCP

EX 16" RCP

95'
24" RCP
@ 1.20%

28'
24" RCP
@ 0.47%

7' - 24" RCP @
0.55%

83' - 24" RCP @ 0.51%

PROPOSED CB
STA = 0+27.90
HOOD = 282.95
GRATE = 282.28
INV 24" IN/OUT = 278.44

PROPOSED CB 228
STA = 1+18.00
HOOD = 283.06
GRATE = 282.39
INV 24" OUT = 278.86

18" Min.

Ex. 4"
S.S. Lat.
24" OUT

RELOCATE
EX 8" WATER
OVER NEW
STORM
DRAIN. SEE
PROF. W-1
TO RIGHT

Ex. 4" SDR26 PVC
S.S. Lateral Under
new SD

PROPOSED CB 233
STA = 7+50.55
HOOD = 282.95
GRATE = 282.28
INV 24" IN (W) = 278.31
INV 18" IN (N) = 278.08
INV 24" OUT = 276.67

8" SS

REMOVE 70 LF OF 8" C-900 & INSTALL 8" RJDIP & BENDS TO ADJUST EX. WATER OVER NEW STORM DRAIN. EXTEND RJDIP TO 20' BEYOND BENDS & RESTRAIN TO EX. C-900 WATER TO PWC STANDARDS. SEE DETAIL W.26

EX 8" TC SS INV 269.93

MATCHLINE STA 10+50

EX WATER

16" DI WATER

8" DI WATER

WATER SER

4" DIP LAT

WATER SER

EX 30" RCP

EX 30" RCP

109' - 8" SS PVC @ -0.45%

EX 288' - 8" PVC SS @ 0.40%

APPROXIMATE EX 8" WATER

EX 122' - 8" DIP SS

12" - 24" RCP @ 2.67%

SEE SHT PP-3

284' - 42" RCP @ 0.30%

366' - 36" RCP @ 0.20%

74' - 42" CL III RCP @ 0.70%

BORE & JACK 141' - 42" STEEL CARRIER PIPE
0.50" THICKNESS @ 0.70%

CONTRACTOR SHALL CUT OFF 42" STEEL CARRIER PIPE TO ACCOMMODATE NEW BOXES

PROPOSED OVERSIZED JB #37
W/ REDUCING SLAB AND
MANHOLE RING & COVER
STA = 10+73.86
RIM = 280.84
INV 42" RCP IN = 263.63
INV 42" RCP OUT = 263.63

BEGIN BORE & JACK
STA 11+48.96
42" STEEL CARRIER PIPE

END BORE & JACK
STA 12+89.73
42" STEEL CARRIER PIPE

STA 11+48.96
OVERSIZE JB #37A W/ MANHOLE RING & COVER.
BOX SHALL BE MIN. 5'L X 6'W I.D. FROM BASE TO
TOP OF REDUCING SLAB
RIM 282.00
INV 42" STEEL CARRIER PIPE IN 264.14
INV 42" CLIII RCP OUT 264.14

STA 12+89.73
OVERSIZE JB #36 W/ MANHOLE RING AND COVER.
BOX SHALL BE 6'L X 6' W I.D. FROM BASE TO TOP
OF REDUCING SLAB AT ELEV. 273.86
RIM 280.79
INV 36" CL III RCP IN FROM NORTH 269.61
INV 42" CL III RCP FROM WEST 265.15
INV 42" STEEL CARRIER PIPEOUT 265.14

PROPOSED OVERSIZED CB W/
REDUCING SLAB ON EX 30" RCP
STA = 12+89.73
HOOD = MATCH EX TC
INV 36" RCP OUT = 269.71
INV EX 30" RCP = 269.71

PROPOSED OVERSIZED CB W/
REDUCING SLAB ON EX 30" RCP
STA = 14+80.94
HOOD = MATCH EX TC
INV EX 30" RCP = 270.72

PROPOSED 6'Ø SDMH #35
STA = 15+73.98 STRM DRAIN 1
= 0+00 STRM DRAIN 3
= 0+00 STRM DRAIN 2
RIM = 275.76
INV 24" RCP IN (W)= 266.00
INV 36" RCP IN (S) = 266.00
INV 42" RCP OUT = 266.00

SEC A

NOTE: AFTER ALL CONSTRUCTION HAS BEEN COMPLETED & ACCEPTED, PLUG & GROUT 30" RCP FROM EX. CB TO MH6A. 30" RCP WILL THEN BE DIVERTED TO NEW 36" RCP OUTFALL.

7.26' - 36" RCP @ 1.43%

PROPOSED CB ON EX 30" RCP
STA = 12+89.73 STRM DRAIN 1
HOOD = MATCH EX TC
GRATE = MATCH FLOWLINE
INV 36" RCP IN = 269.71
INV EX 30" RCP IN/OUT = 269.71

10+00 11+00 12+00 13+00 14+00 15+00 0+00 1+00

PROFILE W-1

Drawn by
D. Vaughn,PE,PLS / F. M.
Checked
Jeffrey B Reitzel,PE,PLS
Reviewed
Jeffrey B Reitzel,PE,PLS
Date
July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Dreainage Improvements
Plan Profile SD Profile 1 Sta 10+50 - 15+74 & SD Profile 5

no. | revision | by | date

M&R
ENGINEERS
PLANNERS
SURVEYORS
MOORMAN, KIZER & REITZEL, INC.
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Phone 910-484-5191
License #: F-0106

scale 1" = 40' HOR
1" = 4' VER
Field Book No.

SHEET
PP - 2

STORM DRAIN PROFILE 5
SEE SHT PP-2

STORM DRAIN PROFILE 3
SEE SHT PP-4

STORM DRAIN PROFILE 1
SEE SHT PP-2

PAXTON DR 50' R/W

ASCOT AVE 60' R/W

DECATUR DR

20' EASEMENT

EX 20' EASEMENT

PLUG ENDS OF EXIST. 15" W/ BRICK & MORTAR AND GROUT PER NCDOT STANDARDS

EX CB 6E.4
STA 0+35.13
HOOD 283.06
GRATE 282.37
NEW INV 24"IN/OUT 278.48
REMOVE/REPLACE EX CB

RELOCATE 70lf of 8" C-900
SEE PP-2 PROF W-1

EX CB 18 TO REMAIN
STA = 7+48.06
HOOD = 282.95
FLOW LINE = 282.14
INV 15" IN = 279.40
INV 18" OUT = 279.38
PLUG EXISTING 18" PIPE IN WITH BRICK AND MORTAR & FILL W/ GROUT PER NCDOT STANDARDS AND ABANDON 15" RCP IN PLACE

EX SDMH
STA = 6+55.76
RIM = 283.75
INV 18" IN = 278.27
INV 18" OUT = 278.25

DISH TO BE RELOCATED BY UTILITY OWNER

DO NOT DISTURB FENCE

PROPOSED CB 234
STA = 1+12.32
HOOD = 276.76
GRATE = 276.28
INV 24" IN = 269.00
INV 24" OUT = 269.00

PROPOSED SDMH 42
STA = 2+86.80
RIM = 279.70
TOP = 279.40
INV 24" IN/OUT = 273.32

PROPOSED DI 245
STA = 2+86.17
TOP = 279.40
INV 24" IN/OUT = 273.32

PROPOSED SDMH 33
STA = 6+55.68
RIM = 283.74
INV 24" IN/OUT = 275.53

PROPOSED CB 233
STA = 7+50.55
HOOD = 282.95
GRATE = 282.28
INV 24" IN (W) = 278.31
INV 18" IN (N) = 278.08
INV 24" OUT = 278.67

PROPOSED CB 232
STA = 8+66.21
HOOD = 283.28
GRATE = 283.45
INV 18" RCP IN/OUT = 279.99

PROPOSED CB 231
STA = 9+44.92
HOOD = 285.38
GRATE = 284.74
INV 15" IN/OUT = 281.15

PROPOSED CB 236
STA = 10+49.65
HOOD = 285.81
GRATE = 285.14
INV 15" OUT = 282.31

PROPOSED CB 229
STA = 0+24.1 PROF 6 (SEE INSET BELOW)
HOOD = 285.63
GRATE = 284.96
INV 15" OUT = 281.12

PROPOSED SDMH 39
STA = 9+26.75 PROF 2
= 0+00 PROF 6 (SEE INSET BELOW)
RIM = 285.10
INV 15" IN (E) = 280.88
INV 15" IN (W) = 280.88
INV 18" OUT = 280.63

PROPOSED 60" SDMH #35
STA = 0+00 STRM DRAIN 2
= 15+73.98 STRM DRAIN 1
= 0+00 STRM DRAIN 3
RIM = 275.76
INV NEW 24" RCP IN (W) = 266.00
INV NEW 36" RCP IN (S) = 266.00
INV NEW 42" RCP OUT = 266.00

PROPOSED SDMH #36
STA = 0+00 STRM DRAIN 1
= 0+73.98 STRM DRAIN 3
RIM = 276.10
INV NEW 24" IN = 266.60
INV NEW 24" IN = 266.60
INV NEW 36" OUT = 266.49

PROPOSED DI 245
STA = 2+86.17
TOP = 279.40
INV 24" IN/OUT = 273.32

REMOVE BOTH ENDS OF EX 18" RCP FROM EX. BOXES, PLUG EA. END W/ BRICK & MORTAR, GROUT PER NCDOT STANDARDS, AND ABANDON IN PLACE. REPAIR VOIDS IN EX. BOX WALLS DUE TO PIPE REMOVAL.

CONTRACTOR SHALL CONSTRUCT 6' TREATED WOOD PRIVACY FENCE ALONG REAR PROPERTY LINE OF 7517 ASCOT AVE. CONTRACTOR SHALL SUBMIT FENCE SHOP DRAWINGS FOR REVIEW PRIOR TO INSTALLATION.

CONTRACTOR SHALL POTHOLE BEHIND BACK OF CURB TO ALLOW ENGINEER TO ASCERTAIN BOTH HORIZONTAL AND VERTICAL LOCATION OF WATERMAIN PRIOR TO ORDERING MATERIALS FOR CONSTRUCTION TO ALLOW ENGINEER TO MAKE ADJUSTMENTS AS NECESSARY. MINIMUM VERTICAL SEPARATION BETWEEN EXISTING WATER AND BOTTOM OF STORM DRAIN IS 12".

8" RJDIP & BENDS AS NECESSARY TO ADJUST EX. WATER UNDER NEW STORM DRAIN. EXTEND RJDIP TO 20' BEYOND BENDS & RESTRAIN TO EX. C-900 WATER TO PWC STANDARDS. SEE DETAIL W.25

NOTE: SEED DISTURBED AREAS UNLESS OTHERWISE IMPROVED.

TBM ELEV 288.28 BOLT NEAREST "M" IN MUELLAR ON FH IN NE CORNER OF DECATUR DR & ASCOT AVE

TBM ELEV 275.82 RR SPIKE ON BACK OF CURB @ CATCH BASIN IN FRONT OF 7505 PAXTON DR

NAD 83 NAVD 88

40 20 0 40 80 120
SCALE: 1" = 40'

00 SEE SHEET C-1 FOR TYPICAL NOTE KEY

STORM DRAIN PROFILE 2
STA 0+00 to 10+50

EX CB RT
STA = 0+00 STRM DRAIN 2
= 15+80.12 PAXTON
= 0+00 STRM DRAIN 3
TC = 275.92
G = 274.95
INV 18" IN (S)= 271.77
INV 18" IN (N)= 271.73
INV 30" OUT = 271.23

EX SSMH
STA = 15+90.17
RIM = 276.45
INV 8" IN = 270.60
INV 8" OUT = 270.57

EX SSMH
STA = 15+90.17
RIM = 275.64
INV 8" IN (W) = 270.40
INV 8" IN (W) = 270.41
INV 8" OUT = 270.37

EXISTING PROFILE

APPROX HOUSE 231' RT 30' LEFT

284' - 42" CL III RCP @ 0.30%

112' - 24" CL III RCP @2.67%

154' - 24" CL III RCP @ 2.25%

370' - 24" CL III RCP @ 0.60%

95' - 24" CL III RCP @ 1.20%

116' - 18" CL III RCP @ 1.65%

61' - 18" CL III RCP @ 1.06%

105' - 15" CL III RCP @1.11%

18' - 15" CL III RCP @1.50%

9' 24" RCP @ 7.00%

EX 18" RCP

EX 15" RCP XING

4" SS XING
INV = 271.66

4" DIR LAT

W LAT

EX 30" RCP

EX 109.28' -8" SS PVC @ -0.45%

288.43' -8" PVC SS @ 0.40%

EX 122' -8" DIP SS

EX TEE

18" PVC ABAN WATER

4" SS LAT

EX 8" WATER (LEFT)

EX 128' -8" PVC SS @ 0.48%

DECATUR EX 8" W

EX 4" SS LAT XING

EX 150' -8" PVC SS @ 0.47%

DECATUR EX 126' -18" PVC SS @ 0.48%

DECATUR EX 30" @ PVC SS @ 2.33%

24" MIN. SEPARATION

PROPOSED SDMH 33
STA = 6+55.68
RIM = 283.74
INV 24" RCP IN/OUT = 275.53

PROPOSED CB 233
STA = 7+50.55
HOOD = 282.95
GRATE = 282.28
INV 24" RCP IN (W) = 278.31
INV 18" RCP IN (N) = 278.08
INV 24" RCP OUT = 278.67

PROPOSED CB 232
STA = 8+66.21
HOOD = 283.28
GRATE = 283.45
INV 18" RCP IN/OUT = 279.99

PROPOSED CB 231
STA = 9+44.92
HOOD = 285.38
GRATE = 284.74
INV 15" RCP IN/OUT = 281.15

PROPOSED SDMH 39
STA = 9+26.75 PROF 2
= 0+00 PROF 6
RIM = 285.10
INV 15" RCP IN (E) = 280.88
INV 15" RCP IN (W) = 280.88
INV 18" RCP OUT = 280.63

PROPOSED CB 236
STA = 10+49.65
HOOD = 285.81
GRATE = 285.14
INV 15" RCP OUT = 282

ASCOT EX -333' -8" PVC SS @ 0.48%

ASCOT EX 8" W

EX 8" W XING

12' MIN

PROFILE "STORM DRAIN PROFILE 6"
STA 0+00 to 0+24

24' -15" CL III RCP @ 1.00%

PROPOSED CB 229
STA = 0+24.10
HOOD = 285.63
GRATE = 284.96
INV 15" OUT = 281.12

PROPOSED SDMH 39
STA = 9+26.75 PROF 2
= 0+00 PROF 6
RIM = 285.10
INV 15" IN (E) = 280.88
INV 15" IN (W) = 280.88
INV 18" OUT = 280.63

ABAN 4" W

8" SS

0+00 1+00

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

255 260 265 270 275 280 285 290

Drawn by	D. Vaughn,PE,PLS / F. M.
Checked	Jeffrey B Reitzel,PE,PLS
Reviewed	Jeffrey B Reitzel,PE,PLS
Date	JULY 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Dreainage Improvements
Plan Profile Storm Drain Profile 2 & SD Profile 6

no.	revision	by	date

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scale	1" = 40' HOR 1" = 4' VER
Field Book No.	-

SHEET
PP - 3

TBM ELEV 275.82 RR SPIKE ON BACK OF CURB @ CATCH BASIN IN FRONT OF 7505 PAXTON DR

TBM ELEV 277.41 ECM (REBAR) @ PROPERTY CORNER FOR 7510 BRIDGEMAN & REILLY RD FARMERS MARKET

NAD 83 NAVD 88

00 SEE SHEET C-1 FOR TYPICAL NOTE KEY

NOTE: SEED DISTURBED AREAS UNLESS OTHERWISE IMPROVED.

Utility Co. To Relocate Power Poles & Guys

Gas Provider to Relocate Propane Tank

PROPOSED DI 237
STA = 1+77.47
GRATE = 276.00
INV 18" IN = 271.96
INV 30" IN/OUT = 267.05

REMOVE AND REPLACE CONCRETE SWALE TO EXISTING OR BETTER CONDITION. (15 If NOA)

PROPOSED CB 20A
STA = 0+26.93
HOOD = 275.95
INV 18" IN = 271.16
INV 30" IN/OUT = 266.27

168' - 36" RCP @ 0.52%

RELOCATE PROPANE TANK

PROPOSED CB 241
STA = 3+45.12
HOOD = 276.95
GRATE = 276.28
INV 24" RCP IN = 267.93
INV 36" RCP OUT = 267.93

FH WV RIM 277.36
TOP NUT 274.64

CONTRACTOR SHALL POTHOLE EXISTING 16" WATER & SS LATERAL PRIOR TO BEGINNING CONSTRUCTION TO ALLOW ENGINEER TO OBTAIN HORIZONTAL AND VERTICAL LOCATION FOR DETERMINATION OF ADJUSTMENTS OF DESIGN TO ACCOMMODATE EXISTING WATER UTILITY

PROPOSED CB 6K
STA = 5+53.91
HOOD = 276.46
GRATE = 276.46
INV 18" IN/OUT = 273.39

151' - 36" RCP @ 0.52 %

11' - 18" RCP @ 5.27%

17' - 18" RCP @ 2.38%

REMOVE 368' ASPH CURB
REPLACE 356' ASPH CURB

END PROJECT
PROPOSED FES 6K
STA = 5+70.68
INV 18" IN = 273.77

EX OTCB 6G
STA 1+62.37
TOP 276.61
EX. INV 18" IN 272.53
EX. INV 18" OUT 272.54
NEW INV 18" OUT 272.54

REMOVE AND REPLACE CONCRETE DRIVE 20 sy

PROPOSED CB 224
STA = 5+16.55
HOOD = 277.20
GRATE = 276.53
INV 18" IN = 272.50 (W)
INV 18" IN = 272.50 (S)
INV 24" OUT = 269.74

PLACE SOD COVERED W/ BIODEGRADABLE NETTING ANCHORED TO SOIL IMMEDIATELY AFTER DISTURBANCE.

27' - 36" RCP @ 1.00%

PROPOSED 6'Ø SDMH #35
STA = 0+00 STRM DRAIN PROF 3
= 15+73.98 STRM DRAIN PROF 2
= 0+00 STRM DRAIN PROF 2
RIM = 275.76
INV 24" RCP IN (W)= 266.00
INV NEW 36" RCP IN (S) = 266.00
INV NEW 42" RCP OUT = 266.00

5' - 18" RCP @ 20.00 %

DO NOT DISTURB EX. 20' PUE

9' - 18" RCP @ 7.56 %

REMOVE 20' ASPH CURB REPLACE 16' ASPH CURB

EX. STORM DRAIN TO REMAIN ACTIVE

REMOVE EX STORM DRAIN FROM DITCH TO CB22 AND BACKFILL EXCAVATION. REPAIR STORM BOX IMMEDIATELY

37' - 18" RCP @ 2.41%

182' - 15" CL III RCP @ 0.50%

PROPOSED CB 222
STA = 1+91.34
HOOD = 277.60
GRATE = 276.93
INV 15" OUT = 274.10

PLUG ENDS OF 18" RCP WITH BRICK AND MORTAR. FILL W/ GROUT AND ABANDON IN PLACE.

REMOVE 40' ASPH CURB REPLACE 36' ASPH CURB

PAXTON DR 50' R/W

BRIDGEMAN DR 50' R/W

STORM DRAIN PROFILE 1 SEE SHT PP-1 & 2

STORM DRAIN PROFILE 3 THIS SHT

PROFILE "STORM DRAIN PROFILE 3"
STA 0+00 to 5+71

PROFILE "STORM DRAIN PROFILE 4"
STA 0+00 to 1+92

SCALE: 1" = 40'

EX. CB 20
STA = 0+26.93
HOOD = 275.95
EX. INV 18" IN = 272.18
EX. INV 18" OUT = 272.18
NEW INV 18" OUT = 272.16

5' - 18" CL III RCP @ 20.00%

PROPOSED CB 20A
STA = 0+26.93
HOOD 275.95
INV 18" RCP IN = 271.16
INV 30" RCP IN/OUT = 266.27

EX. CB 20
STA = 0+26.93
HOOD = 275.95
EX. INV 18" IN = 272.18
EX. INV 18" OUT = 272.16
NEW INV 18" OUT = 272.16

EX OTCB 6G
STA = 1+82.37
TOP = 276.61
EX. INV 18" IN = 272.53
EX. INV 18" OUT = 272.54
NEW INV 18" OUT = 272.54

EX SSMH
STA = 4+87.56
RIM = 276.72
INV 8" IN = 269.83
INV 8" OUT = 269.79

EX CB 22
STA = 5+46.10
HOOD = 277.13
INV 18" IN = 273.63
INV 18" OUT = 273.55

EX CB 23
STA = 5+21.73
HOOD = 277.20
EX INV 18" IN (S) = 273.42
NEW INV 15" IN (W) = 273.18
EX INV 18" OUT = 273.38
NEW INV 15" OUT = 273.18

9' - 18" RCP @ 7.56%

37' - 18" CL III RCP @ 2.41%

17' - 18" CL III RCP @ 2.38%

COORDINATE TEL RELOCATION BY TELEPHONE CO. WITH TELEPHONE CO. AS NECESSARY

PROPOSED FES 6K
STA = 5+70.68
INV 18" IN = 273.77
SEE POTHOLE NOTE ABOVE

11' - 18" CL III RCP @ 5.27%

27' - 36" CL III RCP @ 1.00%

151' - 36" CL III RCP @ 0.52 %

168' - 36" CL III RCP @ 0.52 %

17' - 24" CL III RCP @ 1.06%

EX 425' - 8" PVC SS @ 0.46%

EX 395' - 8" PVC SS @ 0.46%

PROPOSED CB 241
STA = 3+45.12
HOOD = 276.95
GRATE = 276.28
INV 24" RCP IN = 267.93
INV 36" RCP OUT = 267.93

PROPOSED CB 224
STA = 5+16.55
HOOD = 277.20
GRATE = 276.53
INV 18" RCP IN = 272.50
INV 18" RCP IN = 272.50
INV 24" RCP OUT = 269.74

PROPOSED CB 6K
STA = 5+53.91
HOOD = 276.46
GRATE = 276.46
INV 18" RCP IN/OUT = 273.39

PROPOSED DI 237
STA = 1+77.47
GRATE = 276.00
INV 18" RCP IN = 271.96
INV 30" RCP IN/OUT = 267.05

PROPOSED 6'Ø SDMH #35
STA = 0+00 STRM DRAIN 3
= 15+73.98 STRM DRAIN 1
= 0+00 STRM DRAIN 2
RIM = 275.76
INV 24" RCP IN (W)= 266.00
INV 36" RCP IN (S) = 266.00
INV 36" RCP OUT = 266.00

PROPOSED CB 20A
STA = 0+26.93
HOOD = 275.95
INV 18" IN = 271.16
INV 36" RCP IN/OUT = 266.27

EX. CB 3E
STA = 0+00 STRM DRAIN 3
= 15+80.12 PAXTON
= 0+00 STRM DRAIN 2
TC = 275.92
C = 274.95
INV 18" IN (S)= 271.77
INV 18" IN (W)= 271.77
INV 30" OUT = 271.23

EX CB 22
STA = 5+46.10
HOOD = 277.13
INV 18" IN = 273.63
INV 18" OUT = 273.55

EX CB 23
STA = 0+00 STRM DRAIN PROFILE 4
= 5+21.73 STRM DRAIN PROFILE 3
HOOD = 277.20
EX INV 18" IN (S) = 273.42
NEW INV 15" IN (W) = 273.18
EX INV 18" OUT = 273.38
NEW INV 18" OUT = 273.18
Rebuild As Necessary

EX SSMH
STA = 4+87.56
RIM = 276.72
INV 8" IN = 269.83
INV 8" OUT = 269.79

182' - 15" RCP @ 0.50%

9' - 18" RCP @ 7.56%

17' - 24" RCP @ 1.06%

PROPOSED CB 224
STA = 0+00 STRM DRAIN PROF 4 = 5+16.55 STRM DRAIN PROF 3
HOOD = 277.20
GRATE = 276.53
INV 18" IN = 272.50
INV 18" IN = 272.50
INV 24" OUT = 269.74

PROPOSED CB 222
STA = 1+91.34
HOOD = 277.60
GRATE = 276.93
INV 15" OUT = 274.10

0+00 1+00 2+00 3+00 4+00 5+00 6+00

0+00 1+00 2+00

275 270 265 285 280 275 270 265 260 255 250

Drawn by D. Vaughn,PE,PLS / F. M.
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date JULY 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
Plan Profile Storm Drain Profile 3 & 4

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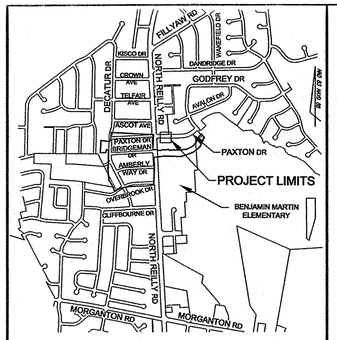
scale 1" = 40' HOR
1" = 4' VER
Field Book No.
SHEET PP - 4

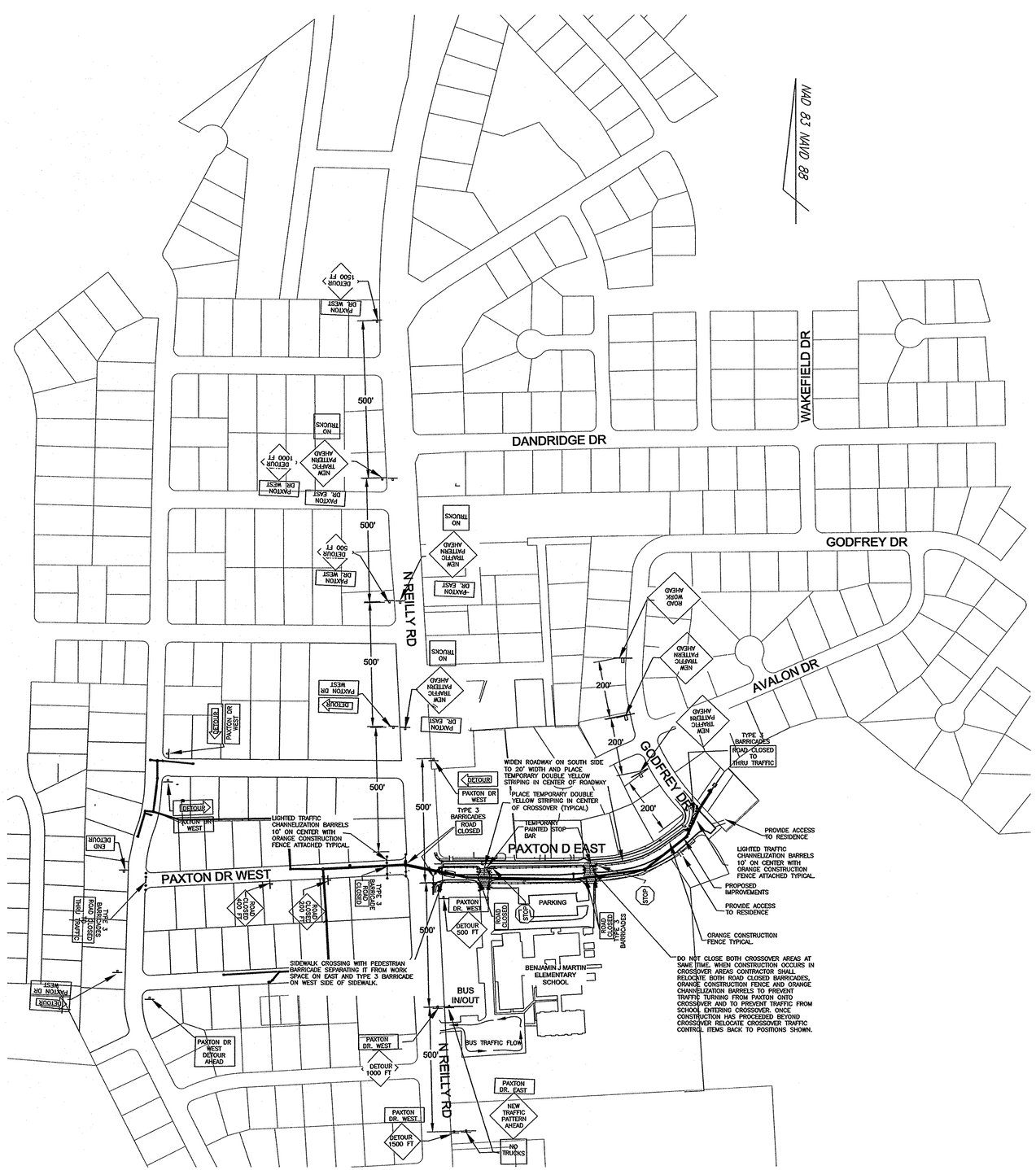
G:\Current Jobs\Fayetteville City-of\21-1033-02 Paxton, Bridgeman & Godfrey Outfall - LaGrange Drainage Improvements\Plans - Revised 2016\PP-4 RCp01002.dwg, 8/1/2016 9:44:57 AM, Canon IR7565 (Downstairs)55x24.pc3



VICINITY MAP
NTS

LEGEND - SIGNS & SYMBOLS

	SIGN (SHOWN FACING LEFT)
	DIRECTION OF TEMPORARY TRAFFIC DETOUR M6-3
	DIRECTION OF TEMPORARY TRAFFIC DETOUR M6-1
	DIRECTION OF TEMPORARY TRAFFIC DETOUR M5-1
	NO LEFT TURN R3-2
	NO RIGHT TURN R3-1
END DETOUR	END DETOUR M4-8a
DETOUR	DETOUR M4-8
ROAD CLOSED	ROAD CLOSED 48" x 30" R11-2
ROAD CLOSED AHEAD	ROAD CLOSED AHEAD 48" x 48" W20-3
DETOUR 500 FT	DETOUR W/DISTANCEAHEAD 48" x 48" W20-2
ROAD CLOSED 200 FT	ROAD CLOSED WITH DISTANCE 48" x 48" W20-3
PAXTON DR	STREET NAME D3-1
DETOUR	DETOUR 48" x 36" M4-9R
DETOUR	DETOUR 48" x18" M4-10
ROAD CLOSED TO THRU TRAFFIC	ROAD CLOSED TO THROUGH TRAFFIC 60" x 30" R11-4
NEW TRAFFIC PATTERN AHEAD	NEW TRAFFIC PATTERN AHEAD 48"X48" WB-23-2
NO TRUCKS	NO TRUCKS R5-2A
STOP	STOP R1-1 30"X30"
ROAD WORK AHEAD	ROAD CONSTRUCTIION AHEAD 48" x 48" W20-1



200 0 200 400 600

Scale 1" = 200'

(TYPICAL NOTES ALL TRAFFIC CONTROL PLANS)

1. CONTRACTOR SHALL FOLLOW STATE GUIDELINES AND "STANDARDS FOR WORK ZONE TRAFFIC CONTROL," PART VI OF THE MUTCD, LATEST EDITION. CONTRACTOR SHALL USE CAUTION AND SHALL MAINTAIN SAFE CONDITIONS DURING CONSTRUCTION.

