CCB0055

CONSTRUCTION DRAWINGS FOR

HUNTERSVILLE FORD

PREPARED FOR

SUNSTAR INC.

8848-J RED OAK BLVD.
CHARLOTTE, NORTH CAROLINA 28217
(704) 521-8928

OCTOBER 17,1997

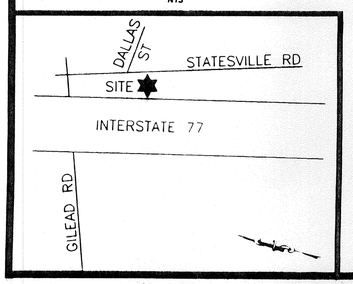
NO.	DATE	SHEETS REVISED
1	11/19/97	PER HUNTERSVILLE & MECKLENBURG COMMENTS
1	12/08/97	COVER, SHTS 1,2,3,4, & 10 PER TOWN OF HUNTERSVILLE

PREPARED BY:

POWER ENGINEERING COMPANY, INC.
ENGINEERS - SURVEYORS - PLANNERS

660 WESTINGHOUSE BLVD.
CHARLOTTE, NORTH CAROLINA
PHONE: (704) 588-4204
FAX: (704) 588-1838

VICINITY MAP
NTS



SKETCH PLAN APPROVED
TOWN OF HUNTERSVILLE
12/9/97

IMPERVIOUS AREA TRACT A, LOT 1 = 0.075%
IMPERVIOUS AREA TRACT A, LOT 2 = 0.588%

INDEX OF SHEETS

1) GRADING PLAN
2) HIGHWAY PLAN
3) DRAINAGE PLAN
4) EROSION CONTROL PLAN
5) SITE DETAILS
6) US 21 PROFILE
7) HIGHWAY DETAILS
8-9) DRAINAGE DETAILS
10) EROSION CONTROL DETAILS
11) DRAINAGE AREAS & Tc PATHS PRE-& POST-DEVELOPMENT
12) WET DETENTION POND #1 OUTLET STRUCTURE DETAILS

THE ABOVE LISTED DRAWINGS WERE PREPARED UNDER THE SEAL OF JOEL E. WOOD, PE (NC #7,571)

NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION

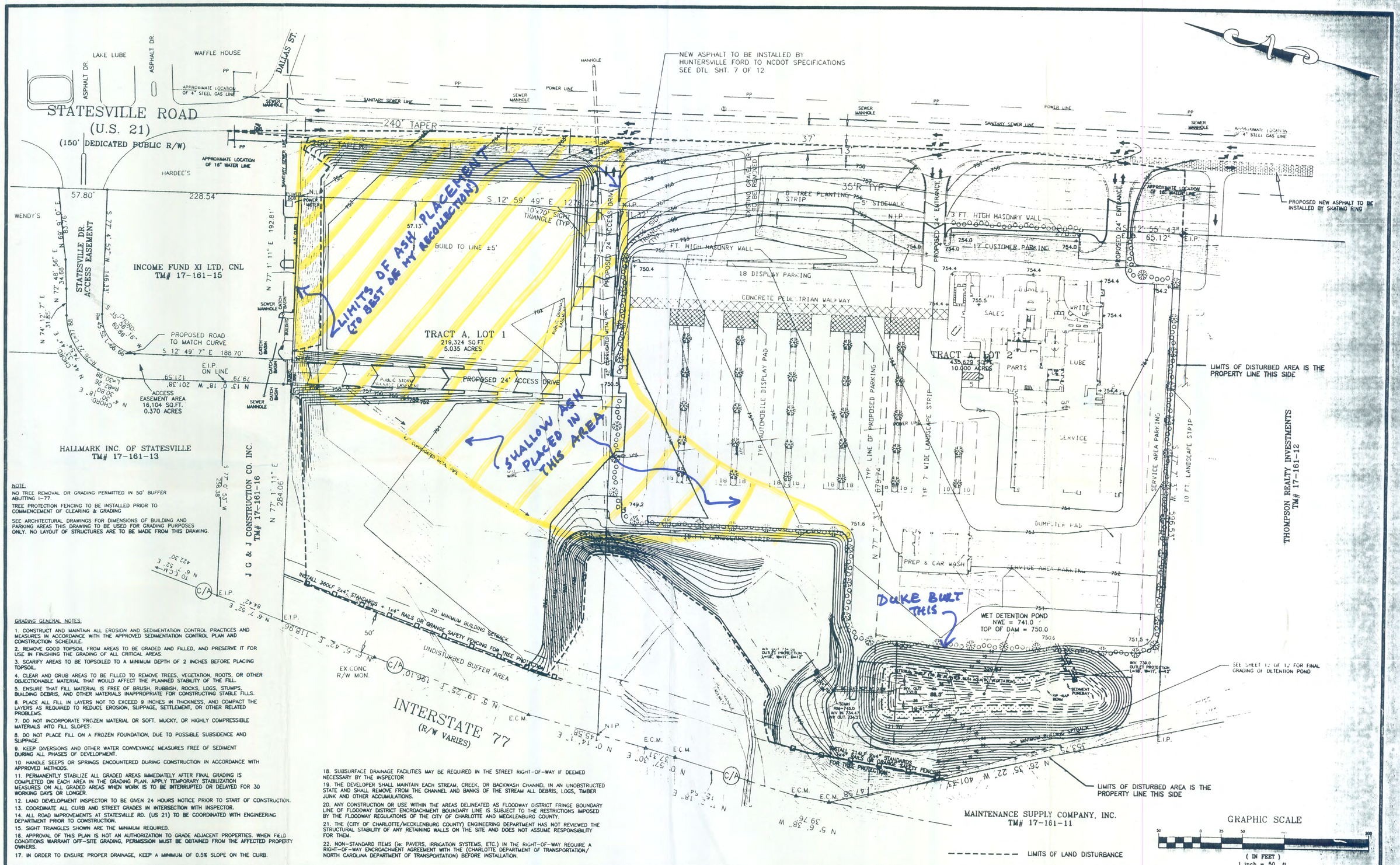
NC DEPT. OF ENVIRONMENT AND NATURAL RESOURCES
JUN 2 2 2010
DIVISION OF WASTE MANAGEMENT, SWS

EXHIBIT 'B'

SCANNED

5409

SCANNED



NOTE.

NO TREE REMOVAL OR GRADING PERMITTED IN 50' BUFFER ABUTTING I-77.

TREE PROTECTION FENCING TO BE INSTALLED PRIOR TO COMMENCEMENT OF CLEARING & GRADING

SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDING AND PARKING AREAS THIS DRAWING TO BE USED FOR GRADING PURPOSES ONLY. NO LAYOUT OF STRUCTURES ARE TO BE MADE FROM THIS DRAWING.

GRADING GENERAL NOTES.

1. CONSTRUCT AND MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL PRACTICES AND MEASURES IN ACCORDANCE WITH THE APPROVED SEDIMENTATION CONTROL PLAN AND CONSTRUCTION SCHEDULE.
2. REMOVE GOOD TOPSOIL FROM AREAS TO BE GRADED AND FILLED, AND PRESERVE IT FOR USE IN FINISHING THE GRADING OF ALL CRITICAL AREAS.
3. SCARIFY AREAS TO BE TOPSOILED TO A MINIMUM DEPTH OF 2 INCHES BEFORE PLACING TOPSOIL.
4. CLEAR AND GRUB AREAS TO BE FILLED TO REMOVE TREES, VEGETATION, ROOTS, OR OTHER OBJECTIONABLE MATERIAL THAT WOULD AFFECT THE PLANNED STABILITY OF THE FILL.
5. ENSURE THAT FILL MATERIAL IS FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER MATERIALS INAPPROPRIATE FOR CONSTRUCTING STABLE FILLS.
6. PLACE ALL FILL IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS, AND COMPACT THE LAYERS AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, OR OTHER RELATED PROBLEMS.
7. DO NOT INCORPORATE FROZEN MATERIAL OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS INTO FILL SLOPES.
8. DO NOT PLACE FILL ON A FROZEN FOUNDATION, DUE TO POSSIBLE SUBSIDENCE AND SLIPPAGE.
9. KEEP DIVERSIONS AND OTHER WATER CONVEYANCE MEASURES FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
10. HANDLE SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION IN ACCORDANCE WITH APPROVED METHODS.
11. PERMANENTLY STABILIZE ALL GRADED AREAS IMMEDIATELY AFTER FINAL GRADING IS COMPLETED ON EACH AREA IN THE GRADING PLAN. APPLY TEMPORARY STABILIZATION MEASURES ON ALL GRADED AREAS WHEN WORK IS TO BE INTERRUPTED OR DELAYED FOR 30 WORKING DAYS OR LONGER.
12. LAND DEVELOPMENT INSPECTOR TO BE GIVEN 24 HOURS NOTICE PRIOR TO START OF CONSTRUCTION.
13. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTION WITH INSPECTOR.
14. ALL ROAD IMPROVEMENTS AT STATESVILLE RD. (US 21) TO BE COORDINATED WITH ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION.
15. SIGHT TRIANGLES SHOWN ARE THE MINIMUM REQUIRED.
16. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
17. IN ORDER TO ENSURE PROPER DRAINAGE, KEEP A MINIMUM OF 0.5% SLOPE ON THE CURB.
18. SUBSURFACE DRAINAGE FACILITIES MAY BE REQUIRED IN THE STREET RIGHT-OF-WAY IF DEEMED NECESSARY BY THE INSPECTOR
19. THE DEVELOPER SHALL MAINTAIN EACH STREAM, CREEK, OR BACKWASH CHANNEL IN AN UNOBSTRUCTED STATE AND SHALL REMOVE FROM THE CHANNEL AND BANKS OF THE STREAM ALL DEBRIS, LOGS, TIMBER JUNK AND OTHER ACCUMULATIONS.
20. ANY CONSTRUCTION OR USE WITHIN THE AREAS DELINEATED AS FLOODWAY DISTRICT FRINGE BOUNDARY LINE OF FLOODWAY DISTRICT ENCROACHMENT BOUNDARY LINE IS SUBJECT TO THE RESTRICTIONS IMPOSED BY THE FLOODWAY REGULATIONS OF THE CITY OF CHARLOTTE AND MECKLENBURG COUNTY.
21. THE (CITY OF CHARLOTTE/MECKLENBURG COUNTY) ENGINEERING DEPARTMENT HAS NOT REVIEWED THE STRUCTURAL STABILITY OF ANY RETAINING WALLS ON THE SITE AND DOES NOT ASSUME RESPONSIBILITY FOR THEM.
22. NON-STANDARD ITEMS (ie: PAVERS, IRRIGATION SYSTEMS, ETC.) IN THE RIGHT-OF-WAY REQUIRE A RIGHT-OF-WAY ENCROACHMENT AGREEMENT WITH THE (CHARLOTTE DEPARTMENT OF TRANSPORTATION/ NORTH CAROLINA DEPARTMENT OF TRANSPORTATION) BEFORE INSTALLATION.

