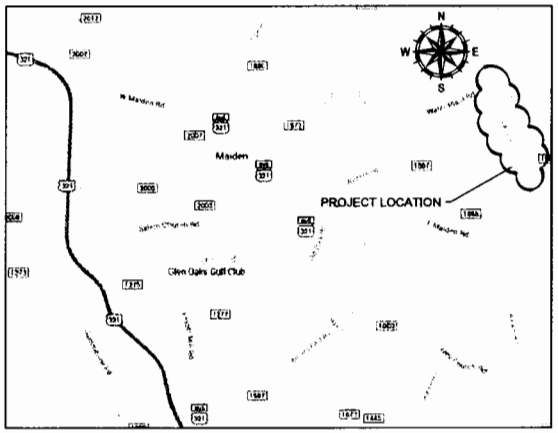
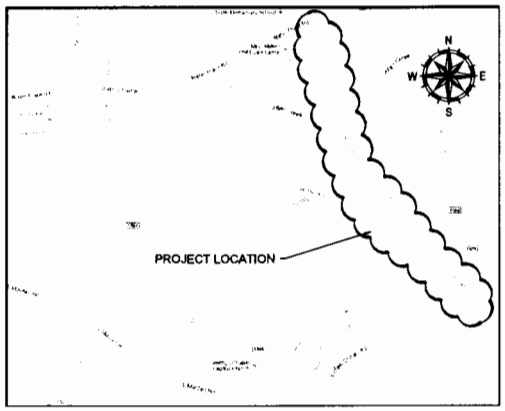
NOT FOR CONSTRUCTION

DAVIS ROAD
WATER IMPROVEMENTS
for
CATAWBA COUNTY, NC
JULY 2015



VICINITY MAP
SCALE: N.T.S.



LOCATION MAP
SCALE: N.T.S.

UTILITIES NOTICE:
EXISTING UNDERGROUND UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS. ACTUAL LOCATIONS MAY VARY SIGNIFICANTLY. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT RESULT FROM HIS FAILURE TO EXACTLY LOCATE AND PROTECT ANY AND ALL UNDERGROUND UTILITIES.

FOR AGENCY REVIEW

CONSULTANT – PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 07/13/15 DAVID WAYNE BAILEY

CONSULTING ENGINEERING FIRM

NORTH CAROLINA DAVIS & FLOYD, INC. No. F-0244 CERTIFICATE OF AUTHORIZATION

FOR CONSTRUCTION : _____
DATE

DAVIS & FLOYD

SINCE 1954

101 N. MAIN ST., STE 901
GREENVILLE, SC 29601
(864) 527-9800

WWW.DAVISFLOYD.COM

D&F JOB No.: 041031.00

THESE DRAWINGS AND THE DESIGN THEREON ARE THE PROPERTY OF DAVIS & FLOYD, INC. AND MAY NOT BE USED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE ENGINEER / ARCHITECT AND ANY INFRINGEMENT WILL BE SUBJECT TO LEGAL ACTION

NOT FOR CONSTRUCTION

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH APPLICABLE STANDARDS, ORDINANCES, REGULATIONS AND OTHER REQUIREMENTS OF NCDENR, CATAWBA COUNTY, THE TOWN OF MAIDEN, NCDOT, OSHA, AND OTHER LOCAL, STATE AND FEDERAL AGENCIES HAVING JURISDICTION OVER ANY PORTIONS OF THE WORK INCLUDED IN THIS PROJECT. REPRESENTATIVES OF THESE AGENCIES SHALL HAVE THE LEGAL AUTHORITY TO ACCESS AND INSPECT THE WORK SITES AT ANY TIME, SCHEDULED OR UNSCHEDULED. ALL PENALTIES, FINES OR VIOLATIONS OF ANY REGULATION, LAW OR OTHER ORDINANCE SHALL BE AT THE CONTRACTOR'S EXPENSE UNLESS IT RESULTS FROM THE NEGLIGENT ACTS OF OWNERS.
2. NO PORTION OF THE WORK SHALL BE ACCOMPLISHED UNTIL ALL OF THE APPROPRIATE PERMITS AND REQUIRED APPROVALS COVERING THAT PORTION OF THE WORK HAVE BEEN RECEIVED.
3. EXISTING UTILITIES HAVE BEEN SHOWN ON THE DRAWINGS BASED ON THE BEST INFORMATION AVAILABLE AND ARE SHOWN FOR THE CONTRACTORS' INFORMATION ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION OF ALL UNDERGROUND UTILITIES IN THE PROJECT WORK AREA AND SHALL CONTACT THE APPROPRIATE LOCATOR SERVICES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND OTHER IMPROVEMENTS AND SHALL MAKE SATISFACTORY REPAIRS FOR ALL DAMAGE RESULTING FROM THE WORK UNDER THIS PROJECT. OMISSIONS ON THE INCORRECT LOCATION OF UTILITIES ON THE PLANS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OR LIABILITY FOR DAMAGE TO UTILITIES.
4. IF THE CONTRACTOR IS UNABLE TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS BECAUSE OF CONFLICTS WITH EXISTING UTILITY, THE CONTRACTOR SHALL STAKE THE LOCATION OF THE UTILITY AND CONTACT THE ENGINEER FOR DIRECTION.
5. THE CONTRACTOR SHALL EMPLOY A REGISTERED LAND SURVEYOR TO LAYOUT THE WORK AND ASSURE CORRECT INSTALLATION.
6. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE REQUIREMENTS AND CONDITIONS OF REGULATORY PERMITS AND OTHER DOCUMENTS REQUIRED FOR THIS PROJECT AS THOUGH THE DOCUMENTS WERE ISSUED IN THE CONTRACTORS NAME.
7. PROVIDE JOINT RESTRAINTS ON ALL FITTINGS & VALVES FOR THE ENTIRE LENGTH OF THE INSTALLED PIPE LINE.PIPE LINE TRACER WIRE SHALL BE BROUGHT TO 6" ABOVE THE SURFACE AT EACH STRUCTURE, VALVE AND HYDRANT WHERE PIPE CONNECTS. TRACER WIRE SHALL BE ANCHORED TO THE STRUCTURE, VALVE OR HYDRANT SO THAT IT IS READILY AVAILABLE FOR FUTURE ACCESS AND TRACING. TRACER WIRE SHALL BE UNSPLICED AND CONTINUOUS BETWEEN STRUCTURES, VALVES AND HYDRANTS.
8. CONTRACTOR SHALL COORDINATE INSTALLATION OF WATER TAP WITH CATAWBA COUNTY UTILITY DEPARTMENT. TAPPING VALVE SHALL REMAIN CLOSED UNTIL OPENED BY THE OWNER.
9. ALL PIPE PLACEMENT SHALL BE INSPECTED BY GENERAL CONTRACTOR AND PHOTOGRAPHED PRIOR TO COVERING UP.
10. ALL EXISTING ROADS ARE PAVED, UNLESS OTHERWISE NOTED.
11. WHERE ROADWAY DITCHES AND DRAINAGE PIPES ARE DISTURBED, RELAY DRAINAGE PIPE TO THE ORIGINAL INVERT ELEVATIONS, LINE AND GRADE AND REGRADE DITCHES TO ESTABLISH POSITIVE DRAINAGE.
12. ALL DISTURBED AREAS SHALL BE GRASSED AS APPLICABLE. GRASSING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND DETAIL DRAWINGS FOR GRASSING AND NCDENR REQUIREMENTS.
13. THE CONTRACTOR SHALL INSTALL APPROVED EROSION CONTROL MEASURES AROUND CONSTRUCTION AREAS IN ACCORDANCE WITH THE NCDENR REQUIREMENTS, THE SPECIFICATIONS AND DETAIL DRAWINGS.
14. DISPOSAL OF EXCESS EXCAVATED MATERIAL AND HANDLING OF FILL MATERIAL REQUIRED FOR CONSTRUCTION SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND COMPLETION OF ALL WORK SHOWN ON THE COMPLETE SET OF CONSTRUCTION DOCUMENTS (PLANS AND SPECIFICATIONS AND OTHER PROJECT DOCUMENTS).
16. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL DEVICES AND MEASURES NEEDED WHETHER SHOWN OR NOT IN ORDER TO KEEP SEDIMENT FROM LEAVING THE CONSTRUCTION WORK AREAS AND FROM ENTERING THE WATERS OF THE STATE (NCS).
17. EXISTING MAILBOXES, SIGNS & OTHER IMPROVEMENTS MAY NOT BE SHOWN ON PLANS. CONTRACTOR SHALL PROTECT THESE EXISTING IMPROVEMENTS & REINSTALL OR REPLACE THESE ITEMS AFTER CONSTRUCTION, TO EXISTING OR BETTER CONDITIONS.
18. CONTRACTOR TO REPLACE, BY LICENSED SURVEYOR, ANY PROPERTY CORNERS DISTURBED DURING CONSTRUCTION.
19. CONTRACTOR TO COORDINATE ROAD CLOSURES, DETOURS, SIGNAGE, ETC. WITH NCDOT AND THE TOWN OF MAIDEN. ALL TRAFFIC CONTROL DEVICES SHALL MEET OR EXCEED NCDOT STANDARDS & SPECIFICATIONS, AND COMPLY WITH MUTCD.
20. THE CONTRACTOR SHALL DESIGNATE ONE SET OF DRAWINGS FOR "AS-BUILT DRAWINGS". THE CONTRACTOR SHALL INDICATE ON THESE DRAWINGS ALL FIELD CHANGES AFFECTING THE DESIGN AS WELL AS LOCATIONS AS ACTUALLY INSTALLED. THE INSTALLED "AS-BUILT DRAWINGS" SHALL BE KEPT CURRENT BY THE CONTRACTOR. THE "AS-BUILT DRAWINGS" SHALL BE DELIVERED TO THE OWNER UPON COMPLETION AND ACCEPTANCE OF THE WORK. FINAL PAYMENT FOR THE WORK WILL NOT BE MADE UNTIL THE "AS-BUILT DRAWINGS" HAVE BEEN COMPLETED AND DELIVERED AS INDICATED ABOVE.

SHEET INDEX

GENERAL

1. G-000 TITLE SHEET
2. G-001 GENERAL NOTES, LEGEND & SHEET INDEX

CIVIL

3. CU-201 DAVIS ROAD - STA. 0+00.0 - STA. 14+40.0
4. CU-202 DAVIS ROAD - STA. 14+40.0 - STA. 29+00.0
5. CU-203 DAVIS ROAD - STA. 29+00.0 - STA. 43+50.0
6. CU-204 DAVIS ROAD - STA. 43+50.0 - STA. 58+00.0
7. CU-205 DAVIS RD., BUFFALO SHOALS RD. & BEAL RD. - STA. 58+00.0 - STA. 72+50.0
8. CU-206 BEAL ROAD - STA. 72+50.0 - STA. 86+50.0
9. CU-207 BEAL ROAD - STA. 86+50.0 - STA. 100+00.0
10. CU-208 BEAL ROAD - STA. 100+00.0 - STA. 103+69.66
11. CU-209 FRANCIS LN. STA. 0+00.0 - STA. 3+00.0
12. CU-501 WATER DETAILS - SHEET 1
13. CU-502 WATER DETAILS - SHEET 2
14. CU-503 EROSION CONTROL DETAILS - SHEET 1
15. CU-504 EROSION CONTROL DETAILS - SHEET 2
16. CU-505 EROSION CONTROL DETAILS - SHEET 3
17. CU-506 EROSION CONTROL DETAILS - SHEET 4

SURVEY NOTES

1. BOUNDARY AND TOPOGRAPHIC SURVEYS PERFORMED BY DAVIS & FLOYD, TITLED "DAVIS ROAD", DATED JANUARY 25, 2015.
2. HORIZONTAL DATUM IS NC GRID NAD 83.
3. VERTICAL DATUM IS NAVD 88.

SITE WORK ABBREVIATIONS

FM	FORCE MAIN
IW	INDUSTRIAL WASTE
PE	POLYETHYLENE
SS	SANITARY SEWER
CI	CAST IRON
DCVA	DOUBLE CHECK VALVE ASSEMBLY
SMH	SANITARY SEWER MANHOLE
PW	POTABLE WATER
TBM	TEMP. BENCH MARK

EROSION CONTROL LEGEND:

PERMANENT SEEDING: PS
ECB OR TRM:
WATER BAR:
COMPOST SOCK:
SILT FENCE:
LIMIT OF DISTURBANCE:
SEDIMENT TUBE:
ROCK PIPE INLET PROTECTION:
CONSTRUCTION ENTRANCE:

LEGEND

NEW / EXISTING

EDGE OF PAVEMENT
PROPERTY LINE
EASEMENT LINE
CONTOUR LINE
SPOT ELEVATION
TOP OF BANK LINE
BOTTOM OF BANK LINE
SHRUB
TREE
COMMUNICATION/TELEPHONE CABLE, UG
ELEC LINES, OVERHEAD
SILT FENCE
STORM DRAIN LINE
UTILITY POLE
GUY ANCHOR
5/8" REBAR FOUND
CONCRETE MONUMENT FOUND
SIGN
COMMUNICATION ACCESS/TPED
DOMESTIC WATER LINES
TREE AND VEGETATION LINES
ROAD CENTERLINE
WETLAND LINES
MARSH / WETLAND
RIPRAP ARMORING
SEDIMENT TUBE
BORES
SEWER FORCE MAIN
WOODS LINE
WATER SERVICE W/ METER
WATER SERVICE W/OUT METER
SEWER LATERAL/SERVICE
SEWER MANHOLE
GAS LINE
UTILITY LINE
GAS VALVE
CATCH BASIN
MANHOLE
CLEANOUT
CURB INLET/GRATE INLET/DROP INLET
ENDWALL/HEADWALL
CULVERT
FLARED END SECTION
CULVERT INVERT
GAS METER
FIRE HYDRANT
WATER VALVE
GAS VALVE
POST INDICATOR VALVE
GUY
PEDESTAL
TEST BORE
FINISH FLOOR ELEVATION
CONCRETE CURB
CONCRETE CURB AND GUTTER
ASPHALT PAVEMENT
CONCRETE PAVEMENT
GRAVEL
FENCE
GUARDRAIL
BOLLARD
CONTROL POINT
BENCHMARK
RAILROAD
SANITARY LINE
FORCE MAIN

FOR AGENCY REVIEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — DAVIS & FLOYD, INC. No. F-0214 — CERTIFICATE OF AUTHORITY