2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL BUSINESSES DURING CONSTRUCTION.

3. ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR AND REMAIN THE PROPERTY OF THE CONTRACTOR.

4. TRAFFIC CONTROL PLANS (TCP) FOR THIS PROJECT CONSIST OF SEVERAL TYPICAL DRAWINGS AND/OR ROADWAY STANDARD DRAWINGS SHOWING TRAFFIC CONTROL DEVICES TO BE USE WHERE VARIOUS TYPES OF CONSTRUCTION ACTIVITIES ARE OCCURRING ON THE PROJECT. THESE DRAWINGS ARE FOR TYPICAL SITUATIONS AND SHOULD BE ADAPTED TO THE ACTUAL FIELD CONDITIONS WHICH EXIST. DUE TO THE UNFORESEEN FIELD SITUATIONS, IT MAY BE IMPOSSIBLE TO ADAPT THE PRESCRIBED TYPICAL DRAWING AND/OR ROADWAY STANDARD DRAWINGS EXACTLY AS SHOWN TO THE ACTUAL FIELD SITUATION. THE CONTRACTOR, AT THE DIRECTION OF THE ENGINEER, SHALL MOVE, SUPPLEMENT, CHANGE, AND/OR REMOVE THE TRAFFIC CONTROL DEVICES ASSOCIATED WITH THESE TYPICAL DRAWINGS AND/OR ROADWAY STANDARD DRAWINGS TO ENSURE THAT THE MOTORIST CAN PASS THROUGH THE CONSTRUCTION AREA IN A SAFE AND EFFICIENT MANOR.

5. CONSTRUCTION PHASING MAY DICTATE THAT TWO OR MORE TYPICAL DRAWINGS BE USED IN ONE AREA OF CONSTRUCTION. CHANNELIZING DEVICES ASSOCIATED WITH THESE DRAWINGS SHALL BE MOVED, SUPPLEMENTED, CHANGED OR REMOVED AS REQUIRED BY THE CONSTRUCTION PHASING OF THE PLANS. THE LOCATION AND POSITIONING OF THESE DEVICES SHALL BE APPROVED BY THE ENGINEER TO ENSURE THAT THE MOTORIST DOES NOT RECEIVE FALSE INFORMATION WHEN TWO OR MORE TYPICALS AND/OR ROADWAY STANDARD DRAWINGS OVERLAP.

6. OPERATIONAL SIGNS ARE GENERALLY MOUNTED ON PORTABLE SUPPORTS. THESE ARE NORMALLY USED FOR SHORT TERM OPERATIONS TO WARN AND GUIDE TRAFFIC THROUGH OR AROUND CONSTRUCTION AREAS WITHIN A CONSTRUCTION ZONE. OPERATIONAL SIGNS SHALL BE INSTALLED PRIOR TO THE START OF OPERATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SIGNS SHALL BE MAINTAINED IN PROPER POSITION AND KEPT CLEAN AND LEGIBLE AT ALL TIMES. IF NEED BE THEY SHALL BE BALLASTED OR WEIGHTED IN SUCH A MANNER THAT THEY SHALL BE STABLE UNDER WIND AND VEHICLE ACTION. THEY SHALL BE REMOVED WHEN NOT APPLICABLE. THE BOTTOM OF THE SIGN SHALL BE A MINIMUM OF ONE FOOT ABOVE THE PAVEMENT SURFACE.

7. THE CONTRACTOR SHALL MARK ALL HAZARDS WITHIN THE LIMITS OF THE PROJECT WITH WELL–MAINTAINED SIGNS, BARRICADES, WARNING AND/OR CHANNELIZING DEVICES. ON CONNECTING ROADS, ALL BARRICADES, SIGNS, WARNING AND/OR CHANNELIZING DEVICES SHALL BE MOVED, SUPPLEMENTED, CHANGED OR REMOVED AS REQUIRED DURING THE PROGRESS OF CONSTRUCTION AS APPROVED BY THE ENGINEER.

8. WORK ON THE PROJECT OR ANY SEPARATE ACTIVITY THEREIN SHALL NOT START UNTIL ALL OF THE REQUIRED SIGNS, BARRICADES, WARNING AND/OR CHANNELIZING DEVICES ARE INSTALLED AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE REQUIRED TO INSTALL AND RELOCATE ALL TRAFFIC CONTROL DEVICES, SIGNS, BARRICADES, WARNING AND/OR CHANNELIZING DEVICES AS SHOWN IN TRAFFIC CONTROL PLANS.

9. CONTRACTORS SHALL NOT WORK ON BOTH SIDES OF THE ROAD SIMULTANEOUSLY WITHIN THE SAME AREA.

10. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL BE REQUIRED TO BACKFILL UP TO THE EDGE AND ELEVATION OF THE EXISTING PAVEMENT ANY AREA ADJACENT TO THE TRAVEL WAY THAT HAS DROP OFF OF MORE THAN ONE INCH

11. THE CONTRACTOR SHALL MAINTAIN A SMOOTH TRANSITION FROM EXISTING PAVEMENT TO PROPOSED PAVING OPERATION.

12. EXISTING TRAFFIC PATTERNS SHALL BE MAINTAIN AT NIGHT AND DURING PERIODS OF CONSTRUCTION INACTIVITY.

13. CONTRACTOR SHALL REMARK ALL PAVEMENT MARKINGS DISTURBED BY CONSTRUCTION TO CONDITIONS THAT WERE PRESENT PRIOR TO CONSTRUCTION.

14. CONTRACTOR SHALL BE REQUIRED TO REPLACE ANY EXISTING PAVEMENT MARKINGS WHICH HAVE BEEN OBLITERATED BY CONSTRUCTION PROCEDURE WITH TEMPORARY PAVEMENT MARKING LINES (PAINT) AT THE END OF EACH DAY'S OPERATION.

15. THE CONTRACTOR IS MADE AWARE THAT THE WEDGING AND/OR PAVING OPERATION SHALL TERMINATE AT THE SAME LOCATION AND ELEVATION FOR ALL LANES AT THE END OF EACH DAY'S OPERATION.

16. AT NIGHT AND DURING PERIODS OF CONSTRUCTION INACTIVITY, THE DIFFERENCE IN ELEVATION BETWEEN LANES SHALL NOT EXCEED ONE INCH.

17. WHEN CONSTRUCTION PROCEEDS THROUGH OR ADJACENT TO AN INTERSECTION, FLAGGER(S), AND FLAGGER SYMBOL SIGN(S) (W20–7a) SHALL BE USED TO SLOW/OR STOP TRAFFIC AND DIRECT IT THROUGH THE INTERSECTION.

18. CONTRACTOR SHALL PROVIDE FLAGMEN AND ALL ELSE NECESSARY TO INSURE THE SAFE PASSAGE OF VEHICLES AND PEDESTRIANS IN AND NEAR THE CONSTRUCTION AREA.

19. CONTRACTOR SHALL NOTIFY MR. LEE JERNIGAN (CITY TRAFFIC SERVICES ENGINEER) 5 WORKING DAYS IN ADVANCE OF IMPLEMENTING ANY TRAFFIC CONTROL MEASURES. CONTRACTOR SHALL COORDINATE WITH MR. LEE JERNIGAN FOR THE DETERMINATION OF TRAFFIC SIGNAL PHASING DURING THE CONSTRUCTION PERIOD.

NOTE: DETOUR PLAN SHOWN IS SPECIFIC FOR PAXTON DRIVE DETOUR FOR AREA OF CLOSURE INDICATED. CONTRACTOR SHALL COMPLY WITH THE MOST RECENT PUBLICATION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND APPLICABLE SUPPLEMENTS FOR REMAINDER OF PROJECT.

Drawn by F. McKellar
Checked D. Vaughn
Reviewed Jeffrey B Reitzel,PE,PLS
Date July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
Paxton Drive Detour Plan

Revision	By	Date

115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

M&R
ENGINEERS PLANNERS SURVEYORS
MOORMAN, KIZER & REITZEL, INC.

Scale 1" = 200'
Book no.
Sheet TC-1

G:\Current Jobs\Fayetteville City of\11-1033-02 Paxton, Bridgeman & Godfrey Outfall - LaGrange Drainage Improvements\Plans - Revised 2016\TC-1 Detour Plan.dwg, 8/1/2016 11:52:46 AM, Canon IPF765 (Downstairs)36x24.pc3

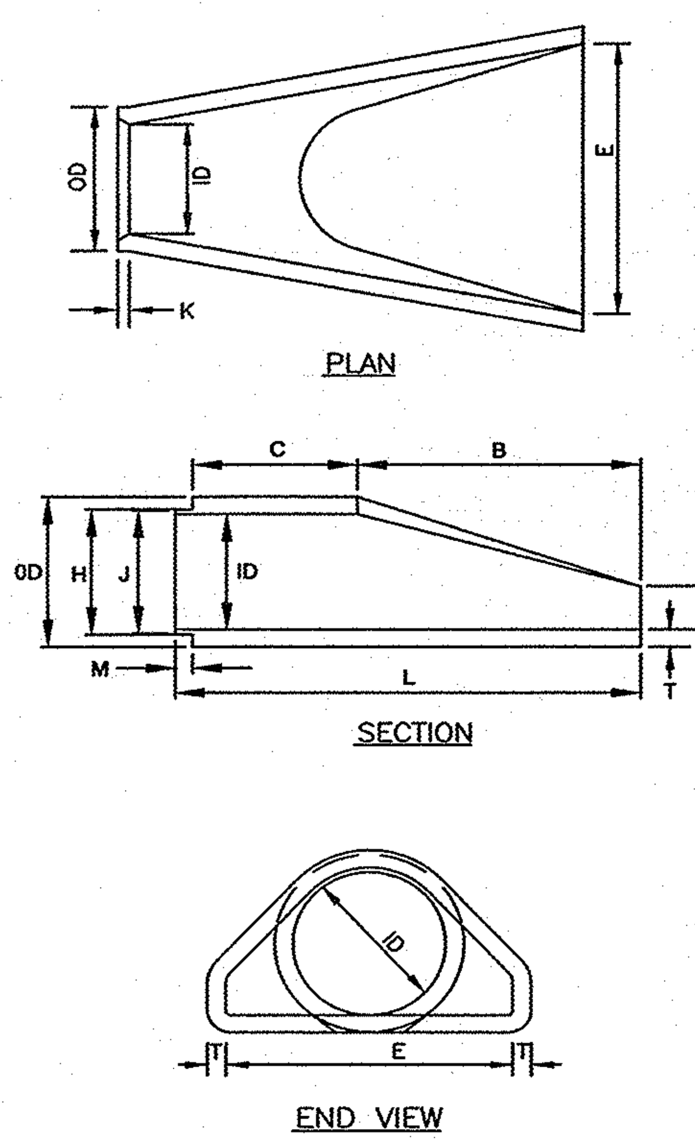


TABLE OF DIMENSIONS												
ID	T	OD	A	B	C	E	H	J	K	M	L	WT.
15"	2-1/4"	19-1/2"	7"	27-1/4"	47-1/2"	30"	17"	16-1/2"	2"	2"	74-3/4"	1038
18"	2-1/2"	23"	9"	27"	47-3/4"	36"	20-1/4"	19-1/2"	2"	2"	74-3/4"	1426
24"	3"	30"	9"	43"	37"	47-3/4"	26-3/4"	26-1/4"	2-13/16"	2-3/4"	80"	2137
30"	3-1/2"	37"	12"	54-1/2"	22-1/2"	60"	33-1/2"	32-1/2"	3"	2-15/16"	77"	2990
36"	4"	44"	16"	60"	37-1/2"	71"	39-3/4"	39"	3-3/4"	3-3/4"	97-1/2"	3960
42"	4-1/2"	51"	22-1/4"	61-3/8"	37"	77-1/4"	46-1/8"	45-1/8"	4-1/4"	4-1/4"	98-3/8"	5160
48"	5"	58"	25-1/4"	70-1/4"	29"	83-1/2"	52-1/2"	51-3/4"	4-1/4"	4-1/4"	99-1/4"	6480
54"	5-1/2"	65-1/4"	26"	65"	39-1/2"	89-3/4"	58-1/4"	57-1/2"	4-1/4"	4-1/4"	104-1/2"	9370
60"	6"	72-1/4"	28-1/2"	57-1/2"	46"	96"	64-3/4"	64"	4-3/4"	4-3/4"	103-1/2"	11650

GENERAL NOTES:

1. SPECIFICATIONS PER NCDOT.

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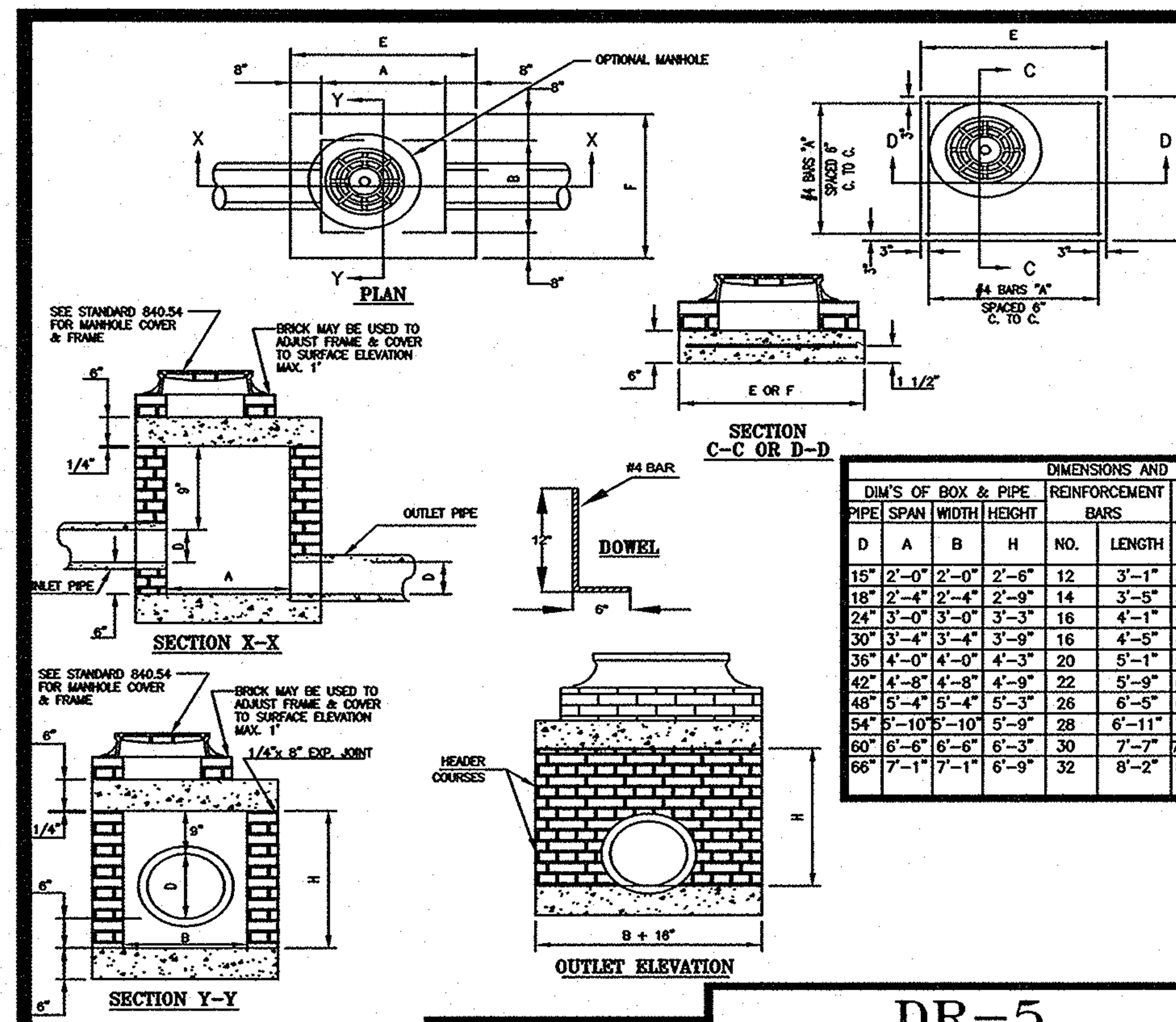
REINFORCED PRECAST CONCRETE FLARED END SECTIONS

CAD FILE : FLARE — **DR-23** — DATE 3/27/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.



GENERAL NOTES:

ALL EXPOSED CORNERS TO BE CHAMFERED 1". CLASS "B" CONCRETE TO BE USED. MOTAR JOINTS 1/2" ± 1/8" THICK. ALL EXPOSED JOINTS SHALL BE CONCAVE TOOLED.

FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTOM SLAB.

JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.

FOR 8'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL, AND 8" WALL FOR THE REMAINING 6'-0". DIMENSIONS AND QUANTITIES TO BE ADJUSTED ACCORDINGLY.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

ALL JUNCTION BOXES OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. NO. 840.66.

ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

DIMENSIONS AND QUANTITIES FOR BRICK JUNCTION BOXES												
DIM'S OF BOX & PIPE				REINFORCEMENT BARS		COVER DIMENSIONS		CUBIC YARDS			DEDUCTIONS FOR ONE PIPE CU. YDS.	
PIPE	SPAN	WIDTH	HEIGHT					CONC.	BRICK	MASONRY		
D	A	B	H	NO.	LENGTH	E	F	BASE & COVER CU. YD.	MIN. HEIGHT CU. YD.	WALL PER FT. HT. CU. YD.	C.S.	R.C.
15"	2'-0"	2'-0"	2'-6"	12	3'-1"	3'-4"	3'-4"	0.412	0.657	0.263	0.031	0.047
18"	2'-4"	2'-4"	2'-9"	14	3'-5"	3'-8"	3'-8"	0.498	0.814	0.296	0.044	0.065
24"	3'-0"	3'-0"	3'-3"	16	4'-1"	4'-4"	4'-4"	0.695	1.176	0.362	0.078	0.113
30"	3'-4"	3'-4"	3'-9"	16	4'-5"	4'-8"	4'-8"	0.807	1.481	0.395	0.122	0.170
36"	4'-0"	4'-0"	4'-3"	20	5'-1"	5'-4"	5'-4"	1.053	1.959	0.461	0.176	0.238
42"	4'-8"	4'-8"	4'-9"	22	5'-9"	6'-0"	6'-0"	1.333	2.503	0.527	0.240	0.323
48"	5'-4"	5'-4"	5'-3"	26	6'-5"	6'-8"	6'-8"	1.646	2.940	0.560	0.313	0.422
54"	5'-10"	5'-10"	5'-9"	28	6'-11"	7'-2"	7'-2"	1.902	3.502	0.609	0.396	0.535
60"	6'-6"	6'-6"	6'-3"	30	7'-7"	7'-10"	7'-10"	2.272	4.113	0.658	0.489	0.660
66"	7'-1"	7'-1"	6'-9"	32	8'-2"	8'-5"	8'-5"	2.624	4.778	0.708	0.591	0.798

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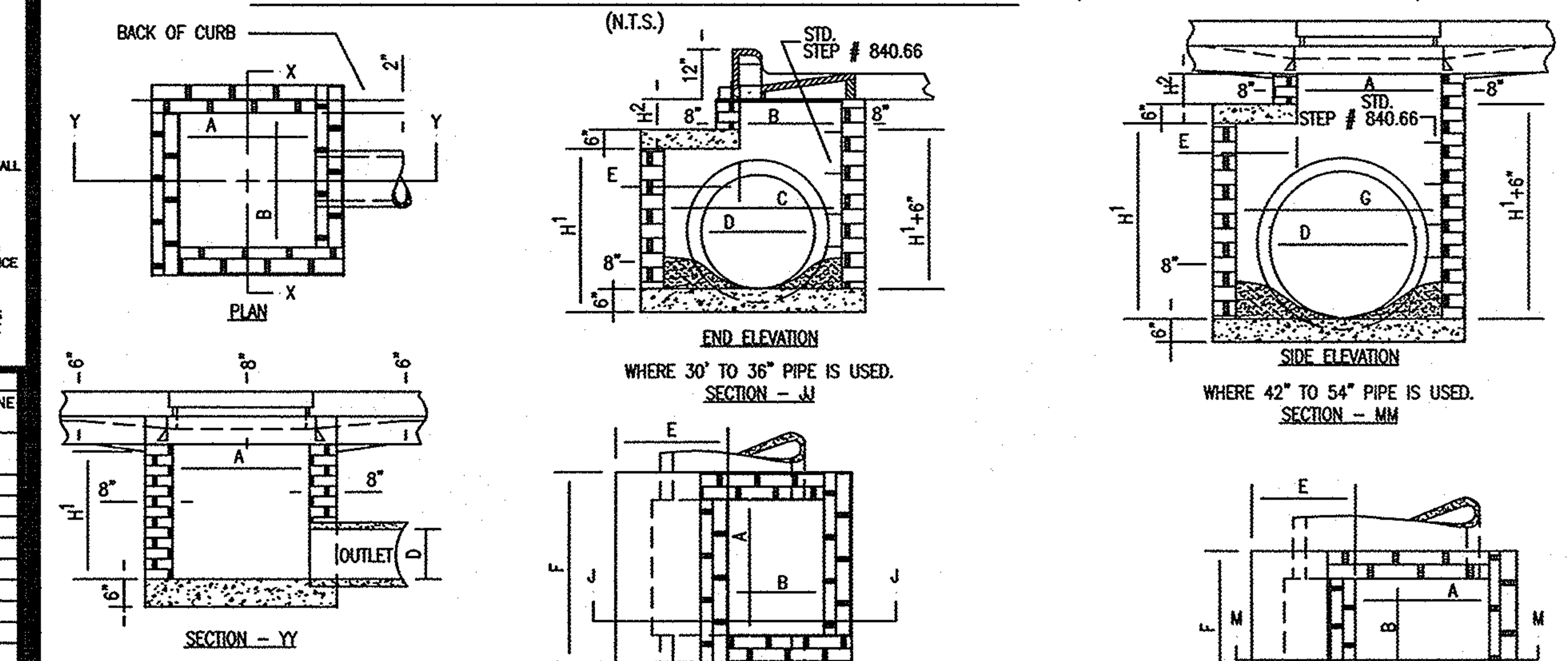
STANDARD BRICK JUNCTION BOX (OPTIONAL MANHOLE) 12" THRU 66" PIPE ADOPTED FROM NCDOT STANDARD NO. 840.32

CAD FILE : STDJUNBX — **DR-5** — DATE 3/18/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.

STANDARD BRICK CATCH BASIN (15" THRU 54" PIPE)

(N.T.S.)



GENERAL NOTES:

MORTAR JOINTS 1/2" 1/8" THICK.
3000 P.S.I. CONCRETE TO BE USED.
THE POURING OF FLOOR SLAB TO BE ACCOMPLISHED BY FORMING.
ALL CATCH BASINS OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 1' -2" ON CENTERS.
USE TYPE "E", "F", & "G" GRATE UNLESS OTHERWISE INDICATED.
JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICKS.
FOR 8' -0" IN HEIGHT OR LESS USE 8" WALL. OVER 8' -0" IN HIEGHT USE 12" WALL TO 6' -0" FROM TOP OF WALL, 8" WALL FOR THE REMAINING 6' -0".
INVERTS SHALL BE SHAPED TO FORM A SMOOTH, REGULAR SURFACE, SLOPED TO PREVENT SEDIMENTATION.

NO. 840.01

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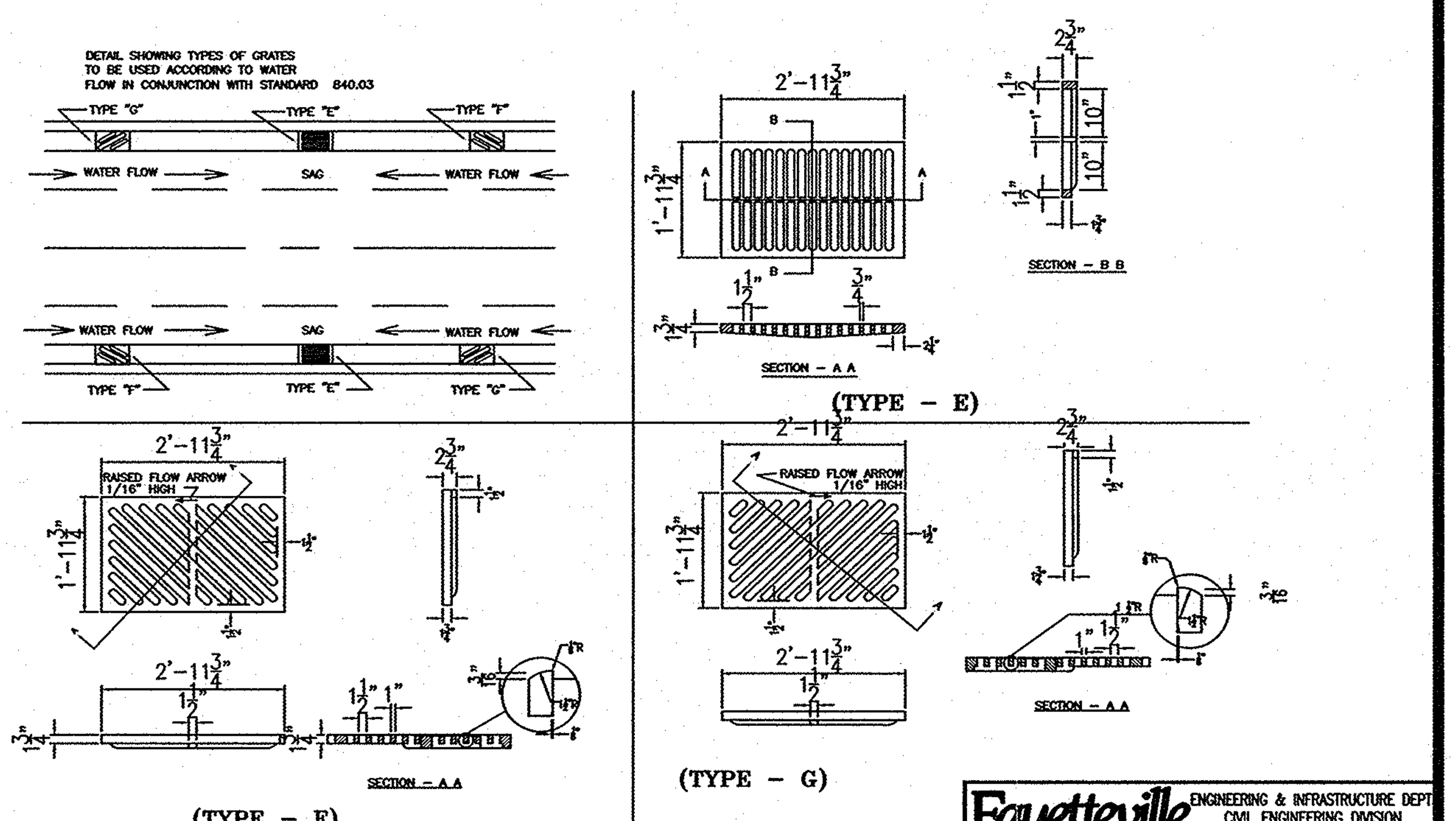
ADOPTED FROM NCDOT STANDARD NO. 840.01 PAGE 1 OF 2

CAD FILE : STDBRKCB — **DR-3** — DATE 3/18/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.