APPROVALS	PREPARED BY	SEALS	PROJECT
PROJECT ENGR: J.E.W.	POWER ENGINEERING COMPANY, INC.	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0841 CERTIFICATE OF REGISTRATION	HUNTERSVILLE FORD
DESIGNED BY: R.J.H.	ENGINEERS - PLANNERS - SURVEYORS		TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA
DRAWN BY: D.J.N.	P.O. BOX 411481 CHARLOTTE, NORTH CAROLINA 28241		
CHECKED BY: R.J.H.	PH:(704)588-6204 FAX (704)588-1838		
APPROVED BY:			

NO.	DATE	REVISIONS	BY
1	11/19/97	PER HUNTERSVILLE & MECKLENBURG COMMENTS	DJN
1	12/08/97	PER TOWN OF HUNTERSVILLE	DJN

SHEET TITLE

GRADING PLAN

SCALE: 1" = 50'

DATE: OCTOBER 17, 1997

JOB NO. 5409

SHEET 1 OF 12

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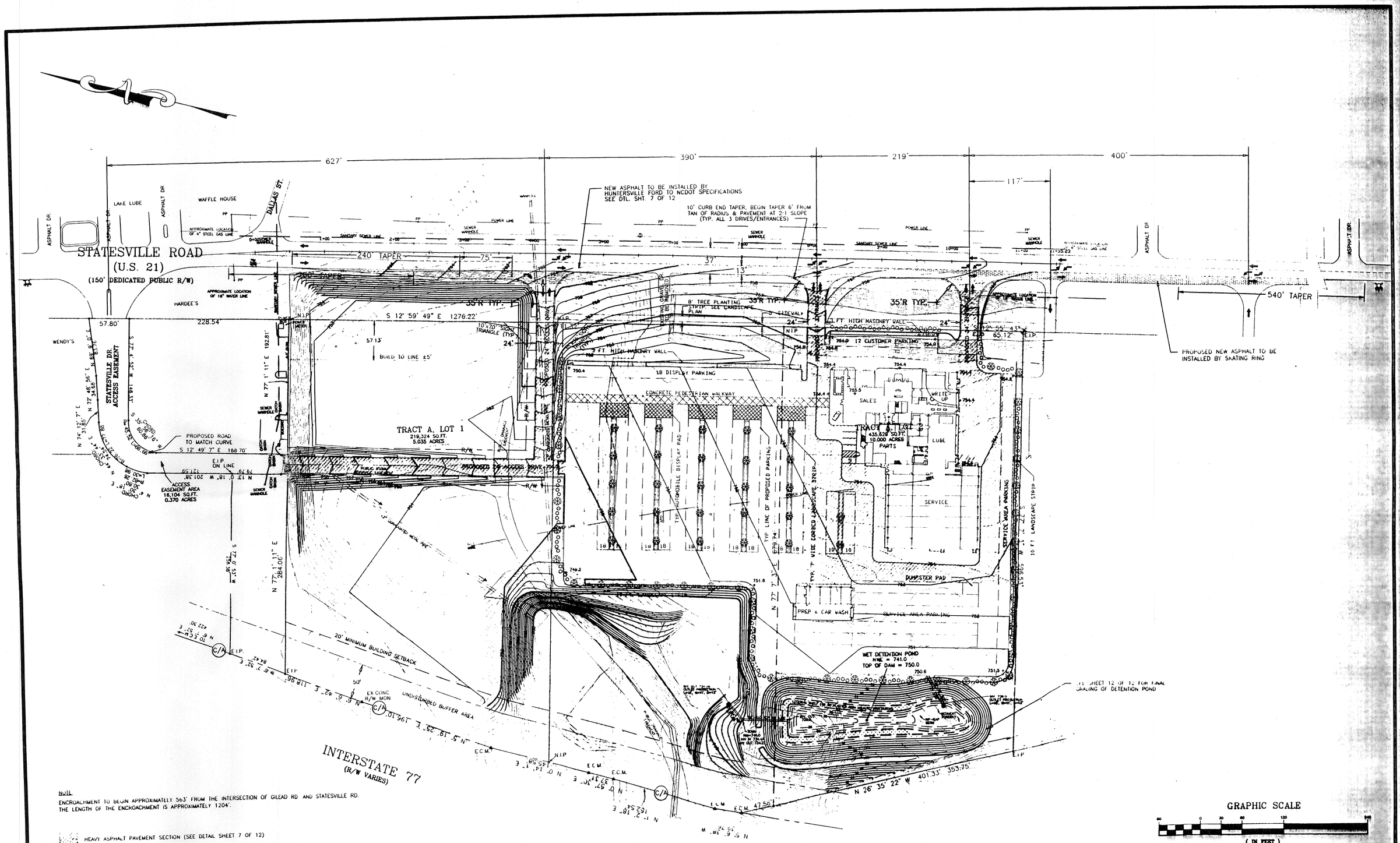

NOTE:
ENCROACHMENT TO BEGIN APPROXIMATELY 563' FROM THE INTERSECTION OF GILEAD RD AND STATESVILLE RD.
THE LENGTH OF THE ENCROACHMENT IS APPROXIMATELY 1204'.

HEAVY ASPHALT PAVEMENT SECTION (SEE DETAIL SHEET 7 OF 12)

NOTE: ALL REMAINING PARKING LOT TO BE LIGHT ASPHALT PAVEMENT SECTION (SEE DETAIL SHEET 7 OF 12)

APPROVALS	PREPARED BY	SEALS	PROJECT	REVISIONS	SHEET TITLE	
PROJECT ENGR: J.E.W. DESIGNED BY: R.J.H. DRAWN BY: D.J.N. CHECKED BY: R.J.H. APPROVED BY:	POWER ENGINEERING COMPANY, INC. ENGINEERS - PLANNERS - SURVEYORS P.O. BOX 411481 CHARLOTTE, NORTH CAROLINA 28241 PH: (704)588-6204 FAX (704)588-1838	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION	HUNTERSVILLE FORD TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA	NO. / DATE / REVISIONS / BY 1 11/19/97 PER HUNTERSVILLE & MECKLENBURG COMMENTS DJN 1 12/08/97 PER TOWN OF HUNTERSVILLE DJN	HIGHWAY PLAN	SCALE: 1" = 60' DATE: OCTOBER 17, 1997 JOB NO. 5409 SHEET 2 OF 12

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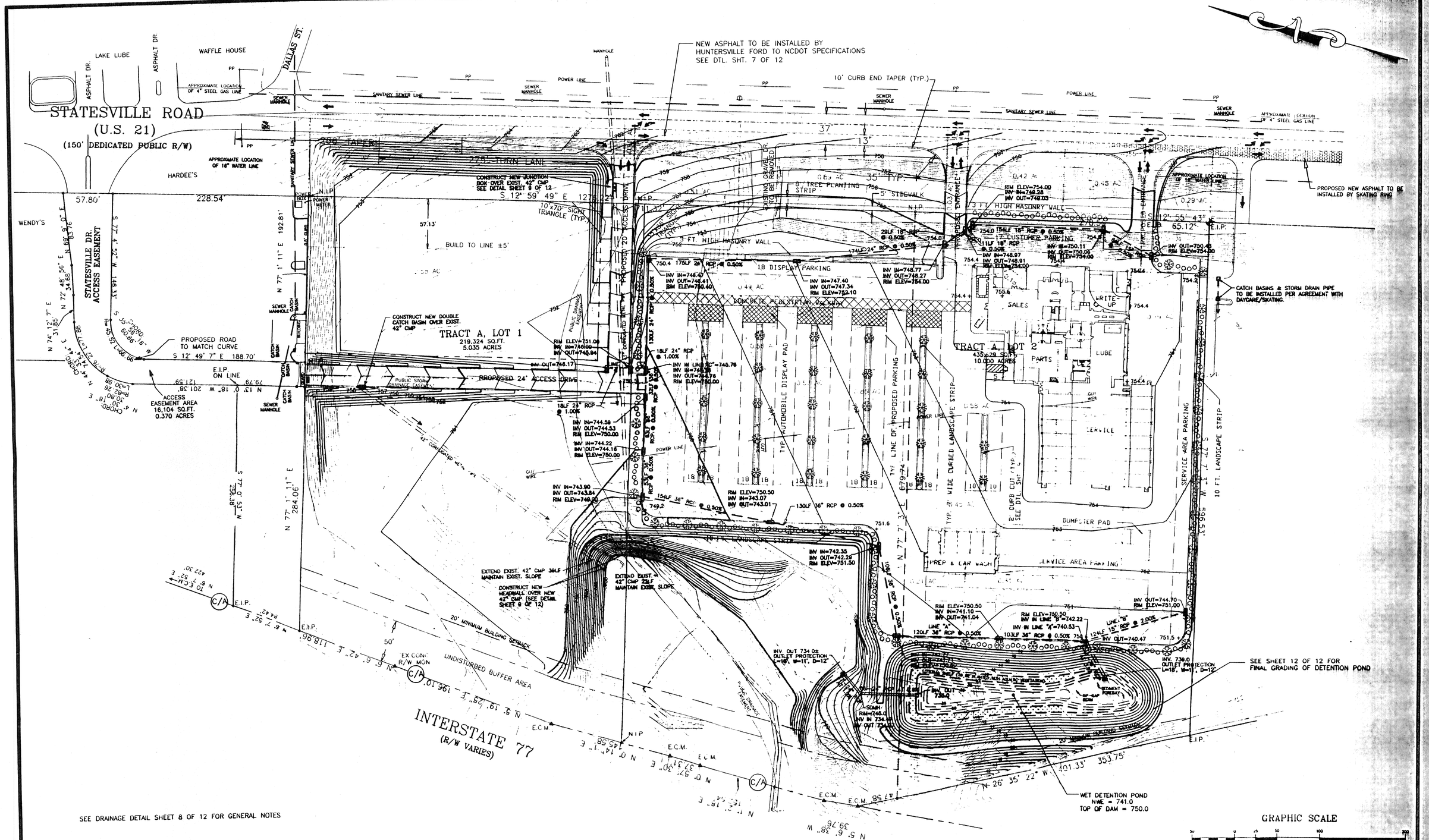