NORTH CAROLINA PROFESSIONAL SEAL — No. 041031 — 07/31/15

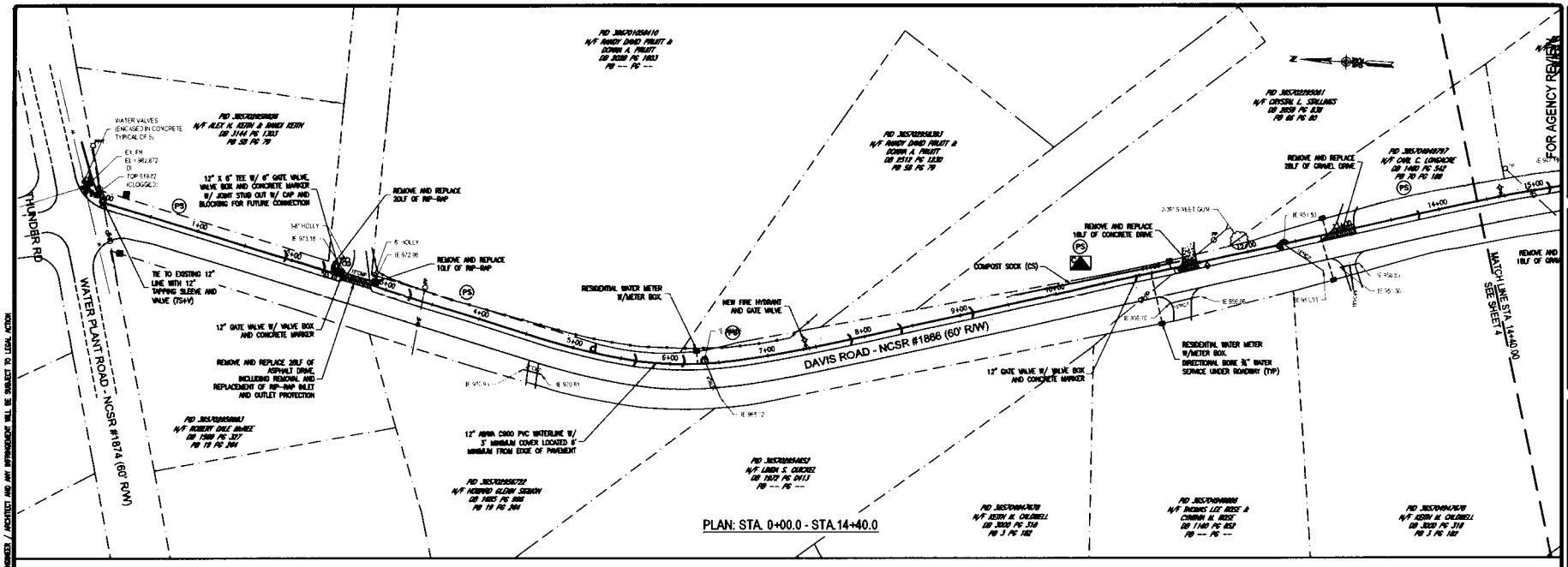
DAVIS & FLOYD
SINCE 1904
EVER-ADVANCING LAND
101 N. MAIN STREET, SUITE 801
GREENVILLE, SC 29601
864-331-8800

CATAWBA COUNTY
MAIDEN, NORTH CAROLINA
DAVIS ROAD WATER IMPROVEMENTS

GENERAL NOTES, LEGEND AND SHEET INDEX

41031.00			
JULY 2015			
CK/AP			
G001			
2	17		

NOT FOR CONSTRUCTION



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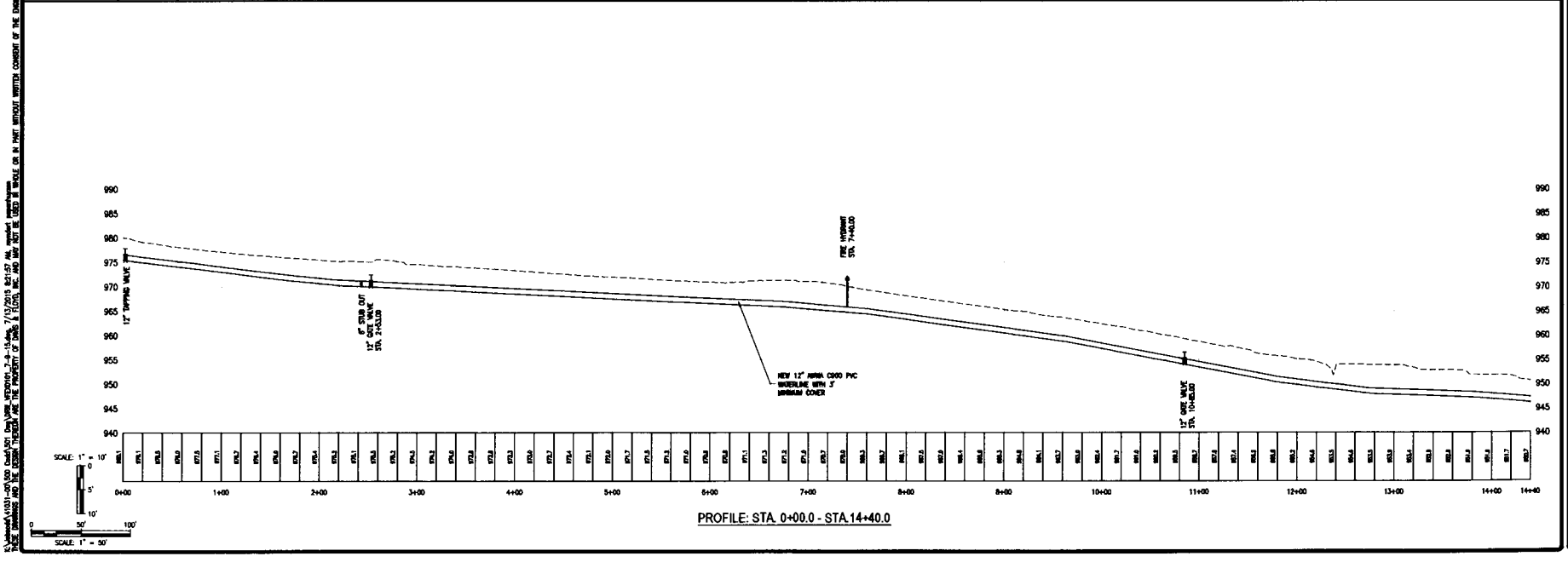


PROFILE: STA. 0+00.0 - STA.14+40.0

DAVIS & FLOYD
SINCE 1964
101 N. MAIN STREET, SUITE 601
GREENVILLE, SC 29601

CATAWBA COUNTY
MAIDEN, NORTH CAROLINA

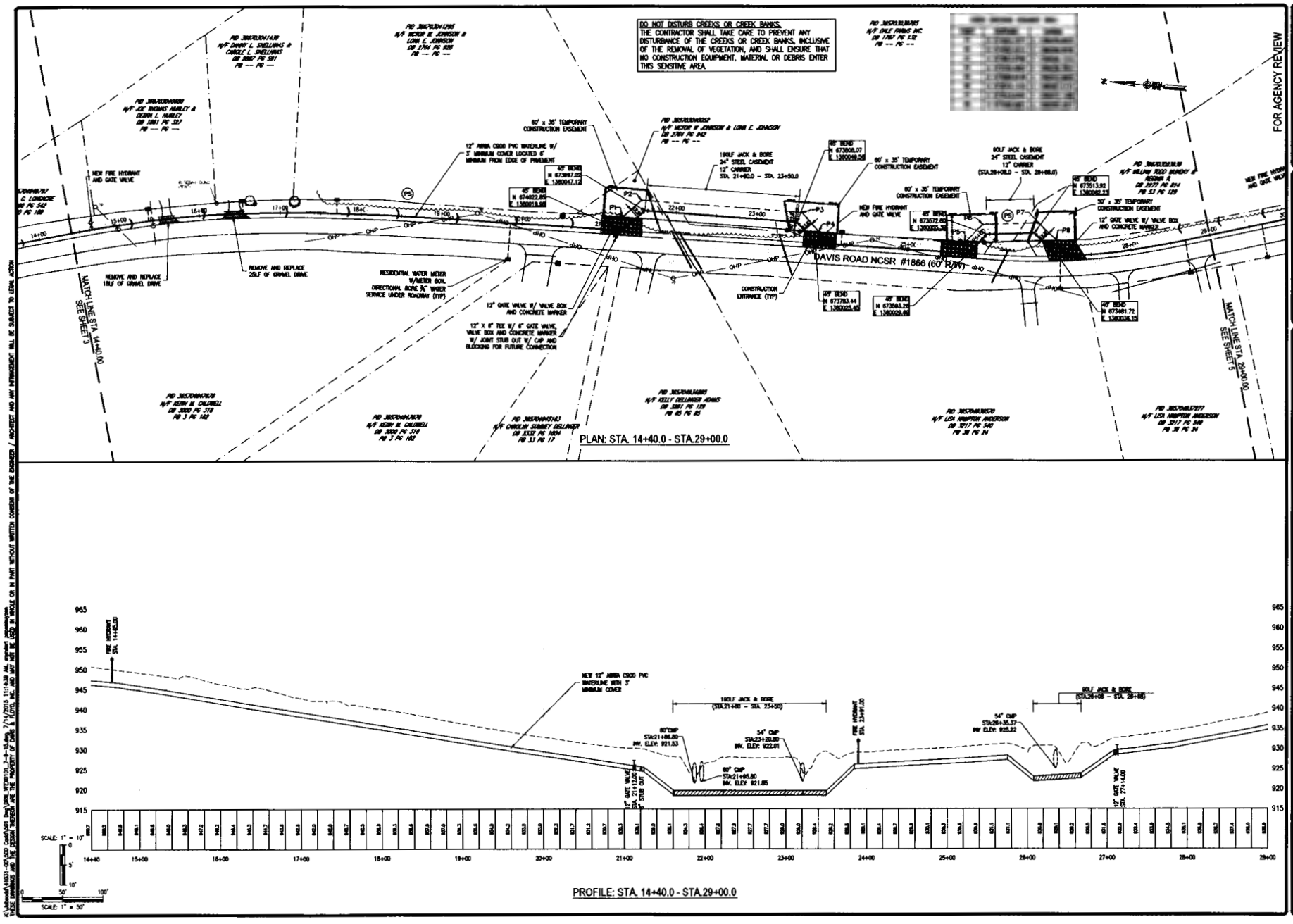
DAVIS ROAD WATER IMPROVEMENTS

DAVIS ROAD
STA. 0+00.0 – STA. 14+40.0

JOB NO. 41001.00
DATE JULY 2015
DR. CJ/AP
CK. MP
DS. MP
PM. MP
DWG. CU201

CU201
3 of 17

NOT FOR CONSTRUCTION



DAVIS & FLOYD
101 N. MAIN STREET, SUITE 801
GREENVILLE, SC 29601

CATAWBA COUNTY
HICKORY, NORTH CAROLINA

DAVIS ROAD WATER IMPROVEMENTS

DAVIS ROAD
STA. 14+40.0 – STA. 29+00.0

JOB NO. 41031.00
JULY 2015

CU202

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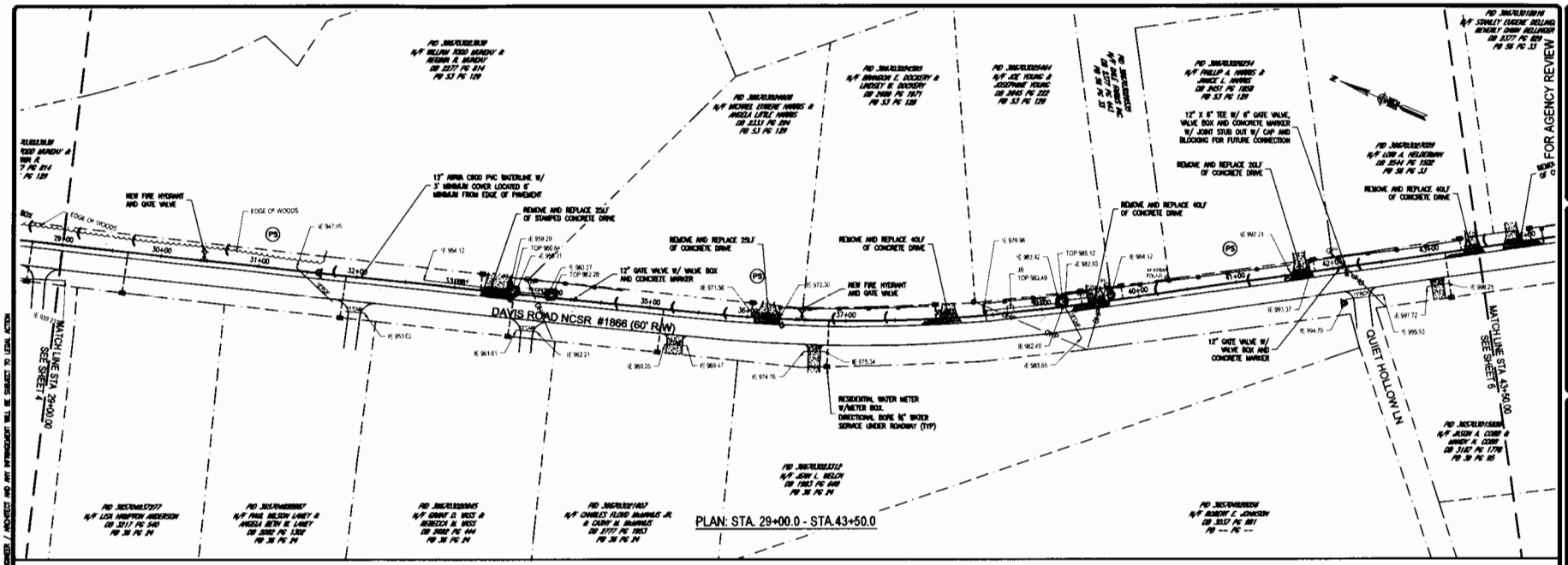
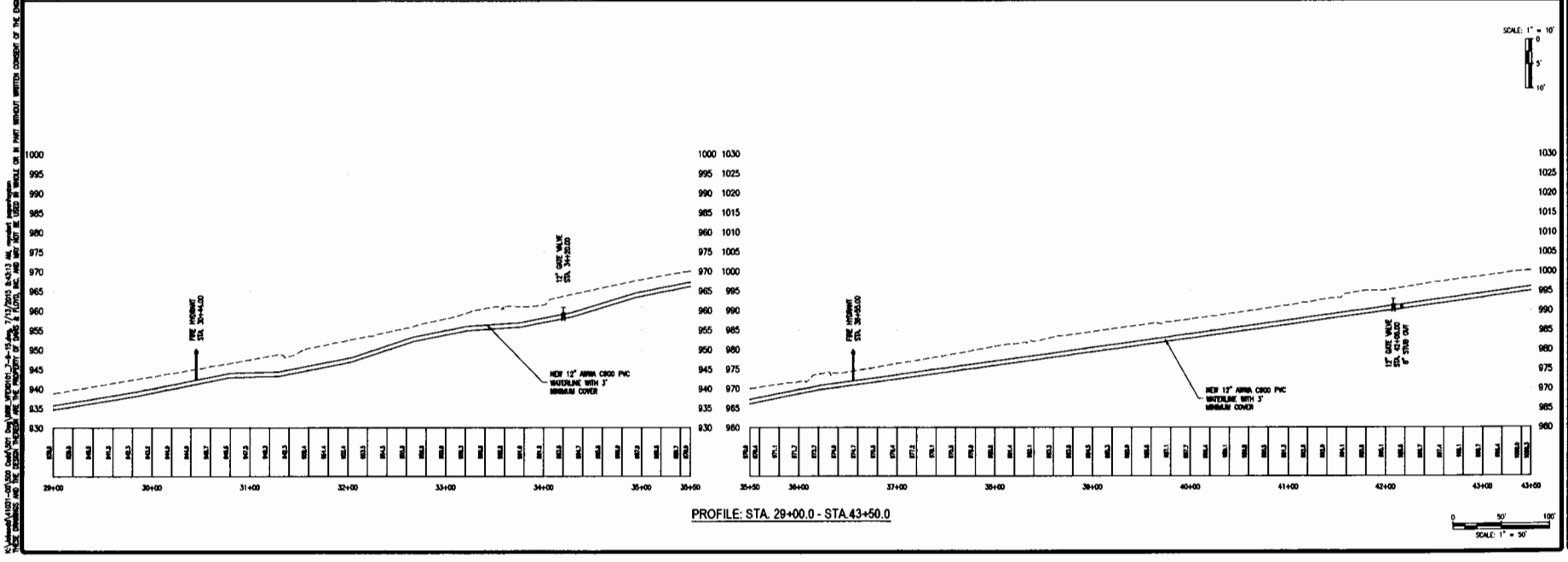
NOT FOR CONSTRUCTION