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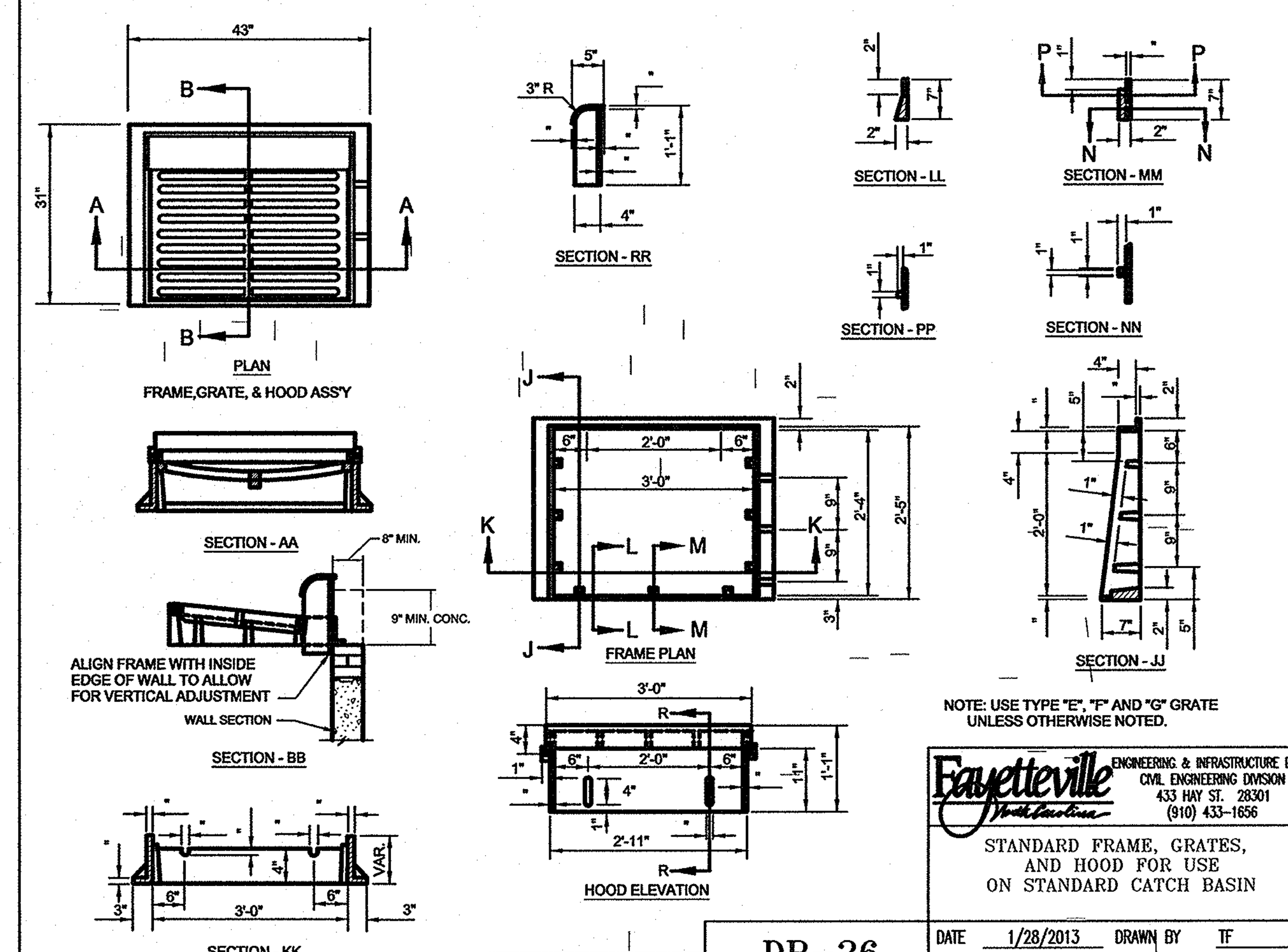
STANDARD FRAME, GRATES, AND HOOD ADOPTED FROM NCDOT STANDARD NO. 840.03

CAD FILE : EFGBASIN — **DR-22** — DATE 3/26/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.



NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

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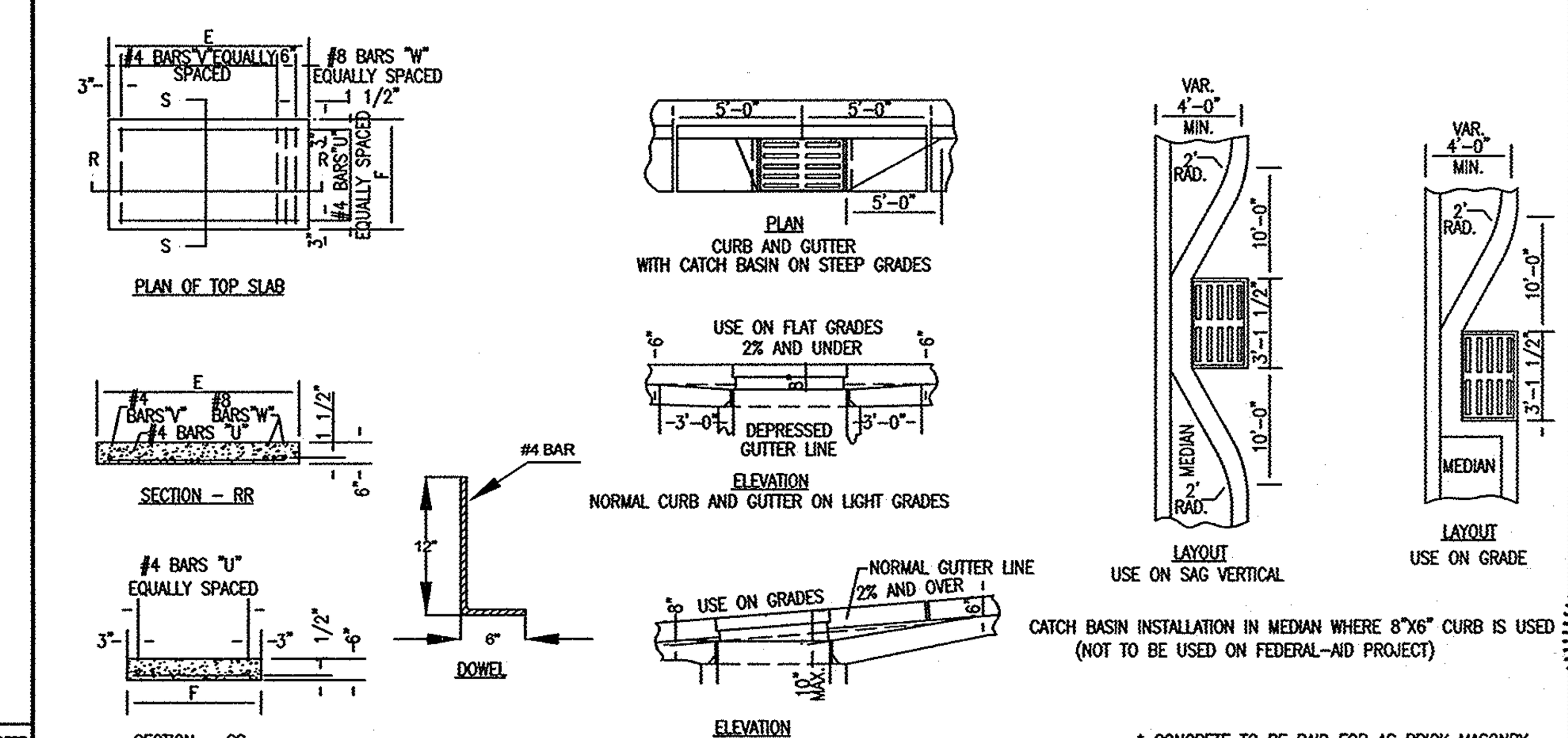
STANDARD FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

CAD FILE : STDCBASIN — **DR-26** — DATE 1/28/2013 DRAWN BY TF — SCALE N.T.S. CK'D BY CSA

STANDARD BRICK CATCH BASIN (15" THRU 54" PIPE)



CATCH BASIN INSTALLATION IN MEDIAN WHERE 8"X6" CURB IS USED (NOT TO BE USED ON FEDERAL-AID PROJECT)

* CONCRETE TO BE PAID FOR AS BRICK MASONRY

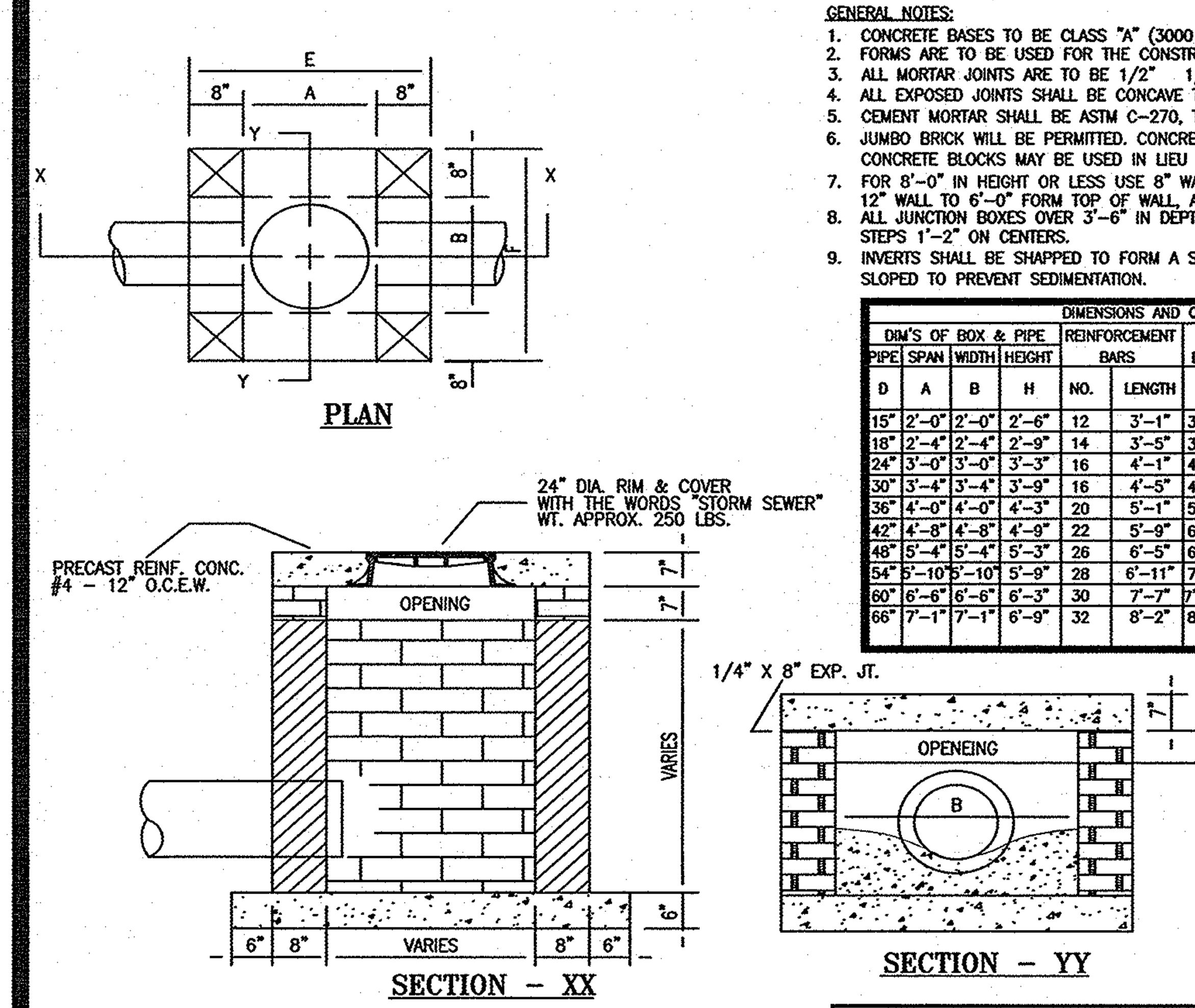
DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN																						
DIMENSIONS OF BOX AND PIPE							COVER DIMENSION		REINFORCING							* CUBIC YARDS OF CONCRETE IN BOX			BRICK MASON		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	HEIGHT	HEIGHT			BARS-U		BARS-V		BARS-W		TOTAL				H1			
D	A	B	C	G	MIN. H1	H2	E	F	NO	LENGTH	NO	LENGTH	NO	LENGTH	LBS.	TOP SLAB	FLOOR	TOTAL	CU. YDS	PER FT.HT	C.M.	R.C.
15"	3'-0"	2'-2"	–	–	3'-0"	–	–	–	–	–	–	–	–	–	–	–	0.281	0.281	0.963	0.321	0.0308	0.047
18"			–	–	3'-3"	–	–	–	–	–	–	–	–	–	–	–	0.281	0.281	1.043	ABOVE	0.0442	0.065
24"			–	–	3'-9"	–	–	–	–	–	–	–	–	–	–	–	0.281	0.281	1.204	MIN. H1	0.0784	0.121
30"			3'-4"	–	4'-3"	VARIABLE	1'-2"	4'-4"	4	1'-6"	3	4'-1"	3	4'-1"	45	0.147	0.374	0.521	1.606		0.1224	0.184
36"			3'-10"	–	4'-9"		1'-8"	4'-4"	4	2'-0"	4	4'-1"	3	4'-1"	49	0.187	0.415	0.602	1.914	0.321	0.1760	0.261
42"			–	4'-5"	5'-3"		1'-5"	3'-6"	4	1'-9"	3	3'-3"	3	3'-3"	38	0.135	0.373	0.508	2.152	H2	0.2400	0.371
48"			–	5'-0"	5'-9"		2'-0"	3'-6"	4	2'-6"	4	3'-3"	3	3'-3"	41	0.173	0.410	0.583	2.415		0.3131	0.477
54"	6'-0"	2'-2"	–	5'-7"	6'-3"		2'-7"	3'-6"	4	3'-0"	6	3'-3"	3	3'-3"	47	0.211	0.448	0.659	2.806		0.3958	0.595

NO. 840.01

Fayetteville North Carolina — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

ADOPTED FROM NCDOT STANDARD NO. 840.01 PAGE 2 OF 2

CAD FILE : STDBRCB2 — **DR-3.1** — DATE 3/18/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.



GENERAL NOTES:

1. CONCRETE BASES TO BE CLASS "A" (3000 P.S.I.) PLACES ON A FIRM FOUNDATION.
2. FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
3. ALL MORTAR JOINTS ARE TO BE 1/2" 1/8".
4. ALL EXPOSED JOINTS SHALL BE CONCAVE TOOLED.
5. CEMENT MORTAR SHALL BE ASTM C-270, TYPE "M".
6. JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.
7. FOR 8'-0" IN HEIGHT OR LESS USE 8" WALL; OVER 8'-0" IN HEIGHT USE 12" WALL TO 6'-0" FORM TOP OF WALL, AND 8" WALL FOR THE REMAINING 6'-0'.
8. ALL JUNCTION BOXES OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" ON CENTERS.
9. INVERTS SHALL BE SHAPPED TO FORM A SMOOTH, REGULAR SURFACE, SLOPED TO PREVENT SEDIMENTATION.

DIMENSIONS AND QUANTITIES FOR BRICK JUNCTION BOXES												
DIM'S OF BOX & PIPE				REINFORCEMENT BARS		COVER DIMENSIONS		CUBIC YARDS			DEDUCTIONS FOR ONE PIPE CU. YDS.	
PIPE	SPAN	WIDTH	HEIGHT					CONC.	BRICK	MASONRY		
D	A	B	H	NO.	LENGTH	E	F	BASE & COVER CU. YD.	MIN. HEIGHT CU. YD.	WALL PER FT. HT. CU. YD.	C.S.	R.C.
15"	2'-0"	2'-0"	2'-6"	12	3'-1"	3'-4"	3'-4"	0.412	0.657	0.263	0.031	0.047
18"	2'-4"	2'-4"	2'-9"	14	3'-5"	3'-8"	3'-8"	0.498	0.814	0.296	0.044	0.065
24"	3'-0"	3'-0"	3'-3"	16	4'-1"	4'-4"	4'-4"	0.695	1.176	0.362	0.078	0.113
30"	3'-4"	3'-4"	3'-9"	16	4'-5"	4'-8"	4'-8"	0.807	1.481	0.395	0.122	0.170
36"	4'-0"	4'-0"	4'-3"	20	5'-1"	5'-4"	5'-4"	1.053	1.959	0.461	0.176	0.238
42"	4'-8"	4'-8"	4'-9"	22	5'-9"	6'-0"	6'-0"	1.333	2.503	0.527	0.240	0.323
48"	5'-4"	5'-4"	5'-3"	26	6'-5"	6'-8"	6'-8"	1.646	2.940	0.560	0.313	0.422
54"	5'-10"	5'-10"	5'-9"	28	6'-11"	7'-2"	7'-2"	1.902	3.502	0.609	0.396	0.535
60"	6'-6"	6'-6"	6'-3"	30	7'-7"	7'-10"	7'-10"	2.272	4.113	0.658	0.489	0.660
66"	7'-1"	7'-1"	6'-9"	32	8'-2"	8'-5"	8'-5"	2.624	4.778	0.708	0.591	0.798

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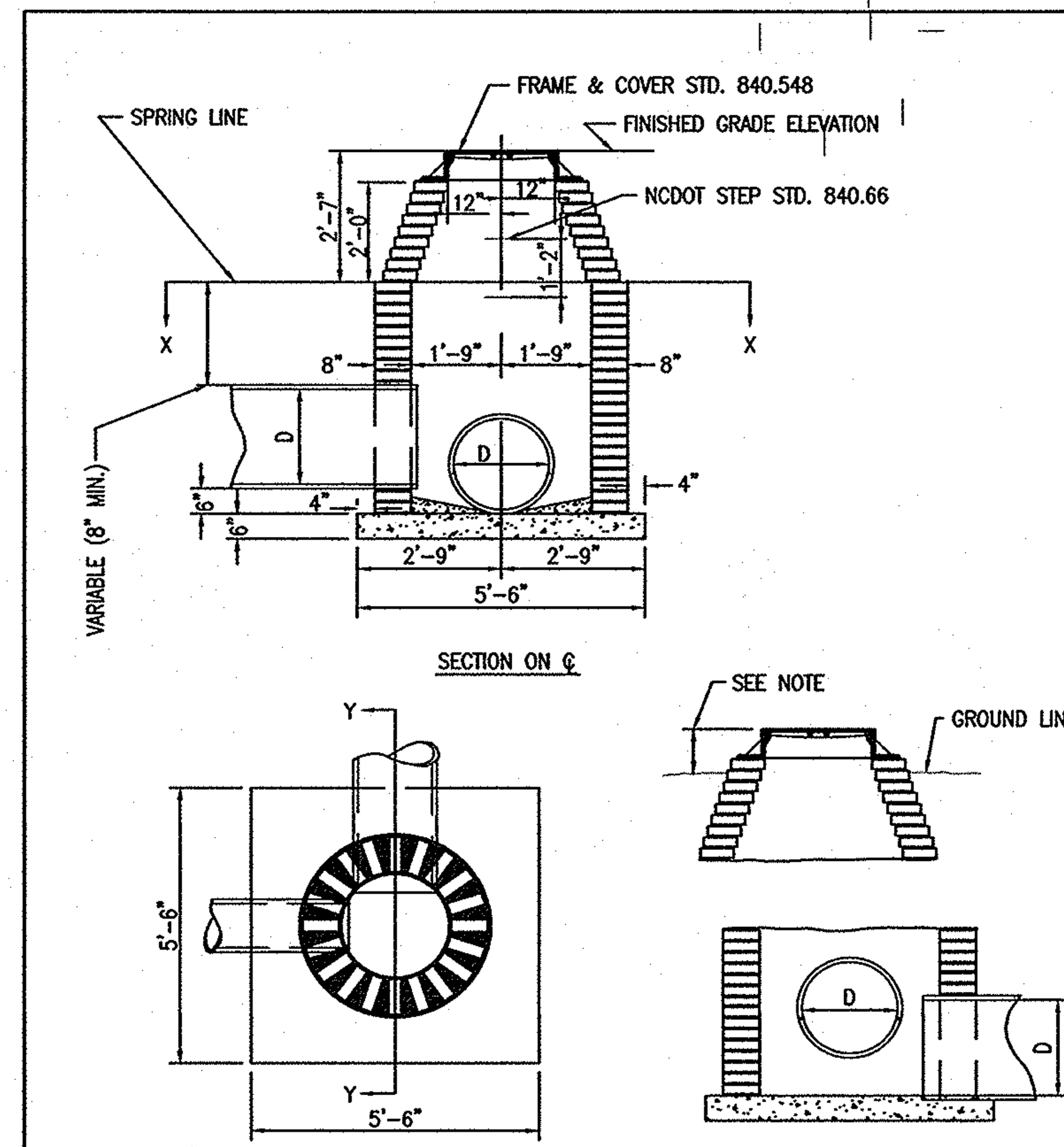
OPEN THROAT JUNCTION BOX

CAD FILE : OTJUNBOX — **DR-16** — DATE 3/24/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.



GENERAL NOTES:

- ALL MOTAR JOINTS ARE TO BE 1/2" ± 1/8".
- ALL EXPOSED JOINTS WILL BE CONCAVE TOOLED.
- 3000 PSI CONCRETE TO BE USED.
- THE POURING OF FLOOR SLAB TO BE ACCOMPLISHED BY FORMING.
- JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OF 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.
- IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD DR-9.
- WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, THE TOP OF THE MANHOLE IS TO BE FLUSH WITH THE GROUND. AT OTHER LOCATIONS, IT SHOULD BE A MINIMUM OF 9" ABOVE THE GROUND.
- MANHOLES OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 840.66.
- FOR 8' HEIGHT OR LESS USE 8" WALL. OVER 8' HEIGHT USE 12" WALL TO 6' FROM TOP OF WALL, 8" WALL FOR REMAINING 6'.
- INVERTS SHALL BE SHAPED TO FORM A SMOOTH, REGULAR SURFACE, SLOPED TO PREVENT SEDIMENTATION.

MIN. DIMENSIONS & QUANTITIES FOR MANHOLE					
PIPE DIM	CU. YDS. CONC.	TOTAL BRICK MASONRY CU. YDS.	CU YDS BRICK MASONRY PER FT. HT.	DEDUCTIONS FOR ONE PIPE (CU YDS)	
D	BASE	ABOVE S-L	BELOW S-L	C. M.	R. C.
	0.560	0.530	0.323		
15"				0.031	0.047
18"				0.044	0.065
24"				0.078	0.113
30"				0.122	0.170
36"	0.560	0.530	0.323	0.176	0.238

Fayetteville North Carolina — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

STANDARD BRICK MANHOLE 12" THRU 36" PIPE ADOPTED FROM N.C.D.O.T. STANDARD NO. 840.51

CAD FILE : STDBRKMH — **DR-7** — DATE 3/19/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.

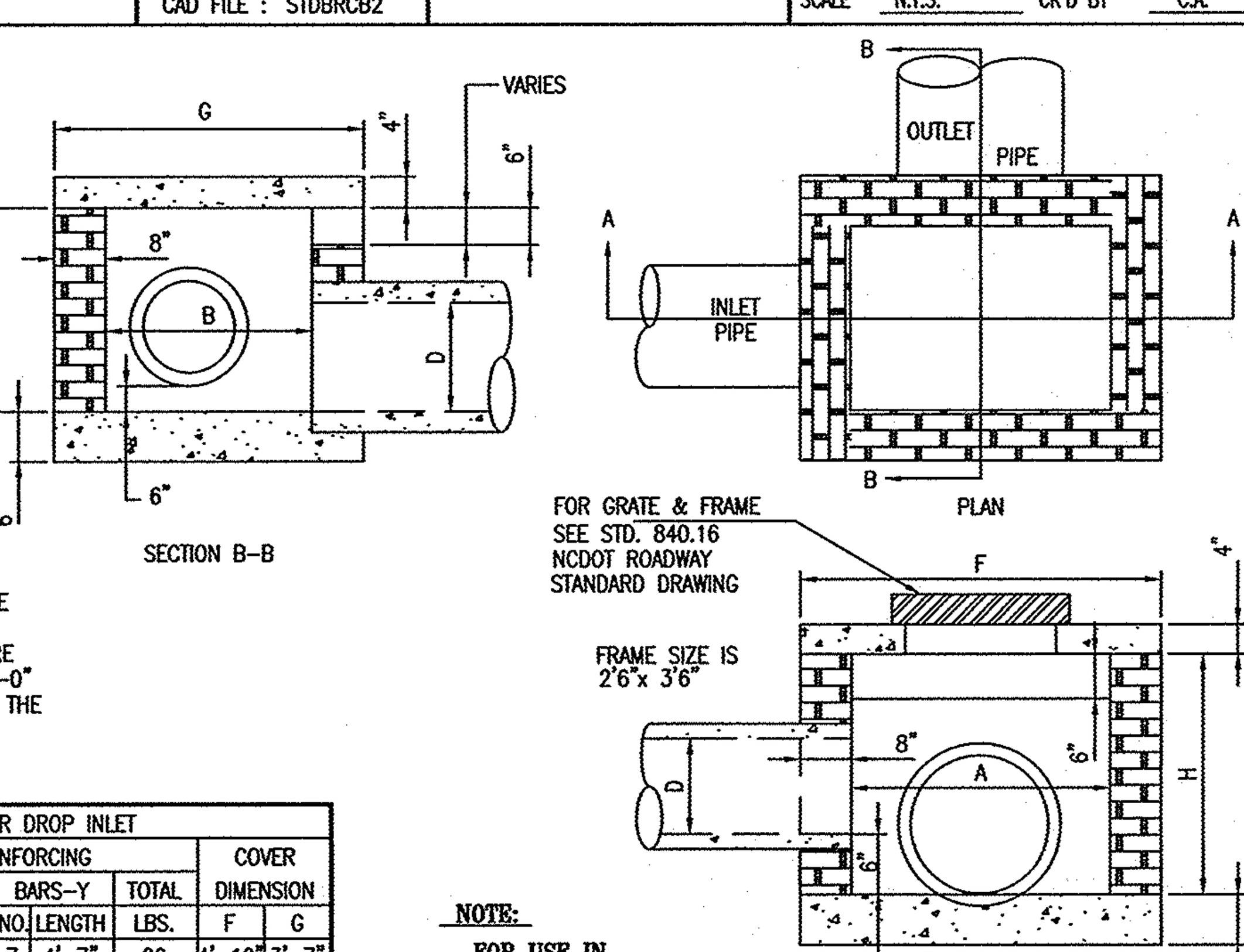
NOTES:

ALL BASINS OVER 3'-6" DEPTH SHALL BE PROVIDED WITH STEPS 1'-2" O.C.

EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1" MOTAR JOINTS SHALL BE 1/2" ± 1/8"

ALL EXPOSED JOINTS SHALL BE CONCAVE TOOLED

JUMBO BRICK, PRECAST CONCRETE, AND/OR PRECAST SEGMENTAL CONCRETE BLOCKS MAY BE USED TO CONSTRUCT BASIN, BASIN 8'-0" IN HEIGHT OR MORE SHALL HAVE A 12" WALL BEGINNING 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0" TO TOP OF WALL



MIN DIMENSIONS FOR DROP INLET										
DIM'S OF BOX & PIPE				REINFORCING					COVER DIMENSION	
PIPE	SPAN	WIDTH	HEIGHT	BARS-X		BARS-Y		TOTAL		
D	A	B	H(MIN)	NO.	LENGTH	NO.	LENGTH	LBS.	F	G
15"	3'-6"	2'-3"	2'-7"	2	3'-4"	7	4'-7"	26	4'-10"	3'-7"
18"	4'-0"	2'-8"	2'-11"	2	3'-9"	8	5'-1"	33	5'-4"	4'-0"
24"	4'-0"	2'-8"	3'-5"	2	3'-9"	8	5'-1"	33	5'-4"	4'-0"
30"	4'-0"	3'-6"	3'-11"	2	4'-7"	9	5'-1"	37	5'-4"	4'-10"
36"	4'-0"	3'-6"	4'-6"	2	4'-7"	9	5'-1"	37	5'-4"	4'-10"
42"	4'-0"	3'-6"	4'-11"	2	4'-7"	9	5'-1"	37	5'-4"	4'-10"
48"	4'-6"	4'-0"	5'-5"	2	5'-4"	10	5'-7"	45	5'-10"	5'-4"

NOTE:
FOR USE IN NON-TRAFFIC AREAS ONLY.

SHEET 2 OF 2

Fayetteville North Carolina — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION, 433 HAY ST. 28301, (910) 433-1656

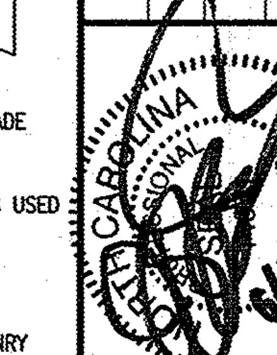
DROP INLET WITH GRATE (ON TOP) ADOPTED FROM NCDOT STANDARD NO. 840.15

CAD FILE : Dropnleta — **DR-11.1** — DATE 3/24/2008 DRAWN BY C.W. — SCALE N.T.S. CK'D BY C.A.

Drawn by D. Vaughn
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
Storm Drainage Details

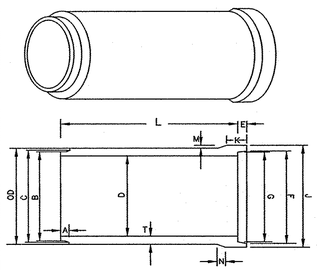
Date	By	Revision



MOORMAN, KIZER & REITZEL, INC.
ENGINEERS PLANNERS SURVEYORS
115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

Scale AS SHOWN
Book no.
Sheet D-1

SIZE D	T	L	POUNDS PER FOOT	ASTM SPEC. & CLASS	OD	A	B	C	E	F	G	J	K	M	N	PLANT
15	B2 1/4	8'	134	ASTM C76 III IV V	19 1/2	2	16 15/16	17 1/4	2	17 3/4	17	21 3/8	4 1/2	7/16	1 1/4	SR VN-KN
18	B2 1/2	8'	173	ASTM C76 III IV V	23	2	20	20 3/4	2	21 1/4	20 1/2	23 1/2	6 1/2	3/4	1 1/4	SR VN-KN
24	B3	8'	268	ASTM C76 III IV V	30	2 1/2	26 3/16	26 7/8	2 13/16	27 3/4	27	31 1/32	4 1/4	1/2	1 1/2	VN-KN SR
30	B3 1/2	8'	396	ASTM C76 III IV V	37	2 15/16	32 1/8	33 1/8	3	34 1/32	33 1/32	38 1/2	5 1/2	3/4	1 1/2	SR-K
36	B4	8'	543	ASTM C76 III IV V	44	3 3/4	39 1/4	39 29/32	3 13/16	40 19/32	40 5/16	46 1/2	6	1 1/4	2 11/16	SR-K



A MINIMUM OF 6" OF #57 WASHED STONE IS REQUIRED FOR ALL PIPE INSTALLATION. SEE CITY CITY OF FAYETTEVILLE STANDARD DETAIL DR-1.