SEE DRAINAGE DETAIL SHEET 8 OF 12 FOR GENERAL NOTES

APPROVALS	PREPARED BY	SEALS	PROJECT	REVISIONS	SHEET TITLE	
PROJECT ENGR: J.E.W.	POWER ENGINEERING COMPANY, INC.	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION	HUNTERSVILLE FORD	NO. DATE REVISIONS BY	DRAINAGE PLAN	SCALE: 1" = 50'
DESIGNED BY: R.J.H.	ENGINEERS - PLANNERS - SURVEYORS		TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA	1 11/19/97 PER HUNTERSVILLE & MECKLENBURG COMMENTS DJN		DATE: OCTOBER 17, 1997
DRAWN BY: D.J.N.	P.O. BOX 411461 CHARLOTTE, NORTH CAROLINA 28241			1 12/08/97 PER TOWN OF HUNTERSVILLE DJN		JOB NO. 5409
CHECKED BY: R.J.H.	PH: (704)588-4204 FAX (704)588-1638					SHEET 3 OF 12
APPROVED BY:						

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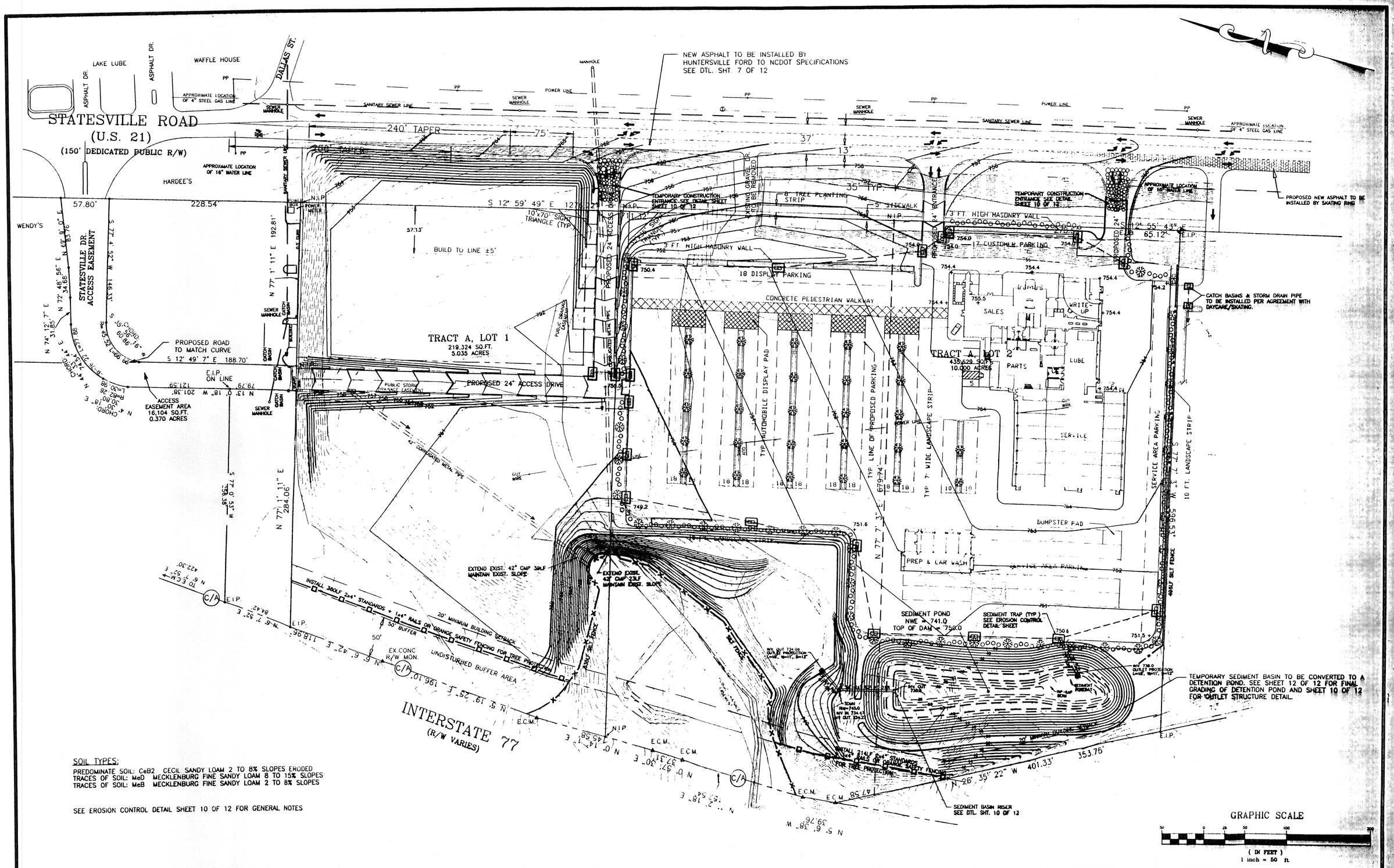

SOIL TYPES:

PREDOMINATE SOIL: CeB2 CECIL SANDY LOAM 2 TO 8% SLOPES ERODED
TRACES OF SOIL: MeD MECKLENBURG FINE SANDY LOAM 8 TO 15% SLOPES
TRACES OF SOIL: MeB MECKLENBURG FINE SANDY LOAM 2 TO 8% SLOPES

SEE EROSION CONTROL DETAIL SHEET 10 OF 12 FOR GENERAL NOTES

APPROVALS	PREPARED BY	SEALS	PROJECT	REVISIONS	SHEET TITLE
PROJECT ENGR: J.E.W. DESIGNED BY: R.J.H. DRAWN BY: D.J.N. CHECKED BY: R.J.H.	POWER ENGINEERING COMPANY, INC. ENGINEERS - PLANNERS - SURVEYORS P.O. BOX 411481 CHARLOTTE, NORTH CAROLINA 28241 PH: (704)588-4204 FAX (704)588-1638	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION SEAL 7511 JOHN E. WOLFE	HUNTERSVILLE FORD TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA	NO. DATE / PER HUNTERSVILLE & MECKLENBURG COMMENTS / DJN 1 11/19/97 / PER TOWN OF HUNTERSVILLE / DJN 1 12/08/97	EROSION CONTROL PLAN

SCALE: 1" = 50'
DATE: OCTOBER 17, 1997
JOB NO. 5409
SHEET 4 OF 12

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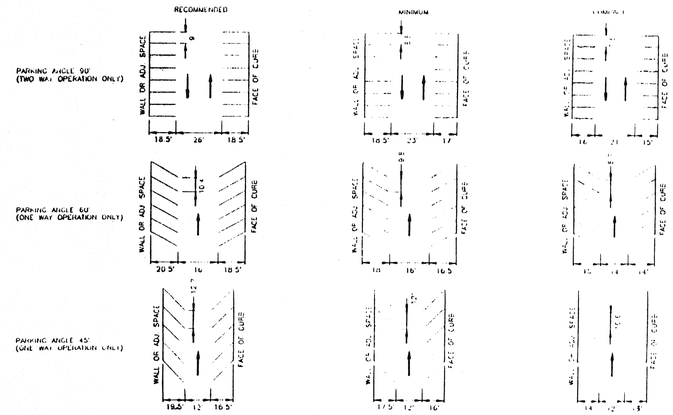


NOTE:
1. FOR ADDITIONAL PARKING STANDARDS, REFER TO SECTION [illegible] OF THE UDO.
2. PAVEMENT MARKINGS SHALL BE 4" WHITE PAINT.