DAVIS & FLOYD
ESTABLISHED 1904
101 N. MAIN STREET, SUITE 601
GREENVILLE, SC 29601
864-527-0000

CATAWBA COUNTY
HICKORY, NORTH CAROLINA

DAVIS ROAD WATER IMPROVEMENTS

DAVIS ROAD
STA. 29+00.0 - STA. 43+50.0

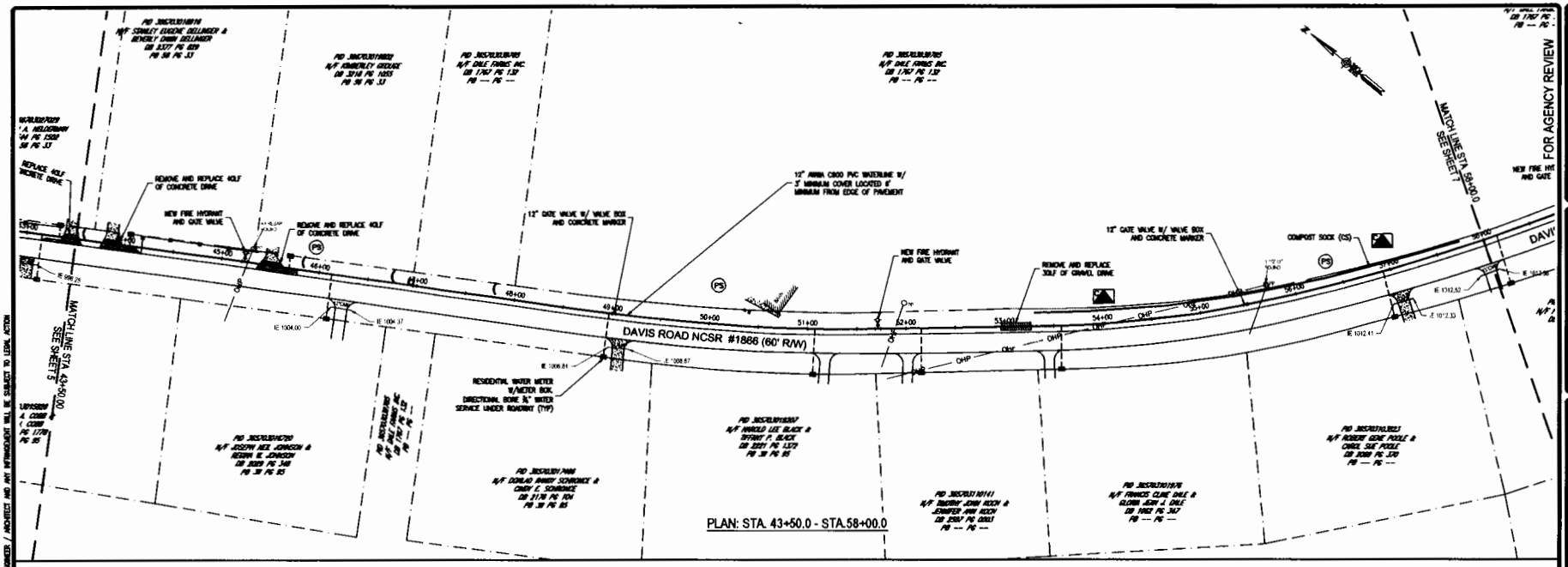
JOB NO. 41-051.00
DATE JULY 2015
DRAWN CLP
CHKD
APVD
PROJ MGR
DWG

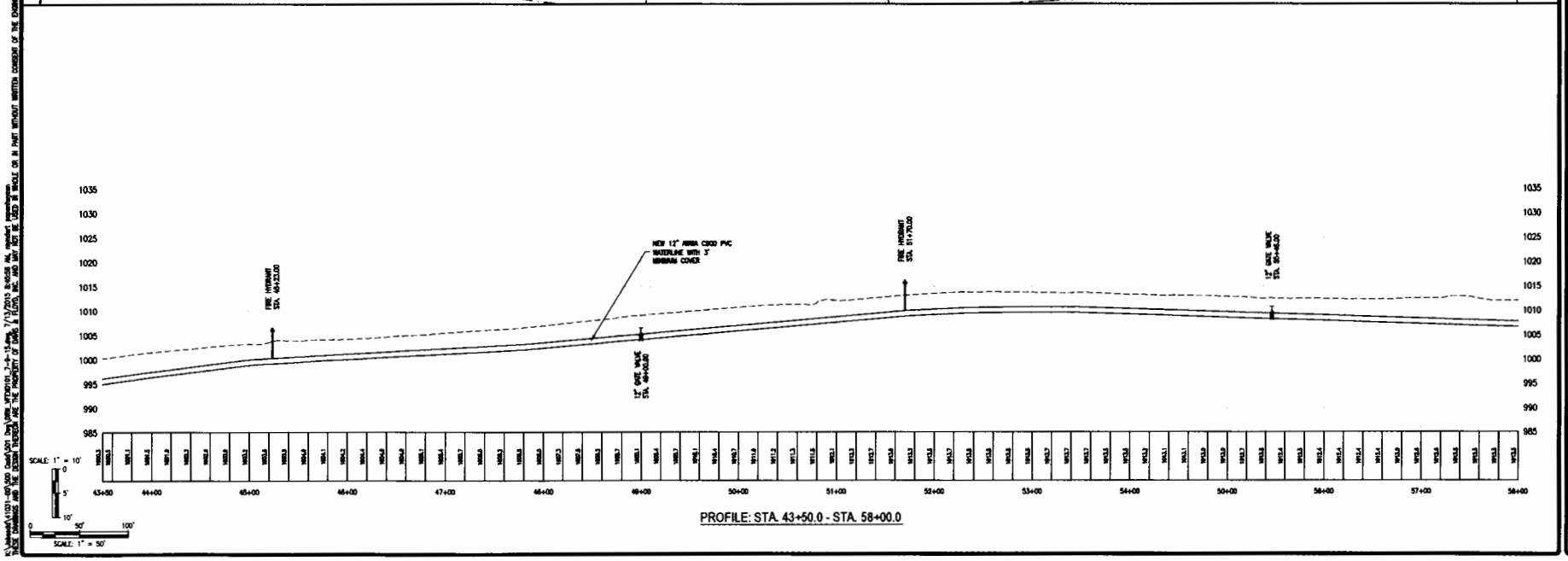
CU203

SHEET 5 OF 17

FOR AGENCY REVIEW

NOT FOR CONSTRUCTION





FOR AGENCY REVIEW

DAVIS & FLOYD
SINCE 1914
www.davisfloyd.com
101 N. MAIN STREET, SUITE 801
GREENVILLE, SC 29601
864-527-9800

CATAWBA COUNTY
HICKORY, NORTH CAROLINA

DAVIS ROAD WATER IMPROVEMENTS

DAVIS ROAD
STA. 43+50.0 – STA. 58+00.0

JOB NO. 41031.00
JULY 2015
DWN CHKD SUP PM

CU204
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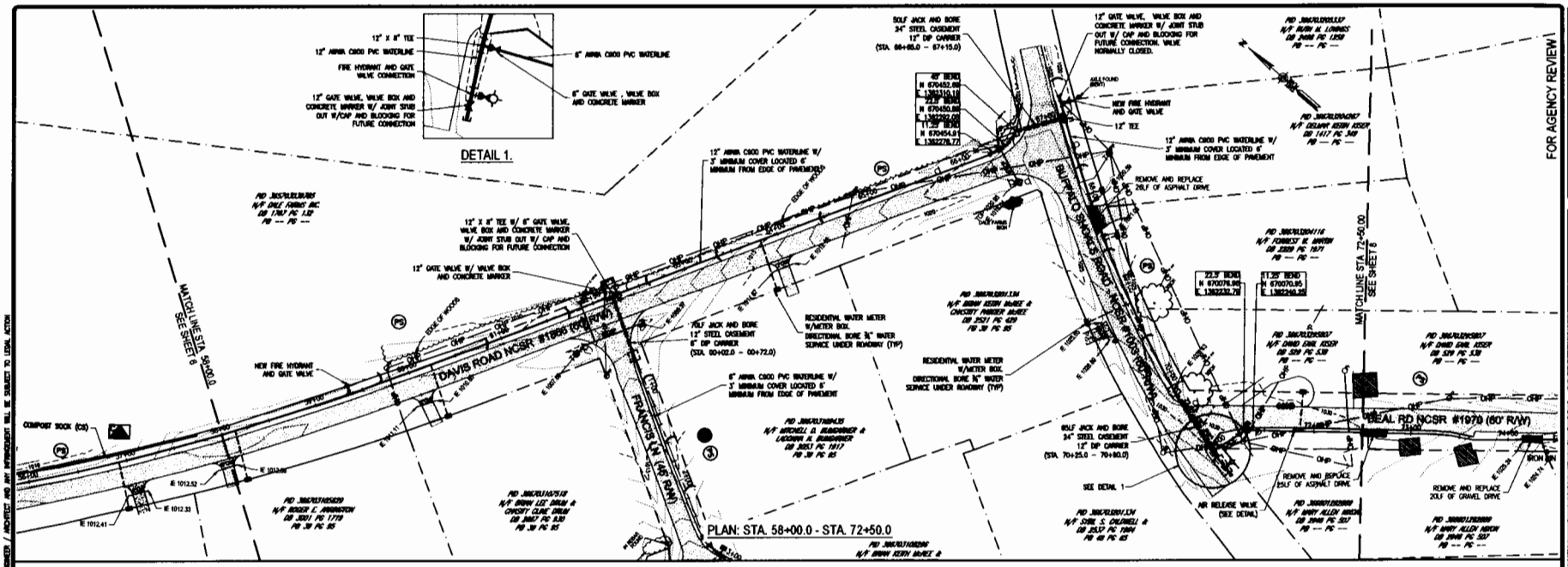
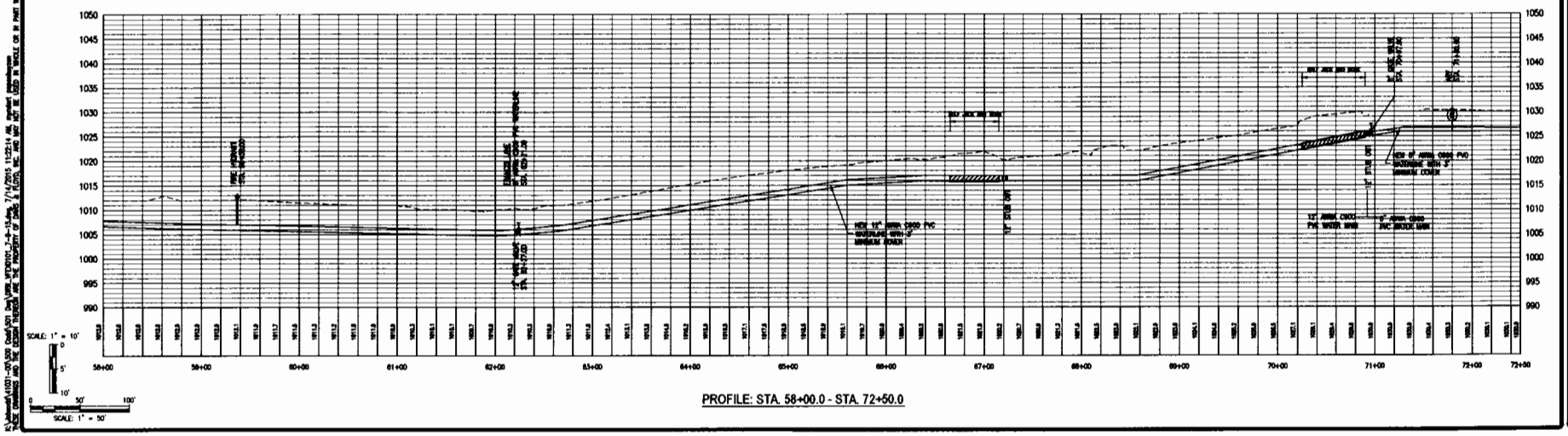
NOT FOR CONSTRUCTION