MODIFIED TONGUE AND GROOVE

8 FOOT LENGTH

MORTAR OF FLEXIBLE PLASTIC TYPE JOINT

SPECIFICATIONS:

ASTM C 76-LATEST
NCDOT
REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS

LIFT HOLES STANDARD ON 36" AS ALLOWED PER ASTM SPECIFICATIONS

MINIMUM FILL UNDER ROADWAYS	
PIPE CLASS	MINIMUM FILL
CLASS III	2'
CLASS IV	1'
CLASS V	1'
FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE.	

Fayetteville Worksfirst — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (910) 433-1656

REINFORCED CONCRETE SEWER, STORM DRAIN AND CULVERT PIPE (15"-36")

CAD FILE : PIPESECT

DR-19

DATE 4/10/2014 DRAWN BY C.A.
SCALE N.T.S. CK'D BY C.A.

STANDARD MANHOLE RING AND COVER

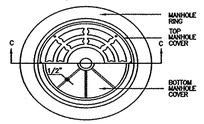
N.T.S.

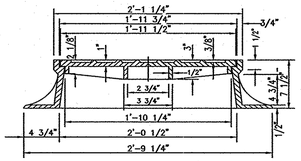
SPECIFICATIONS

1. MANHOLE RING AND COVER TO BE MADE OF GREY CAST IRON CONFORMING TO ASTM SPECIFICATIONS A 48-74, CLASS 30. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT WITHOUT BLOW OR SANDHOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
2. CASTINGS SHALL BE DIPPED WHILE IN HOT COAL TAR.
3. MANHOLE RING AND COVER TO WITHSTAND VEHICULAR TRAFFIC WITHOUT OBJECTIONABLE NOISE.
4. MINIMUM AVERAGE WEIGHT:
   FRAME: 170 LBS
   COVER: 120 LBS

DEWEY BROS., INC.-MH-RCR- 2001 OR APPROVED EQUAL

TOP OF MANHOLE





SECTION C - C

Fayetteville Worksfirst — ENGINEERING & MAINTENANCE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (919) 433-1656

STANDARD MANHOLE RING AND COVER ADOPTED FROM NCDOT STANDARD NO. 840.54 REVISION "C"

NO. 840.54

REVISION

DATE 10/03/95 DRAWN BY G.GODWIN
SCALE N.T.S. CK'D BY MLW

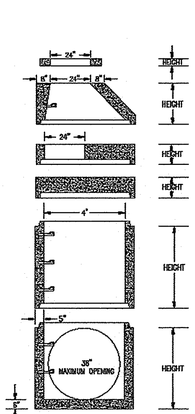
c:\clenwood\godwin\dwg\standard\mhrcover.dwg

CAD FILE : MHRCOVER

4 FOOT DIAMETER

FUQUAY VARINA PLANT SPECIFICATIONS:
ASTM C 478 - LATEST
AASHTO M 199 - LATEST
WITH AASHTO M-198 PREFORMED FLEXIBLE GASKET OR ASTM C-443 RUBBER GASKET JOINTS. REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS.

HEIGHT FEET	HEIGHT INCHES	WEIGHT POUNDS
GRADING RING		
.33'	4"	150
.50'	6"	235
ECCENTRIC CONE		
2.00'	24"	1695
3.00'	36"	2550
4.00'	48"	3400
FLAT TOP		
FLAT TOPS ARE AVAILABLE IN ECCENTRIC (AS SHOWN) AND CONCENTRIC UNITS. FLAT TOPS MEET H-20 LOADING.		
1.00'	12"	1700
SOLID FLAT TOP		
CUSTOM VENT OR METER OPENINGS PLACED PER CUSTOMER REQUEST. FLAT TOPS MEET H-20 LOADING.		
1.00'	12"	2000
RISER		
1.00'	12"	865
1.33'	16"	1150
2.67'	32"	2310
4.00'	48"	3460
5.33'	64"	4610
REGULAR MONOLITHIC BASE WITH 6" BASE INCLUDED IN HEIGHT SHOWN.		
2.67'	32"	3250
4.00'	48"	4400
5.33'	60"	5265



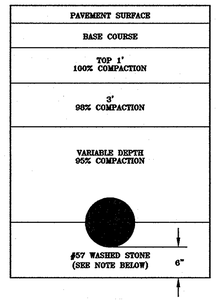
Fayetteville Worksfirst — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (910) 433-1656

PRECAST REINFORCED CONCRETE MANHOLE SECTIONS

CAD FILE: MHSECRC

DR-14

DATE 3/24/2020 DRAWN BY C.W.
SCALE N.T.S. CK'D BY C.A.



NOTES:
1. STONE BEDDING FOR PIPE IS REQUIRED UNLESS OTHERWISE APPROVED BY CITY ENGINEER OR THEIR DESIGNEE.

Fayetteville Worksfirst — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (910) 433-1656

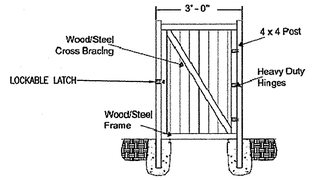
TYPICAL STORM DRAIN COMPACTION

CAD FILE: STMSCOMP

DR-1

DATE 8/29/2012 DRAWN BY C.A.
SCALE N.T.S. CK'D BY C.A.

WOOD FENCES & GATES 32 31 15



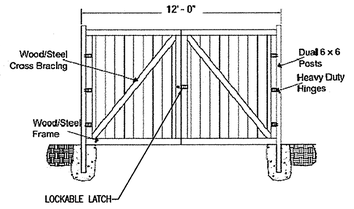
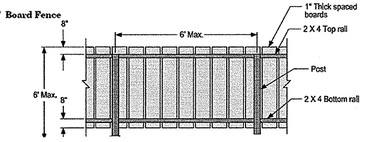


FIGURE 3 - Wood Truck Gate Detail

WOOD FENCES & GATES 32 31 15

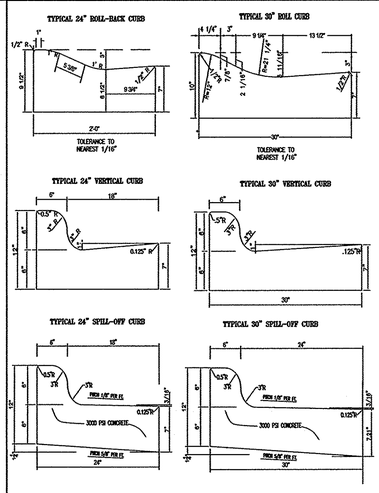
1. Shall open/close in direction as directed by Project Engineer.
2. Shall be configured to allow City vehicles to enter the enclosed area to perform inspections, work, etc.
3. Once gate is installed, coordinate with the City on lock installation.
4. Typical gate installation can be found in Figure 3 to the right.

Figure 2 / Board Fence



WOOD FENCE & GATES NOTES:

1. All wood materials shall be pressure treated wood, or Redwood, Douglas Fir, Cedar, or similar wood of a natural resistance to decay, as acceptable to the Project Engineer. Materials shall be free from loose knots, cracks, and other imperfections.
2. Wood boards or slats shall be a minimum of 3/8 inches thick and be no greater than 6 inches wide.
3. Buried post ends should be treated with an approved wood preservative product.
4. Gate stops and gate latches (and locks) shall be accessible from either side of the gate.
5. Vehicle Gate openings shall be a minimum of 12 feet wide.
6. All gates shall be approved by the Project Engineer prior to installation.
7. Hardware such as latches, hinges, bolts, etc. shall be stainless steel powdered coated black or galvanized. Configurations, sizes, etc. per manufacture's recommendations.
8. Gates shall be lockable from both sides and shall have the ability to be daisy-chained so as to allow multiple locks if necessary.
9. Set posts in 12 inch diameter concrete footings extending at least 24 inches into undisturbed natural ground, or properly compacted fill.



NOTE:
DUMMY GROOVE JOINTS EVERY 10'
EXPANSION JOINTS EVERY 30'

Fayetteville Worksfirst — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (910) 433-1656

24" & 30" CURB DETAILS

CAD FILE : 24_30curb

SD-1

DATE 6/10/2014 DRAWN BY CSA
SCALE N.T.S. CK'D BY CSA

Drawn by D. Vaughn
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
STORM DRAINAGE DETAILS

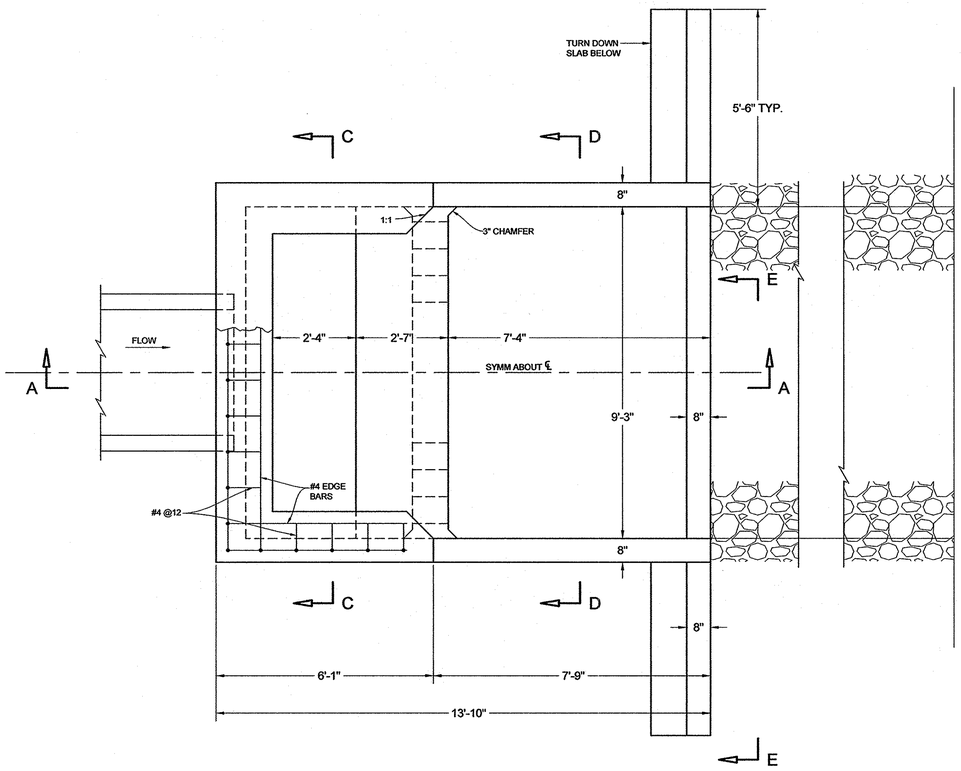
Revision	By	Date

115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

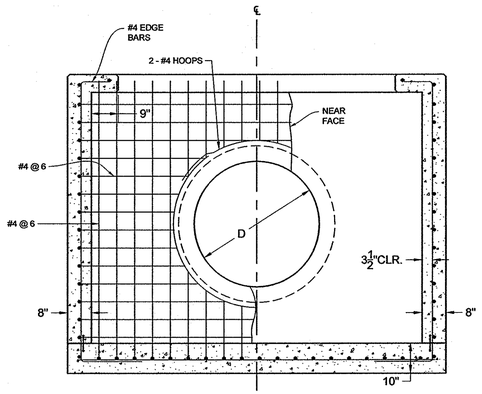
M&R
ENGINEERS
PLANNERS
SURVEYORS
MOORMAN, KIZER & REITZEL, INC.

Scale AS SHOWN
Book no.
Sheet D-2

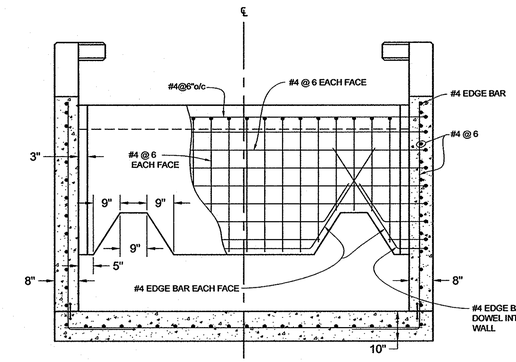
G:\Current Jobs\Fayetteville City of\11-1033-02 Paxton, Bridgeman & Godfrey Outfall - LaGrange Drainage Improvements\Plans - Revised 2016\Details.dwg, 8/1/2016 3:32:49 PM, Canon IPF765 (Downstairs)36x24.pc3



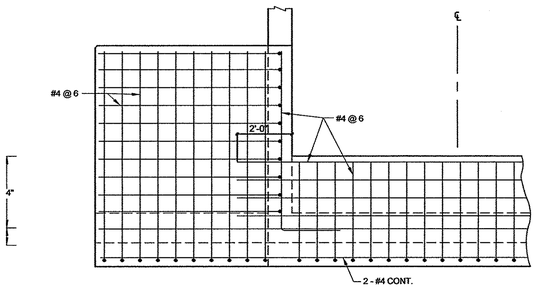
TOP PLAN VIEW
1/2" = 1'-0"



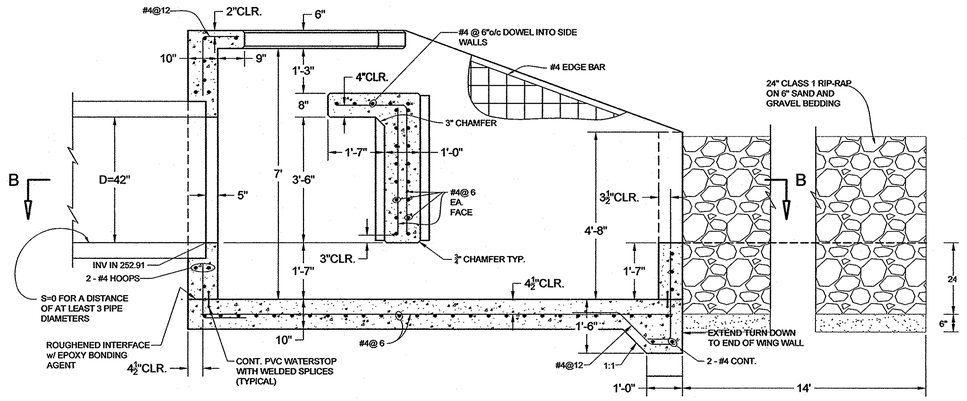
SECTION C-C



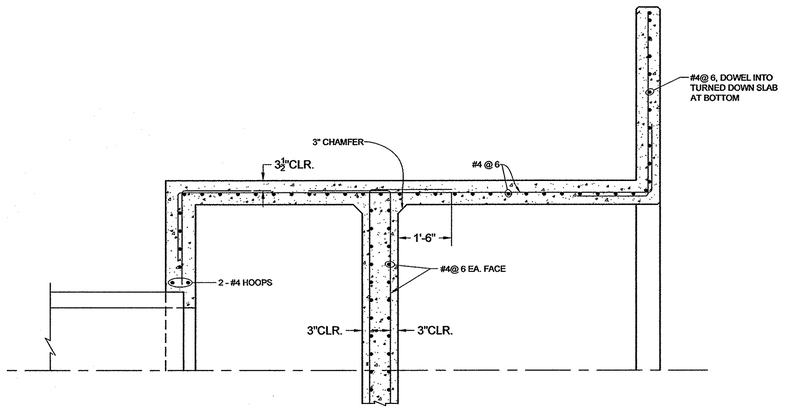
SECTION D-D



SECTION E-E



SECTION A-A



SECTION B-B

GENERAL NOTES

1. CONCRETE STRENGTH f'c = 4500psi
2. WATER CEMENT RATIO = 0.4
3. MAXIMUM SLUMP = 4 INCHES
4. DOWEL ALL WALL BARS AND SLAB BARS INTO INTERSECTING WALLS.

1 0.5 0 1 2 3
SCALE 1/2" = 1'

drawn by	FNM
checked	D.VAUGHN
reviewed	D.VAUGHN
date	JULY2016
job no.	11-1033-02

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
OUTLET BAFFLE STRUCTURE

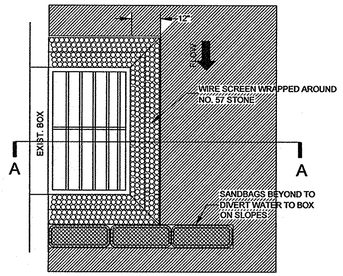
no.	revision	by	date

ENGINEERS
PLANNERS
SURVEYORS
MOORMAN, KIZER & REITZEL, INC.
115 Broadfoot Ave.
P.O. Box 53774
Fayetteville, N.C., 28305
Phone 910-484-5191
License #: F-0106

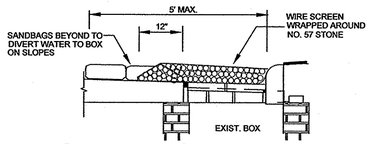
scale 1/2"=1'
Field Book No.
SHEET D-3

FIG6-16TYPE6BAFFLEDOUTLET.DWG

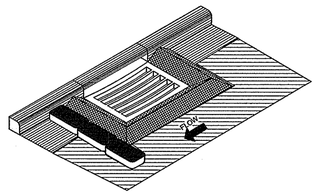
G:\Current Jobs\Fayetteville City of\11-1033-02 Paxton, Bridgeman & Godfrey Outfall - Lagrange Drainage Improvements\Plans - Revised 2016\Baffle Structure.dwg, 6/1/2016 1:59:52 PM, Canon IR7105 (Downstairs)16x24.pc3



PLAN



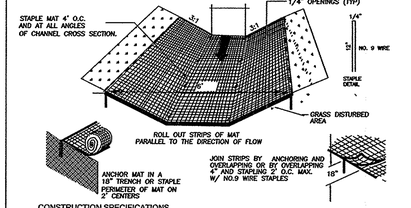
SECTION "A-A"



NOTES:

1. INLET PROTECTION SHALL BE INSTALLED IN LOCATIONS AS INDICATED ON THE PLAN.
2. CONTRACTOR SHALL PERIODICALLY AND AFTER EACH RAINFALL EVENT REMOVE SEDIMENT AND OTHER DEBRIS FROM AROUND BASIN.
3. SANDBAGS SHALL BE INSTALLED ADJACENT TO INLETS ON SLOPES, SANDBAGS SHALL NOT BE INSTALLED ADJACENT TO BASINS IN LOW AREAS.

CATCH BASIN INLET PROTECTION NTS



CONSTRUCTION SPECIFICATIONS

Grade the surface of installation, follow the steps for seed bed preparation, soil amendments, and seeding in Surface Stabilization, 6.1. All gullies, rills and any other disturbed areas must be fine graded prior to installation. Spread seed before RECP installation. (Important: Remove all large rocks, dirt clods, stumps, roots, grass clumps, trash and other obstructions from the soil surface to allow for direct contact between the soil surface and the RECP.)

Terminal anchor trenches are required at RECP ends and intermittent trenches must be constructed across channels at 25-foot intervals. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width, while intermittent trenches need be only 6 inches deep and 6 inches wide.

Installation for Slopes - Place the RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down (or along) the slope maintaining direct contact between the soil and the RECP. Overlap adjacent rolls a minimum of 3 inches. Pin the RECP to the ground using staples or pins in a 3 foot center-to-center pattern. Less frequent stapling/pinning is acceptable on moderate slopes.

Installation in Channels - Excavate terminal trenches (12 inches deep and 6 inches wide) across the channel at the upper and lower end of the lines channel section. At 25 foot intervals along the channel, anchor the RECP across the channel either in 6 inch by 6 inch trenches or by installing two closely spaced rows of anchors. Excavate longitudinal trenches 6 inches deep and wide along channel edges (above water line) in which to bury the outside RECP edges. Place the first RECP at the downstream end of the channel. Place the end of the first RECP in the terminal trench and pin it at 1 foot intervals along the bottom of the trench

Note: The RECP should be placed upside down in the trench with the roll on the downstream side of the bench.

Once pinned and backfilled, the RECP is deployed by wrapping over the top of the trench and unrolling upstream. If the channel is wider than the provided rolls, place ends of adjacent rolls in the terminal trench, overlapping the adjacent rolls a minimum of 3 inches. Pin at 1 foot intervals, backfill and compact. Unroll the RECP in the upstream direction until reaching the first intermittent trench. Fold the RECP back over itself, positioning the roll on the downstream side of the trench, and allowing the mat to conform to the trench.

Then pin the RECP (two layers) to the bottom of the trench, backfill and compact. Continue up the channel (wrapping over the top of the intermittent trench) repeating this step at other intermittent trenches, until reaching the upper terminal trench.

At the upper terminal trench, allow the RECP to conform to the trench, secure with pins or staples, backfill, compact and then bring the mat back over the top of the trench and onto the existing mat (2 to 3 feet overlap in the downstream direction), and pin at 1 foot intervals across the RECP. When starting installation of a new roll, begin in a trench or shingle-lap ends of rolls a minimum of 1 foot with upstream RECP on top to prevent uplifting. Place the outside edges of the RECP(s) in longitudinal trenches, pin, backfill and compact.

Anchoring Devices - 11 gauge, at least 6 inches length by 1 inch width staples or 12 inch minimum length wooden staked are recommended for anchoring the RECP to the ground.

Drive staples or pins so that the top of the staple or pin is flush with the ground surface. Anchor each RECP every 3 feet along its center. Longitudinal overlaps must be sufficient to accommodate a row of anchors and uniform along the entire length of overlap and anchored every 3 feet along the overlap length. Roll ends may be spliced by overlapping 1 foot (in the direction of water flow), with the upstream/upslope mat placed on top of the downstream/downslope RECP. This overlap should be anchored at 1 foot spacing across the RECP. When installing multiple width mats heat seamed in the factory, all factory seams and field overlaps should be similarly anchored.

MAINTENANCE

1. Inspect Rolled Erosion Control Products at least weekly and after each significant (1/2 inch or greater) rainfall event repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

INTEGRAL STRAW MAT & FABRIC DETAIL
N.T.S.

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK. (NO SEPARATE PAYMENT).

2. THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.

3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.

4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND PERMIT SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS, STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND TO NCDENR REGIONAL OFFICE FOR APPROVAL. CONTRACTOR SHALL PAY ALL FEES REQUIRED AND SHALL INSTALL NECESSARY MEASURES AT NO SEPARATE PAYMENT. THE CONTRACTOR SHALL PROVIDE THE OWNER AND THE ENGINEER A COPY OF THE AMENDED PERMIT.

6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY EITHER NCDENR OR THE ENGINEER. (NO SEPARATE PAYMENT).

7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

8. ALL AREAS DISTURBED BY CONSTRUCTION UNLESS OTHERWISE IMPROVED SHALL BE SODDED OR SEEDED AS INDICATED AND STABILIZED.

9. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OUTLET.

10. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED BY CONTRACTOR ONCE STABILIZATION OR A SUFFICIENT GROUND COVER HAS BEEN ESTABLISHED OR AS DIRECTED BY THE ENGINEER. (NO SEPARATE PAYMENT). NCDENR'S FINAL APPROVAL IS REQUIRED.

12. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA. (NO SEPARATE PAYMENT).

13. WHEN CROSSING CREEK OR DRAINAGE-WAY, THE CONTRACTOR SHALL RIP-RAP WITH FABRIC DISTURBED BANKS AND CHANNEL AND RESTORE SLOPES TO ORIGINAL CONTOURS, BUT NOT STEEPER THAN 2:1 MAXIMUM. DISTURBED CREEK AREA SHALL BE STABILIZED IMMEDIATELY.

GENERAL EROSION
AND SEDIMENT CONTROL NOTES

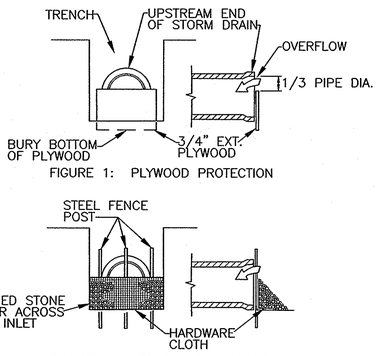


FIGURE 1: PLYWOOD PROTECTION

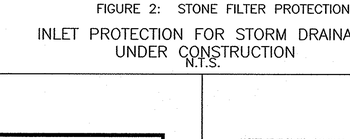
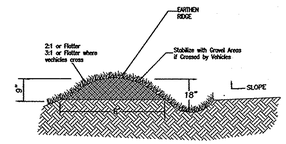


FIGURE 2: STONE FILTER PROTECTION

INLET PROTECTION FOR STORM DRAINAGE
UNDER CONSTRUCTION
N.T.S.



DESIGN CRITERIA:

Height: 18" Minimum from Channel Bottom to Ridge Top

Side Slope: 2:1 or flatter
3:1 or flatter where vehicles cross

Base Width of Ridge: 6' minimum

Spacing of Water Bars:

Slope(%)	Spacing(ft)
<5	125
5 to 10	100
10 to 20	75
20 to 35	50
>35	25

Grade and Angle: Crossing angle selected to provide a positive grade not to exceed 2%

Outlet: Diversions should have stable outlets, either natural or constructed. Site spacing may need to be adjusted for field conditions to use the most suitable areas for water disposal.

NOTES:

1. Install the diversion as soon as the right-of-way has been cleared and graded.
2. Disk the base for the constructed ridge before placing fill.
3. Track the ridge to compact it to the design cross section.
4. Locate the outlet on an undisturbed area. Adjust field spacing of the diversion to use the most stable outlet areas. When natural areas are not deemed satisfactory, provide outlet protection (Practices 6.40, Level Spreader, and 6.41, Outlet Stabilization Structure).
5. Immediately seed and mulch the portions of the diversions not subject to construction traffic. Stabilize with gravel areas to be crossed by vehicles.

MAINTENANCE:

Periodically inspect right-of-way diversions for wear and after every heavy rainfall for erosion damage. Immediately remove sediment from the flow area and repair dike. Check outlet areas and make timely repairs as needed. When permanent road drainage is established and the area above the temporary right-of-way diversions is permanently stabilized, remove the dike and fill the channel to blend with the natural ground, and appropriately stabilize the disturbed area.

R/W DIVERSION (WATER BAR)
NTS

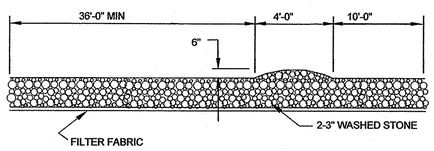
CONSTRUCTION SPECIFICATIONS

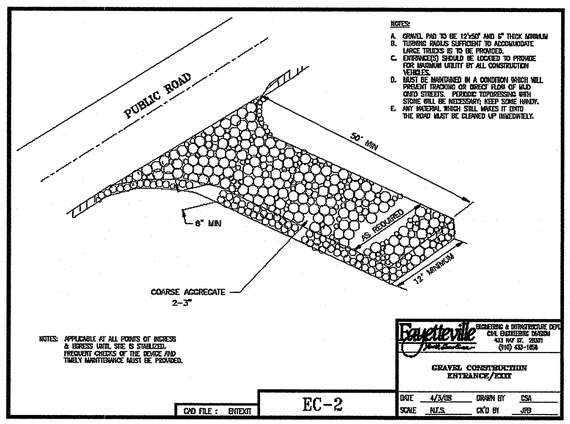
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics because they improve stability of the foundation in locations subject to seepage or high water table.

MAINTENANCE

Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2-inch stone. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary. Immediately remove all objectionable materials spilled, washed, or tracked onto public roadways.

GRAVEL ENTRANCE SHALL BE 50 FEET
IN LENGTH AND 20 FEET IN WIDTH
WITH 20 FOOT RADIUS AT EXISTING
ROADWAY





TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
N.T.S.

SILTSACK
SPECIFICATIONS

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.

REGULAR FLOW SILTSACK ®
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

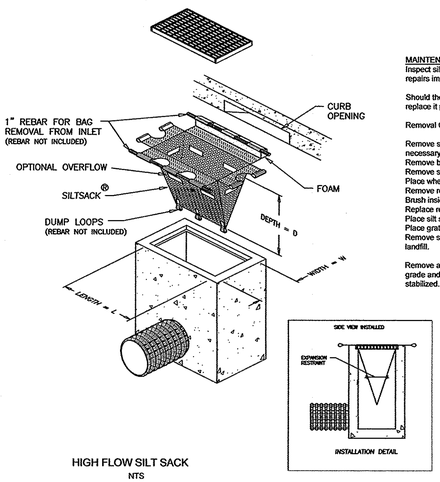
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

HI-FLOW SILTSACK ®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

OIL-ABSORBANT SILTSACK ®
(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

DEPENDING ON YOUR PARTICULAR APPLICATION, THE SILTSACK CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK® WITH A WOVEN PILLOW INSERT.



HIGH FLOW SILT SACK
NTS

MAINTENANCE

Inspect silt sack at least once a week and after each rainfall. Make any required repairs immediately.

Should the fabric of a silt sack collapse, tear, decompose or become ineffective, replace it promptly.

Removal Of Accumulated Silt

Remove sediment deposits, soil on flaps and around foam at inlet opening as necessary .
Remove basin cover grate.
Remove silt sack by attaching cables to rebar for lifting
Place wheel barrow or similar device under bag.
Remove rebar from dump loops and empty bag.
Brush inside of bag to remove soil materials left after dumping operation.
Replace rebar in dump loops.
Place silt sack in basin, insure emptying flaps are flat
Place grate insure sack is properly positioned in inlet.
Remove soil from wheel barrow and haul to approved disposal area or permitted landfill.

Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

Drawn by D. Vaughn
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
EROSION CONTROL DETAILS

Revision	By	Date

M&R
ENGINEERS
PLANNERS
SURVEYORS
MOORMAN, KIZER & REITZEL, INC.
115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

Scale AS SHOWN
Book no.
Sheet D-4

Fertilizer Topdressing:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 written approval of the Engineer, a different analysis of fertilizer may be used provided grade and shall be applied at the rate of 500 pounds per acre (560kg per hectare). Upon the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre (560 kg per hectare). Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis.

Crimping Straw Mulch:

Crimping will be required on these project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet (2 meters) of the edge of pavement, straw is to be crimped and the immediately tacked with asphalt tack.