PARKING STANDARDS

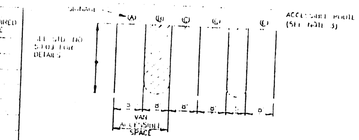
ACCESSIBLE PARKING REQUIREMENTS

TOTAL PARKING SPACES PROVIDED	MINIMUM NUMBER OF ACCESSIBLE SPACES SPACES REQUIRED	MINIMUM NUMBER OF ACCESSIBLE SPACES REQUIRED TO BE VAN ACCESSIBLE
1 TO 25	1	1
26 TO 50	2	1
51 TO 75	3	1
76 TO 100	4	1
101 TO 150	5	1
151 TO 200	6	1
201 TO 300	7	1
301 TO 400	8	1
401 TO 500	9	2
501 TO 1000	2% OF TOTAL	1 IN EVERY 8 ACCESSIBLE SPACES
1001 AND OVER	20 PLUS 1 FOR EACH 100 OVER 1000	1 IN EVERY 8 ACCESSIBLE SPACES

SECTION 4.1.2 (5) OF THE AMERICANS with DISABILITIES ACT (ADA)
SEE 4.1.2.(5) (d) FOR MEDICAL CARE FACILITIES

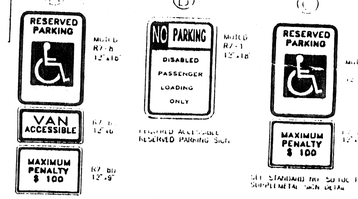
NOTES:

1. ALL 12"x18" ACCESSIBLE SIGNS (R7-8 & R7-1) SHALL be MOUNTED AT 7 FEET FROM GRADE TO BOTTOM EDGE OF SIGN FACE (MUTCD) MOUNTING HEIGHT CAN BE REDUCED TO 5 FEET IF PLACED IN AN AREA BETWEEN SIDEWALK AND BUILDING FACE IN WHICH PEDESTRIANS ARE NOT EXPECTED TO USE
2. REFER TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) U.S. DEPARTMENT OF TRANSPORTATION AND NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SUPPLEMENT
3. IF ACCESSIBLE ROUTE IS A RAISED SIDEWALK AREA THEN RAMPS ARE REQUIRED AT LOADING ZONE AREA

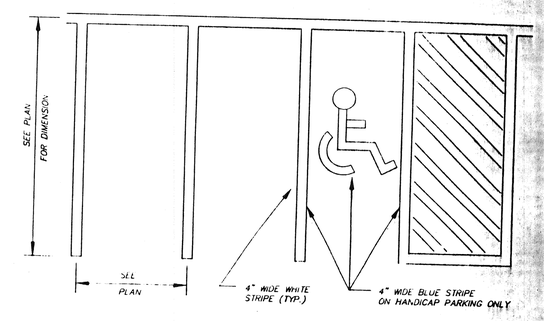


ONE OUT OF EVERY EIGHT (8) ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, IS REQUIRED TO BE VAN ACCESSIBLE

PARKING SPACE PAVEMENT MARKINGS

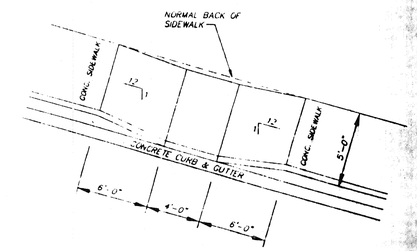


ACCESSIBLE PARKING AND SIGNAGE STANDARDS



STRIPING DETAIL

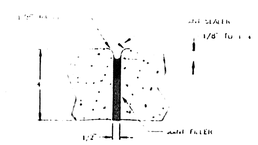
N.T.S.



HANDICAP RAMP DETAIL

N.T.S.

GROOVE JOINT IN SIDEWALK



EXPANSION JOINT IN JOINT IN SIDEWALK

GENERAL NOTES:

- SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK
- WIDTH OF SIDEWALK ON THOROUGHFARE STREETS SHALL BE A MINIMUM OF 5'. WIDTH OF SIDEWALKS IN THE CENTRAL BUSINESS DISTRICT WILL BE DETERMINED BY THE CITY/COUNTY ENGINEER
- WIDTH OF SIDEWALKS ON NON THOROUGHFARE STREETS SHALL BE A MINIMUM OF 4'
- SIDEWALK TO BE FORMED TO STAY OR RADIUS AT THE MEETING STREETS
- CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI IN 28 DAYS

EXPANSION JOINTS IN CONCRETE SIDEWALK

CONCRETE SIDEWALKS

APPROVALS	PREPARED BY	SEALS	PROJECT	REVISIONS	SHEET TITLE	
PROJECT ENGR: J.E.W. DESIGNED BY: R.J.H. DRAWN BY: D.J.N. CHECKED BY: R.J.H. APPROVED BY:	POWER ENGINEERING COMPANY, INC. ENGINEERS – PLANNERS – SURVEYORS P.O. BOX 411461 CHARLOTTE, NORTH CAROLINA 28241 PH:(704)588-4204 FAX (704)588-1836	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0841 CERTIFICATE OF REGISTRATION	HUNTERSVILLE FORD TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA	NO. DATE BY	SITE DETAILS	SCALE: NTS DATE: OCTOBER 17, 1997 JOB NO. 5409 SHEET 5 OF 12

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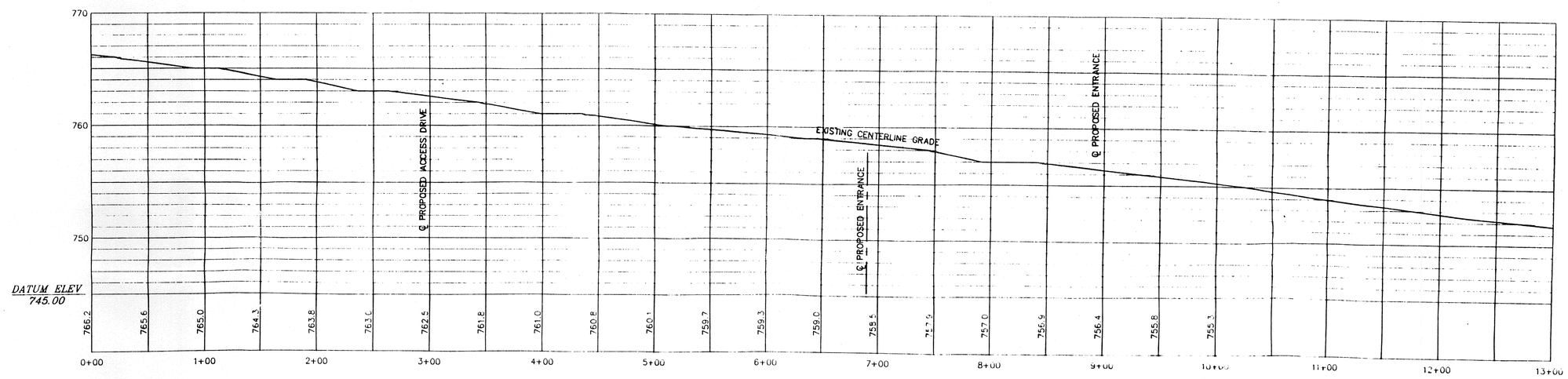

APPROVALS	PREPARED BY	SEALS	PROJECT	REVISIONS	SHEET TITLE	
PROJECT ENGR: J.E.W. DESIGNED BY: R.J.H. DRAWN BY: D.J.H. CHECKED BY: R.J.H. APPROVED BY:	POWER ENGINEERING COMPANY, INC. ENGINEERS - PLANNERS - SURVEYORS P.O. BOX 411491 CHARLOTTE, NORTH CAROLINA 28241 PH (704)588-1504 FAX (704)588-1838	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0841 CERTIFICATE OF REGISTRATION	HUNTERSVILLE FORD TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA	NO. DATE BY	US 21 PROFILE	SCALE: HORIZ. 1"=50' VERT. 1"=5' DATE: OCTOBER 17, 1997 JOB NO. 5409 SHEET 6 OF 12

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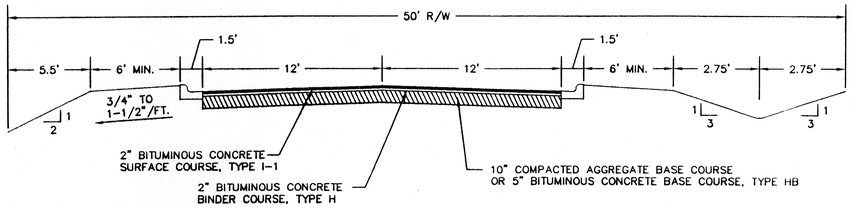


GENERAL NOTES:

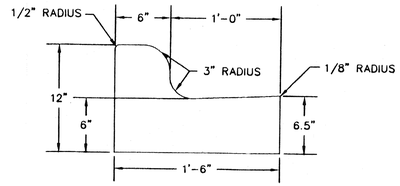
1. 2-INCH BITUMINOUS CONCRETE BINDER COURSE, TYPE H, IS TO BE PLACED IMMEDIATELY FOLLOWING PREPARATION OF A.B.C. PLANT MIX TO MEET NCDOT SPECIFICATIONS.
2. 2-INCH BITUMINOUS SURFACE COURSE, TYPE I-1, IS TO BE PLACED FOLLOWING BINDER COURSE.
3. DEVELOPER MAY SUBMIT AN ALTERNATE PAVEMENT SCHEDULE. ALL PERTINENT INFORMATION MAY BE SUBMITTED TO THE APPROPRIATE CITY/COUNTY ENGINEERING DEPT.
4. FOR OFFICE DEVELOPMENT, I-2 SHALL BE USED IN LIEU OF I-1.
5. THE CROWN (TRANSVERSE SLOPE) FOR THE TYPICAL SECTION ON THIS SHEET IS 3/8" PER FOOT.