PROFILE: STA. 58+00.0 - STA. 72+50.0

FOR AGENCY REVIEW

DAVIS & FLOYD
SINCE 1904
101 N. MAIN STREET, SUITE 601
GREENVILLE, SC 29601
864-527-0800

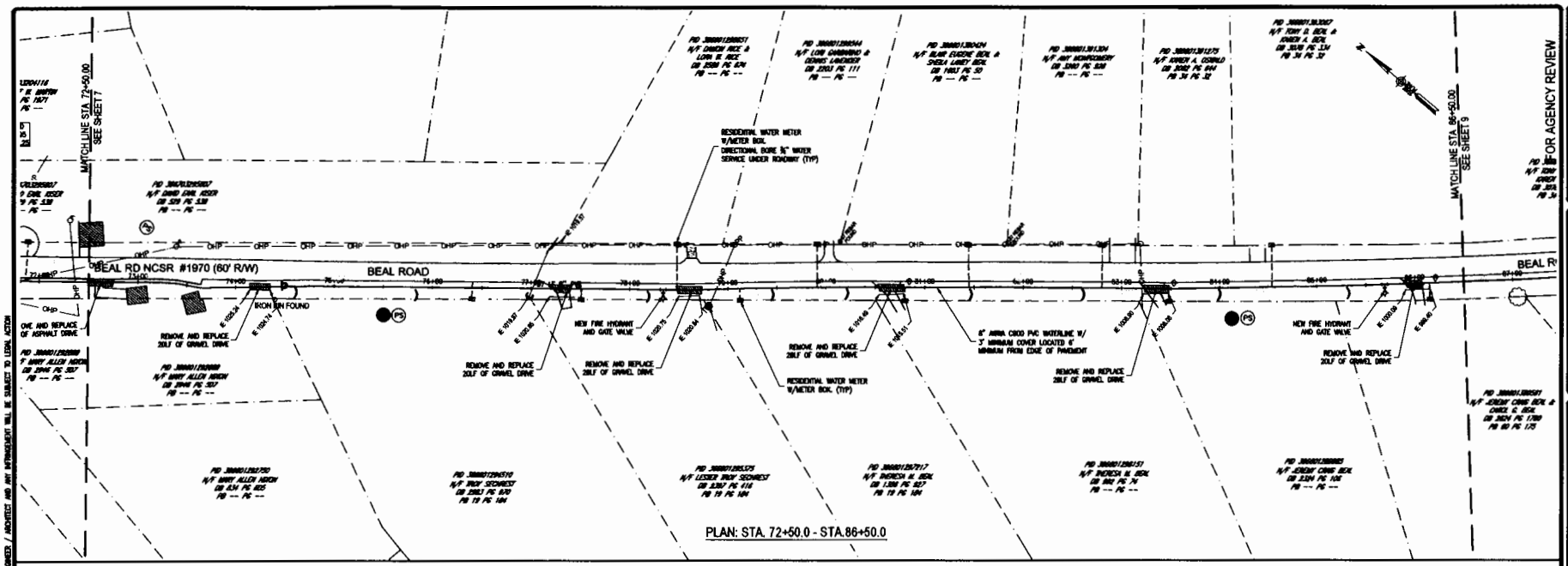
CATAWBA COUNTY
HICKORY, NORTH CAROLINA

DAVIS ROAD WATER IMPROVEMENTS

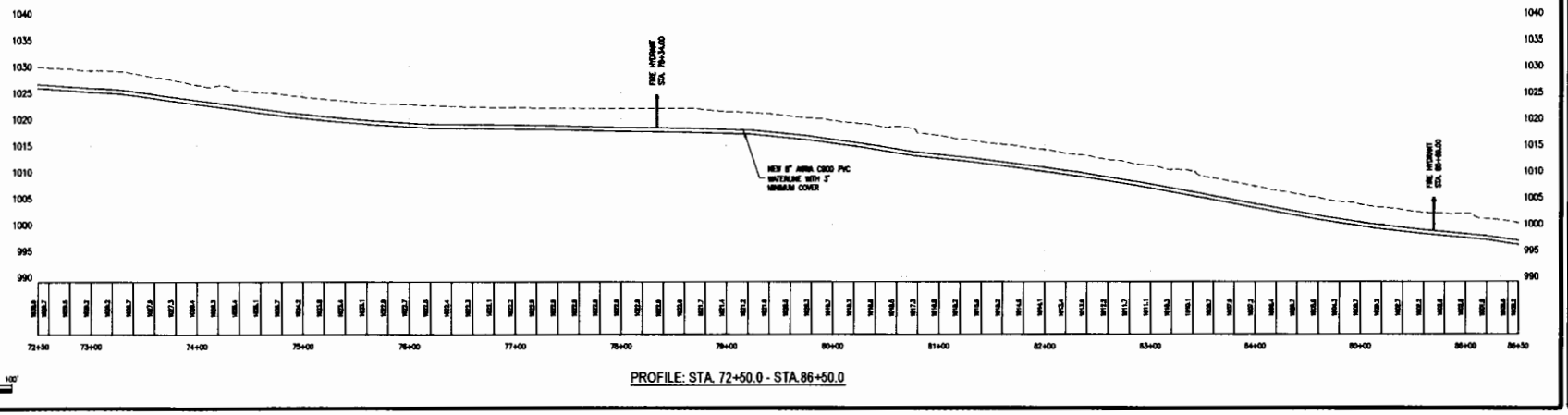
DAVIS ROAD, BUFFALO SHOALS ROAD AND BEAL ROAD
STA. 58+00.0 - STA. 72+50.0

JOB NO. 14-0031.00
DATE JULY 2015
DR/CHKD
SCALE
DWG
CU205
SHEET 7 OF 17

NOT FOR CONSTRUCTION



PLAN: STA. 72+50.0 - STA.86+50.0



PROFILE: STA. 72+50.0 - STA.86+50.0

DAVIS & FLOYD
SINCE 1934
DAVIS & FLOYD, INC.
161 N. MAIN STREET, SUITE 601
GREENVILLE, SC 29601
864-527-8000

CATAWBA COUNTY
HICKORY, NORTH CAROLINA

DAVIS ROAD WATER IMPROVEMENTS

BEAL ROAD
STA. 72+50.0 – STA. 86+50.0

JOB NO. 41031.00
JULY 2015
DWN
CHKD
SUP
PM
PMD
CHAP

CU206

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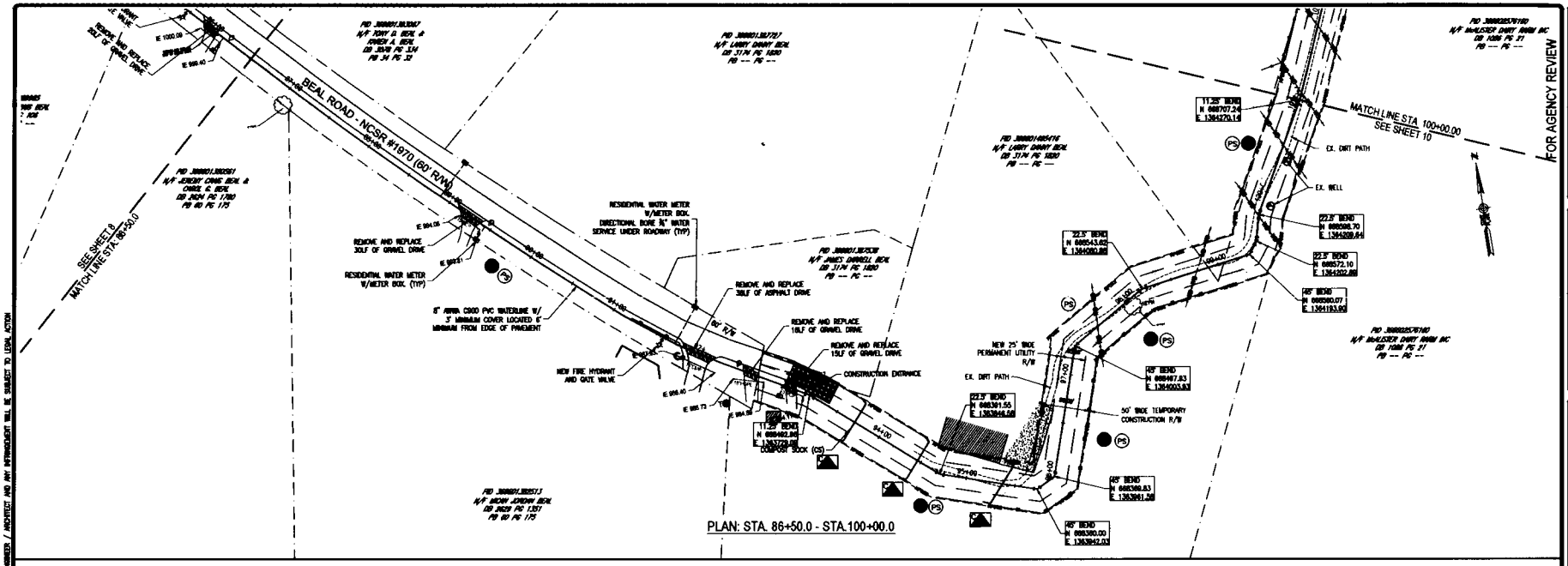

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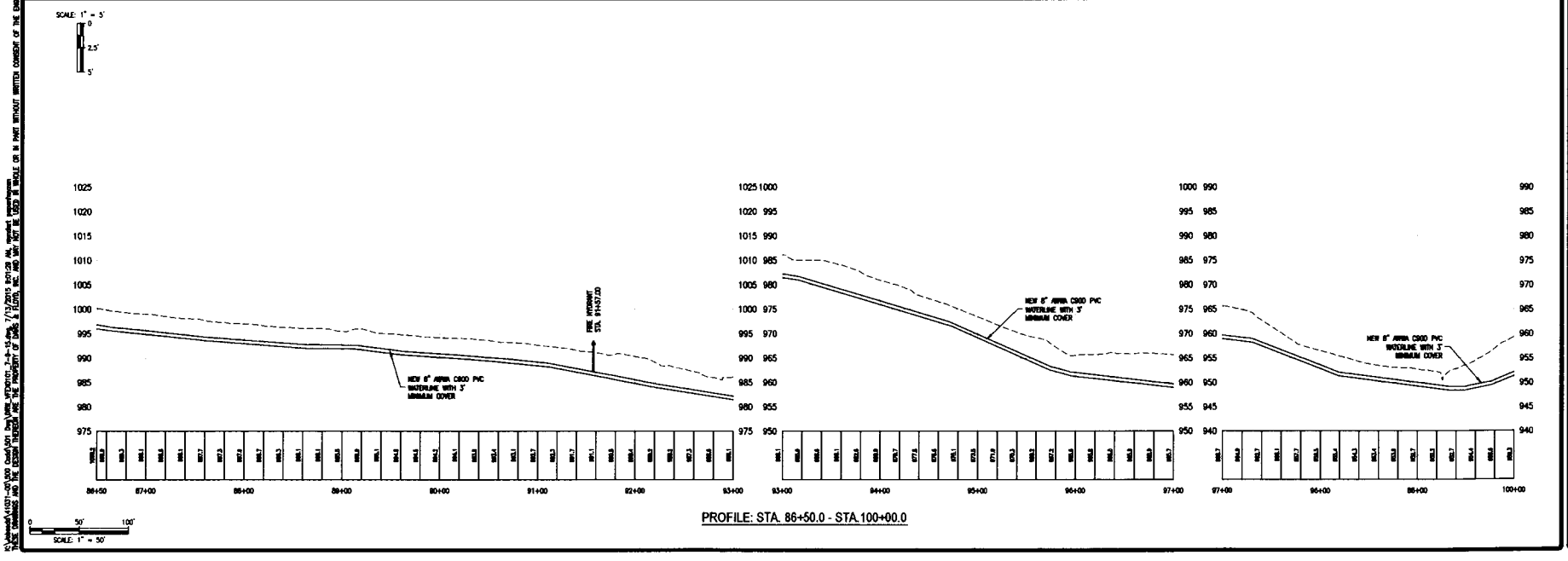

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DAVIS & FLOYD
SINCE 1904
101 N. MAIN STREET, SUITE 501
GREENVILLE, SC 29601
864-527-8000

CATAWBA COUNTY
HICKORY, NORTH CAROLINA

DAVIS ROAD WATER IMPROVEMENTS

BEAL ROAD
STA. 86+50.0 – STA. 100+00.0

41031.00
JULY 2015
CU207
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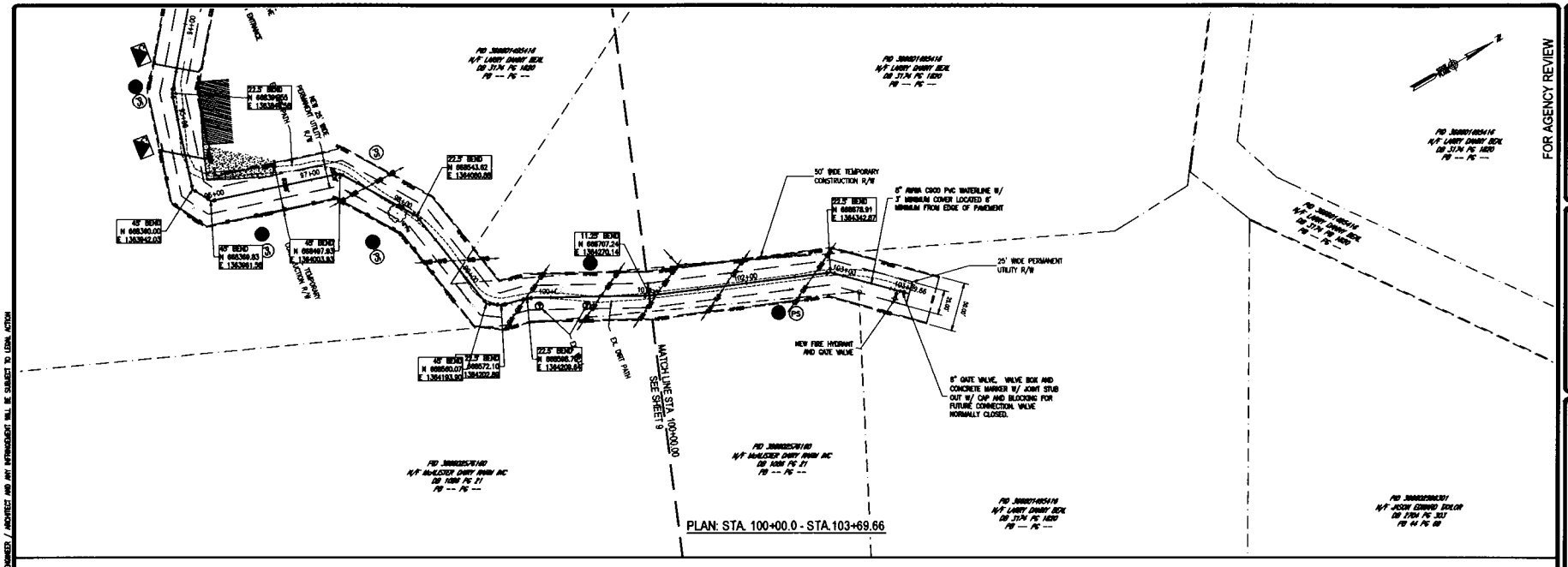

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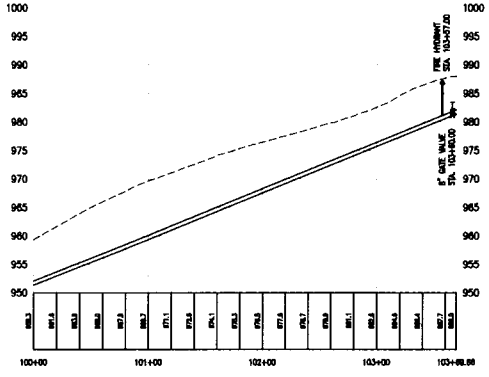