Crimping of straw in lieu of asphalt tack will be allowed on this project subject to the following conditions:

All areas seeded and mulched shall be crimped and/or tacked with asphalt as directed by the Engineer.

Crimping will be limited to slopes 4:1 or flatter unless the Contractor can demonstrate to the Engineer that the steeper slopes can be negotiated without altering the typical section.

Straw mulch to be of sufficient length and quality to withstand the crimping operation and provide adequate ground cover.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8 inches (200 mm).

MAINTENANCE SCHEDULE:

1. All erosion and sediment control practices will be checked for stability and operation following every storm event, but in no case less than once every week. Any repairs or cleaning necessary to maintain erosion and sediment control practices shall be completed immediately.

2. All seeded areas will be refertilized, reseeded as necessary, and mulched according to the

The kinds of seed and fertilizer, and the rates of application of seed, ferilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined by the Engineer. All rates per acre (kilograms per hectare.)

March 1 - August 31	September 1 - February 28
50# (55kg) Tall Fescue	50# (55kg) Tall FEscue
5# (6kg) Centipede	5# (6kg) Centipede
25# (28kg) Bermudagrass (hulled)	35# (40kg) Bermudagras (unhulled)
500# (560kg) Fertilizer	500# (560kg) Fertilizer
4000# (4500kg) Limestone	4000# (4500kg) Limestone

Slopes 2:1 and Steeper and Waste and Borrow Locations:

March 1 - August 31	September 1 - February 28
75# (85kg) Tall Fescue	75# (85kg) Tall Fescue
25# (28kg) Bermudagrass (hulled)	35# (40kg) Bermudagras (unhulled)
500# (560kg) Fertilizer	500# (560kg) Fertilizer
4000# (4500kg) Limestone	4000# (4500kg) Limestone

PERMANENT SEEDING SPECIFICATION

1. All disturbed areas shall be dressed to typical sections and plowed to a depth of 5 inches. The top 2 inches shall be pulverized to provide uniform seedbed. NOTE: Lime should be applied with necessary equipment to give uniform distribution of these materials. The hand-bucket method is not acceptable. Lime and fertilizer should be incorporated into the soil prior to

2. The following are rates and kinds of these materials to be applied PER ACRE:

KIND	RATES
Abruzzi Rye	50 lbs.
Pensacola Bahiagrass	50 lbs.
Kentucky 31 Fescue	50 lbs.
Korean Lespedeza	15 lbs.
Centipedegrass	50 lbs.
Common Bermudagrass	25 lbs.
10-20-20 Fertilizer	500 lbs.
Agricultural Limestone	4000 lbs.

3. Seeded area shall be cultipacked to firm seedbed and to cover seed.

4. Grain straw shall be applied over seeded areas as mulch. No bare ground shall be visible in the mulched area if proper applications is achieved. Thick clumps of straw are not permissible as uniform coverage is expected. Straws shall be applied at a minimum of 4000

5. The mulched area shall be tacked with liquid asphalt sufficient too hold straw in place where directed by Engineer.

6. Ditch treatment shall be used in areas where steep grades could cause ditch erosion. Use of jute mesh, excelsior matting, or fiberglass roving is acceptable. ditch treatment should be installed before mulching operation.

7. Builder is to provide a permanent ground cover sufficient to restrain erosion on such exposed areas within 15 working days or 90 calendar days, whichever is shorter, after completion of construction or development.

Approved Tall Fescue Cultivars:

Anthem	Adventure	Adventure II	Amigo
Austin	Apache	Apache II	Arid
Chapel Hill	Brookstone	Bonanza	Bonanza II
Crossfire II	Chesapeake	Chieftain	Coronado
Falcon	Debutante	Duster	Falcon
Genesis	Finelawn Petite	Finelawn	Finelawn I
Jaguar	Grande	Guardian	Houndog
Monarch	Jaguar III	Kentucky 31	Kitty Hawk
Pacer	Montauk	Mustang	Olympic
Rebel	Phoenix	Pixie	Pyramid
Safari	Rebel Jr.	Rebel II	Renegade
Tomahawk	Shenandoah	Tempo	Titan
Wolfpack	Trailblazer	Tribute	Vegas
	Wrangler		

Fertilizer shall be 10-20-20 analysis. Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis.

TEMPORARY SEEDING RECOMMENDATIONS (a)

Winter and Early Spring

SEEDING MIXTURE

SPECIES	RATE (LB./ACRE)
Rye (grain)	120
Annual lespedeza (kobe in Piedmont and Coastal Plain, Korean in Mountains)	50

Omit annual lespedeza when duraton of temporary cover is not to extend beyond June.

SEEDING DATES

Mountains--Above 2500 ft. Feb. 15-May 15
Below 2500 ft. Feb. 1-May 1
Piedmont--Jan. 1-May 1
Coastal Plain--Dec. 1-Apr. 15

SOIL AMENDMENTS

Follow recommendations of soil tests or apply 2,000 lb./acre ground agriculture limestone and 750 lb./acre 10-10-10 fertilizer.

MULCH

Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

MAINTENANCE

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

TEMPORARY SEEDING RECOMMENDATIONS (b)

Summer

SEEDING MIXTURE

SPECIES	RATE (LB./ACRE)
German millet	40

In the Piedmont and Mountains, a small-stemmed Sudangrass may by substituted at a rate of 50 lb./acre.

SEEDING DATES

Mountains--May 15-Aug. 15
Piedmont--May 1-Aug. 15
Coastal Plain--Apr. 15-Aug. 15

SOIL AMENDMENTS

Follow recommendations of soil tests or apply 2,000 lb./acre ground agriculture limestone and 750 lb./acre 10-10-10 fertilizer.

MULCH

Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

MAINTENANCE

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

TEMPORARY SEEDING RECOMMENDATIONS (c)

Fall

SEEDING MIXTURE

	RATE (LB./ACRE)
Rye (grain)	120

SEEDING DATES

Mountains--Aug. 15-Dec. 15
Coastal Plain and piedmont--Aug. 15-Dec. 30

SOIL AMENDMENTS

Follow soil tests or apply 2,000 lb./acre ground agricultural limestone and 1,000 lb./acre 10-10-10 fertilizer.

Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

MAINTENANCE

Repair and refertilize damaged areas immediately. Topdress with 50 lb./acre of nitrogen in march. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lb./acre Kobe (Piedmont and Costal Plain) or korean (Mountains) lespedza in late February or early March.

WETLAND CONSTRUCTION REQUIREMENTS

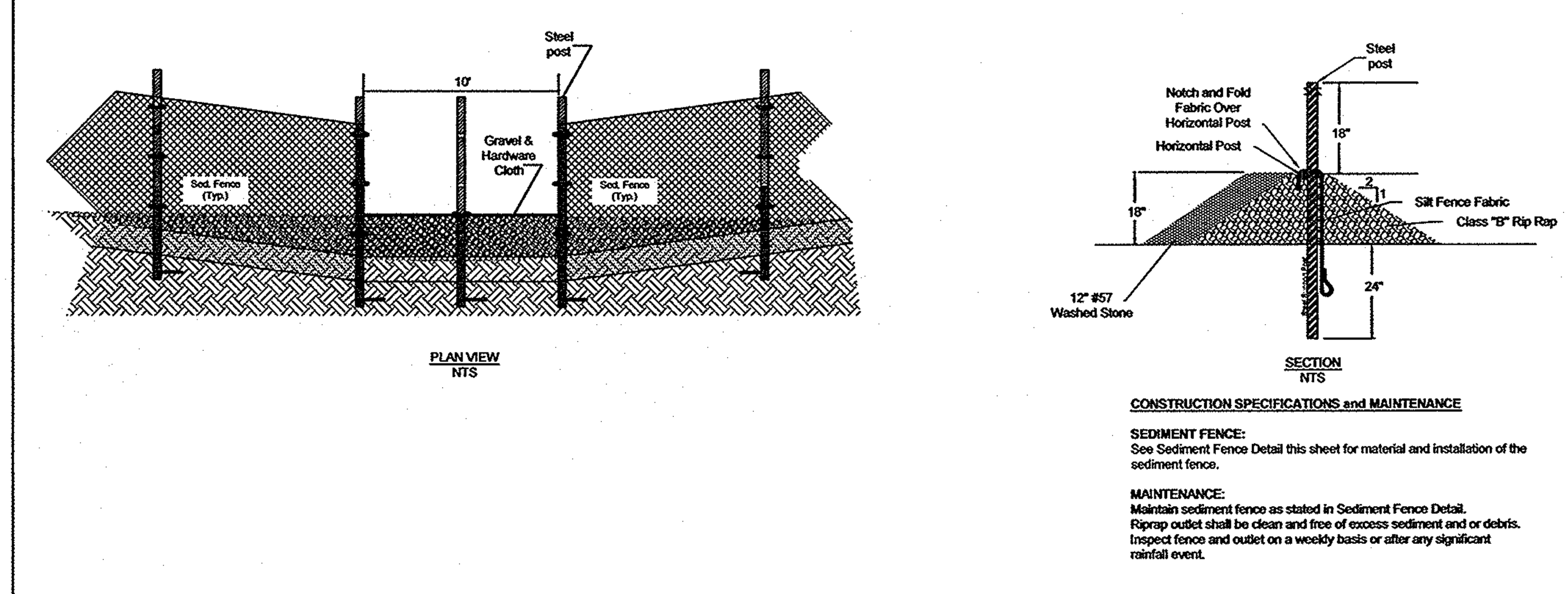
1. CONSTRUCTION LIMITS/CORRIDOR (INCLUDING ROADS AND STOCKPILE AREA) TO A MAXIMUM 40 FOOT WIDTH.
2. POST CONSTRUCTION GROUND CONTOURS AND ELEVATIONS MUST BE RESTORED TO THE ORIGINAL ELEVATIONS.
3. THE TOP 6" TO 12" OF THE TRENCH SHALL BE BACKFILLED WITH THE TOPSOIL AND/OR SOIL EXISTING PRIOR TO CONSTRUCTION.
4. EXCESS MATERIAL MUST BE REMOVED TO UPLAND AREAS AND DISPOSED OF OFF-SITE. TEMPORARY PLACEMENT/STOCKPILE FOR ABSOLUTE MINIMUM PERIOD OF TIME.
5. DISTURBED SLOPES AND STREAM BANKS MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF THE UTILITY LINE OR IMMEDIATELY AT EACH STREAM CROSSING.
6. NOTIFY COE DISTRICT ENGINEER AND RECEIVE WRITTEN APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
7. INSTALL ANTI-SEEP COLLARS EVERY 150 FEET OR AS SHOWN ON PLANS.
8. NO FERTILIZER SHALL BE APPLIED WITHIN 10 FEET OF STREAM.
9. NO FRESH CONCRETE SHALL BE IN CONTACT WITH STREAMS.
10. SEEDING SHALL BE IN ACCORDANCE WITH THE SPECIFIED MIXTURE FOR WETLAND AREAS.

WETLAND CONSTRUCTION REQUIREMENTS	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1 · DWG. NO. N-5 · DWG. BY: PWC · DATE: JULY 01, 2011 · APPROVED BY: J.E.O.	WATER RESOURCES ENGINEERING DEPARTMENT			

2011 N5 WETLAND_NOTES.dwg

Dates	Types	Rate
April 1 - July 15	*Warm Season Mix* Switchgrass, Cave-in-rock, Alamo	8 pls #/acre or 4 oz./1000 s.f.
	Smartweed; and	2 bulk #/acre or 1 oz./1000 s.f.
	Japanese Millet or Sorghum Sudan Grass Hybrids (Mow prior to maturity)	20-lb/acre or ½ lbs/1000 s.f.
July 16 - Sept 1	Temporary crop of Japanese Millet or Sorghum Sudan Grass Hybrids (To be followed by permanent mixture)	20-lb/acre or ½ lbs/1000 s.f.
Sept 2 - Nov 1	*Cool Season Mix* Reed Canary Grass	12 bulk #/acre or 6 oz./1000 s.f.
	Smartweed	2 bulk #/acre or 1 oz./1000 s.f.
Nov 2 - March 31	Temporary Crop of Wheat (To be followed by permanent mixture)	40 lbs/acre

WETLANDS SEEDING MIX

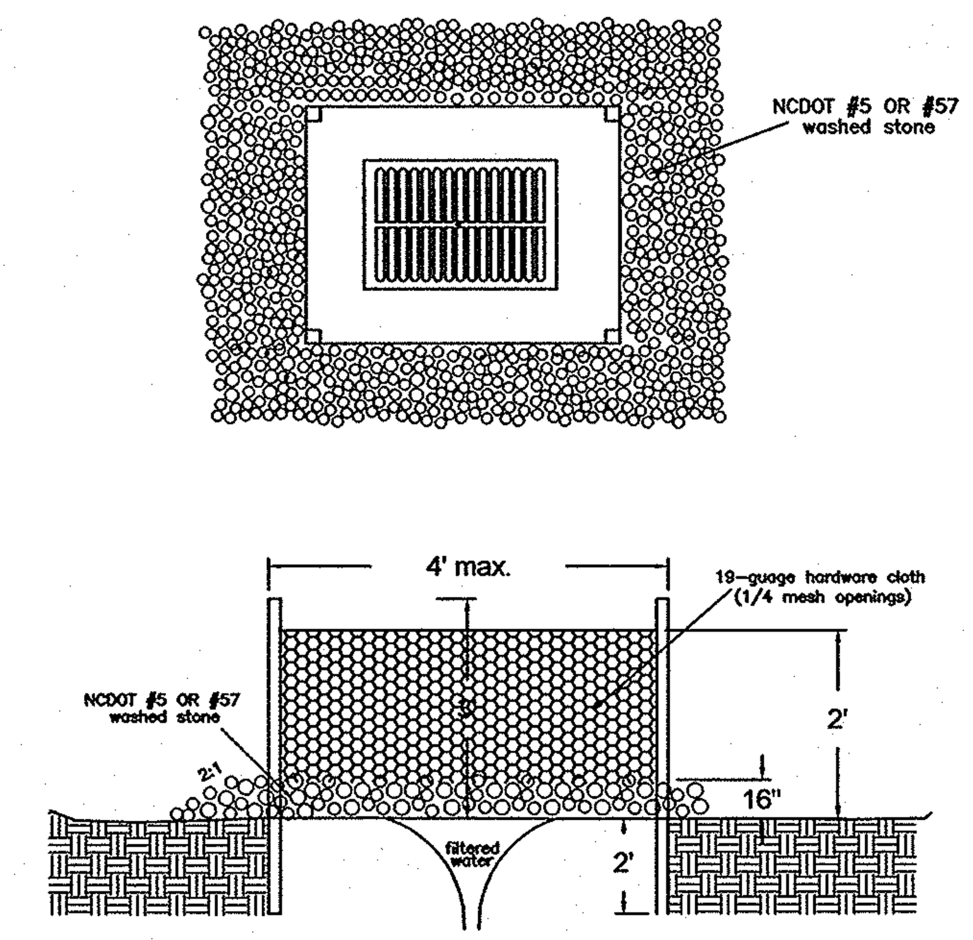


CONSTRUCTION SPECIFICATIONS and MAINTENANCE

SEDIMENT FENCE:
See Sediment Fence Detail this sheet for material and installation of the sediment fence.

MAINTENANCE:
Maintain sediment fence as stated in Sediment Fence Detail. Riprap outlet shall be clean and free of excess sediment and or debris. Inspect fence and outlet on a weekly basis or after any significant rainfall event.

REINFORCED SEDIMENT FENCE OUTLET
NTS



HARDWARE CLOTH & GRAVEL INLET PROTECTION

CONSTRUCTION SPECIFICATIONS

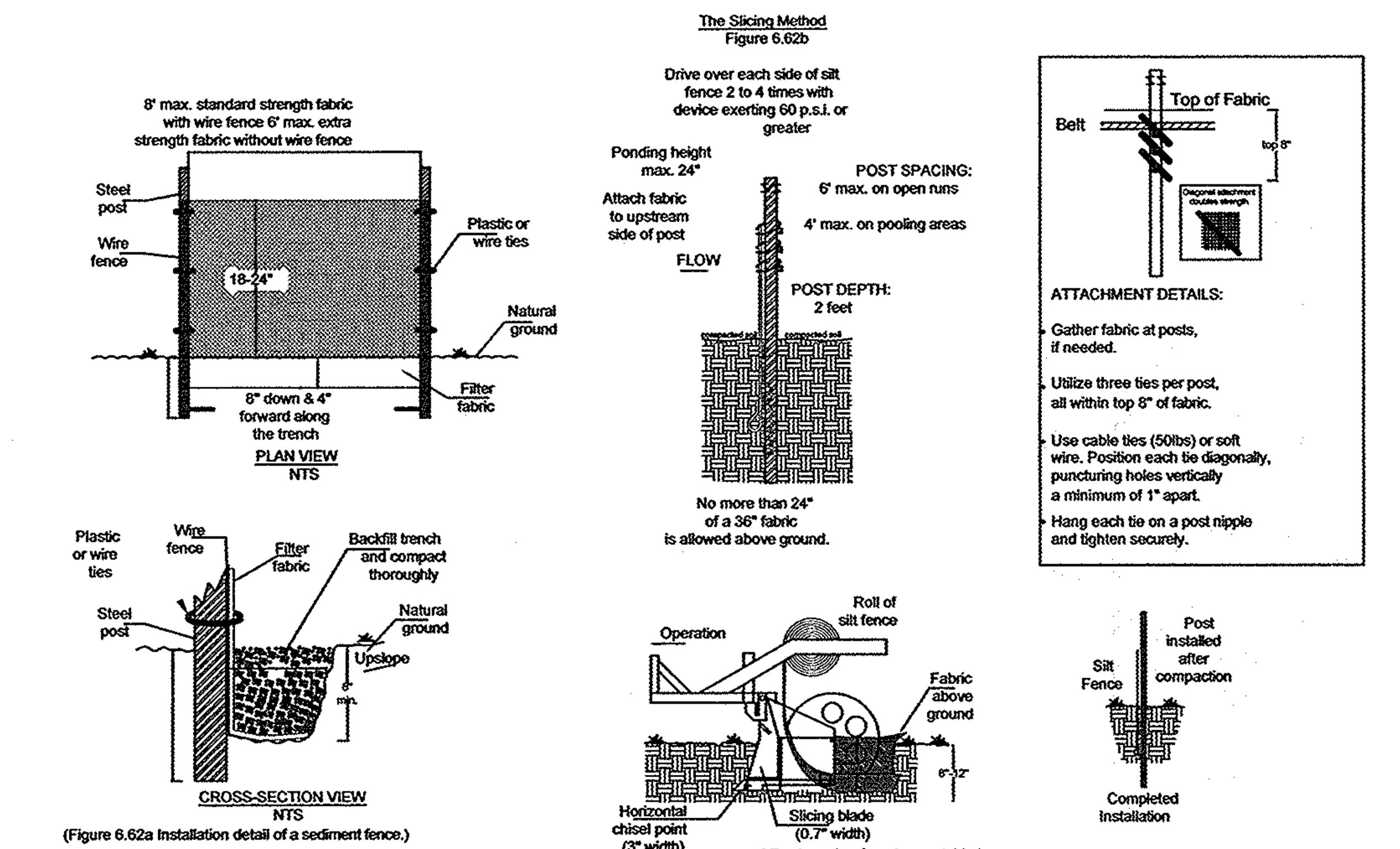
1. Uniformly grade a shallow depression approaching the inlet.
2. Drive 5-foot steel posts 2 feet into the ground surrounding the inlet. Space posts evenly around the perimeter of the inlet, a maximum of 4 feet apart.
3. Surround the posts with wire mesh hardware cloth. Secure the wire mesh to the steel posts at the top, middle and bottom. Placing a 2-foot flap of the wire mesh under the gravel for anchoring is recommended.
4. Place clean gravel (NC DOT #5 or #57 stone) on a 2:1 slope with a height of 16 inches around the wire, and smooth to an even grade.
5. Once the contribution drainage area has been stabilized, remove accumulated sediment, and establish final grading elevations.
6. Compact the area properly and stabilize it with ground cover.

MAINTENANCE

Inspect inlets at least weekly and after each significant (1/2 inch or greater) rainfall event. Clear the mesh wire of any debris or other objects to provide adequate flow for subsequent rains. Take care not to damage or undercut the wire mesh during sediment removal. Replace stone as needed.

HARDWARE CLOTH & GRAVEL INLET PROTECTION

NTS



SEDIMENT FENCE
NTS

CONSTRUCTION SPECIFICATIONS

MATERIALS
1. Use a synthetic filter fabric of at least 95% by weight of polyolefins or polyester, which is certified by the manufacturer or supplier as conforming to the requirements in ASTM D 6461, which is shown in part in Table 6.62b (Refer to the Erosion and Sediment Control Planning and Design Manual, Chapter 6, Section 62.2).

Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120° F.

2. Ensure that posts for sediment fences are 1.33 lb/linear ft steel with a minimum length of 5 feet. Make sure that steel posts have projections to facilitate fastening the fabric.

3. For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.

CONSTRUCTION
1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.

2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)

3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.

4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have minimum 50 pound tensile strength.

5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Support posts should be driven securely into the ground a minimum of 24 inches.

6. Extra strength filter fabric with 6 feet post spacing does not require wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have minimum 50 pound tensile strength.

7. Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and upslope from the barrier (Figure 6.62a).

8. Place 12 inches of the fabric along the bottom and side of the trench.

9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.

10. Do not attach filter fabric to existing trees.

SEDIMENT FENCE INSTALLATION USING THE SLICING METHOD
Instead of excavationg a trench, placing fabric and then backfilling trench, sediment fence mayh be installed using specially designed equipment that inserts the fabric into a cut sliced in the ground with a disc (Figure 6.62b).

INSTALLATION SPECIFICATIONS
1. The base of both end posts should be at least one foot higher than the middle of the fence. Check with a level if necessary.

2. Install posts 4 feet apart in critical areas and 6 feet apart on standard applications.

3. Install posts 2 feet deep on the downstream side of the silt fence, and as close as possible to the fabric, enabling posts to support the fabric from upstream water pressure.

4. Install posts with the nipples facing away from the silt fabric.

5. Attach the fabric to each post with three ties, all spaced within the top 8 inches of the fabric. Attach each tie diagonally 45 degrees through the fabric, with each puncture at least 1 inch vertically apart. Also, each tie should be positioned to hang on a post nipple when tightened to prevent sagging.

6. Wrap approximately 6 inches of fabric around the end posts and secure with 3 ties.

7. No more than 24 inches of a 36 inch fabric is allowed above ground level.

8. The installation should be checked and corrected for any deviations before compaction.

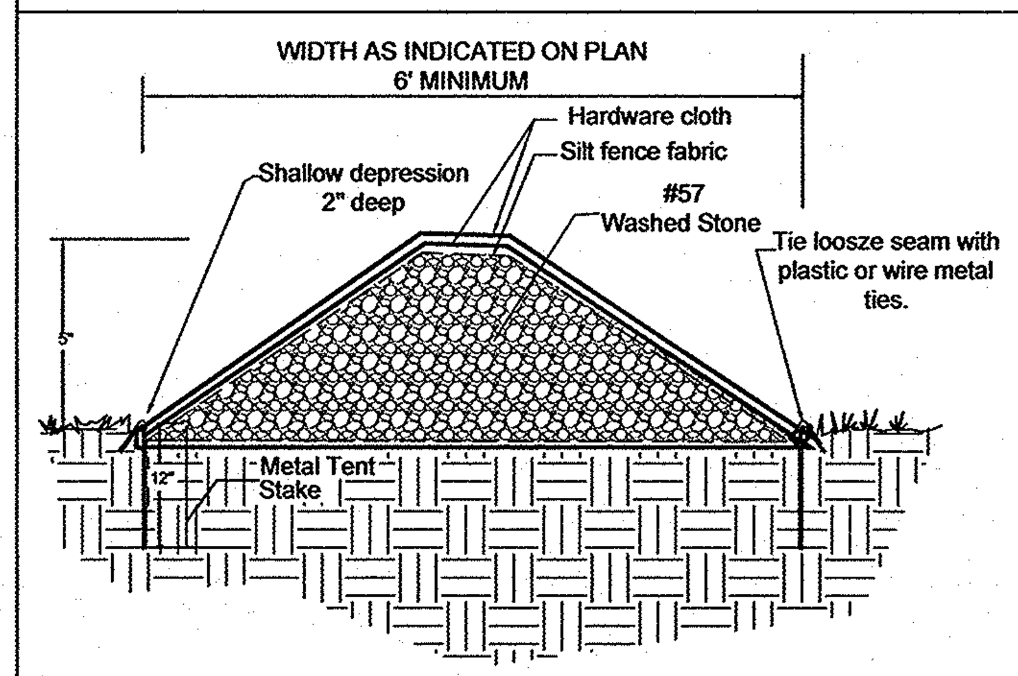
9. Compaction is vitally important for effective results. Compact the soil immediately next to the silt fence fabric with the front wheel of the tractor, skid steer, or roller exerting at least 60 pounds per square inch. Compact the upstream side first, and then each side twice for a total of 4 trips.

MAINTENANCE
Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.

Should the fabric of a sediment fence collapse, tear, decompose or become ineffective, replace it promptly.

Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid undermining the fence during cleanout.

Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.



GRAVEL WRAPPED IN HARDWARE CLOTH

CONSTRUCTION SPECIFICATIONS
1. Uniformly grade a shallow depression below middle 1/3 of device when the device is placed on soil.
2. Place hard ware fabric on the ground laid flat in the location of the measure. For a 4' wide berm 5" tall a 13' wide piece of hardware cloth is required. Place filter fabric over the hardware cloth. Place stone along the middle 1/3 of the berm for the entire length taper stone at ends to allow for closure.
3. Fold 1/3 of the filter and hardware fabric over placed stone, then fold 1/3 of remaining fabric's width over the fabric folded immediately prior to this fold. Secure the fabric 16" on center along the the longitudinal seam of the fold that is loose and secure ends of berm with metal or plastic fasteners 4" on center.
4. Anchor structure to soil with12" metal tent stakes 16" on center along the perimeter of the measure. in asphalt or concrete pavement anchor with pk nails 16" on center along the perimeter.
5. Place traffic cones at each end of measure.

MAINTENANCE
Inspect berm at least weekly and after each significant (1/2 inch or greater) rainfall event. Clear the mesh wire of any debris or other objects to provide adequate flow for subsequent rains. Take care not to damage or undercut the wire mesh during sediment removal. Replace stone as needed by removing the hog wire clips on the "loose end". Re secure "loose end" with hogwire fasteners.

GRAVEL WRAPPED IN HARDWARE CLOTH

NTS

SODDING

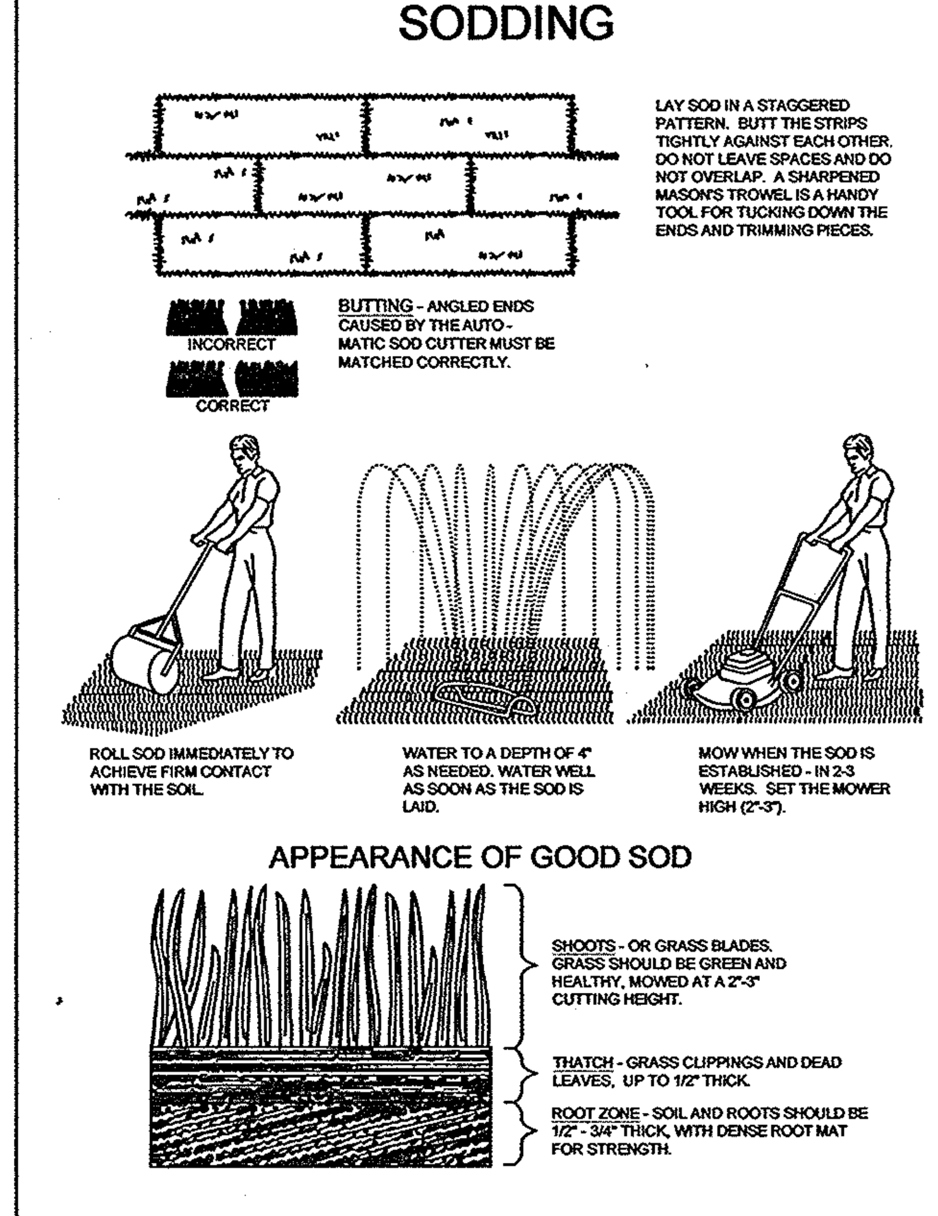


Figure 6-6.2

SOD INSTALLATION

1. Moistening the sod after it is unrolled helps maintain its viability. Store it in the shade during installation.

2. Rake the soil surface to break the crust just before laying sod. During the summer, lightly irrigate the soil, immediately before laying the sod to cool the soil and reduce root burning and dieback.