ELEVATION DIFFERENCES BETWEEN TOP OF CURB & FINISH GRADE @ ℄

TO FINISH GRADE OF	FOR STONEBASE	FOR HB
SUBGRADE	-12"	-2"
BASE COURSE	-2"	-2"
BINDER COURSE	0"	0"

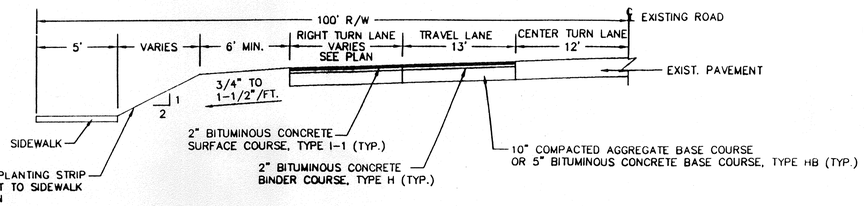
TYPICAL SECTION COMMERCIAL STREET

NTS



STANDARD 1'-6" CURB & GUTTER

NTS

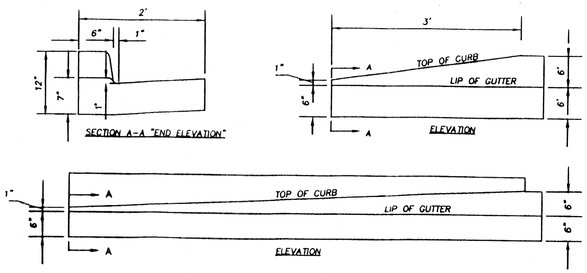


GENERAL NOTES:

1. CURB LOCATIONS ON STATE ROADS ARE TO BE DETERMINED BY CITY/COUNTY ENGINEER.
2. WITHIN THE CITY OF CHARLOTTE, THE CITY WILL INSTALL THE BASE AND SURFACE PAVEMENT ON ALL WIDENING STRIPS, THE DEVELOPER IS RESPONSIBLE FOR INSTALLATION OF CURB & GUTTER.
3. ALL WORK TO BE DONE ON EXISTING NCDOT MAINTAINED STREETS SHALL REQUIRE NCDOT ENCROACHMENT/ACCESS APPLICATIONS, SUBMITTED TO THE CITY/COUNTY ENGINEER.
4. CLEAN OUT LOCATION TO BE DETERMINED IN FIELD.
5. BITUMINOUS CONCRETE BASE COURSE, TYPE HB, SHALL BE USED IN WIDENING LESS THAN (5) FIVE FEET IN WIDTH.

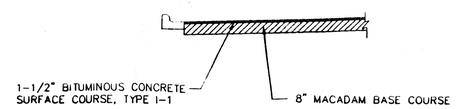
IMPROVEMENTS ON EXISTING NC DOT ROADS

NTS



DETAIL OF CURB END TAPER

NTS

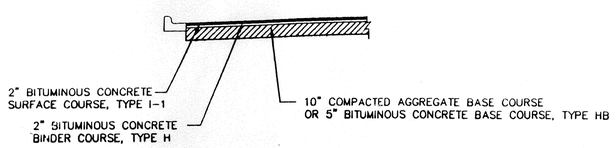


GENERAL NOTES:

1. THE CROWN (TRANSVERSE SLOPE) FOR THE TYPICAL SECTION ON THIS SHEET IS 3/8" PER FOOT.

LIGHT ASPHALT PAVEMENT SECTION

NTS



GENERAL NOTES:

1. 2-INCH BITUMINOUS CONCRETE BINDER COURSE, TYPE H, IS TO BE PLACED IMMEDIATELY FOLLOWING PREPARATION OF A.B.C. PLANT MIX TO MEET NCDOT SPECIFICATIONS.
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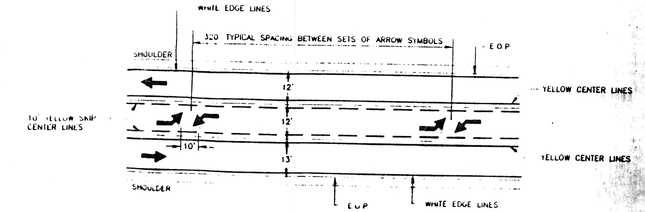
4. FOR OFFICE DEVELOPMENT, I-2 SHALL BE USED IN LIEU OF I-1.
5. THE CROWN (TRANSVERSE SLOPE) FOR THE TYPICAL SECTION ON THIS SHEET IS 3/8" PER FOOT.

HEAVY ASPHALT PAVEMENT SECTION

NTS

HIGHWAY GENERAL NOTES:

1. ALL WORK AND MATERIAL SHALL CONFORM TO THE LATEST EDITION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES UNLESS OTHERWISE SPECIFIED IN THIS MANUAL.
2. ALL ASPHALT CUTS SHALL BE MADE WITH A CLEAN CUT WHEN PREPARING STREET SURFACES FOR PATCHING OR WIDENING STRIPS.
3. PAPER JOINTS SHALL BE USED TO SEAL THE ENDS OF AN ASPHALT POUR SO THAT FUTURE EXTENSIONS CAN BE MADE WITHOUT CAUSING ROUGH JOINTS.
4. WHEN PLACING ASPHALT AGAINST EXISTING SURFACES, A STRAIGHT EDGE SHALL BE USED TO PREVENT "HUMPING" AT THAT LOCATION.
5. STONE SHALL BE PRIMED IF PAVING IS NOT COMPLETE WITHIN SEVEN DAYS FOLLOWING STONE BASE APPROVAL.
6. SURFACES SHALL BE TACKED WHEN ASPHALT IS BEING PLACED OVER EXISTING ASPHALT STREETS OR ADJOINING CONCRETE, STORM-DRAIN AND SANITARY SEWER STRUCTURES.
7. IN ROLLING AND HILLY TERRAINS, SWEEPING OF THE STONE BASE AND/OR APPLICATION OF A TACK COAT MAY BE REQUIRED NEAR INTERSECTIONS. THESE REQUIREMENTS WILL BE ESTABLISHED BY THE CITY/COUNTY INSPECTOR BASED ON FIELD CONDITIONS.
8. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3600 PSI AT 28 DAYS. THE CONTRACTOR SHALL PREPARE CONCRETE TEST CYLINDERS IN ACCORDANCE WITH SECTION 1000 OF THE NCDOT STANDARD SPECIFICATIONS AT THE DIRECTION OF THE PROJECT INSPECTOR. ALL EQUIPMENT AND CYLINDER MOLDS SHALL BE FURNISHED BY THE CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT CYLINDER UNTIL SUCH TIME AS THEY ARE TRANSPORTED FOR TESTING. TESTING FOR PROJECTS SHALL BE PERFORMED BY AN INDEPENDENT TESTING LAB, AT NO COST TO THE CITY/COUNTY. THE CONTRACTOR SHALL PROVIDED EQUIPMENT AND PERFORM TESTS ON CONCRETE FOR A MAXIMUM SLUMP AND AIR CONTENT AS DEFINED IN SECTION 1000 OF THE NCDOT STANDARD SPECIFICATIONS. THESE TESTS SHALL BE PERFORMED AT A FREQUENCY ESTABLISHED BY THE INSPECTOR. MATERIALS FAILING TO MEET SPECIFICATIONS SHALL BE REMOVED BY THE CONTRACTOR.
9. ALL CONCRETE SHALL BE CURED WITH 100% RESIN BASE, WHITE PIGMENTED CURING COMPOUND WHICH MEETS A.S.T.M. SPECIFICATIONS C-309, TYPE 1, APPLIED AT A UNIFORM RATE AT ONE (1) GALLON TO 400 SQUARE FEET WITHIN 24 HOURS OF PLACEMENT OF THE CONCRETE.
10. ALL CURB AND GUTTER SHALL BE BACKFILLED WITH SOIL APPROVED BY THE INSPECTOR WITHIN 48 HOURS AFTER CONSTRUCTION TO PREVENT EROSION.
11. THE BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS VEGETATIVE MATTER, WASTE, CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. SAID MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND THE MATERIAL SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
12. MATERIALS DEEMED BY THE INSPECTOR AS UNSUITABLE FOR BACKFILL PURPOSES SHALL BE REMOVED AND REPLACED WITH SELECT BACKFILL MATERIAL.
13. ALL TRENCHES IN THE STREET RIGHT-OF-WAY SHALL BE BACKFILLED WITH SUITABLE MATERIAL IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND ALL PIPE SHALL BE LAYERS NOT TO EXCEED SIX (6) INCHES AND EACH LAYER SHALL BE COMPACTED THOROUGHLY.
14. UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED.
15. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL COMPACTION METHODS. EACH SIX (6) INCH LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED INTO PLACE.
16. STRAIGHT FORMS SHALL NOT BE USED FOR FORMING CURB AND GUTTER IN CURVES.
17. ALL EXCESS CONCRETE ON THE FRONT EDGE (LIP) OF GUTTER SHALL BE REMOVED WHEN CURB AND GUTTER IS POURED WITH A MACHINE.
18. ALL SUBGRADE SHALL BE COMPACTED TO 100% OF THE MAXIMUM DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST TO A DEPTH OF EIGHT (8) INCHES, AND A DENSITY OF 95% STANDARD PROCTOR FOR DEPTHS GREATER THAN EIGHT (8) INCHES. ALL TESTS SHALL BE PERFORMED BY DEVELOPER AT NO COST TO THE CITY/COUNTY.
19. A CANVAS COVER OR OTHER SUITABLE COVER SHALL BE REQUIRED FOR TRANSPORTING PLANT MIX ASPHALT DURING COOL WEATHER WHEN THE FOLLOWING CONDITIONS ARE PRESENT:
    (a) AIR TEMPERATURE IS BELOW 60° F.
    (b) LENGTH OF HAUL FROM PLAT TO JOB IS GREATER THAN FIVE (5) MILES.
    (c) OTHER OCCASIONS AT THE INSPECTOR'S DISCRETION WHEN A COMBINATION OF FACTORS INDICATE THAT MATERIALS SHOULD BE COVERED IN ORDER TO ASSURE PROPER PLACEMENT TEMPERATURE.
20. CONCRETE OR ASPHALT SHALL NOT BE PLACED UNTIL THE AIR TEMPERATURE MEASURED AT THE LOCATION OF THE CONCRETING OPERATION IS AT 35° F AND RISING BY 10:00 A.M.. CONCRETE OR PAVING OPERATIONS SHOULD BE SUSPENDED WHEN THE AIR TEMPERATURE IS 40° F AND DESCENDING. THE CONTRACTOR SHALL PROTECT FRESHLY PLACED CONCRETE IN ACCORDANCE WITH SECTION 420 OF THE NCDOT STANDARD SPECIFICATIONS WHEN THE AIR TEMPERATURE IS AT OR BELOW 35° F AND THE CONCRETE HAS NOT OBTAINED AN AGE OF 72 HOURS.
21. THE CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES WHEN WORKING WITHIN EXISTING STREETS. THE CONTRACTOR SHALL PLACE AND MAINTAIN SIGNS, DANGER LIGHTS, BARRICADES AND FURNISH WATCHMEN TO DIRECT TRAFFIC IN ACCORDANCE WITH THE MUTCD, AREA TRAFFIC CONTROL HANDBOOK (WATCH).
22. THE CONTRACTOR SHALL DO THAT WHICH IS NECESSARY TO CONTROL EROSION AND TO PREVENT SEDIMENTATION DAMAGE TO ADJACENT PROPERTIES AND STREAMS IN ACCORDANCE WITH THE APPROPRIATE CITY/COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE. WATER STANDING WITHIN THE PROJECT LIMITS SHALL BE PREVENTED.