PROFILE: STA. 100+00.0 - STA.103+69.66

SCALE: 1" = 5'

SCALE: 1" = 50'

FOR AGENCY REVIEW

DAVIS & FLOYD

CATAWBA COUNTY

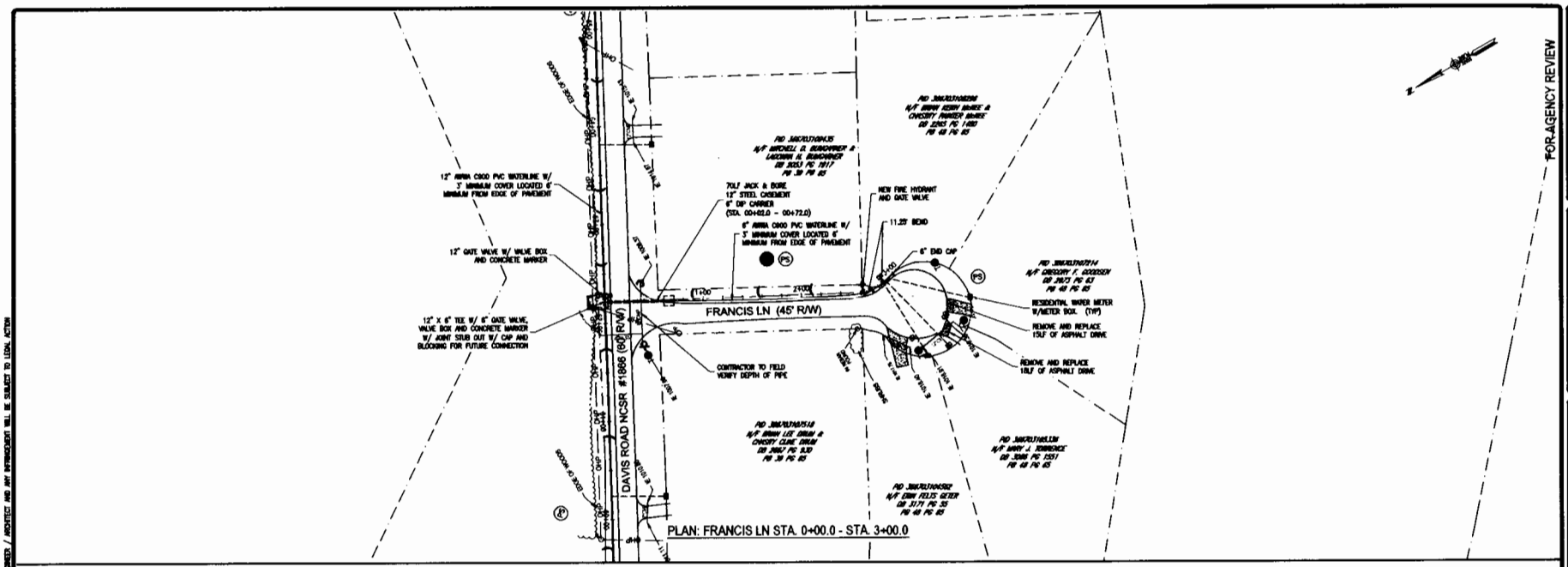
DAVIS ROAD WATER IMPROVEMENTS

BEAL ROAD

STA. 100+00.0 – STA. 103+69.66

CU208

NOT FOR CONSTRUCTION



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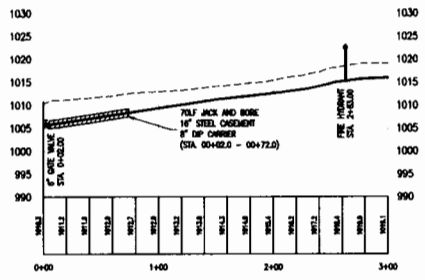

PROFILE: FRANCIS LN STA. 0+00.0 - STA. 3+00.0

SCALE: 1" = 5'

SCALE: 1" = 50'

FOR AGENCY REVIEW

DAVIS & FLOYD

CATAWBA COUNTY

HICKORY, NORTH CAROLINA

DAVIS ROAD WATER IMPROVEMENTS

FRANCIS LANE
STA. 0+00.0 - STA. 3+00.0

JOB NO. 415017.00
JULY 2015

CU209

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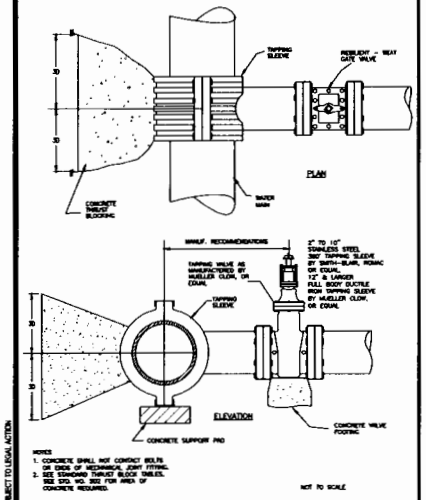
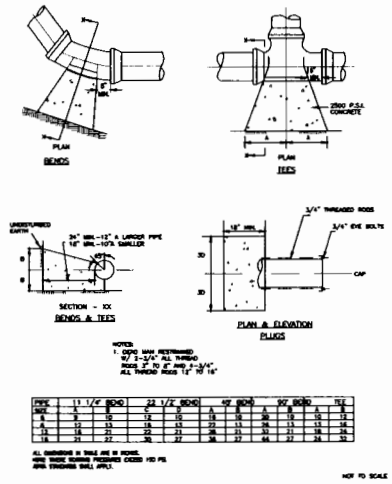
NOT FOR CONSTRUCTION



TAPPING SLEEVE & VALVE ASSEMBLY

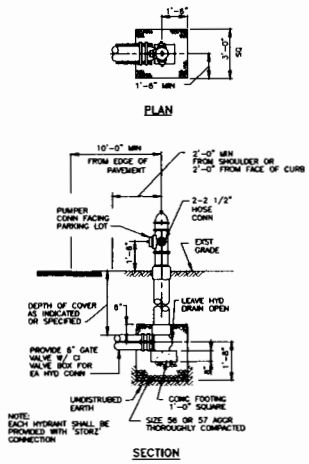
NO SCALE



PIPE SIZE	11 1/4° BEND			22 1/2° BEND			45° BEND			90° BEND			TEE	
	A	B	C	A	B	C	A	B	C	A	B	C	A	B
4	9	9	15	12	10	15	15	10	20	18	15	15	12	12
6	12	13	18	15	13	20	21	13	26	27	15	15	18	18
8	15	16	21	22	21	26	31	21	32	36	21	18	24	24
10	21	22	30	27	26	32	37	26	44	42	27	24	30	30

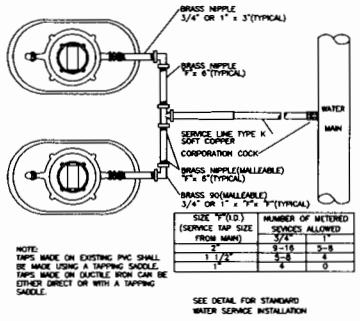
THRUST BLOCKING FOR WATER MAINS

NO SCALE



FIRE HYDRANT INSTALLATION

NO SCALE



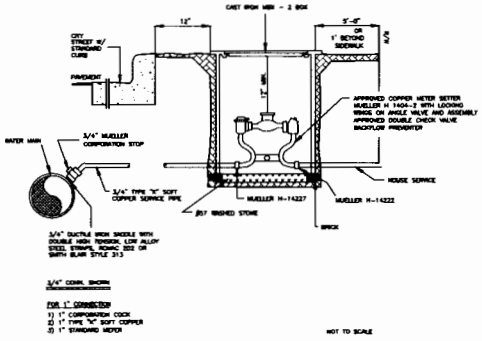
SIZE "F" (I.D.) (SERVICE TAP SIZE FROM MAIN)	NUMBER OF METERED SERVICES ALLOWED	
	3/4"	1"
2	9-16	5-8
1 1/2"	5-8	4
1"	4	0

NOTE:
TAPS MADE ON EXISTING PVC SHALL BE MADE USING A TAPPING SADDLE. TAPS MADE ON DUCTILE IRON CAN BE EITHER DIRECT OR WITH A TAPPING SADDLE.

SEE DETAIL FOR STANDARD WATER SERVICE INSTALLATION

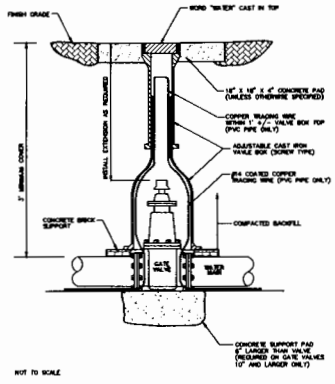
DUAL METER ASSEMBLY

NO SCALE



TYPICAL WATER SERVICE CONNECTION

NO SCALE



VERTICAL GATE VALVE ASSEMBLY

NO SCALE

FOR AGENCY REVIEW

NORTH CAROLINA NOT EXPIRED DAVID B. FLOYD INC. NO. F-0284 CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
ESTD. 1954
ENGINEERS/PLANNERS
101 N. MAIN STREET, SUITE 611
GREENVILLE, SC 29601
864-527-8000

CATAWBA COUNTY
NORTH CAROLINA
MAIDEN, NC
PROJECT TITLE
DAVIS ROAD
WATER IMPROVEMENTS

DRAWING TITLE
WATER DETAILS - SHEET 1

NO.	REVISIONS	DATE	CHECKED

DATE: 12/01/99
SCALE: AS NOTED
DATE: JULY 2015
DESIGNED: BJF
DRAWN: BJF
CHECKED: BJF
REVIEWED: DBF
PROJ. MGR.: TRM
PROJ. ENGR.: DMW

CU 501

PAGE 12 OF 17

K:\Admin\041031-00600 Catawba\1 Design\031-00_UTE_DETAIL SHTS.dwg, 7/14/2015 8:47:01 AM, mpowell, jeepwrtmyp.pltt
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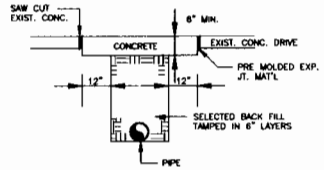
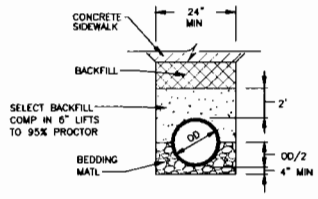
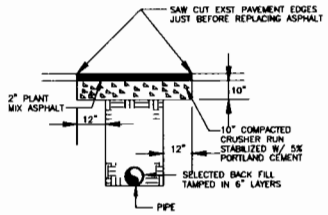


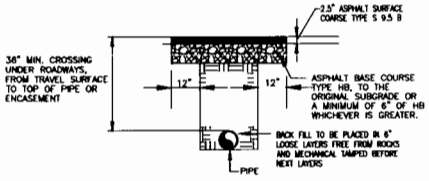
CONCRETE DRIVEWAYS



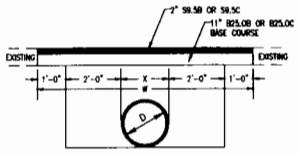
UNDER SIDEWALK



PRIVATE DRIVES



TOWN STREETS



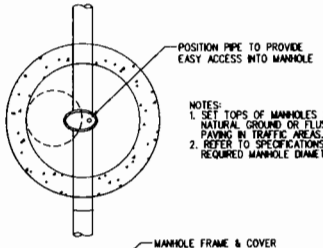
D	X	W
12"	1'-4"	7'-4"
15"	1'-7"	7'-7"
18"	1'-10"	7'-10"
24"	2'-4"	8'-8"
30"	3'-1"	9'-1"
36"	3' 8"	9' 8"
42"	4'-5"	10'-5"
48"	5'-0"	11'-0"

REFER TO NCDOT STD. DWG. #654.01

PAVEMENT REPAIRS ON ROADS NOT TO BE RESURFACED
(STATE ROADS ONLY)

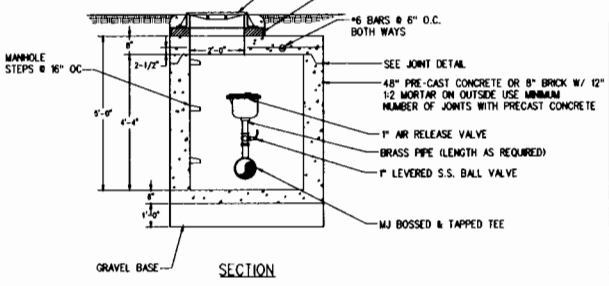
CUTTING & REPLACING PAVEMENT AND PIPE TRENCH

NO SCALE



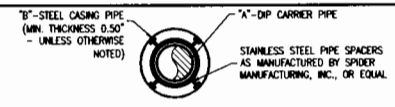
NOTES:
1. SET TOPS OF MANHOLES 2" ABOVE NATURAL GROUND OR FLUSH WITH PAVING IN TRAFFIC AREAS.
2. REFER TO SPECIFICATIONS FOR REQUIRED MANHOLE DIAMETER.