3. Do not sod on gravel, frozen soils, or soils that have been treated recently with sterilants or herbicides.

4. Lay the first row of sod in a straight line with subsequent rows placed parallel to and butting tightly against each other. Stagger strips in a brick-like pattern. Be sure that the sod is not stretched or overlapped and that all joints are butted tightly to prevent voids. Use a knife or sharp spade to trim and fit irregularly shaped areas.

5. Install strips of sod with their longest dimension perpendicular to the slope. On slopes 3:1 or greater, or whatever erosion may be a problem, secure sod with pegs or staples.

6. As sodding of clearly defined areas is completed, roll sod to provide firm contact between roots and soil.

7. After rolling, irrigate until the soil is wet 4 inches below the sod.

8. Keep sodded areas moist to a depth of 4 inches until the grass takes root. This can be determined by gently tugging on the sod--resistance indicates that rooting has occurred.

9. Mowing should not be attempted until the sod is firmly rooted, usually 2-3 weeks.

See Figure 6-6.2

MAINTENANCE

After the first week, water as necessary to maintain adequate moisture in the root zone and prevent dormancy of the sod.

Do not remove more than one-third of the shoot in any mowing. Grass height should be maintained between 2 and 3 inches unless otherwise specified.

After the first growing season, established sod required fertilization, and may also require lim. Follow soil test recommendations when possible.

SODDED WATERWAYS

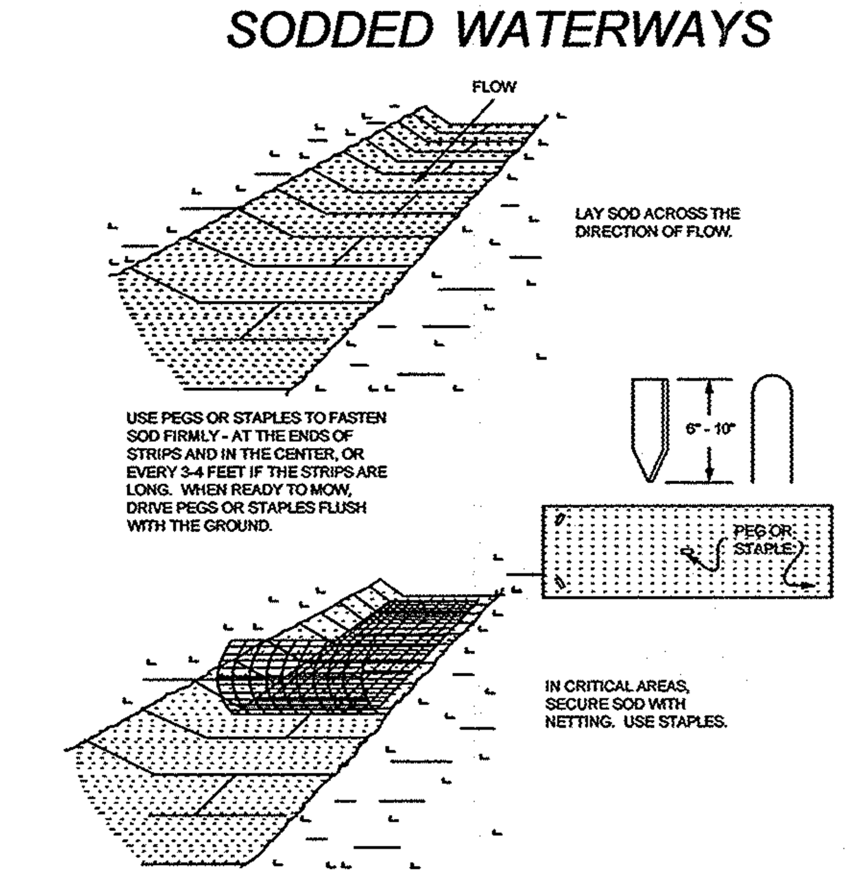


Figure 6-6.1

SODDED WATERWAYS

Sod provides a resilient channel lining, providing immediate protection from concentrated runoff and eliminating the need for installing mats or mulch. The following points apply to the use of sod in waterways:

1. Prepare the soil as described in Practice 6.30, Grass-lined Channels, of the State of North Carolina Erosion and Sediment Control Planning and Design Manual. The sod type must be able to withstand the velocity of flow specified in the channel design.

2. Lay sod strips perpendicular of flow, with the lateral joints staggered in a brick-like pattern. Edges should butt tightly together (Figure 6-6.1).

3. After rolling or tamping to created a firm contact, peg or staple individual sod strips to resist washout during establishment. Jute or other netting material may be pegged over the sod for extra protection on critical areas.

Drawn by	D. Vaughn
Checked	Jeffrey B Reitzel,PE,PLS
Reviewed	Jeffrey B Reitzel,PE,PLS
Date	July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
EROSION CONTROL DETAILS

Revision	By	Date

MOORMAN, KIZER & REITZEL, INC.
ENGINEERS PLANNERS SURVEYORS
115 Broadfoot Avenue
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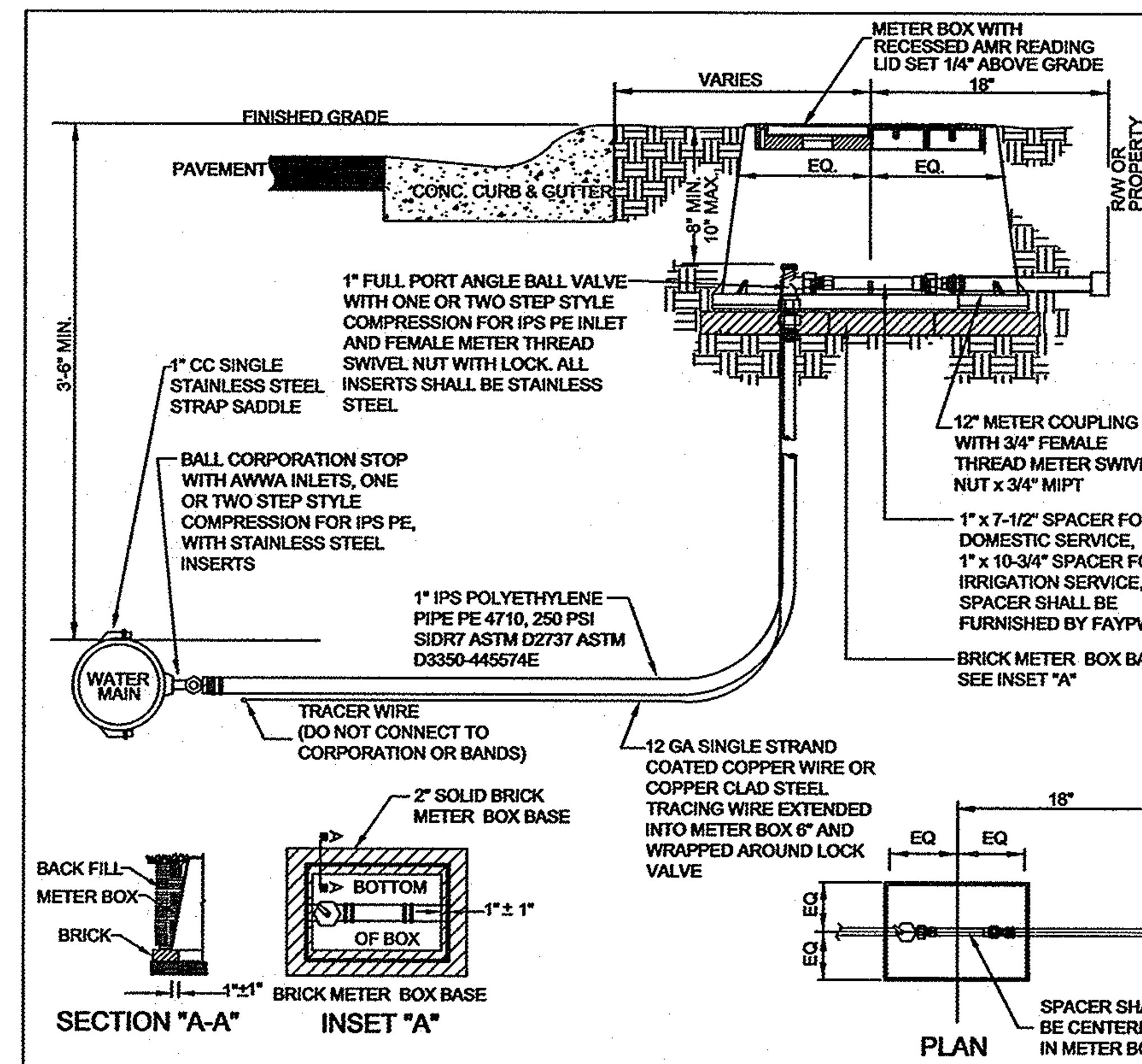
Phone 910-484-5191
Firm No. F-0106

Scale AS SHOWN
Book no.
Sheet D-5



NOTES:
1. ALL MATERIALS TO BE APPROVED BY FAYPWC.
2. SERVICE LATERAL SIZE 1" IPS POLYETHYLENE UNLESS OTHERWISE SPECIFIED
3. SERVICE LATERAL INSTALLATION SHALL BE APPROVED BY FAYPWC.
4. WATER SERVICE LOCK VALVE TO BE LOCATED 18" FROM SANITARY SEWER CLEAN OUT STACK WHEN INSTALLED IN SAME DITCH.
5. WHEN INSTALLED IN A PAVED AREA, METER BOX TO BE SET 1/4" ABOVE FINISHED PAVEMENT GRADES AND PAVEMENT FEATHERED TO TOP OF BOX TO PROVIDE DRAIN AWAY FROM BOX
6. C.I. METER BOXES SHALL BE USED IN TRAFFIC AREAS SEE W.4B.
7. PERIMETER SOLID CONCRETE BRICK BASE WITH NO GAPS, DO NOT LAY BRICK ON PIPE. SEE INSET "A"
8. WHERE ASPHALT CURB OR STRIP PAVEMENT EXIST, THE LOCATION OF BOX SHALL BE AS DIRECTED BY FAYPWC REPRESENTATIVE.
9. DISTANCE FROM TOP OF LOCK VALVE OPERATING STEM TO TOP OF BOX SHALL BE 8" MIN. TO 10" MAX.
10. RESIDENTIAL METER BOX SHALL BE SET 18" FROM R/W TO CENTERLINE OF METER BOX PERPENDICULAR TO THE R/W.
11. COMMERCIAL METER BOX LOCATION SHALL BE AS APPROVED (PREFER NO METER BE INSTALLED LESS THAN 5' FROM BLDG. TO EDGE OF BOX).
12. LATERAL SHALL BE CENTERED ON LOT UNLESS OTHERWISE NOTED.
13. LATERAL SHALL NOT BE BACK FILLED UNTIL INSPECTED BY FAYPWC PROJECT COORDINATOR.
14. WATER MAIN AND LATERAL SHALL PASS HYDROSTATIC, LEAKAGE AND STERILIZATION TESTS (200 PSI).
15. BARB-TYPE FITTINGS ARE NOT ACCEPTABLE
16. SHOULD IT BE NECESSARY TO CRIMP THE WATER SERVICE LATERAL, A FULL CIRCLE REPAIR CLAMP SHALL BE PLACED ON THE CRIMPED AREA.

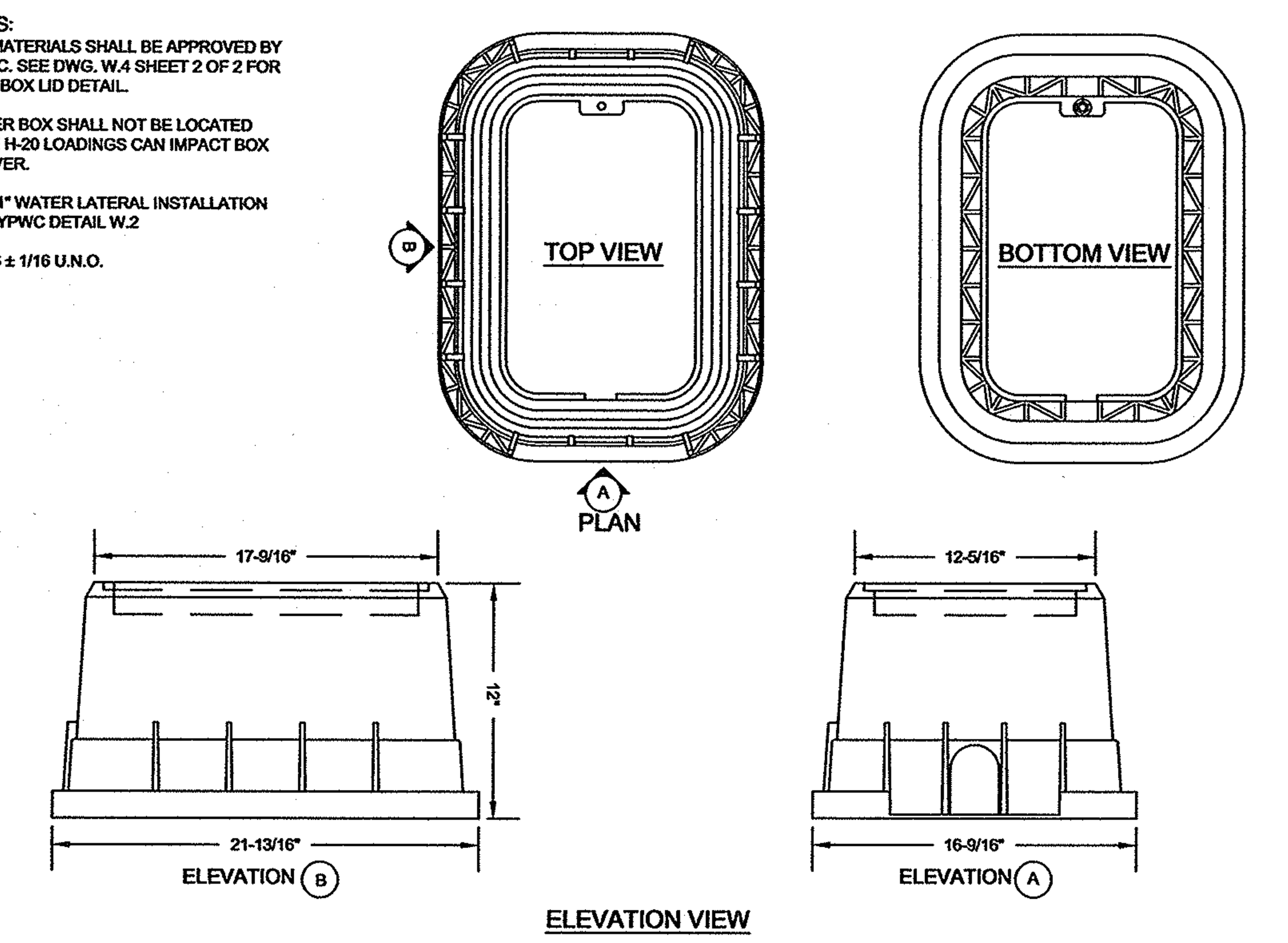
PROPOSED 1" WATER SERVICE LATERAL N.T.S. — SHEET NO. 1 OF 1 — DWG. NO. W.2 — DWG. BY: FAYPWC — DATE: JULY 01, 2016 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	JULY 06	RESIZED METER COUPLING
2	JULY 13	REVISED NOTE RE: TRACER WIRE

2016-W2-WLAT.dwg

NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC. SEE DWG. W.4 SHEET 2 OF 2 FOR METER BOX LID DETAIL.
2. METER BOX SHALL NOT BE LOCATED WHERE H-20 LOADINGS CAN IMPACT BOX OR COVER.
3. FOR 1" WATER LATERAL INSTALLATION SEE FAYPWC DETAIL W.2
4. DIM'S ± 1/16 U.N.O.

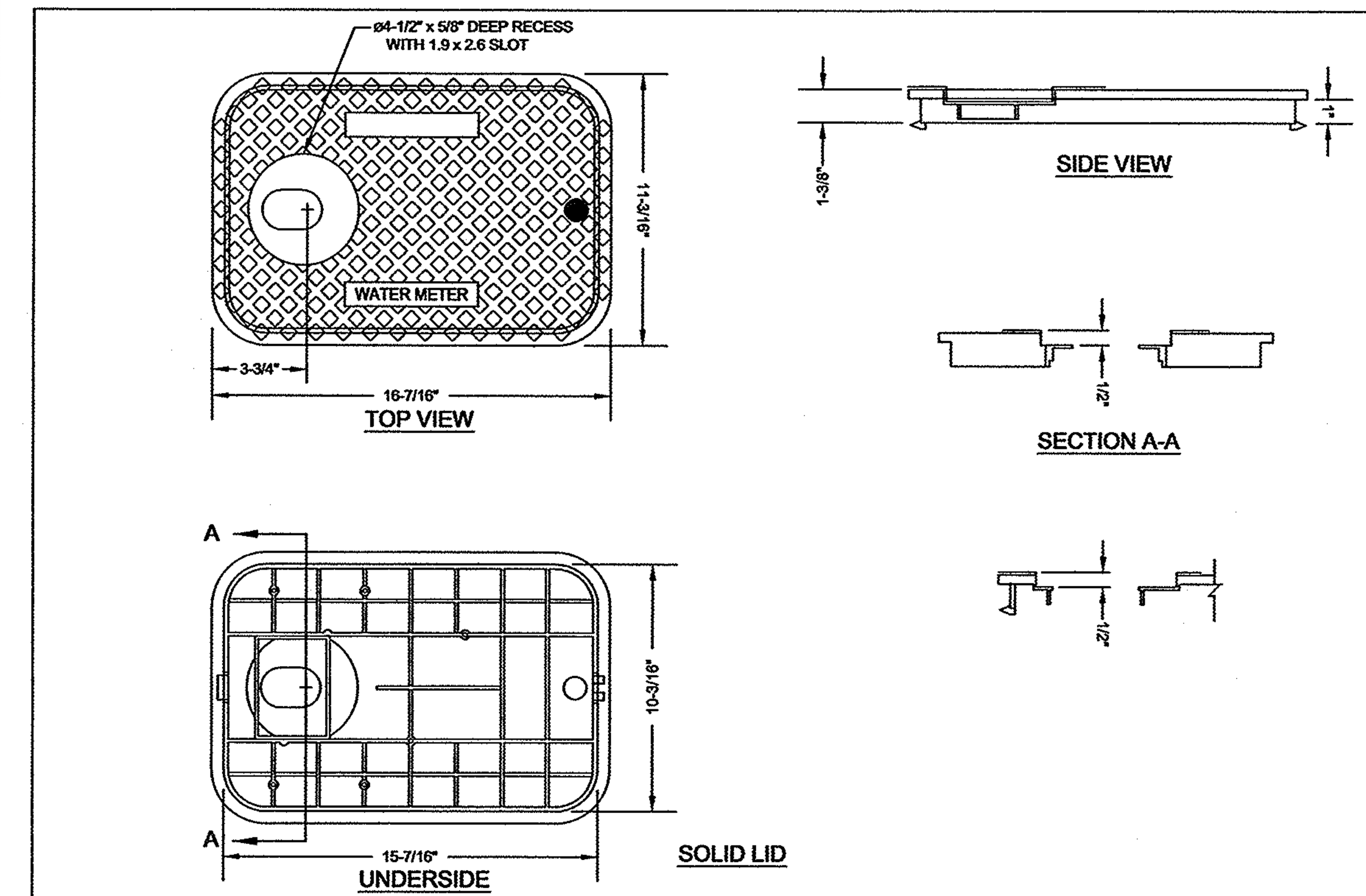


1-INCH METER BOX DETAILS N.T.S. — SHEET NO. 1 OF 2 — DWG. NO. W.4 — DWG. BY: FAYPWC — DATE: JULY 01, 2016 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	3/10	CHANGED BOX DIMENSIONS

2016-W4-1IN-METERBOX.dwg

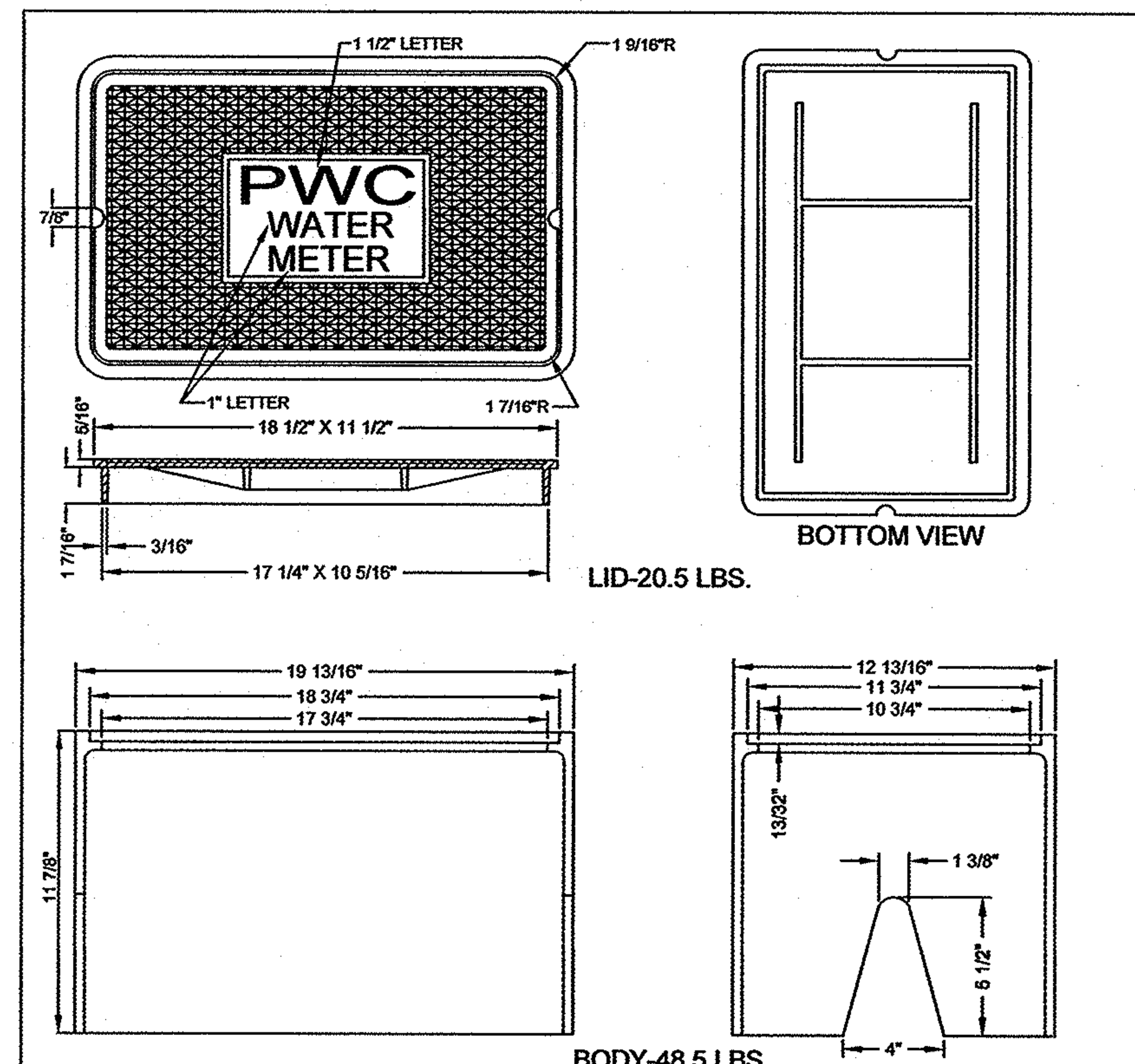


1-INCH METER BOX LID N.T.S. — SHEET NO. 2 OF 2 — DWG. NO. W.4 — DWG. BY: FAYPWC — DATE: JULY 01, 2016 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	7/07	REVISED LID
1	3/10	CHANGED BOX & LID DIMENSIONS
2	01/15	REVISED LID

2016-W4-1IN-METERBOX.dwg



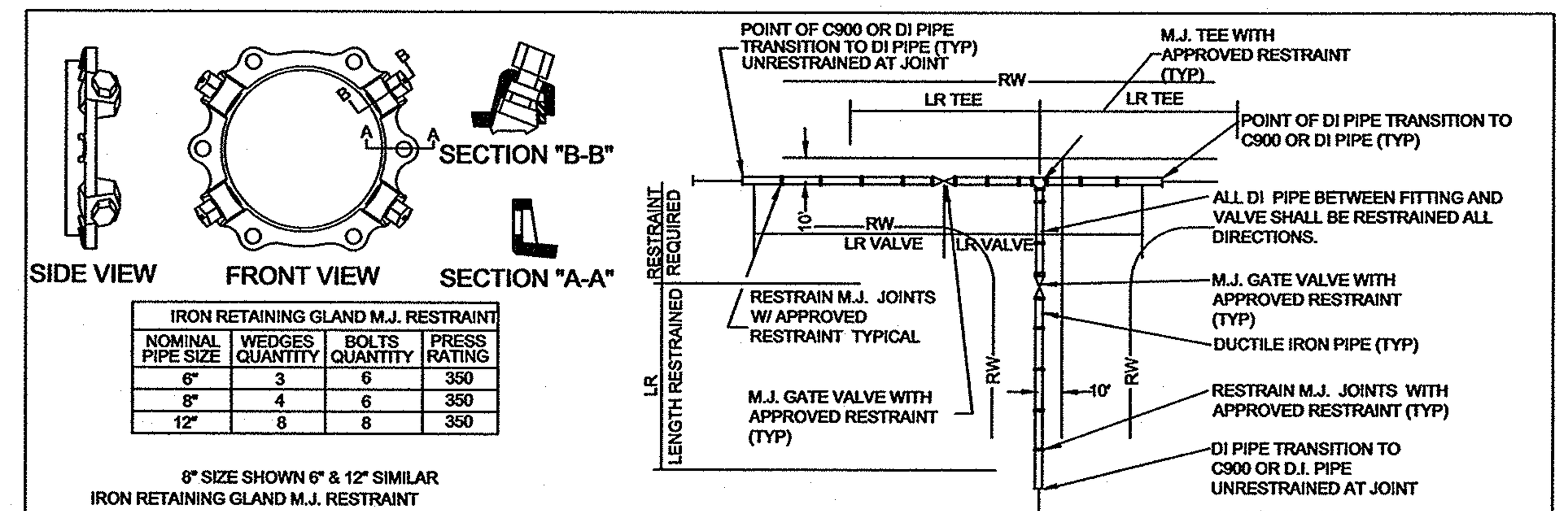
NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY PWC.
2. FOR 1" WATER LATERAL INSTALLATION SEE PWC DETAIL W.2
3. CAST IRON METER BOX TO BE USED IN TRAFFIC AREAS.