STANDARD PAVEMENT MARKINGS
REF. NCDOT ROADWAY STANDARD DRAWINGS
(DWG NO. 920.01 & 920.02)

- PASSING - NO PASSING ZONES WILL BE DETERMINED BY THE ENGINEER
- EDGE LINES ARE NOT REQUIRED ALONG CURB & GUTTER LOCATIONS
- EDGE LINES SHALL NOT BE CONTINUED THRU INTERSECTIONS, AND SHOULD NOT BE BROKEN AT DRIVEWAYS
- SPACING OF ARROW SYMBOLS MAY BE INCREASED OR DECREASED AS DETERMINED BY THE ENGINEER
- SEE NCDOT ROADWAY STANDARD DRAWINGS (DWG NO. 920.01) FOR SPACING & LENGTH OF PAINT MARKINGS

APPROVALS	PREPARED BY	SEALS	PROJECT	REVISIONS	SHEET TITLE	
PROJECT ENGR: J.E.W. DESIGNED BY: R.J.H. DRAWN BY: D.J.N. CHECKED BY: R.J.H. APPROVED BY:	POWER ENGINEERING COMPANY, INC. ENGINEERS - PLANNERS - SURVEYORS P.O. BOX 411491 CHARLOTTE, NORTH CAROLINA 28241 PH:(704)588-4204 FAX (704)588-1838	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION PROFESSIONAL SEAL 7571 ENGINEER JOSE E. WOLF	HUNTERSVILLE FORD TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA	NO. 1 DATE 11/19/97 PER HUNTERSVILLE & MECKLENBURG COMMENTS BY DJN	HIGHWAY DETAILS	SCALE: NTS DATE: OCTOBER 17, 1997 JOB NO. 5409 SHEET 7 OF 12

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DRAINAGE GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE NCDOT STANDARD SPECIFICATIONS UNLESS OTHERWISE SPECIFIED ON THESE PLANS.

2. ONLY REINFORCED CONCRETE PIPE IS ALLOWED WITHIN THE STREET RIGHT-OF-WAY EXCEPT FOR CULVERTS EQUAL TO OR GREATER THAN SIXTY (60) INCHES. FULLY BITUMINOUS COATED CORRUGATED STEEL OR ALUMINUM PIPE IS ALLOWED IF IT HAS A CONCRETE POURED INVERT. MINIMUM GAGE FOR METAL PIPE SHALL BE 14 GAGE.

3. ALL STORM DRAINAGE PIPE OUTSIDE THE STREET RIGHT-OF-WAY SHALL BE REINFORCED CONCRETE PIPE, CORRUGATED METAL PIPE OR HIGH DENSITY POLYETHYLENE (HDPE) PIPE, AS APPROVED BY THE CITY/COUNTY ENGINEER. NO OTHER TYPE OF PIPE SHALL BE USED WITHOUT PRIOR APPROVAL BY THE CITY/COUNTY ENGINEER. ALL PIPE SHALL BE LAID WITH THE BELL OR GROOVE UPGRADE AND THE JOINT ENTIRELY INTERLOCKING.

4. ALL CONCRETE SHALL BE 3600 PSI. PRIOR APPROVAL SHALL BE OBTAINED IN ORDER TO USE PRE-CAST STORM DRAINAGE STRUCTURES IN ANY STREET RIGHTS-OF-WAY BY CITY/COUNTY ENGINEER.

5. ALL HIGH DENSITY POLYETHYLENE PIPE SHALL BE BE CORRUGATED EXTERIOR/SMOOTH INTERIOR, CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M294 FOR CORRUGATED POLYETHYLENE PIPE AND SHALL REQUIRE COUPLING BANDS AND FITTINGS.

6. CONCRETE PIPE USED WITHIN THE STREET RIGHT-OF-WAY SHALL BE A MINIMUM OF CLASS III REINFORCED CONCRETE PIPE, WITH A MINIMUM DIAMETER OF FIFTEEN (15) INCHES (EIGHTEEN (18) INCHES MINIMUM ON CROSS DRAIN CULVERTS WITHIN THE COUNTY).

7. THE MINIMUM COVER FOR ALL PIPE IS 2 (TWO) FEET. SPECIAL APPLICATIONS FOR LESS THAN 2 (TWO) FEET OF COVER WILL BE REVIEWED INDIVIDUALLY.

8. CONCRETE MORTAR JOINTS SHALL BE USED FOR JOINING ALL CONCRETE PIPES. THE PIPE SHALL BE CLEAN AND MOIST WHEN MORTAR IS APPLIED THE LOWER PORTIONS OF THE BELL OR GROOVE SHALL BE FILLED WITH MORTAR SUFFICIENT TO BRING THE INNER SURFACE FLUSH AND EVEN WHEN THE NEXT JOINT IS FITTED INTO PLACE. THE REMAINDER OF THE JOINT SHALL THEN BE FILLED WITH MORTAR AND A BEAD OR RING OF MORTAR FORMED AROUND THE OUTSIDE OF THE JOINT. THE APPLICATION OF MORTAR MAY BE DELAYED UNTIL FILL IS COMPLETED WHEN THE PIPE IS LARGER THAN THIRTY (30) INCH.

9.PERFORMED JOINT SEALER, WHICH CONFORMS TO AASHTO SPECIFICATIONS M-198 FOR TYPE B FLEXIBLE PLASTIC GASKETS, MAY BE USED IN LIEU OF THE MORTAR JOINTING METHOD.

10. COUPLING BANDS AND FITTINGS SHALL BE USED FOR JOINING ALL HDPE PIPE. COUPLING BANDS SHALL COVER AT LEAST ONE FULL CORRUGATION ON EACH SECTION OF PIPE. GASKET COUPLING BANDS ARE REQUIRED BETWEEN ALL PIPE JOINTS. THE GASKET SHALL BE MADE OF CLOSED-CELL SYNTHETIC EXPANDED RUBBER MEETING THE REQUIREMENTS OF ASTM D1056, TYPE 2. GASKETS SHALL BE INSTALLED ON THE COUPLING BAND BY THE PIPE MANUFACTURER. ALL COUPLING BANDS SHALL MEET OR EXCEED THE SOIL-TIGHTNESS REQUIREMENT OF AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, SECTION 23, PARAGRAPH 23.1.5.4(e). PIPE FITTINGS SHALL CONFORM TO AASHTO M252 OR AASHTO M294.

11. THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTH TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURES SPECIFICATIONS.

12. ALL PIPES IN STORM DRAIN STRUCTURES SHALL BE FLUSH WITH THE INSIDE WALL.

13. ANY STORM DRAIN STRUCTURES OVER THREE (3) FEET AND 6 (SIX) INCHES MUST HAVE STEPS IN ACCORDANCE WITH STANDARD DETAILS SET FORTH IN THE CMLD STANDARDS MANUAL.

14. ALL FRAMES, GRATES RINGS , COVERS ETC., MUST CONFORM TO THE STANDARDS SET FORTH IN CMLD STANDARDS MANUAL.

15. ALL GRADED CREEK BANKS AND SLOPES SHALL BE AT A MAXIMUM OF TWO (2) FEET HORIZONTAL TO ONE (1) FOOT VERTICAL (2:1).

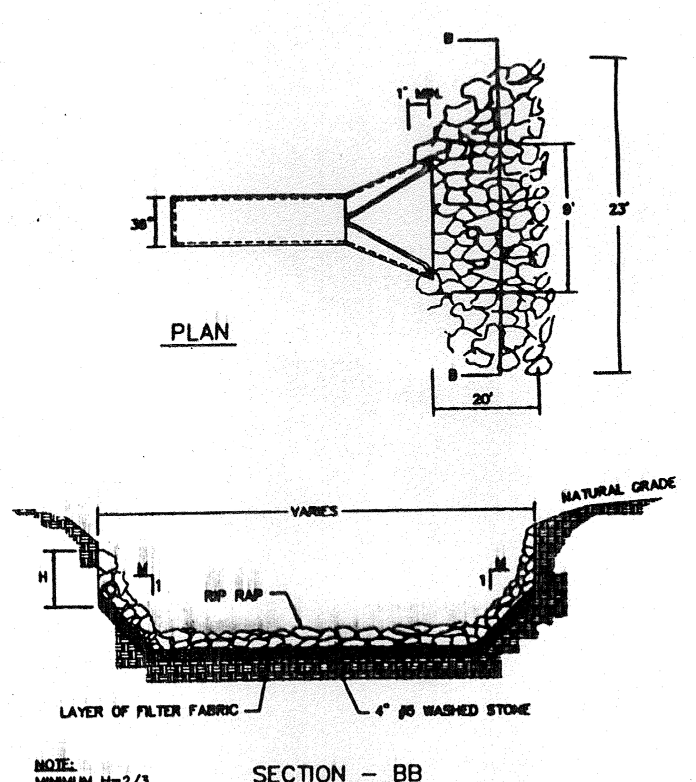
16. ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATIVE MATTER, WASTE, CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. SAID MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.