PLAN



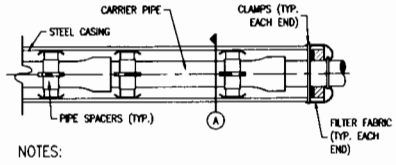
SECTION

AIR RELEASE VALVE IN MANHOLE
NO SCALE



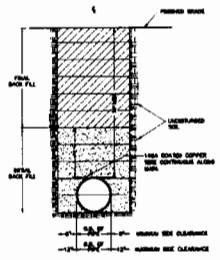
SECTION "A"

JACK AND BORE CASING SIZE SCHEDULE	
"A" CARRIER PIPE DIAM (IN)	"B" CASING PIPE DIAM (IN)
4	10
6	12
8	16
10	20
12	24
16	30
18	36
20	36
24	42
30	42
36	48



NOTES:
1. CARRIER PIPE REFERS TO WATER MAIN.
2. CARRIER PIPE SHALL BE DIP.
3. INSTALL TWO PIPE SPACERS PER 18'/20' JOINT OF CARRIER PIPE.

JACK AND BORE DETAIL
N.T.S.



TYPICAL TRENCH BOTTOM DIMENSIONS FOR DUCTILE IRON, C-900 PVC, AND CONCRETE PIPE

TRENCH DETAIL
CLASS D FLAT SUBGRADE

DEPTH OF BEDDING MATERIAL BELOW PIPE	
D	A (MIN.)
27" & SMALLER	6"
30" - 42"	12"
48" & LARGER	18"

NOTES:
1. TRENCHES BEDDING BEDDING AND BRACING, BEDDING SHALL BE TAKEN FROM THE INSIDE FACE OF THE BEDDING AND BRACING.
2. NO BEDDING OR BOULDERS 3" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE MATERIAL.
4. EACH FILL SHALL BE COMPACTED IN 6" LAYERS IN WAPPING AREAS, 12" LAYERS IN NON-WAPPING AREAS USING VIBRATORY COMPACTOR.

WATER LINE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS
NO SCALE

FOR AGENCY REVIEW

DAVIS & FLOYD
SINCE 1934
TWW.DAVISFLOYD.COM
101 N. MAIN STREET, SUITE 801
GREENVILLE, SC 29601
864-627-6000

CATAWBA COUNTY NORTH CAROLINA
MAIDEN, NC
PROJECT NO.
DAVIS ROAD WATER IMPROVEMENTS

WATER DETAILS SHEET 2

NO.	DATE	REVISIONS

DESIGNED: JAS
DRAWN: JAS
CHECKED: JAS
DATE: JULY 2015
SCALE: NONE
CU 502
PAGE 13 OF 17

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NOT FOR CONSTRUCTION

EROSION CONTROL LEGEND:

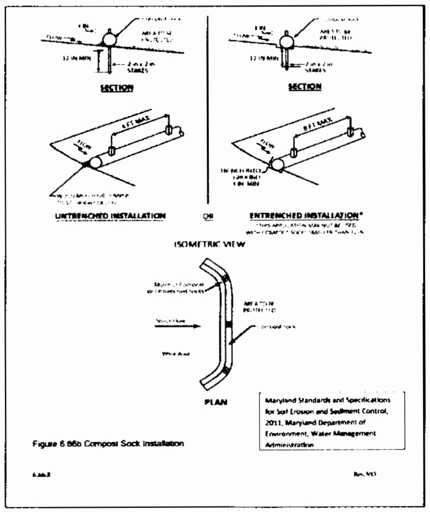
- PERMANENT SEEDING: (PS)
- ECB OR TRM:
- WATER BAR: → WB → WB →
- COMPOST SOCK:
- SILT FENCE:
- LIMIT OF DISTURBANCE:
- SEDIMENT TUBE:
- ROCK PIPE INLET PROTECTION:
- CONSTRUCTION ENTRANCE:

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PROCEDURES APPROVED BY NCDENR AND CATAWBA COUNTY. THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH ALL APPROVED PROCEDURES WHICH MAY BE PERTINENT TO THE PROJECT.
2. ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED BY A TEMPORARY CONSTRUCTION ENTRANCE TO PREVENT TRACKING OF MUD ONTO PUBLIC RIGHT-OF-WAYS. AN ENTRANCE PERMIT FROM NCDOT IS REQUIRED PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN STATE RIGHT-OF-WAYS.
3. SEDIMENT CONTROL DEVICES, SUCH AS SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, CHECK DAMS OR OTHER MEASURES NOT LOCATED IN PROPOSED FILL OR EXCAVATION AREAS, SHALL BE CONSTRUCTED PRIOR TO ALL OTHER LAND DISTURBANCE. AN ON-SITE PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE ENGINEER AND THE CONTRACTOR TO IDENTIFY THOSE MEASURES TO BE INITIALLY INSTALLED.
4. MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH PROCEDURES APPROVED BY NCDENR. MAINTENANCE WILL INCLUDE THE REPAIR OF MEASURES DAMAGED BY ANY SUBCONTRACTOR INCLUDING THOSE OF THE PUBLIC UTILITY COMPANIES. AT THE PRECONSTRUCTION MEETING, THE CONTRACTOR WILL SUPPLY THE OWNER WITH THE NAME OF THE INDIVIDUAL WHO WILL BE RESPONSIBLE FOR ENSURING MAINTENANCE OF INSTALLED MEASURES ON A DAILY BASIS.
5. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRANSVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY LOWER WATER DOWNSLOPE WITHOUT CAUSING EROSION.
6. SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT THE TIME OF CONSTRUCTION TO INSURE THEIR INTENDED PURPOSE IS ACCOMPLISHED.
7. THE CONTRACTOR SHALL STRIP AND PILE TOPSOIL AT THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY THE ENGINEER. SILT FENCE SHALL BE PLACED AT THE TOE OF THE STOCKPILE AFTER STRIPPING OF TOPSOIL IS COMPLETE.
8. THE CONTRACTOR SHALL COMPLETE DRAINAGE FACILITIES WITHIN 30 DAYS FOLLOWING COMPLETION OF ROUGH GRADING AT ANY POINT WITHIN THE PROJECT. THE INSTALLATION OF DRAINAGE FACILITIES SHALL TAKE PRECEDENCE OVER ALL UNDERGROUND UTILITIES. OUTFALL DITCHES FROM DRAINAGE STRUCTURES SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION OF SAME. THIS INCLUDES INSTALLATION OF EROSION CONTROL STONE WHERE REQUIRED.
9. TEMPORARY VEGETATIVE COVER SHALL BE PROVIDED IN ALL AREAS WHICH ARE NOT DESIGNATED FOR PAVING, UNDERGROUND UTILITIES OR STRUCTURAL USES. SUCH AREAS SHALL NOT BE EXPOSED FOR PERIODS LONGER THAN SPECIFIED IN THE "STABILIZATION TIMEFRAMES" TABLE ON SHEET CU506. TEMPORARY VEGETATIVE COVER MAY BE ELIMINATED IN FAVOR OF FINAL VEGETATIVE COVER IF CONSTRUCTION AND SEASONAL CONDITIONS PERMIT.
10. ALL AREAS DESIGNATED FOR PAVING, UNDERGROUND UTILITIES, AND STRUCTURAL USE SHALL BE STABILIZED AS SOON AS POSSIBLE, FOLLOWING NPDES AND NCDENR GUIDELINES.
11. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION, ON THIS PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDBED CONTAINING THE SPECIFIED AMOUNTS OF SEED, LIME, AND FERTILIZER. IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.
12. ALL SLOPES STEEPER THAN 3:1 SHALL REQUIRE THE USE OF EROSION CONTROL BLANKETS SUCH AS EXCELSIOR BLANKETS TO AID IN THE ESTABLISHMENT OF A VEGETATIVE COVER. INSTALLATION SHALL BE IN ACCORDANCE WITH MULCHING AND MANUFACTURER'S INSTRUCTIONS.
13. BASE COURSE MATERIAL SHALL BE PLACED IN ALL STREET & PARKING AREAS WITHIN 14 DAYS OF FINAL GRADING.
14. ALL FILL SLOPES TO BE MATTED WITH EXCELSIOR MATTING.
15. ALL TEMPORARY DIVERSION SWALES MUST REMAIN DIRECTED INTO SEDIMENT TRAPS UNTIL PERMANENT STABILIZATION HAS BEEN PROVIDED AND IS APPROVED BY THE EROSION CONTROL INSPECTOR.
16. TEMPORARY EROSION CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED AFTER NCDENR INSPECTION AND RELEASE. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.
17. SEE CU-506 FOR SEEDING, SEED BED PREPARATION AND MAINTENANCE SCHEDULE
18. TOTAL DISTURBED AREA = 6.62 ACRES.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING BORROW MATERIAL FROM PREVIOUSLY PERMITTED BORROW AREA, OTHERWISE CONTRACTOR IS RESPONSIBLE FOR AMENDING EROSION CONTROL PERMIT FOR THIS SITE.

SEQUENCE OF CONSTRUCTION ACTIVITIES:

1. DETERMINE AND MARK LIMITS OF DISTURBANCE.
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
3. PLACE PERIMETER SEDIMENT FENCE AND INSTALL OTHER CONTROL DEVICES AS INDICATED ON THE EROSION AND SEDIMENT CONTROL PLANS AS PIPELINE CONSTRUCTION PROGRESSES.
4. CONSTRUCT PIPE LINE. CONSTRUCTION TO BE DONE IN PHASES TO REDUCE THE AREA OF DISTURBANCE TO MANAGEABLE PORTIONS. KEEP ON INSTALLING CONTROL DEVICES AS CONSTRUCTION PROGRESSES.
5. PLACE TEMPORARY SEEDING ON ALL DISTURBED AREAS AND MAINTAIN CONTROL DEVICES.
6. COMPLETE FINAL GRADING.
7. PLACE PERMANENT SEEDING AND DO FINAL LANDSCAPING.
8. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SITE IS STABILIZED.
9. ESTIMATED TIME BEFORE FINAL STABILIZATION IS 3 MONTHS.



TYPICAL COMPOST SOCK DETAILS
SCHEMATIC

COMPOST SOCK – INSTALLATION AND MAINTENANCE

MATERIALS:
1. THE COMPOST MEDIA SHALL BE DERIVED FROM WELL-DECOMPOSED ORGANIC MATTER SOURCE PRODUCED BY CONTROLLED AEROBIC (BIOLOGICAL) DECOMPOSITION THAT HAS BEEN SANITIZED THROUGH GENERATION OF HEAT AND STABILIZED TO THE POINT THAT IT IS APPROPRIATE FOR THIS PARTICULAR APPLICATION. COMPOST MATERIAL SHALL BE PROCESSED THROUGH PROPER THERMOPHILIC COMPOSTING, MEETING US ENVIRONMENTAL PROTECTION AGENCY'S (EPA) DEFINITION FOR A "PROCESS TO FURTHER REDUCE PATHOGENS" (PFRP), AS DEFINED AT 40 CFR PART 503. THE COMPOST PORTION SHALL MEET THE CHEMICAL, PHYSICAL AND BIOLOGICAL PROPERTIES SPECIFIED IN PRACTICE 6.18, COMPOST BLANKETS, TABLE 6.18a, WITH EXCEPTION OF PARTICLE SIZE. SLIGHTLY MORE COARSE COMPOST IS RECOMMENDED FOR SOCKS AS FOLLOWS:

PARTICLE SIZE DISTRIBUTION

SIEVE SIZE	PERCENT PASSING SELECTED SIEVE MESH SIZE
2"	99% (3" MAX. PARTICLE SIZE)
3/8"	30-50%

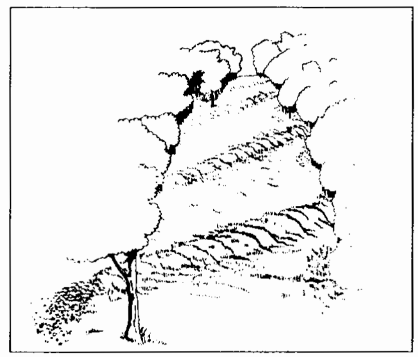
INSTALLATION:
1. MATERIALS USED IN THE COMPOST SOCK MUST MEET THE SPECIFICATIONS OUTLINED ABOVE AND IN PRACTICE 6.18, COMPOST BLANKETS.
2. COMPOST SOCKS SHOULD BE LOCATED AS SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLAN.
3. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND OTHER DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF THE COMPOST SOCK.
4. COMPOST SOCKS SHOULD BE INSTALLED PARALLEL TO THE TOE OF THE GRADED SLOPE, A MINIMUM OF 10 FEET BEYOND THE TOE OF THE SLOPE. SOCKS LOCATED BELOW FLAT AREAS SHOULD BE LOCATED AT THE EDGE OF THE LAND DISTURBANCE. THE ENDS OF THE SOCKS SHOULD BE TURNED SLIGHTLY UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE END OF THE SOCKS.
5. FILL SOCK NETTING UNIFORMLY WITH COMPOST TO THE DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
6. OAK OR OTHER DURABLE HARDWOOD STAKES 2" X 2" IN CROSS SECTION SHOULD BE DRIVEN VERTICALLY PLUMB, THROUGH THE CENTER OF THE COMPOST SOCK. STAKES SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 4 FEET, OR A MAXIMUM OF 8 FEET IF SOCK IS PLACED IN A 4 INCH TRENCH. (SEE TYPICAL DETAILS). THE STAKES SHOULD BE DRIVEN TO A MINIMUM DEPTH OF 12 INCHES, WITH A MINIMUM OF 3 INCHES PROTRUDING ABOVE THE COMPOST SOCK.
7. IN THE EVENT STAKING IS NOT POSSIBLE (I.E. WHEN SOCKS ARE USED ON PAVEMENT) HEAVY CONCRETE BLOCKS SHALL BE USED BEHIND THE SOCK TO HOLD IT IN PLACE DURING RUNOFF EVENTS.
8. IF THE COMPOST SOCK IS TO BE LEFT AS PART OF THE NATURAL LANDSCAPE, IT MAY BE SEEDED AT TIME OF INSTALLATION FOR ESTABLISHMENT OF A PERMANENT VEGETATION USING SEEDING SPECIFICATION IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
9. COMPOST SOCKS ARE NOT TO BE USED IN PERENNIAL OR INTERMITTENT STREAMS.