1-INCH CAST IRON METER BOX & COVER — SHEET NO. 1 OF 1 — DWG. NO. W.4B — DWG. BY: PWC — DATE: JULY 01, 2013 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES DEPARTMENT

NO.	DATE	REVISION
1	3/10	CHANGED BOX & LID DIMENSIONS

2013-W4B METERBOX&LID.dwg



IRON RETAINING GLAND M.J. RESTRAINT

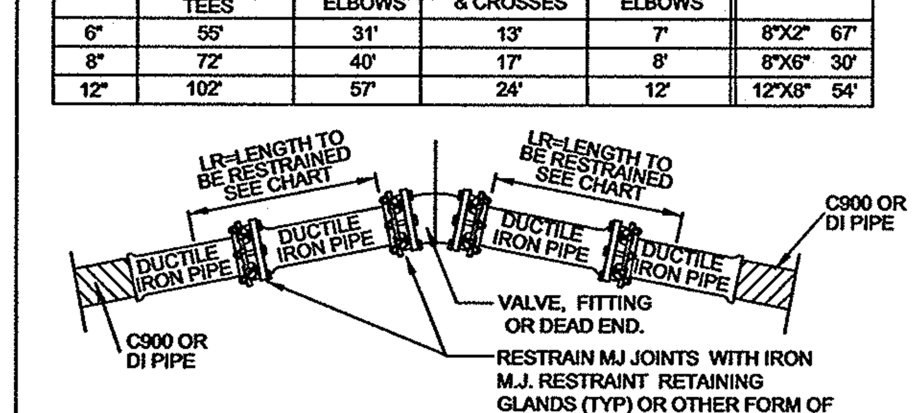
NOMINAL PIPE SIZE	WEDGES QUANTITY	BOLTS QUANTITY	PRESS RATING
6"	3	6	350
8"	4	6	350
12"	8	8	350

8" SIZE SHOWN 6" & 12" SIMILAR
IRON RETAINING GLAND M.J. RESTRAINT

RESTRAINED JOINT DETAIL FOR TYPICAL TEE INTERSECTION
4 WAY INTERSECTION SIMILARLY RESTRAINED

LR (MIN. LENGTH OF RESTRAINT EACH DIRECTION OF THRUST IN LINEAR FEET)
Based on 200 psig pressure, Safety Factor of 2.0:1, BARE DI PIPE AND ML Soil, 3.5' cover
Chart does not apply to pipes wrapped in polyethylene wrap

PIPE SIZE	VALVES DEAD ENDS TEES	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS	REDUCER
6"	55'	31'	13'	7'	8"X2" 67'
8"	72'	40'	17'	8'	8"X6" 30'
12"	102'	57'	24'	12'	12"X8" 54'



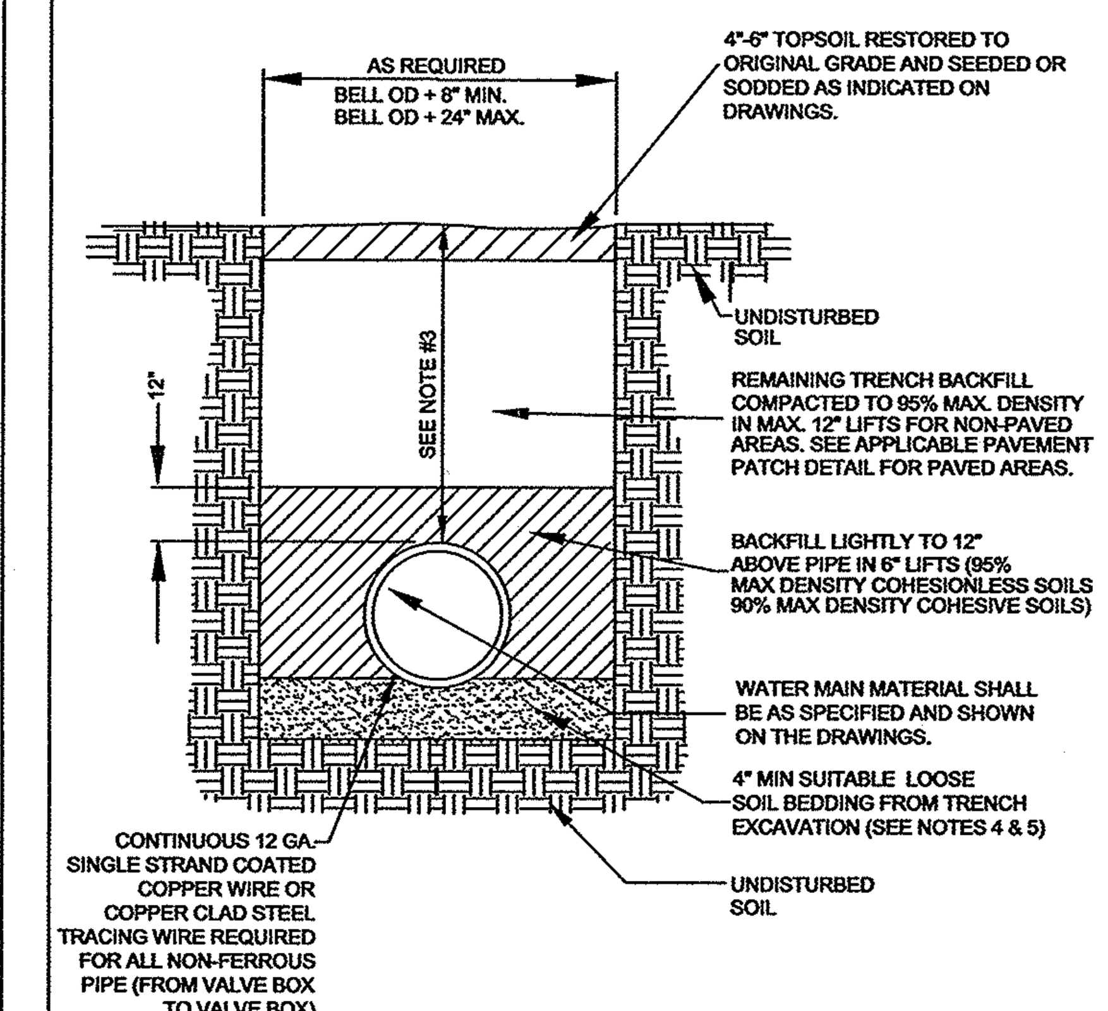
NOTES:
1.) THRUST RESTRAINT SHALL BE INSTALLED ON DUCTILE IRON WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE FAYPWC STANDARD THRUST BLOCK DETAIL W.17 FOR PVC RESTRAINT.
2.) IRON RETAINING GLAND M.J. RESTRAINT OR OTHER FORMS OF IRON RESTRAINT SHALL NOT BE USED ON PVC PIPE.
3.) PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINED JOINT PIPE FOR THE PROPER LENGTH.
4.) COMPACT FITTINGS ARE ACCEPTABLE FOR USE WITH IRON RETAINING GLAND M.J. RESTRAINT AND OTHER FORMS OF DI RESTRAINT.
5.) THE MINIMUM LENGTH OF RESTRAINT INDICATED SHALL REQUIRE ALL JOINTS WITHIN THE LR DISTANCE TO BE RESTRAINED.
6.) RESTRAINT SYSTEM SHALL BE INSPECTED AND APPROVED FAYPWC PRIOR TO BACKFILLING.
7.) RESTRAINT SYSTEMS MAY VARY BASED UPON THE ENGINEERS' DESIGN AS SHOWN ON THE PLAN AND PROFILE SHEETS.
8.) GRIPPER RING AND FIELD LOK GASKETS ARE AN ACCEPTABLE METHOD OF RESTRAINT ON DUCTILE IRON PIPE ONLY.

ALTERNATE RESTRAINED JOINT DETAIL (DUCTILE IRON PIPE ONLY) N.T.S. — SHEET NO. 1 OF 1 — DWG. NO. W.18 — DWG. BY: FAYPWC — DATE: JULY 01, 2016 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	11/16/2007	REVISED TABLE, ADDED NOTE 8

2016-W18-RESTRAINT-DETAIL.dwg



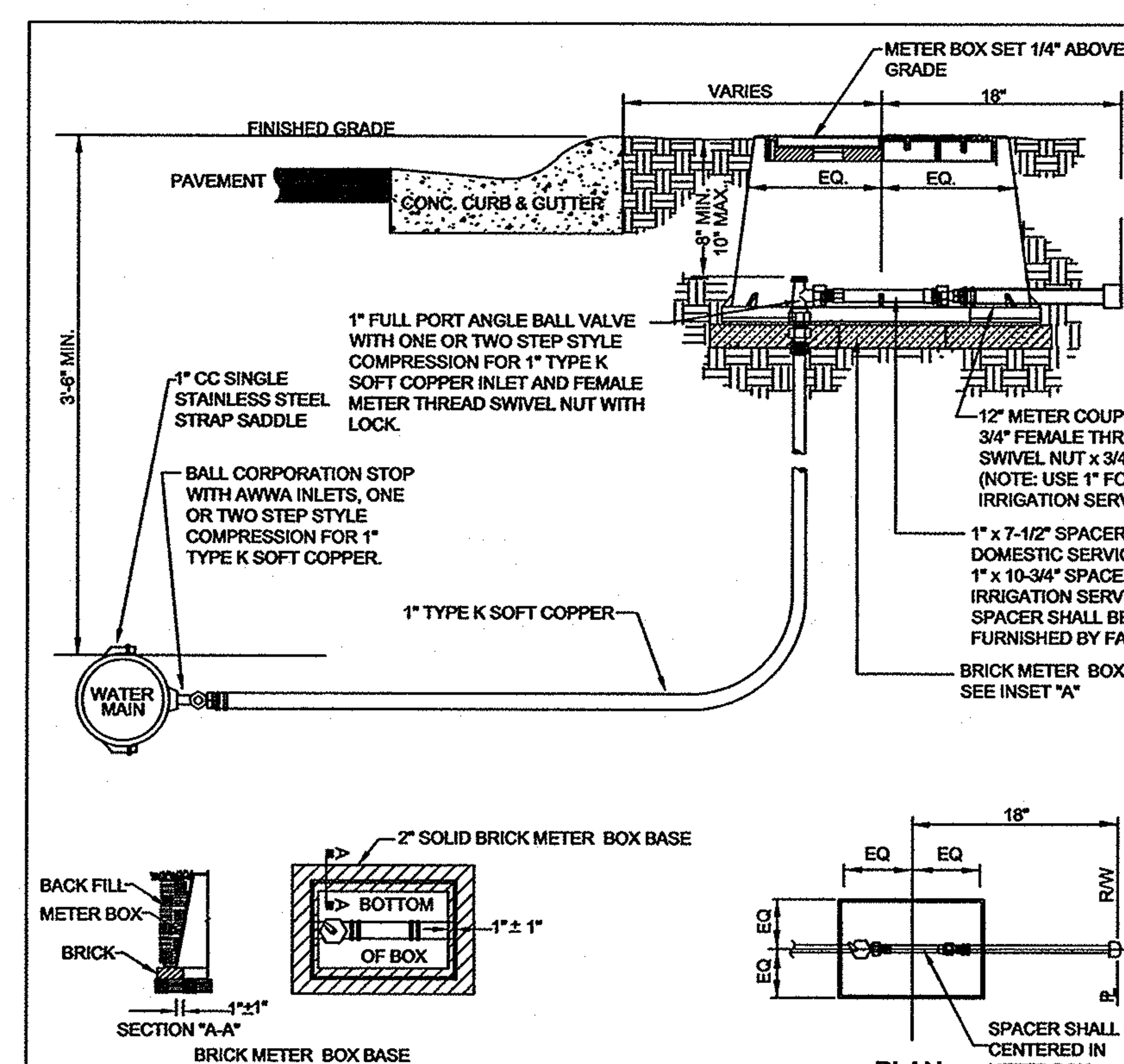
NOTES:
1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XV11 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
2. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
3. TYPE 3 TRENCH CONDITIONS AND A MINIMUM OF 4' OF COVER MUST BE MAINTAINED WHERE RESTRAINT JOINT PIPE IS SPECIFIED AND 3.5' OF COVER IN ALL OTHER LOCATIONS UNLESS SHOWN OTHERWISE ON THE PLAN PROFILE.
4. LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND ONLY FOR THE AUTHORIZED QUANTITY.
6. BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AROUND THE PIPE HAUNCHES.
7. TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER.

TYPE 3 TRENCH WATER MAIN BEDDING DETAIL N.T.S. — SHEET NO. 1 OF 1 — DWG. NO. W.19 — DWG. BY: FAYPWC — DATE: JULY 01, 2016 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	7/1/13	REVISED NOTE RE: TRACER WIRE

2016-W19-WATER-BEDDING.dwg



NOTES:
1. ALL MATERIALS TO BE APPROVED BY FAYPWC.
2. SERVICE LATERAL SIZE 1" TYPE K SOFT COPPER UNLESS OTHERWISE SPECIFIED.
3. SERVICE LATERAL INSTALLATION SHALL BE APPROVED BY FAYPWC.
4. WATER SERVICE LOCK VALVE TO BE LOCATED 18" FROM SANITARY SEWER CLEAN OUT STACK WHEN INSTALLED IN SAME DITCH.
5. WHEN INSTALLED IN A PAVED AREA, METER BOX TO BE SET 1/4" ABOVE FINISHED PAVEMENT GRADES AND PAVEMENT FEATHERED TO TOP OF BOX TO PROVIDE DRAIN AWAY FROM BOX
6. C.I. METER BOXES SHALL BE USED IN TRAFFIC AREAS SEE W.4B.
7. PERIMETER SOLID CONCRETE BRICK BASE WITH NO GAPS, DO NOT LAY BRICK ON PIPE. SEE INSET "A"
8. WHERE ASPHALT CURB OR STRIP PAVEMENT EXIST, THE LOCATION OF BOX SHALL BE AS DIRECTED BY FAYPWC REPRESENTATIVE.
9. DISTANCE FROM TOP OF LOCK VALVE OPERATING STEM TO TOP OF BOX SHALL BE 8" MIN. TO 10" MAX.
10. RESIDENTIAL METER BOX SHALL BE SET 18" FROM R/W TO CENTERLINE OF METER BOX PERPENDICULAR TO THE R/W.
11. COMMERCIAL METER BOX LOCATION SHALL BE AS APPROVED (PREFER NO METER BE INSTALLED LESS THAN 5' FROM BLDG. TO EDGE OF BOX).
12. LATERAL SHALL BE CENTERED ON LOT UNLESS OTHERWISE NOTED.
13. LATERAL SHALL NOT BE BACK FILLED UNTIL INSPECTED BY FAYPWC PROJECT COORDINATOR.
14. WATER MAIN AND LATERAL SHALL PASS HYDROSTATIC, LEAKAGE AND STERILIZATION TESTS (200 PSI).
15. SHOULD IT BE NECESSARY TO CRIMP THE WATER SERVICE LATERAL, A FULL CIRCLE REPAIR CLAMP SHALL BE PLACED ON THE CRIMPED AREA.

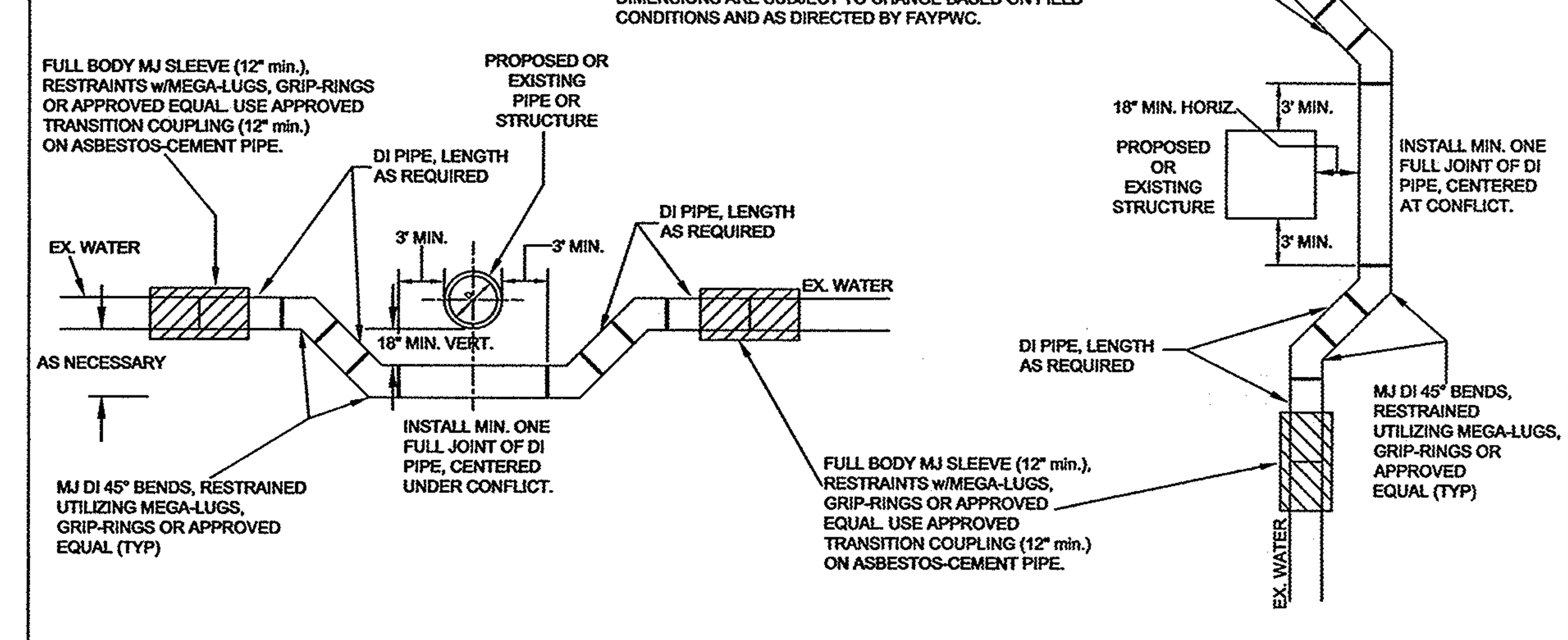
1" COPPER WATER SERVICE LATERAL N.T.S. — SHEET NO. 1 OF 1 — DWG. NO. W.24 — DWG. BY: FAYPWC — DATE: JULY 01, 2016 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	MAY 05	VALVE CHANGE
2	SEPT 05	VALVE CHANGE, ADD NOTE 16.
3	JULY 06	RESIZED METER COUPLING

2016-W24-COPPER-SERVICE-LATERAL.dwg

NOTES:
1. ALL PIPE AND FITTINGS SHALL BE APPROVED BY FAYPWC.
2. CONTRACTOR TO COORDINATE NECESSARY OUTAGES WITH FAYPWC AND AFFECTED CUSTOMERS. MINIMUM 48 HOUR NOTICE REQUIRED.
3. NEW WATER MAIN TO BE SWABBED WITH A CHLORINE SOLUTION AND FLUSHED PRIOR TO PLACING INTO SERVICE.
4. ALL NEW FITTINGS AND PIPE TO BE RESTRAINED UTILIZING MEGA-LUGS, GRIP-RINGS OR APPROVED EQUAL.
5. ALL PIPE AND FITTINGS TO BE DUCTILE IRON.
6. FAYPWC PROJECT COORDINATOR TO BE PRESENT DURING WORK.
7. BACKFILL AND COMPACT TO CITY OF FAYETTEVILLE OR N.C.D.O.T. REQUIREMENTS.
8. PROVIDE STONE BEDDING (NO. 5 OR NO. 57 STONE) TO SUPPORT RELOCATED WATER MAIN AND/OR NEW STORM DRAIN, AS APPROVED BY FAYPWC PROJECT COORDINATOR.
9. MJ RESTRAINTS NOT ALLOWED ON PVC PIPE.
10. DIMENSIONS ARE GIVEN AS GENERAL GUIDANCE, EXACT DIMENSIONS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND AS DIRECTED BY FAYPWC.



PIPE RELOCATION DETAIL N.T.S. — SHEET NO. 1 OF 1 — DWG. NO.: W.26 — DWG. BY: FAYPWC — DATE: JULY 01, 2016 — APPROVED BY: J.E.G.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. — WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/12	REVISED NOTES, ADDED HORIZ. RELOCATION

2016-W26-PIPE-RELOCATION-DETAIL.dwg

Drawn by D. Vaughn
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date July 2016

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
WATER DETAILS

Revision	By	Date

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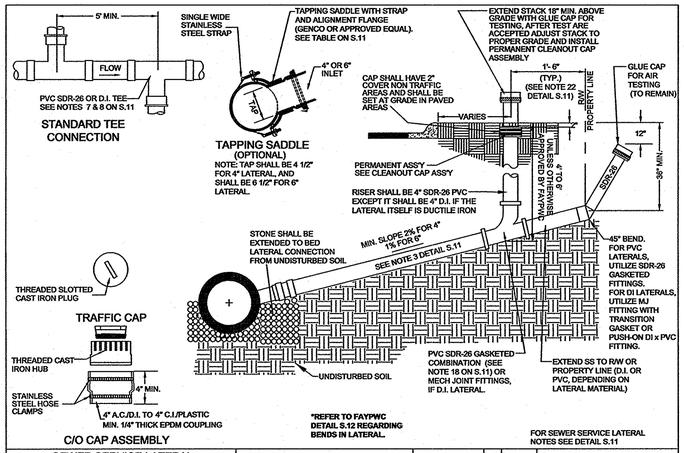
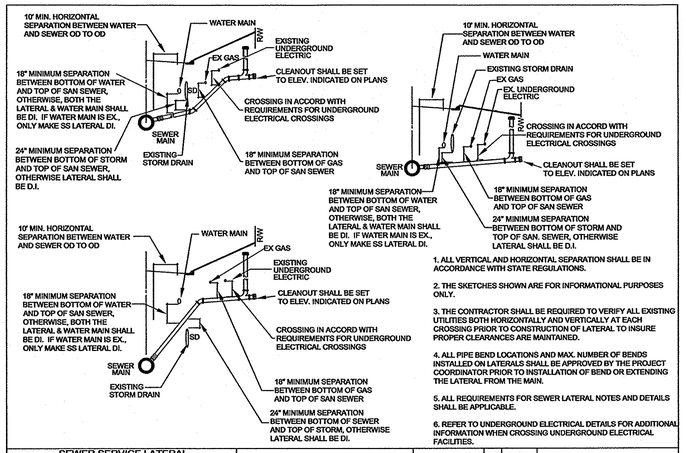


SEWER SERVICE LATERAL (4-INCH AND 6-INCH) N.T.S.			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. S.10	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2016	APPROVED BY: JEG	

NO.	DATE	REVISION
1	JAN. 13	REVISED NOTES
2	JAN. 14	ADDED TAILPIECE, NOTES
3	JAN. 15	REVISED NOTES RE: TAILPIECE

2016-S10-RESSLAT.dwg

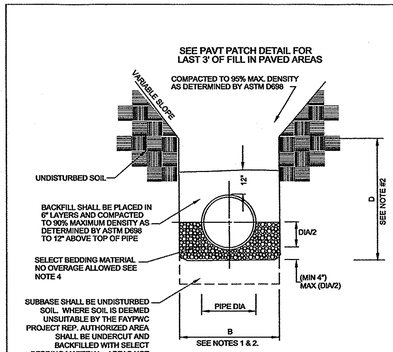


1. ALL VERTICAL AND HORIZONTAL SEPARATION SHALL BE IN ACCORDANCE WITH STATE REGULATIONS.
2. THE SKETCHES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY.
3. THE CONTRACTOR SHALL BE REQUIRED TO VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT EACH CROSSING PRIOR TO CONSTRUCTION OF LATERAL TO INSURE PROPER CLEARANCES ARE MAINTAINED.
4. ALL PIPE BEND LOCATIONS AND MAX. NUMBER OF BENDS INSTALLED ON LATERALS SHALL BE APPROVED BY THE PROJECT COORDINATOR PRIOR TO INSTALLATION OF BEND OR EXTENDING THE LATERAL FROM THE MAIN.
5. ALL REQUIREMENTS FOR SEWER LATERAL NOTES AND DETAILS SHALL BE APPLICABLE.
6. REFER TO UNDERGROUND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION WHEN CROSSING UNDERGROUND ELECTRICAL FACILITIES.

SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS N.T.S.			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. S.12	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2016	APPROVED BY:	

NO.	DATE	REVISION
1	JAN 05	REVISED NOTES 1 AND 6
2	NOV 06	ADDED NOTE ON DI LATERALS
3	MAR 10	ADDED LATERAL & WM SEPARATION

2016-S12-UTIL-CONFLICT.dwg



NOTES:

1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XVII OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON THE JOB AT ALL TIMES AND SHALL EMPLOY A PROFESSIONAL ENGINEER TO ACT UPON ALL PERTINENT MATTERS OF THE WORK.
2. BEDDING MATERIAL QUANTITIES ARE CALCULATED BASED ON THE FOLLOWING TRENCH WIDTHS. BEDDING MATERIAL SHALL BE INSTALLED REGARDLESS OF PIPE MATERIAL.

   FOR 48" RCP/DI B=6', D=6'
   FOR 42" RCP/DI B=6', D=5'-6"
   FOR 30" RCP/DI B=4'-6", D=4'-6"
   FOR 24" RCP/DI B=5', D=4'-0"
   FOR 18" PVC/DI B=3', D=3'
   FOR 15" PVC/DI B=3', D=3'
   FOR 12" PVC/DI B=2', D=3'-0"
   FOR 8" PVC/DI B=2', D=3'-0"

3. THE BEDDING MATERIAL SHALL BE GRANULAR, CLEAN, COARSE PEA GRAVEL, OR WELL GRADED CRUSHED ROCK PLACED IN LAYERS NOT TO EXCEED 6" LOOSE LIFTS FOR THE FULL WIDTH OF THE TRENCH.
4. BEDDING MATERIAL SHALL BE INSTALLED AND PAID FOR IN ACCORDANCE WITH THE FOLLOWING CHART TO PRODUCE CLASS B BEDDING.

   FOR 8" PIPE .067yd3/lft. OF PIPE
   FOR 12" PIPE .09yd3/lft. OF PIPE
   FOR 15" PIPE .11yd3/lft. OF PIPE
   FOR 18" PIPE .13yd3/lft. OF PIPE
   FOR 24" PIPE .19yd3/lft. OF PIPE
   FOR 30" PIPE .19yd3/lft. OF PIPE
   FOR 36" PIPE .25yd3/lft. OF PIPE
   FOR 42" PIPE .32yd3/lft. OF PIPE
   FOR 48" PIPE .36yd3/lft. OF PIPE

5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. OVERAGE OF BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND SHALL ONLY BE PAID FOR IN THE AMOUNT OF THE AUTHORIZED QUANTITY.
6. BEDDING MATERIAL SHALL BE PROPERLY RODDED AROUND THE PIPE HAUNCHES.
7. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.

SEWER BEDDING N.T.S.			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. S.13	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2016	APPROVED BY: J.E.G.	

NO.	DATE	REVISION
1	JAN 05	REVISED NOTES

2016-S13-SEWER-BEDDING.dwg

Drawn by D. Vaughn
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date Feburary 2012

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
SANITARY SEWER DETAILS

Revision	By	Date

115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

ENGINEERS PLANNERS SURVEYORS
MOORMAN, KIZER & REITZEL, INC.

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Sheet D-7

G:\Current Jobs\Fayetteville City of\11-1033-02 Paxton, Bridgeman & Godfrey Outfall - LaGrange Drainage Improvements\Plans - Revised 2015\Details.dwg, 7/28/2016 8:51:42 AM, Canon IR7105 (Downstairs)36-24.pc3

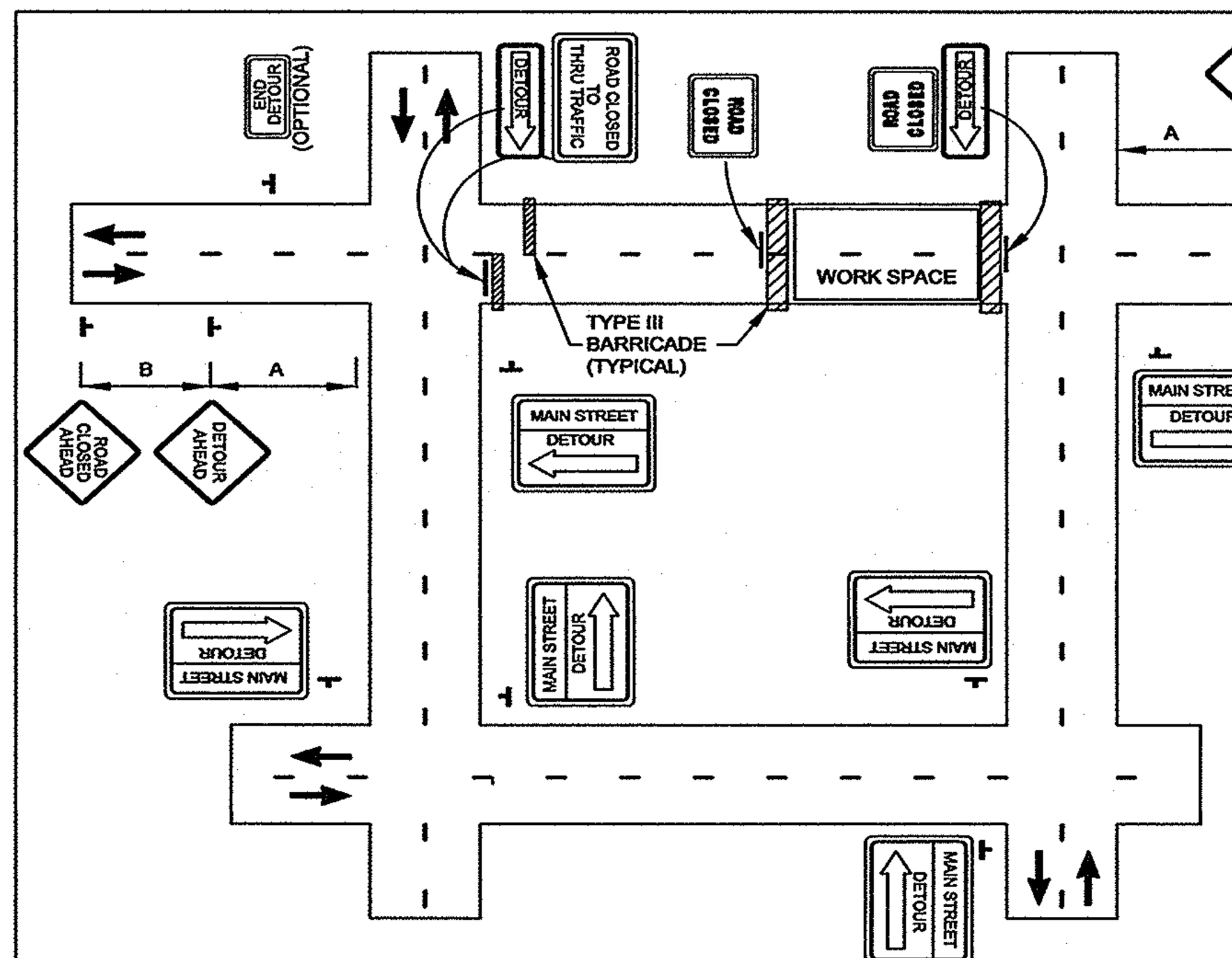


TABLE VI-3 SUGGESTED ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN LOW-SPEED	200	200	200
URBAN HIGH SPEED	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,600	2,600

NOTES:
1. DISPLAY SIMILAR SIGNS AND DEVICES FOR THE OPPOSITE MOVEMENT.

2. USE THIS PLAN FOR CITY STREETS.

3. THE USE OF A STREET NAME SIGN MOUNTED WITH THE M4-9 DETOUR SIGN IS OPTIONAL. WHEN USED, THE STREET NAME PLATE IS PLACED ABOVE THE DETOUR SIGN. THE PLATE SHALL HAVE BLACK ON DIAMOND GRADE ORANGE LEGEND.

4. AN M4-9 DETOUR SIGN WITH AN ADVANCE TURN ARROW MAY BE USED IN ADVANCE OF A TURN. ON MULTILANE STREETS SUCH SIGNS SHALL BE USED.

5. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCED WARNING SIGNS.