MAINTENANCE:
1. INSPECT COMPOST SOCKS WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (½ INCH OR GREATER). REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS. THE COMPOST SOCK MUST BE REPLACED IF CLOGGED OR TORN. IF PONDING BECOMES EXCESSIVE, THE SOCK NEEDS TO BE REPLACED WITH A LARGER DIAMETER OR DIFFERENT MEASURE. THE SOCK NEEDS TO BE REINSTALLED IF UNDERMINED OR DISLODGED. THE COMPOST SOCK SHALL BE INSPECTED UNTIL LAND DISTURBANCE IS COMPLETE AND THE AREA ABOVE THE MEASURE HAS BEEN PERMANENTLY STABILIZED.
2. ONCE ALL CONSTRUCTION HAS BEEN COMPLETED AND PERMANENT STABILIZATION HAS BEEN ACHIEVED, THE COMPOST MEDIA MAY BE DISPERSED WITH A LOADER, BULLDOZER OR SIMILAR DEVICE AND MAY BE INCORPORATED INTO THE SOIL AS AN AMENDMENT OR LEFT ON THE SOIL SURFACE TO AID IN PERMANENT SEEDING OR LANDSCAPING.
3. THE MESH NETTING MATERIAL SHALL BE EXTRACTED FROM THE MEDIA AND DISPOSED OF PROPERLY, UNLESS PHOTO- OR BIODEGRADABLE NETTING MATERIAL HAS BEEN USED.

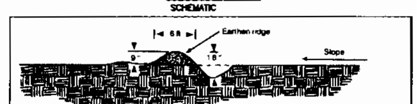
WATER BARS – INSTALLATION AND MAINTENANCE

INSTALLATION:
1. INSTALL DIVERSION AS SOON AS THE RIGHT-OF-WAY HAS BEEN CLEARED AND GRADED.
2. DISK THE BASE OF THE CONSTRUCTED RIDGE BEFORE PLACING THE 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.
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 THE RIGHT-OF-WAY DIVERSIONS FOR WEAR AND AFTER EVERY HEAVY RAINFALL FOR EROSION DAMAGE. IMMEDIATELY REMOVE SEDIMENT FROM FLOW AREA, AND REPAIR DIKE. CHECK OUTLET AREAS, AND MAKE TIMELY REPAIRS AS NEEDED. WHEN PERMANENT ROAD DRAINAGE IS ESTABLISHED, OR UPON THE COMPLETION OF A SECTION OF THE UTILITY INSTALLATION, AND THE AREA ABOVE THE TEMPORARY RIGHT-OF-WAY DIVERSION IS PERMANENTLY STABILIZED, REMOVE THE DIKE, AND FILL THE CHANNEL TO BLEND WITH THE NATURAL GROUND, AND APPROPRIATELY STABILIZE THE DISTURBED AREA.



PLAN VIEW
SCHEMATIC



TYPICAL SECTION
SCHEMATIC

FOR AGENCY REVIEW

DAVIS & FLOYD
SINCE 1954
101 N. MAIN STREET, SUITE 801
GREENVILLE, SC 29601
864-527-9800

CATAWBA COUNTY NORTH CAROLINA
MAIDEN, NC
DAVIS ROAD WATER IMPROVEMENTS

EROSION CONTROL DETAILS
(SHEET 1 OF 4)

41031.00
JULY 2015
MJP
MJP
TRM
DMW

CU 503

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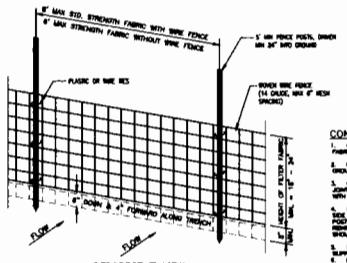
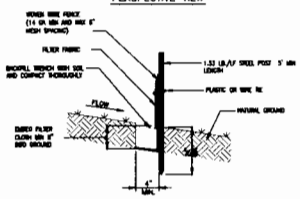
NOT FOR CONSTRUCTION



PERSPECTIVE VIEW



CROSS-SECTION

CONSTRUCTION SPECIFICATIONS:

1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRIC.
2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 34 INCHES ABOVE THE GROUND SURFACE.
3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 1 FEET MINIMUM OVERLAP TO THE NEXT POST.
4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPHILLSIDE SIDE OF THE POSTS. EXTEND THE WIRE MESH FASTENED SECURELY TO THE UPHILLSIDE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT. SHEA FABRIC ON THE UPHILLSIDE 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 6 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPHILLSIDE FROM THE BARRIER.
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.

MAINTENANCE:

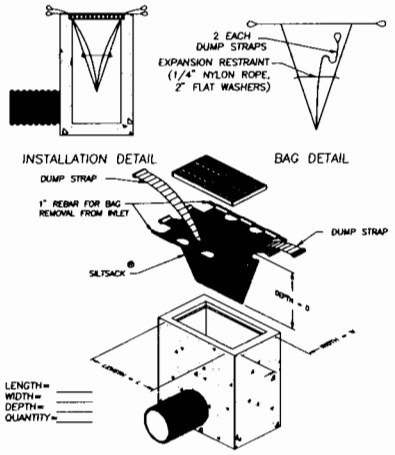
INSPECT SEDIMENT FENCES ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

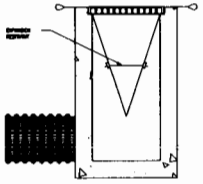
SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND 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.

SILT FENCE (1)
NOT TO SCALE — CU201-209 | CU504





INSTALLATION DETAIL

SILT SACK (3)
NOT TO SCALE — AS NEEDED | CU504

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	450 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	70 %
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 $^{-1}$

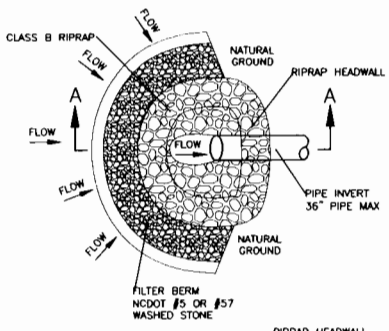
HI-FLOW SILTSACK®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	205 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	430 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	85 %
APPARENT OPENING SIZE	ASTM D-4751	30 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.3 SEC $^{-1}$

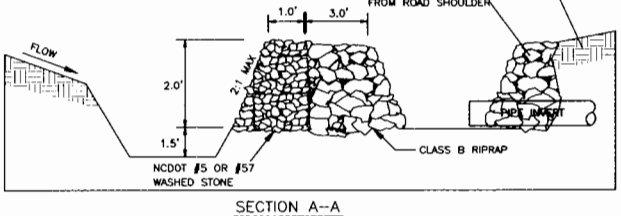
OIL-ABSORBANT SILTSACK®
(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

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.

FOR AGENCY REVIEW



PLAN VIEW



SECTION A--A

CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE AREA OF ALL DEBRIS THAT MIGHT HINDER EXCAVATION AND DISPOSAL OF SOIL.
2. INSTALL THE CLASS B OR CLASS I RIRAP IN A SEMICIRCLE AROUND THE PIPE INLET. THE STONE SHOULD BE BUILT UP HIGHER ON EACH END WHERE IT TIES INTO THE EMBANKMENT. THE MINIMUM CREST WIDTH OF THE RIPRAP SHOULD BE 3 FEET, WITH A MINIMUM BOTTOM WIDTH OF 11 FEET. THE MINIMUM HEIGHT SHOULD BE 2 FEET, BUT ALSO 1 FOOT LOWER THAN SHOULDER OF THE EMBANKMENT OR DIVERSIONS.
3. A 1 FOOT THICK LAYER OF NC DOT #5 OR #57 STONE SHOULD BE PLACED ON OUTSIDE SLOPE OF RIPRAP.
4. THE SEDIMENT STORAGE AREA SHOULD BE EXCAVATED AROUND THE OUTSIDE OF THE STONE HORSESHOE 18 INCHES BELOW NATURAL GRADE.
5. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, FILL DEPRESSION AND ESTABLISH FINAL GRADING ELEVATIONS, COMPACT AREA PROPERLY, AND STABILIZE WITH GROUND COVER.

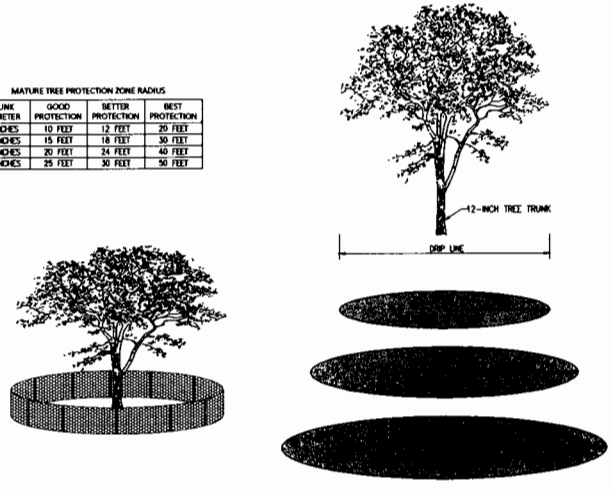
MAINTENANCE:

1. INSPECT ROCK ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½ INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.
2. CHECK THE STRUCTURE FOR DAMAGE. ANY RIPRAP DISPLACED FROM STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.
3. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.

TEMPORARY INLET PROCTECTION (2)
NO SCALE — CU201-209 | CU504

MATURE TREE PROTECTION ZONE RADIUS

TRUNK DIAMETER	GOOD PROTECTION	BETTER PROTECTION	BEST PROTECTION
8-INCHES	10 FEET	12 FEET	20 FEET
12-INCHES	15 FEET	18 FEET	30 FEET
16-INCHES	20 FEET	24 FEET	40 FEET
20-INCHES	25 FEET	30 FEET	50 FEET



MATURE TREE PROTECTION
SCHEMATIC

DAVIS & FLOYD
SINCE 1964
ENGINEERING/PLANNING
101 N. MAIN STREET, SUITE 401
GREENVILLE, SC 29601
864-427-0500

CATAWBA COUNTY NORTH CAROLINA
HICKORY, NC
PROJECT NO.
DAVIS ROAD WATER IMPROVEMENTS

EROSION CONTROL DETAILS (SHEET 2 OF 4)

NO.	REVISIONS	CHECKED	DATE

DATE	4/20/15
DWN	LAS
CHK	LAS
DATE	2/23/15
DWN	MJP
CHK	MJP
DWN	MJP
CHK	MJP
DWN	TMB
CHK	TMB
DWN	DMW

CU 504
PAGE 15 OF 17

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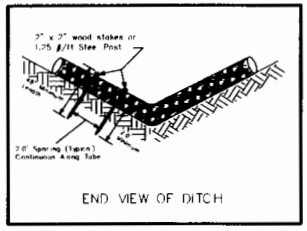
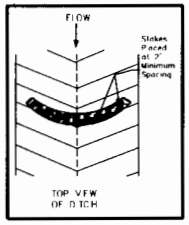
NOT FOR CONSTRUCTION



END VIEW OF DITCH



TOP VIEW
OF DITCH

SEDIMENT TUBE

Description:
Sediment tubes are elongated tubes of composted geotextiles, curled excelsior wood, natural coconut fiber or hardwood mulch. Straw, pine needle and leaf mulch-filled sediment tubes are not permitted under this specification.

Application:
Install sediment tubes along contours, in drainage conveyance swales, and around inlets to help reduce the effects of soil erosion by energy dissipation and retain sediment.

Materials:
Sediment tubes for ditch checks and Type A Inlet Structure Filters exhibit the following properties:
Produced by a Manufacturer experienced in sediment tube manufacturing.
Composed of composted geotextiles, curled excelsior wood, natural coconut fibers, hardwood mulch or a mix of these materials enclosed by a flexible netting material. Straw, straw fiber, straw bales, pine needles and leaf mulch are not allowed under this specification.
Utilizes outer netting that consists of expansion, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a expansion, high-density polyethylene non-degradable materials. Diameter ranging from 18-inches to 24-inches.
Curled excelsior wood, or natural coconut rolled erosion control products (RECPs) that are rolled up to create a sediment tube are NC shaped under this specification.

Installation:
Install over bare soil, mulched areas or erosion control blankets.
Do compost of geotextiles, curled excelsior wood, natural coconut fiber or hardwood mulch enclosed by a flexible netting material. Straw, straw fiber, straw bales, pine needles and leaf mulch are not allowed.

The minimum diameter should be 18 inches.
Sediment tubes should be stakes using wooden stakes (2-inch x 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) a minimum of 48-inches in length placed on 2-foot centers.

Stakes should be interlaced with the outer mesh on the downstream side and driven in the ground to a minimum depth of 1.5 feet leaving less than 1 foot of stake exposed above the sediment tube. Always refer to the Manufacturer's recommendations for the staking detail. Install all sediment tubes ensuring that no gaps exist between the soil and the bottom of the sediment tube. The ends of adjacent sediment tubes should be lapped 8-inch to prevent flow and sediment from passing through the field joint in no situations should sediment tubes be stacked on top of one another.

Construct a trench that is 20% of the tube diameter to install the tube in.
Avoid damage to sediment tubes while installing them. If the sediment tube becomes damaged during installation, a stake should be placed on both sides of the damaged area terminating the tube segment and a new tube segment should be installed. Should be installed in swales or drainage ditches perpendicular to the flow of water. Sediment tubes should continue up the side slopes a minimum of 1 foot above the design flow depth.

Sediment tubes should be spaced according to the following table:

SEDIMENT TUBE SPACING

	MAXIMUM SEDIMENT TUBE SPACING
LESS THAN 2%	100 FEET
	100 FEET
	75 FEET
	50 FEET
	25 FEET
	20 FEET
GREATER THAN 5%	10 FEET

SEDIMENT TUBE

Sediment tube length selected should minimize the number of sediment tubes needed to span the width of the drainage conveyance.
If the ditch check length (perpendicular to the water flow) is 15 feet, then one 15 foot sediment tube is preferred compared to two overlapping 10 foot sediment tubes.

Sediment tubes for ditch checks should remain in place until fully established vegetation and root systems have completely developed and can survive on their own.