6. WARNING LIGHTS MAY BE USED ON TYPE III BARRICADES.

7. M4-9 DETOUR SIGNS MAY BE LOCATED ON THE FAR SIDE OF THE INTERSECTIONS.

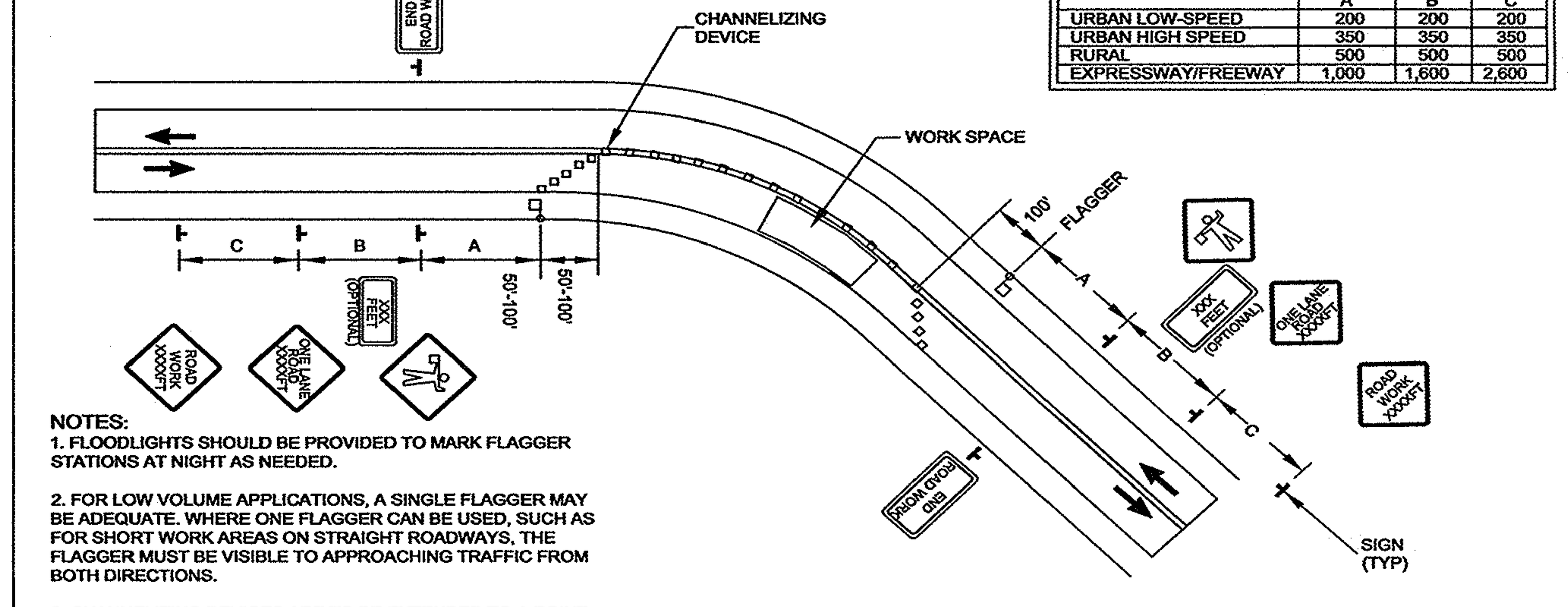
8. THIS STANDARD DERIVED FROM PART VI OF THE MUTCD ,(STANDARDS AND GUIDES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE,UTILITY, AND INCIDENT MANAGEMENT OPERATIONS) ISSUED APRIL 1995.

FIGURE TA-20 DETOUR FOR CLOSED STREET			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	PWC	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.7	DWG. BY: PWC	WATER RESOURCES ENGINEERING DEPARTMENT				
	DATE: JULY 01, 2013	APPROVED BY: J.E.G.					

2013-M7 DETOUR_ROAD_CLOSED.dwg

TABLE VI-3 SUGGESTED ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN LOW-SPEED	200	200	200
URBAN HIGH SPEED	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,600	2,600



NOTES:
1. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

2. FOR LOW VOLUME APPLICATIONS, A SINGLE FLAGGER MAY BE ADEQUATE. WHERE ONE FLAGGER CAN BE USED, SUCH AS FOR SHORT WORK AREAS ON STRAIGHT ROADWAYS, THE FLAGGER MUST BE VISIBLE TO APPROACHING TRAFFIC FROM BOTH DIRECTIONS.

3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.

4. THE ROAD WORK AHEAD AND THE END ROAD WORK SIGNS MAY BE OMITTED FOR SHORT DURATION OPERATIONS.

5. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCED WARNING SIGNS.

6. THIS STANDARD DERIVED FROM PART VI OF THE MUTCD,(STANDARDS AND GUIDES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND INCIDENT MANAGEMENT OPERATIONS) ISSUED APRIL 1995.

FIGURE TA-10 LANE CLOSURE ONE LANE TWO-WAY TRAFFIC			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	PWC	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.8	DWG. BY: PWC	WATER RESOURCES ENGINEERING DEPARTMENT				
	DATE: JULY 01, 2013	APPROVED BY: J.E.G.					

2013-M8 DETOUR ROAD CLOSED.dwg

1. ACCESS TO SITES SHALL BE BY PUBLIC RIGHT-OF-WAYS AND UTILITY EASEMENTS. OTHER ACCESS LOCATIONS REQUIRED SHALL BE SECURED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. SUPPLEMENTAL EROSION CONTROL MEASURES SHALL BE REQUIRED TO INCLUDE CONSTRUCTION ENTRANCES, SILT FENCING, RESTORATION, ETC. ADDITIONAL MEASURES SHALL BE INCLUDED AS PART OF A SUPPLEMENTAL EROSION CONTROL PLAN PREPARED BY THE CONTRACTOR.

2. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE CONSTRUCTION STAGING AREA AT HIS EXPENSE.

3. THE CONTRACTOR IS EXPECTED AND REQUIRED TO COOPERATE WITH THE PROPERTY OWNERS AFFECTED BY THE WORK. PRIVATE AGREEMENTS WITH PROPERTY OWNERS MUST BE IN WRITING ON A FORM APPROVED BY THE ENGINEER AND A COPY SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES AFFECTED BY SAID AGREEMENT. THE AGREEMENT MUST SPECIFY THAT PWC, THE CITY AND THE ENGINEER SHALL BE HELD HARMLESS AGAINST ALL CLAIMS ARISING FROM THE AGREEMENT. THE OWNER DISCOURAGES PRIVATE AGREEMENTS. BEFORE FINAL ACCEPTANCE, A RELEASE FROM EACH PROPERTY OWNER THAT THE CONTRACTOR HAS MADE AN AGREEMENT WITH SHALL BE REQUIRED. THE PROPERTY OWNER'S RELEASE IS A CONDITION OF FINAL ACCEPTANCE.

4. CONTRACTOR SHALL MAINTAIN A NEAT AND CLEAN JOB-SITE TO INCLUDE STAGING/STORAGE AREAS AS FOLLOWS:

- PERFORM DUST CONTROL BY WATERING DAILY OR AS DIRECTED BY THE ENGINEER.
- SWEEP STREETS A MINIMUM OF ONCE WEEKLY (FRIDAY) OR AS DIRECTED BY THE ENGINEER.
- BLADE, LEVEL AND RE-COMPACT ALL EXPOSED TRENCHES WEEKLY (OR AS DIRECTED BY THE ENGINEER) TO PRODUCE A SMOOTH "RIDE".
- PERFORM DAILY CLEAN-UP OF ALL DIRT, DEBRIS AND SCRAP MATERIALS.
- REMOVE EXCESS EQUIPMENT, MATERIALS, TOOLS, ETC. NOT NEEDED.

5. EXCESS SUITABLE SOIL EXCAVATED DURING CONSTRUCTION SHALL BE STOCKPILED FOR USE ON THE PROJECT OR DISPOSED OF OFF-SITE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOT BE ALLOWED TO STOCKPILE MATERIALS OR EXCESS MATERIALS IN THE STREET RIGHT-OF-WAYS AT ANY TIME. THE CONTRACTOR SHALL PROVIDE A SUFFICIENT AND SUITABLE STOCKPILE AREA AND LOCATION AT THE CONTRACTOR'S EXPENSE.

6. CONTRACTOR SHALL PROVIDE MEASURES DURING CONSTRUCTION TO SECURE THE SITE AND EXCAVATION FROM THE GENERAL PUBLIC AND COMPLY WITH ALL OSHA REGULATIONS. JOB SITE SAFETY IS THE EXCLUSIVE AND SOLE RESPONSIBILITY OF THE CONTRACTOR. OPEN EXCAVATION LEFT UNATTENDED OR OVER NIGHT IS NOT ACCEPTABLE AND SHALL BE FILLED IMMEDIATELY.

7. CONTRACTOR SHALL REPAIR OR REPLACE DRIVES DISTURBED BY CONSTRUCTION TO EXISTING OR BETTER CONDITIONS. NO SEPARATE PAYMENT UNLESS OTHERWISE INDICATED.

8. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING WHERE FENCES ARE REMOVED FOR CONSTRUCTION. CONTRACTOR SHALL COORDINATE FENCE REMOVAL/REINSTALLATION WITH INDIVIDUAL PROPERTY OWNERS PRIOR TO REMOVAL. CONTRACTOR SHALL REINSTALL ALL SHEDS, FENCES, ETC. TO AS GOOD OR BETTER THAN EXISTING CONDITIONS UNLESS OTHERWISE INDICATED. (NO SEPARATE PAYMENT).

9. CONTRACTOR SHALL REPLACE ALL DISTURBED MAILBOXES, SIGNS, ETC. DISTURBED DURING CONSTRUCTION WITHIN 24 HOURS OF DISTURBANCE. PERMANENT ROAD SIGNAGE DISTURBED SHALL BE REPLACED IMMEDIATELY AND IF NECESSARY ROADWAY SIGNS SHALL BE TEMPORARILY INSTALLED IN A LOCATION CONSISTENT WITH THE NCMUTCD TO PROVIDE CONTINUOUS TRAFFIC AWARENESS OF ROADWAY CONDITIONS. (NO SEPARATE PAYMENT).

10. CONTRACTOR SHALL PROVIDE SECURITY FENCING, SECURITY GUARD, AND ANY AND ALL OTHER MEASURES CONTRACTOR DEEMS NECESSARY TO PROTECT EQUIPMENT AND MATERIALS STORED ON THE PROJECT. (NO SEPARATE PAYMENT).

11. WHERE CONTRACTOR CEASES WORK OPERATIONS FOR A 72 HOUR PERIOD OR LONGER, SUCH AS HOLIDAYS, ETC., THE FOLLOWING SHALL BE ACCOMPLISHED PRIOR TO THE WORK STOPPAGE.

A. CONTRACTOR SHALL STORE ALL EQUIPMENT IN THE CONTRACTOR STAGING AREA OR OFF SITE.

B. THE CONTRACTOR SHALL SWEEP ALL STREETS, PERFORM GENERAL CLEANUP AND SHALL PERFORM MAINTENANCE ON ALL EXPOSED PATCHES.

12. CONTRACTOR SHALL SCHEDULE WORK AND MATERIAL DELIVERIES SO THAT STORED MATERIAL QUANTITIES ON THE JOB SITE SHALL BE MINIMIZED.

GENERAL NOTES			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	PWC	NO	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. N.1	DWG. BY: PWC	WATER RESOURCES ENGINEERING DEPARTMENT				
	DATE: JAN. 01, 2012	APPROVED BY: J.E.G.					

2012 N1 GENERAL_NOTES.dwg

13. CONTRACTOR SHALL STORE ALL MATERIALS IN THE CONTRACTOR STAGING AREA 72 HOURS PRIOR TO INCORPORATING INTO THE WORK TO REDUCE OBSTRUCTIONS TO TRAFFIC AND INCONVENIENCE TO RESIDENTS. WHERE UTILITIES ARE BEING CONSTRUCTED IN EASEMENTS OUT OF TRAFFIC AREAS CONTRACTOR MAY STORE MATERIALS AHEAD OF CONSTRUCTION FOR A DISTANCE NOT GREATER THAN 1800 FEET UNLESS APPROVED OTHERWISE BY THE ENGINEER.

14. AT THE PROPERTY OWNER'S REQUEST, THE CONTRACTOR SHALL DIG UP EXISTING SHRUBS AND BUSHES WITHIN UTILITY EASEMENT TO BE DISTURBED BY CONSTRUCTION AND SET OUTSIDE THE UTILITY EASEMENT AREA IN A LOCATION DETERMINED BY THE PROPERTY OWNER (NO SEPARATE PAYMENT). PROPERTY OWNER WILL BE RESPONSIBLE FOR REPLANTING SHRUBS AND BUSHES SO REMOVED, AND SHALL BE RESPONSIBLE FOR REESTABLISHING GROWTH. IF NO REQUEST IS MADE BY THE PROPERTY OWNER, DISTURBED SHRUBS AND BUSHES SHALL BE REMOVED AND DISPOSED OF OFF-SITE UNLESS OTHERWISE INDICATED.

15. CLEARING AND GRUBBING SHALL BE RESTRICTED TO PERMANENT EASEMENTS ONLY. CONTRACTOR SHALL LIMIT TREE/BUSH CLEARING IN THE TEMPORARY EASEMENTS, BETWEEN HOUSES AND ALONG PROPERTY LINES TO ONLY ABSOLUTELY NECESSARY FOR CONSTRUCTION.

ORDER OF PRECEDENCE GENERAL NOTES/TECHNICAL SPECIFICATIONS/PHOTOS

1. THE NOTES CONTAINED HEREIN ARE INTENDED TO SUPPLEMENT THE TECHNICAL SPECIFICATIONS AND PROVIDE EASY REFERENCE FOR THE CONTRACTOR. IN NO CASE SHALL THESE NOTES VOID ANY PART, SECTION OR REQUIREMENT OUTLINED IN THE TECHNICAL SPECIFICATIONS CONTAINED IN THE CONTRACT DOCUMENTS. IF CONFLICTS OCCUR BETWEEN THE TECHNICAL SPECIFICATIONS AND THE NOTES CONTAINED HEREIN, THE TECHNICAL SPECIFICATIONS SHALL SUPERSEDE.

2. PHOTOGRAPHS CONTAINED IN DRAWINGS ARE FOR INFORMATION PURPOSES ONLY AND THE CONTRACTOR SHALL NOT RELY ON THE LIMITED NUMBER OF PHOTOGRAPHS AS BEING REPRESENTATIVE OF ACTUAL SITE CONDITIONS. CONTRACTOR IS CHARGED WITH PERFORMING SITE INVESTIGATIONS TO ASCERTAIN EXISTING SITE CONDITIONS.

GENERAL NOTES			PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	PWC	NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. N.1	DWG. BY: PWC	WATER RESOURCES ENGINEERING DEPARTMENT				
	DATE: JAN. 01, 2012	APPROVED BY: J.E.G.					

2012 N1 GENERAL_NOTES.dwg

Drawn by D. Vaughn
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date Feburary 2012

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
PAVEMENT & TRAFFIC DETAILS

Revision	By	Date

115 Broadfoot Avenue
Fayetteville, N.C.
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Firm No. F-0106

ENGINEERS PLANNERS SURVEYORS
MOORMAN, KIZER & REITZEL, INC.

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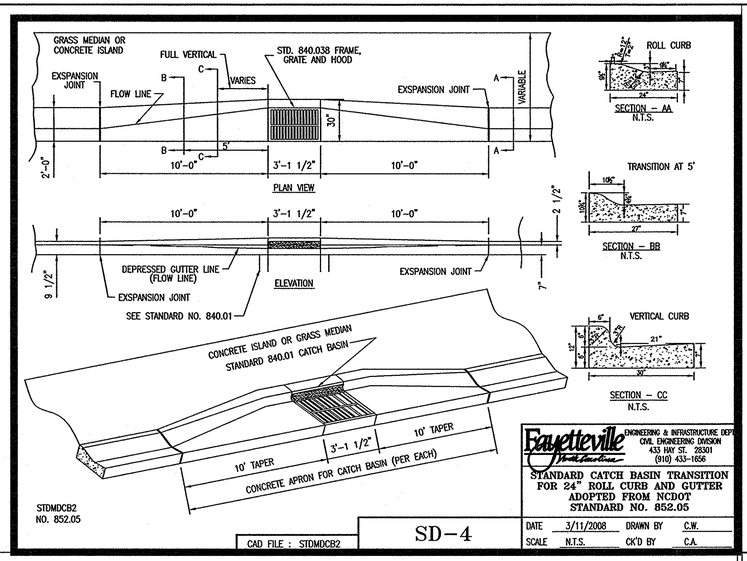
Sheet D-8



Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (910) 433-1656

STANDARD CATCH BASIN TRANSITION FOR 24" ROLL CURB AND GUTTER ADOPTED FROM NCDOT STANDARD NO. 852.05

CAD FILE : STDMDCB2 | **SD-4** | DATE 3/11/2008 | DRAWN BY C.W. | SCALE N.T.S. | CK'D BY C.A.

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1. CONTRACTOR SHALL SAW CUT OR MILL ALL PAVEMENTS STRAIGHT AND TRUE PRIOR TO TRENCHING. CONTRACTOR SHALL SAW CUT PATCH AREAS AGAIN IMMEDIATELY PRIOR TO PATCH PAVING . THE FINAL SAW CUT FOR PATCHES SHALL BE STRAIGHT WITH A NEAT SQUARE EDGE AND OF UNIFORM WIDTH PARALLEL WITH THE EDGE OF PAVEMENT/CURB LINE. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL..

2. CONTRACTOR SHALL SWEEP STREETS AND PROVIDE DUST CONTROL AT ALL TIMES VIA WATER TRUCK, BROOMS, COMPACTORS, ETC. DEBRIS FROM SWEEPING OPERATIONS SHALL NOT BE DIRECTED TOWARD YARDS. CLEAN UP OF DEBRIS, TRASH, EXCESS MATERIALS ETC. SHALL BE PERFORMED DAILY.

3. ANY TRENCHES OPENED FOR PAVING SHALL BE PAVED BY THE END OF THE SAME DAY. IF WEATHER CONDITIONS CHANGE, EQUIPMENT BREAKS DOWN, OR ANY OTHER OCCURRENCE THAT STOPS THE PAVING OPERATIONS OCCURS, BACKFILL ALL PREPARED AREAS SO THEY ARE PASSABLE BY TRAFFIC.

4. THE CONTRACTOR SHALL PATCH PAVE SERVICE LATERALS ON THE SAME DAY THAT MAIN LINE TRENCHES ARE PAVED. LATERALS SHALL BE PATCHED ON BOTH SIDES OF THE STREET AS PAVING PROGRESSES.

5. THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT PROPER TRAFFIC CONTROL PROVISIONS AND ANY DEVICES REQUIRED TO IDENTIFY OBSTRUCTIONS OR HAZARDS WITHIN THE RIGHT-OF-WAY TO INCLUDE REFLECTIVE CONES AT EACH SERVICE LATERAL, REFLECTIVE BARRELS ON RAISED MANHOLES, ETC.

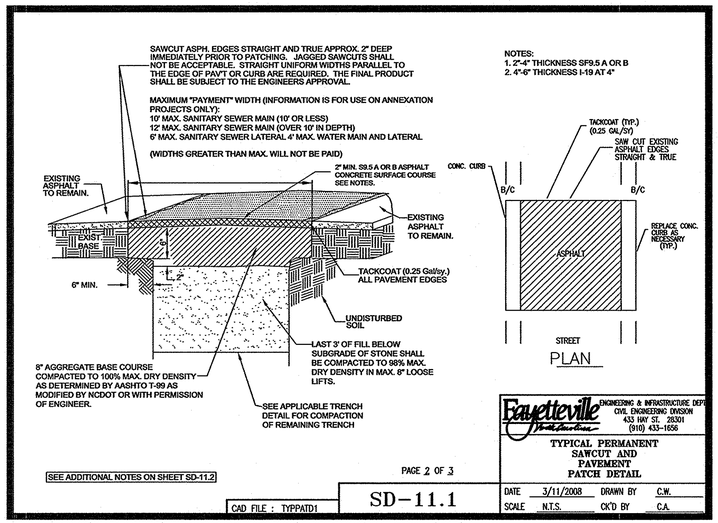
6. AT NO TIME SHALL THE CONTRACTOR LEAVE UNATTENDED AND/OR IMPROPERLY SECURE MAIN OR LATERAL TRENCHES WITH A VERTICAL ELEVATION DROP EXCEEDING 1" FROM EXISTING ASPHALT TO TRENCH SUB GRADE UNATTENDED OR OVERNIGHT.

PAVEMENT REPAIR NOTES | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | WATER RESOURCES ENGINEERING DEPARTMENT

SHEET NO. 1 OF 1 | DWG. NO. M.1 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

NO.	DATE	REVISION
1	07/2010	REVISED, DELETED NOTES

2013-M1 PAVEMENT_REPAIR_NOTES.dwg

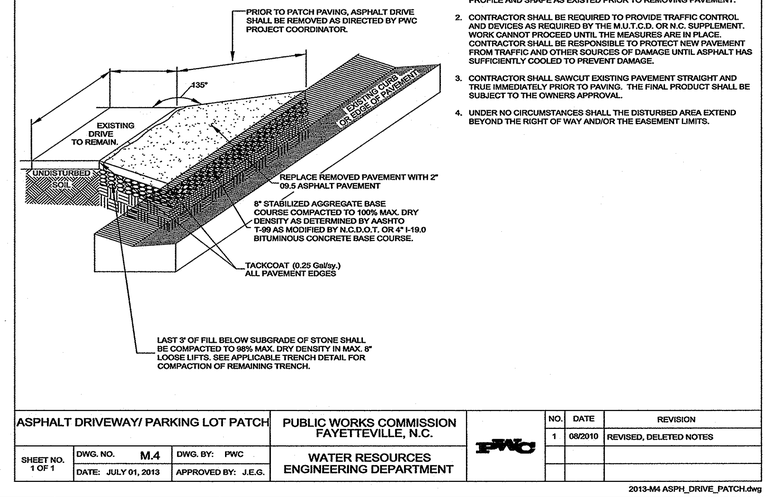


Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (910) 433-1656

TYPICAL PERMANENT SAWCUT AND PAVEMENT PATCH DETAIL

SEE ADDITIONAL NOTES ON SHEET SD-11.2 | PAGE 2 OF 3

CAD FILE : TYPPATD1 | **SD-11.1** | DATE 3/11/2008 | DRAWN BY C.W. | SCALE N.T.S. | CK'D BY C.A.



NOTES:

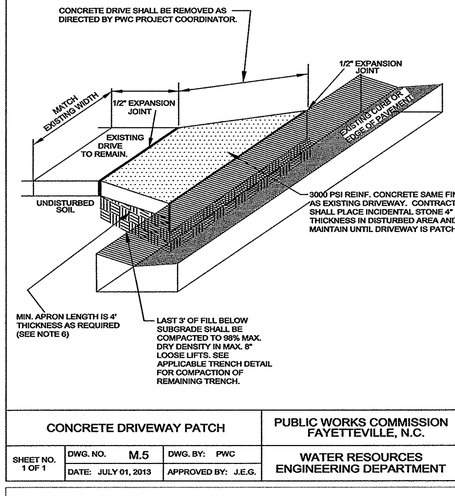
1. CONTRACTOR SHALL PATCH PAVEMENT TO THE SAME PAVEMENT PROFILE AND SHAPE AS EXISTED PRIOR TO REMOVING PAVEMENT.
2. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR N.C. SUPPLEMENT. WORK CANNOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE UNTIL ASPHALT HAS SUFFICIENTLY COOLED TO PREVENT DAMAGE.
3. CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT STRAIGHT AND TRUE IMMEDIATELY PRIOR TO PAVING. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.
4. UNDER NO CIRCUMSTANCES SHALL THE DISTURBED AREA EXTEND BEYOND THE RIGHT OF WAY AND/OR THE EASEMENT LIMITS.

ASPHALT DRIVEWAY/ PARKING LOT PATCH | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | WATER RESOURCES ENGINEERING DEPARTMENT

SHEET NO. 1 OF 1 | DWG. NO. M.4 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

NO.	DATE	REVISION
1	08/2010	REVISED, DELETED NOTES

2013-M4 ASPH_DRIVE_PATCH.dwg



NOTES:

1. CONTRACTOR SHALL REPLACE PAVEMENT TO THE SAME CROSS SECTION AS EXISTED PRIOR TO REMOVAL.
2. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR N.C. SUPPLEMENT. WORK CAN NOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE.
3. UNDER NO CIRCUMSTANCES SHALL THE DISTURBED AREA EXTEND BEYOND THE RIGHT OF WAY AND/OR THE EASEMENT LIMITS. UNLESS OTHERWISE APPROVED BY THE PWC PROJECT COORDINATOR.
4. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNER'S APPROVAL.
5. SAWCUT CONCRETE DRIVE STRAIGHT AND TRUE. JAGGED SAWCUTS SHALL NOT BE ACCEPTABLE. SAWCUTS SHALL BE STRAIGHT UNIFORM WIDTHS PERPENDICULAR TO THE DRIVEWAY.
6. MINIMUM RESIDENTIAL CONCRETE DRIVEWAY THICKNESS SHALL BE 5". MINIMUM COMMERCIAL CONCRETE DRIVEWAY THICKNESS SHALL BE 7".
7. CONTRACTOR SHALL CONTACT THE CITY OF FAYETTEVILLE'S CONSTRUCTION MANAGEMENT DEPARTMENT AT (910) 433-1656 A MINIMUM OF 24 HOURS IN ADVANCE FOR AN INSPECTION OF THE CONCRETE FORMS.
8. PROVIDE EXPANSION JOINT(S) AS REQUIRED BY THE CITY OF FAYETTEVILLE FOR FUTURE SIDEWALK PLACEMENT.
9. CURING COMPOUND SHALL BE UTILIZED, AS SPECIFIED BY THE CITY OF FAYETTEVILLE.
10. NEW EXPANSION JOINTS SHALL BE PLACED 4 TO 10 FEET FROM EXISTING EXPANSION JOINTS, AS SPECIFIED BY THE PWC PROJECT COORDINATOR.
11. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF FAYETTEVILLE REQUIREMENTS.

CONCRETE DRIVEWAY PATCH | PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. | WATER RESOURCES ENGINEERING DEPARTMENT

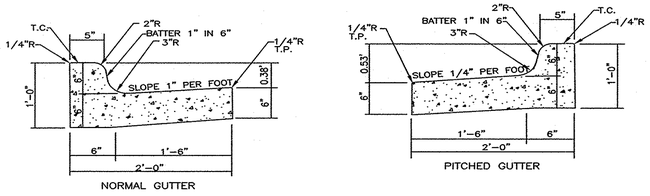
SHEET NO. 1 OF 1 | DWG. NO. M.5 | DWG. BY: PWC | DATE: JULY 01, 2013 | APPROVED BY: J.E.G.

NO.	DATE	REVISION

2013-M5 CONC_DRIVE_PATCH.dwg

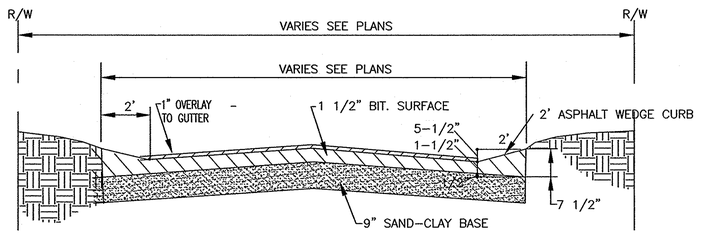
NOTES:

1. CURB AND GUTTER TO BE CONSTRUCTED IN 10 FOOT LENGTHS.
2. 1/2" EXPANSION JOINTS SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 30' AT THE ENDS AND MID-POINT OF RETURNS, AND AT ANY POINT WHERE THE NEW CURB AND GUTTER ABUTS OTHER CONCRETE STRUCTURES.
3. 5' LONG TRANSITIONS SHALL BE PROVIDED BETWEEN NORMAL GUTTER AND PITCHED GUTTER, UNLESS OTHERWISE NOTED ON THE PAVING PLANS.

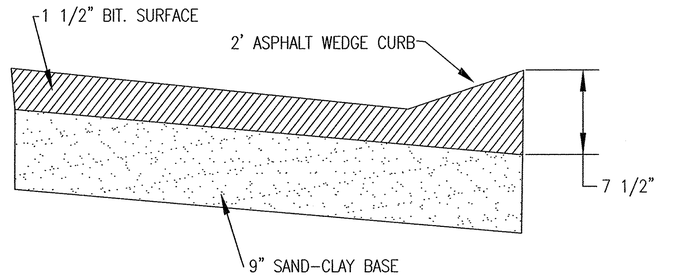


SEE SHEET D-2 SD-1

CONCRETE CURB & GUTTER
NTS



TYPICAL EXISTING STREET SECTION



Fayetteville — ENGINEERING & INFRASTRUCTURE DEPT. CIVIL ENGINEERING DIVISION 433 HAY ST. 28301 (910) 433-1656

ASPHALT WEDGE CURBING

CAD FILE : ASPWDGCRB | **SD-17** | DATE 3/4/09 | DRAWN BY CSA | SCALE N.T.S. | CK'D BY JPB

Drawn by D. Vaughn
Checked Jeffrey B Reitzel,PE,PLS
Reviewed Jeffrey B Reitzel,PE,PLS
Date Feburary 2012

City of Fayetteville Annexation Phase V
Paxton, Bridgeman & Godfrey Outfall
LaGrange Drainage Improvements
PAVEMENT, TRAFFIC & MISC. DETAILS

Revision	By	Date

115 Broadfoot Avenue
Fayetteville, N.C.
P.O. Box 53774
Phone 910-484-5191
Firm No. F-0106

M&R
ENGINEERS
PLANNERS
SURVEYORS
MOORMAN, KIZER & REITZEL, INC.

Scale AS SHOWN
Book no.
Sheet D-9