Inspection and Maintenance:

All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspection or other information indicates that a BMP has been inappropriately or incorrectly installed, the Permittee must address the necessary replacement or modification required to correct the BMP within 48 hours of identification.

Large debris, trash, and leaves should be removed.

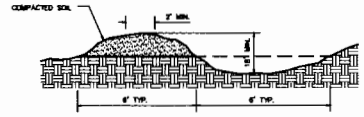
If erosion causes the edges to fail to a height equal to or below the height of the center, repairs should be made immediately.

Remove accumulated sediment from the upstream side of the sediment tube when the sediment has reached a height of approximately one-third of the exposed height of the tube (measured at the center).

Accumulated sediment should be removed prior to removing sediment tubes.

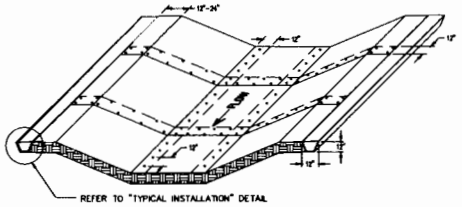
Sediment Tube removal should be completed only after the contributing drainage area has been completely stabilized. Permanent vegetation should replace areas from which gravel, stone, sediment tubes, or other materials have been removed.

SEDIMENT TUBE

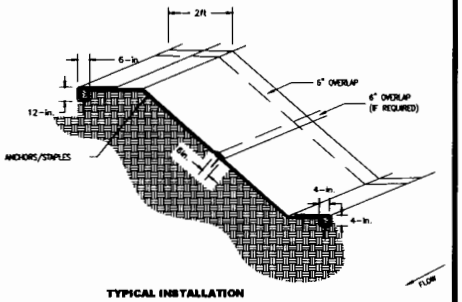


TEMPORARY EARTHEN DIVERSION DIKE DETAIL(TD)

TEMPORARY DIVERSION DITCH:
1. USE TURF REINFORCING MATTING (TRM) THAT IS SUPPLIED BY A REPUTABLE MANUFACTURER/SUPPLIER, SUCH AS CONTECH "LANDLOK 450", OR EQUAL, TO LINE AND PROTECT THE BOTTOM OF THE TEMPORARY DITCH.
2. GRADE AND COMPACT TEMPORARY DIVERSION DITCH TO THE LINE, GRADE AND DIMENSIONS SHOWN ON THE DRAWINGS.
3. ENSURE THAT A SMOOTH SURFACE IS PREPARED BY REMOVING LARGE ROCKS, SOIL CLODS, VEGETATION AND OTHER SHARP OBJECTS.
4. FOLLOW INSTALLATION PROCEDURES RECOMMENDED BY THE MANUFACTURER, USING STAPLES OR PINS WITH A MINIMUM LENGTH OF 6". WHERE SANDY SOIL CONDITIONS ARE ENCOUNTERED, 12" STAPLES SHALL BE USED.
7. UNROLL THE TRM PERPENDICULAR TO THE PRIMARY DIRECTION OF FLOW, STARTING AT THE DOWN STREAM END, WORKING UPSTREAM, PLACING THE TRM IN DIRECT CONTACT WITH SOIL SURFACE.
8. OVERLAP EDGES A MINIMUM OF 12 INCHES.
9. CHECK AREAS PROTECTED BY TRM'S FOR DISLOCATION OR FAILURE DURING REGULAR MANDATED SCDHEC INSPECTION INTERVALS, AND ENSURE THAT THE PINNING/STAPLING IS SECURE. IF NEEDED, ADD ADDITIONAL PINNING/STAPLES TO SECURE THE TRM.
10. REPAIR DAMAGED AREAS IMMEDIATELY BY RESTORING ERODED AREAS, AND REPLACING THE TRM MATERIAL AS NEEDED.



TYPICAL TURF REINFORCING MAT (TRM) INSTALLATION



TYPICAL INSTALLATION

EROSION CONTROL BLANKETS:
1. USE EROSION CONTROL BLANKETS THAT ARE SUPPLIED BY A REPUTABLE MANUFACTURER/SUPPLIER, SUCH AS CONTECH "LANDLOK 52", OR EQUAL.
2. PREPARE AREA BY REMOVING LARGE ROCKS, SOIL CLODS, VEGETATION AND OTHER SHARP OBJECTS.
3. PREPARE SEEDBED BY LOOSENING THE TOP 2 TO 3 INCHES OF SOIL ABOVE FINAL GRADE.
4. SELECT AND APPLY SOIL AMENDMENTS, LIME, FERTILIZER, AND SEED REQUIRED PER SOIL ANALYSIS TEST RESULTS AND GRASSING SCHEDULE.
5. FOLLOW INSTALLATION PROCEDURES ILLUSTRATED ABOVE, USING STAPLES OR PINS WITH A MINIMUM LENGTH OF 6". WHERE SANDY SOIL CONDITIONS ARE ENCOUNTERED, 12" STAPLES SHALL BE USED.
6. UNROLL THE ECB PARALLEL TO THE PRIMARY DIRECTION OF WATER FLOW AND PLACE IN DIRECT CONTACT WITH SOIL SURFACE.
7. OVERLAP EDGES A MINIMUM OF 6 INCHES.
8. CHECK AREAS PROTECTED BY ECB'S FOR DISLOCATION OR FAILURE DURING REGULAR MANDATED INSPECTION INTERVALS AND ENSURE THAT THE PINNING/STAPLING IS SECURE. IF NEEDED, ADD ADDITIONAL PINNING/STAPLES TO SECURE THE ECB.
9. REPAIR DAMAGED AREAS IMMEDIATELY BY RESTORING THE SOIL ON THE SLOPES, RE-APPLYING FERTILIZER AND SEED, AND REPLACING THE ECB MATERIAL AS NEEDED.

FOR AGENCY REVIEW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — DAVID B. FLOYD, INC. — CERTIFICATE OF AUTHORIZATION NO. F-0284

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ESTABLISHED 1934
WWW.DAVISFLOYD.COM
101 N. MAIN STREET, SUITE 801
GREENVILLE, SC 29601
864-627-4000

CATAWBA COUNTY NORTH CAROLINA
MAIDEN, NC
PROJECT NO.
DAVIS ROAD WATER IMPROVEMENTS

EROSION CONTROL DETAILS
(SHEET 3 OF 4)

DATE	REVISIONS

JOB NO. 4-1073.00
DATE JULY 2015
DESIGNED SLP
DRAWN SLP
REVIEWED TRM
APPROVED DWH

CU 505

SHEET 16 OF 17

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AREA NO.	DESCRIPTION	SEASON	SEEDING MIXTURE PERMANENT lb/ac	SEEDING MIXTURE TEMPORARY lb/ac	SEEDBED PREPARA-TION	SEEDING METHOD	MULCH	MAINTE-NANCE	NOTES
1	STEEP SLOPES; LOW MAINTENANCE (GREATER THAN 3:1)	AUG 20 – OCT 30 FEB 1 – APR 15	TALL FESCUE 100 SERICEA LESPEDEZA 30 KOBE LESPEDEZA 10		SP-1	SM-1	MU-1	MA-1	BETWEEN MAY 1 – AUG 15, ADD 10lb/acre GERMAN MILLET OR 15lb/acre SUDDAN GRASS. PRIOR TO MAY 1 OR AFTER AUG 15 ADD 40lb/acre RYE GRAIN
2	LOW MAINTENANCE AREAS (3:1 SLOPES OR LESS)	AUG 20 – OCT 25 FEB 1 – MAR 31	BLEND OF TWO TURF-TYPE FESCUES 225 BLEND OF TWO KENTUCKY BLUEGRASS VARIETIES. 25		SP-3	SM-2	MU-2	MA-1	APPLY 40lb/acre OF NITROGEN AFTER A STAND OF GRASS HAS BEEN ESTABLISHED. AVOID APPLYING NITROGEN DURING THE SUMMER MONTHS. SEE SM-2 (NOTE 4)
3	TEMPORARY SEEDING	JAN 1 – MAY 1		RYE GRAIN 120 KOBE LESPEDEZA 50	SP-2	SM-3	MU-1	MA-1	TREAT TEMPORARY DIVERSION AS LOW-MAINTENANCE, PERMANENT (AREA 2) INCLUDE TOPSOIL STOCK-PILES HERE
		MAY 1 – AUG 15		GERMAN MILLET 40					
		AUG 15 – DEC 30		RYE GRAIN 120					
4	GRASS LINED CHANNELS	FEB 1 – APR 15	TALL FESCUE 200		SP-1	SM-4	MU-3	MA-1	BETWEEN APR 15 – AUG 20, PLACE GERMAN MILLET AT 40lb/acre. BETWEEN NOV 1 – FEB 1, PLACE RYE GRAIN 120lb/acre, & KOBE LESPEDEZA 50lb/acre
		AUG 20 – OCT 30	TALL FESCUE 200						

SEEDING METHODS (SM)

SM-1 FILL SLOPES STEEPER THAN 3:1 (PERMANENT SEEDINGS) USE HYDRAULIC SEEDING EQUIPMENT TO APPLY SEED AND FERTILIZER. APPLY 4000lb/acre GROUND AGRICULTURAL LIMESTONE AND 1000lb/acre 10-10-10 FERTILIZER. AFTER AUG 15, USE UNSCARIFIED SEED FOR SERICEA LESPEDEZA. FOR HEATER APPLICATIONS, OMIT SERICEA AND SUBSTITUTE 40lb/acre BAHIAGRASS OR 15lb/acre BERMUDA GRASS (USE UNHULLED BERMUDA IN THE FALL).

SM-2 GENTLE TO FLAT SLOPES OR TEMPORARY SEEDINGS
1. BROADCAST SEED AT THE RECOMMENDED RATE WITH A CYCLONE SEEDER, DROP SPREADER, OR CULTIPACKER SEEDER.
2. RAKE SEED INTO THE SOIL AND LIGHTLY PACK TO ESTABLISH GOOD CONTACT.
3. APPLY 4000lb/acre GROUND AGRICULTURAL LIMESTONE AND 1000 lb/acre 10-10-10 FERTILIZER.
4. BETWEEN MAR 31-AUG 20, APPLY 50lb/acre KOBE LESPEDEZA, KEEP MOWED; SEED PERMANENT MIXTURE IN EARLY FALL.

SM-3 TEMPORARY SEEDING
1. APPLY 2000lb/acre GROUND AGRICULTURAL LIMESTONE AND 750lb/acre 10-10-10 FERTILIZER.

SM-4 GRASS LINED CHANNELS; APPLY 4000lb/acre GROUND AGRICULTURE LIMESTONE AND 1000lb/acre 10-10-10 FERTILIZER. PLACE LININGS AS NOTED ON PLANS.

SEEDBED PREPARATION (SP)

SP-1 FILL SLOPES 3:1 OR STEEPER TO BE SEEDED WITH A HYDRAULIC SEEDER (PERMANENT SEEDINGS). GRASS LINED CHANNELS.
1. LEAVE THE LAST 4-6 INCHES OF FILL LOOSE AND UNCOMPACTED, ALLOWING ROCKS, ROOTS, LARGE CLODS AND OTHER DEBRIS TO REMAIN ON THE SLOPE.
2. ROUGHEN SLOPE FACES BY MAKING GROOVES 2-3 INCHES DEEP, PERPENDICULAR TO THE SLOPE.
3. SPREAD LIME EVENLY OVER SLOPES AT RATES RECOMMENDED BY SEEDING METHODS (SM-1).

SP-2 FILL SLOPES 3:1 OR STEEPER (TEMPORARY SEEDINGS)
1. LEAVE A LOOSE, UNCOMPACTED SURFACE. REMOVE LARGE CLODS, ROCKS, AND DEBRIS WHICH MIGHT HOLD NETTING ABOVE THE SURFACE.
2. SPREAD LIME AND FERTILIZER EVENLY AT RATES RECOMMENDED BY SEEDING METHODS (SM-3)
3. INCORPORATE AMENDMENTS BY ROUGHENING OR GROOMING SOIL SURFACE ON THE CONTOUR.

SP-3 GENTLE AND FLAT SLOPES
1. REMOVE ROCKS, AND DEBRIS.
2. APPLY LIME AND FERTILIZER AT RATES RECOMMENDED BY SEEDING METHODS (SM-2); SPREAD EVENLY AND INCORPORATE INTO THE TOP 6" WITH A DISK, CHISEL PLOW, OR ROTARY TILLER.
3. BREAK UP LARGE CLODS AND RAKE INTO LOOSE, UNIFORM SEEDBED.
4. RAKE TO LOOSEN SURFACE JUST PRIOR TO APPLYING SEED.

MULCH (MU)

MU-1 STEEP SLOPES (3:1 OR GREATER)
APPLY 100lb/1,000 sq. ft. GRAIN STRAW. COVER WITH NETTING AND STAPLE TO THE SLOPE.

MU-2 GENTLE SLOPES (LESS THAN 3:1)
APPLY 100lb/1,000 sq. ft. GRAIN STRAW. COVER WITH ASPHALT OR WITH NETTING AND STAPLE TO THE SLOPE.

MU-3 APPLY 100lb/1000 sq. ft. AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MAINTENANCE (MA)

MA-1 REFERTILIZE IN LATE WINTER OR EARLY SPRING THE FOLLOWING YEAR. MOW AS DESIRED. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

EROSION CONTROL MAINTENANCE SCHEDULE

ALL SEDIMENT AND EROSION CONTROLS ARE TO BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND AFTER ANY STORM EVENT OF 0.5 INCHES OR GREATER OF PRECIPITATION DURING AND 24-HOUR PERIOD.

FOR AGENCY REVIEW

NORTH CAROLINA NOT VALID WITHOUT RAISED SEAL OR EMBOSSED STAMP
DAVID L. FLOYD No. 14044
CERTIFICATE OF AUTHORITY NO. C-0187
DAVIS & FLOYD
ENGINEERS ARCHITECTS SURVEYORS
501 N. MAIN STREET, SUITE 201
GREENVILLE, SC 29601
864-527-0800

CATAWBA COUNTY NORTH CAROLINA
WATER, INC.
PROJECT NO.
DAVIS ROAD WATER IMPROVEMENTS

EROSION CONTROL DETAILS
(SHEET 4 OF 4)

NO.	REVISIONS	DATE	DRAWN BY

APPROVED: 4/07/10
DATE: JULY 2015
DESIGNED: MEP
DRAWN: MEP
CHECKED: MEP
TRACED: TRM
CHECKED: DMF

CU 506

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