17. MATERIALS DEEMED BY THE ENGINEER AS UNSUITABLE FOR BACKFILL PURPOSES SHALL BE REPLACED WITH SELECT BACKFILL MATERIAL.

18. BACK FILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED EIGHT (8) INCHES, EACH LAYER SHALL BE THOROUGHLY COMPACTED TO 95% OF THE OF THE MAXIMUM DENSITY OBTAINED WITH THE STANDARD PROCTOR TEST (DENSITY OF 100% STANDARD PROCTOR IS REQUIRED FOR THE TOP EIGHT (8) INCHES).

19. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL COMPACTION METHODS. EACH LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED IN PLACE.

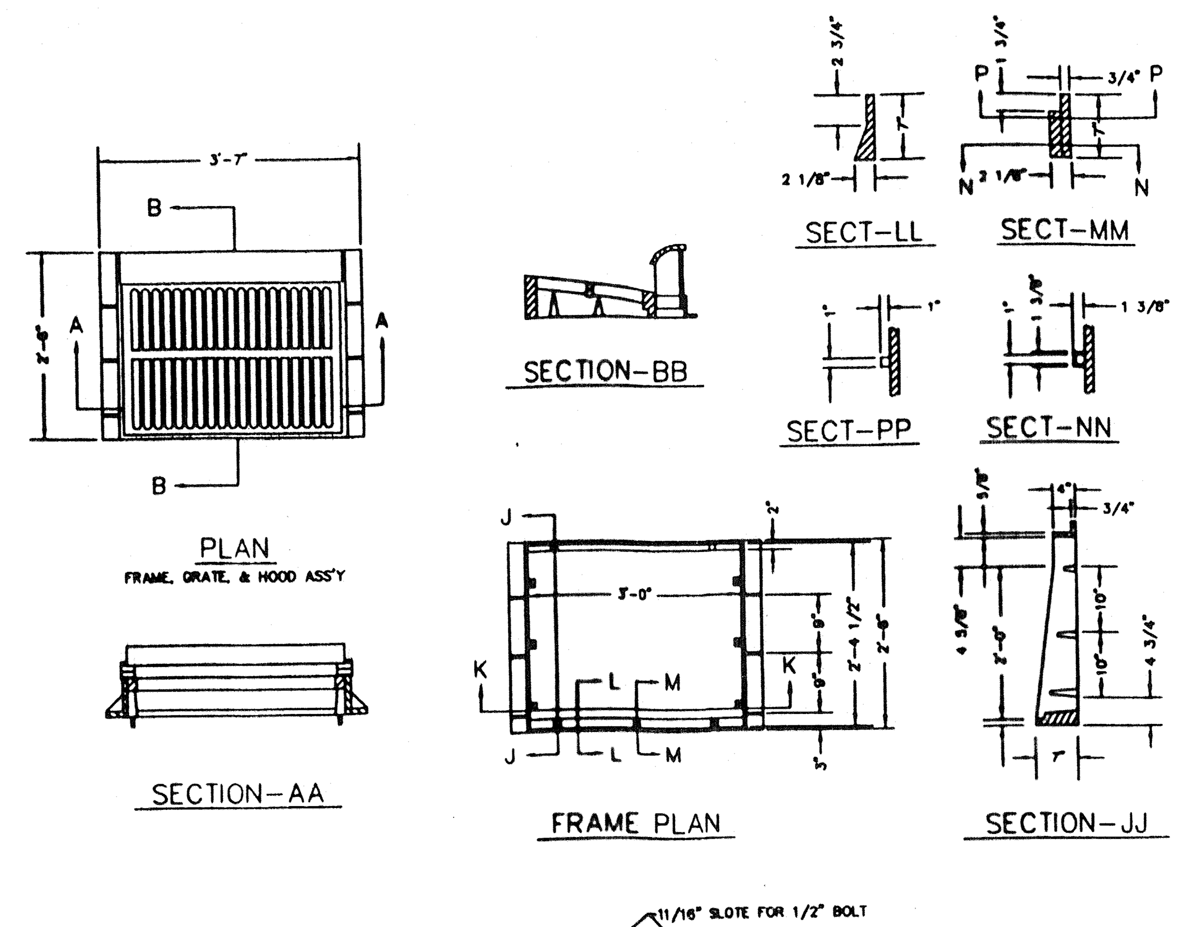
20. UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED.



GENERAL NOTES :

1. CLASS OR MEDIAN SIZE OF RIPRAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE DESIGNED BY THE ENGINEER.
2. REFER TO THE CHARLOTTE MECKLENBURG STORM WATER DESIGN FOR RIPRAP APRON DESIGN STANDARDS.
3. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
4. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL THE AREA TO BE PAVED TO RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE AT THE DOWNSTREAM END.
5. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
6. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
7. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
8. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.

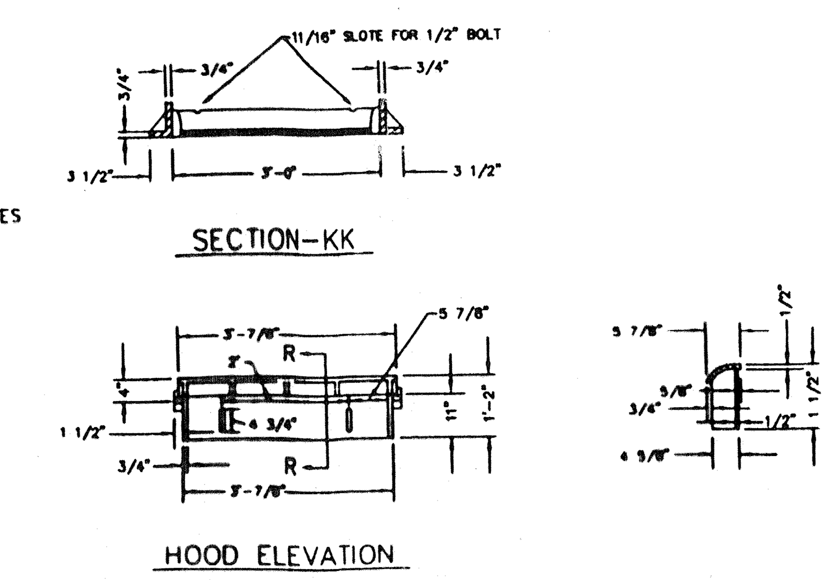
RIPRAP APRON AT PIPE OUTLETS

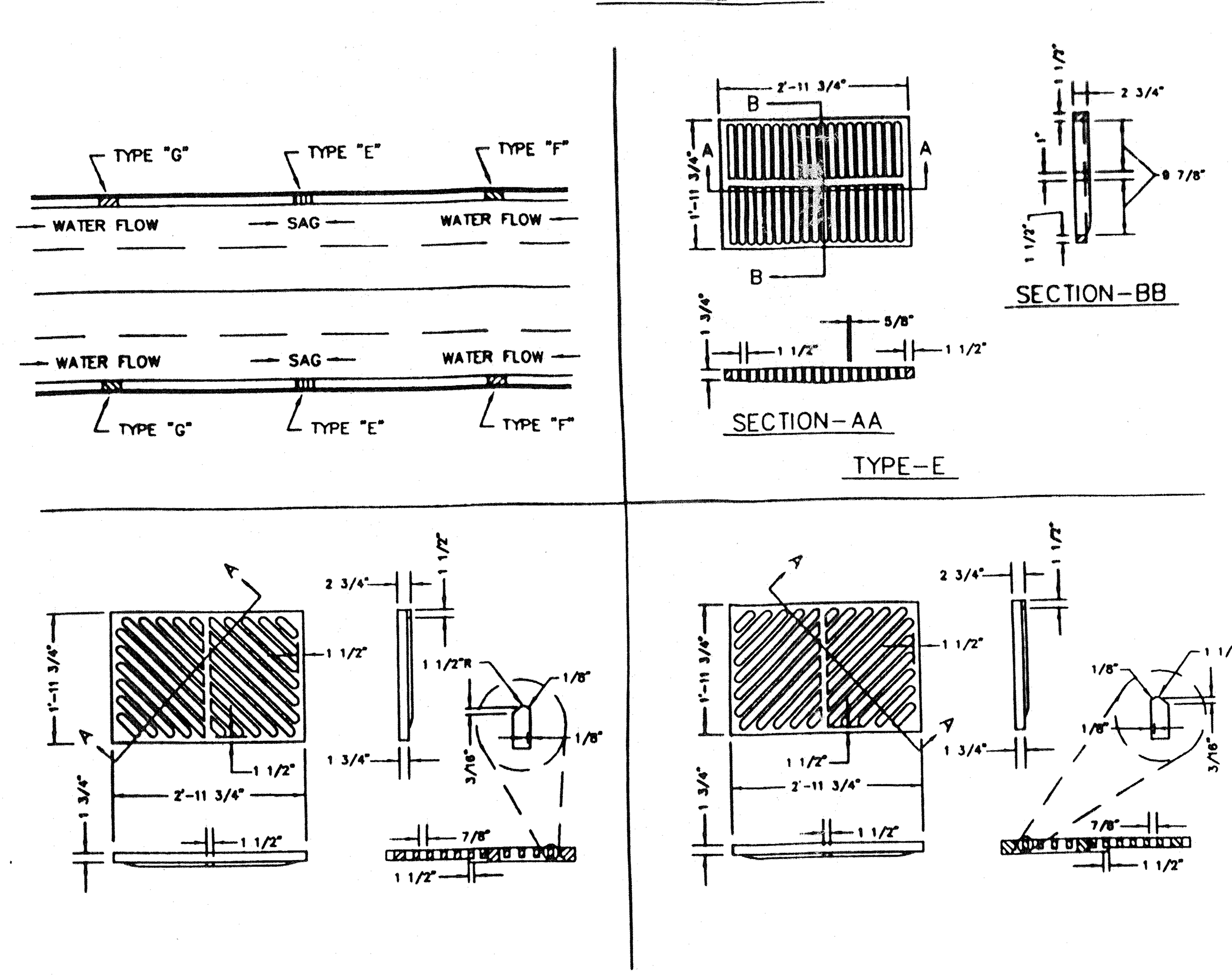


NOTE:

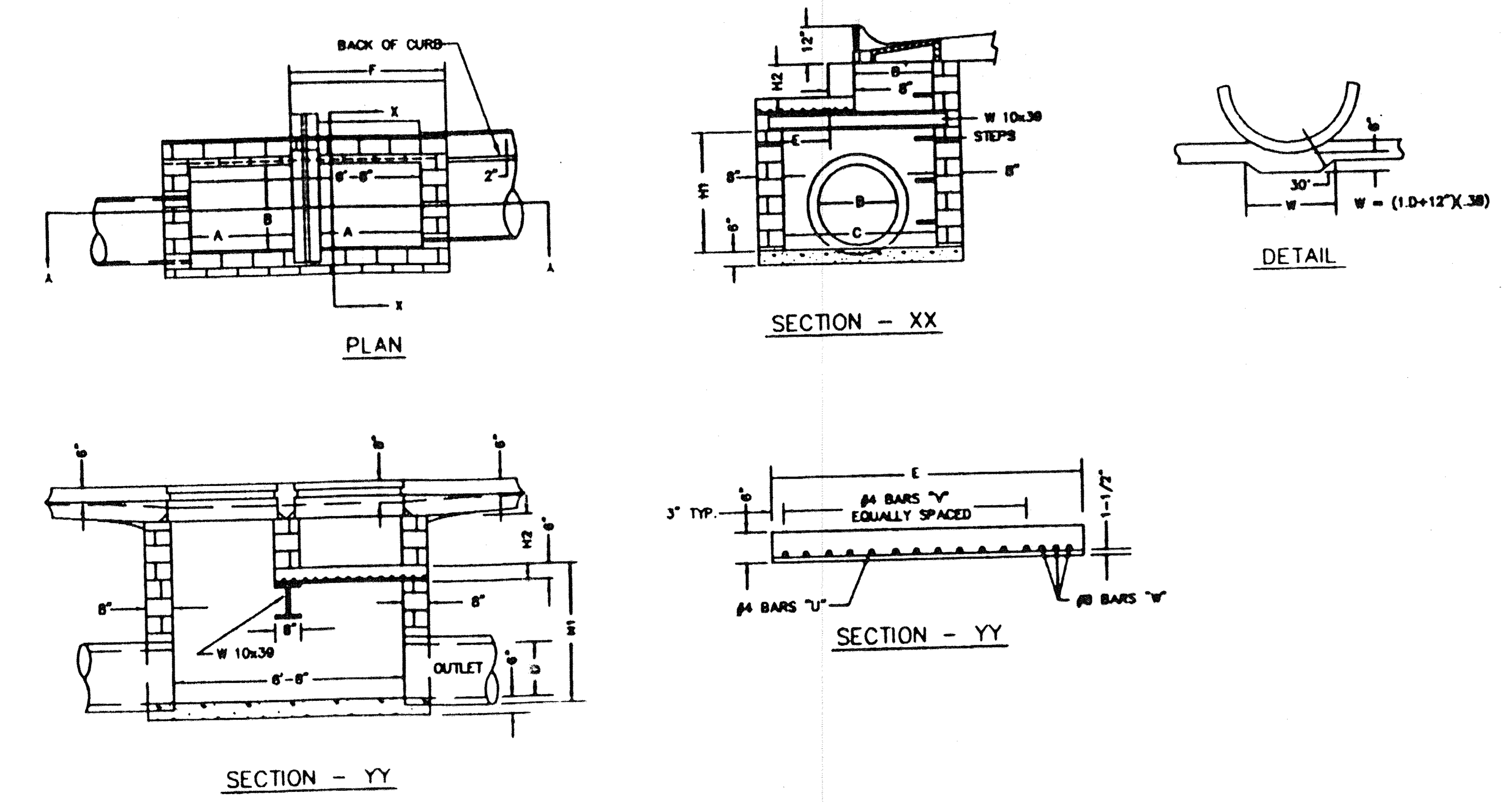
USE TYPE "E", "F", "G" GRATES.

EFFECTIVE OCTOBER 1, 1987. NO SUBSTITUTIONS WILL BE ALLOWED FOR TYPE "E", "F" AND "G" GRATES





FRAME, GRATE AND HOOD
FOR USE ON STANDARD CATCH BASIN



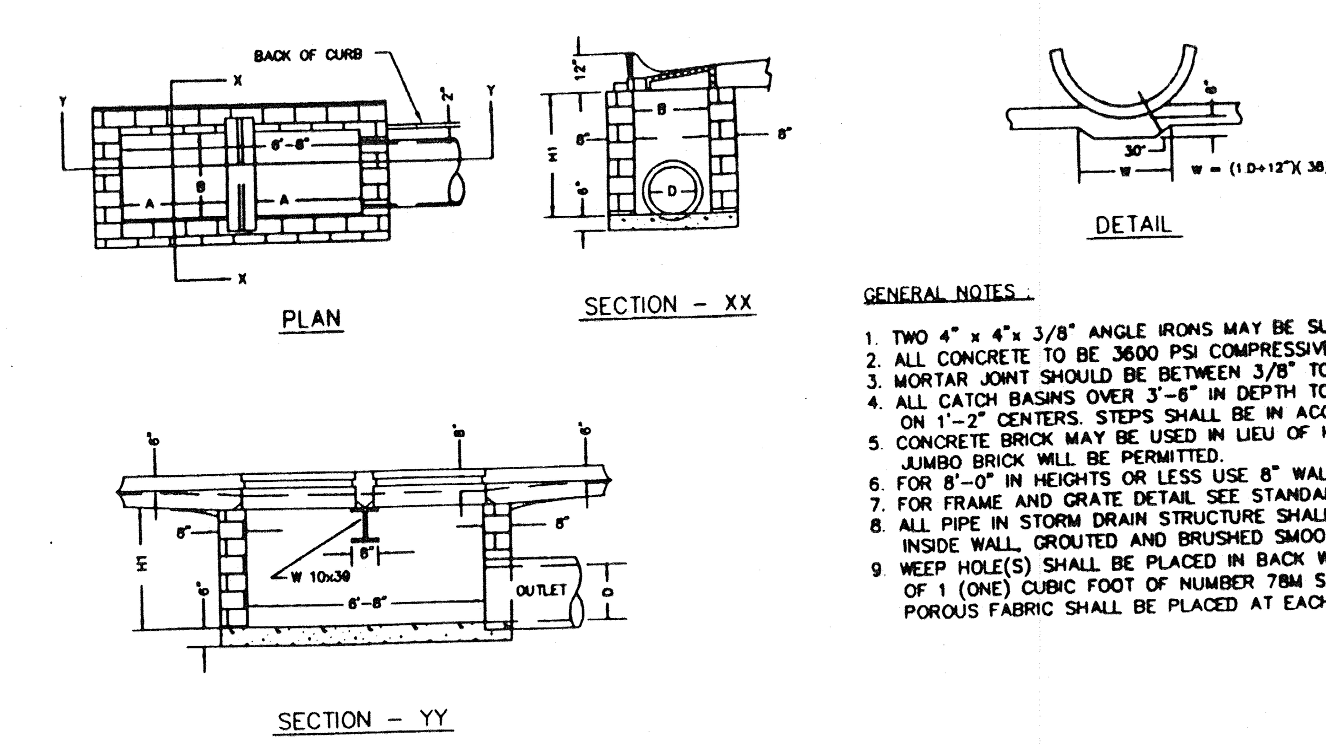
GENERAL NOTES :

1. TWO 4" x 4"x 3/8" ANGLE IRONS MAY BE SUBSTITUTED FOR THE W10x39 BEAM.
2. ALL CONCRETE TO BE 3600 PSI COMPRESSIVE STRENGTH.
3. MORTAR JOINT SHOULD BE BETWEEN 3/8" TO 5/8" THICK.
4. ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH METAL STEPS ON 1'-2" CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 20.12.
5. CONCRETE BRICK MAY BE USED IN LIEU OF HARD COMMON CLAY BRICK. JUMBO BRICK WILL BE PERMITTED.
6. FOR 8'-0" IN HEIGHTS OR LESS USE 8" WALL, OVER 8'-0" IN HEIGHT USE 12"
7. FOR FRAME AND GRATE DETAIL SEE STANDARD 20.02.
8. ALL PIPE IN STORM DRAIN STRUCTURE SHALL BE STRUCK EVEN WITH THE INSIDE WALL, GROUTED AND BRUSHED SMOOTH.
9. WEEP HOLE(S) SHALL BE PLACED IN BACK WALL. A STONE DRAIN CONSISTING OF 1 (ONE) CUBIC FOOT OF NUMBER 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.

DIMENSION OF BOX AND PIPE							COVER DIMENSION		TOP SLAB REINFORCEMENT						
PIPE	SPAN	WIDTH	WIDTH	HEIGHT	HEIGHT	W 10			BARS - U		BARS - V		BARS - W		TOT.
D	A	B	C	MIN.H1	H2	LENGTH	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	LBS.
30"	3'-0"	2'-4"	3'-4"	3'-2"	VAR	4'-0"	1'-10"	4'-4"	4	1'-6"	3	4'-1"	3	4'-1"	46
36"	3'-0"	2'-4"	3'-10"	3'-8"	VAR	4'-0"	2'-4"	4'-4"	4	2'-0"	4	4'-1"	3	4'-1"	49

BRICK DOUBLE CATCH BASIN 30" THRU 36" PIPE

NOT TO SCALE



DIMENSION OF BOX AND PIPE				
PIPE	SPAN	WIDTH	HEIGHT	W 10
D	A	B	MIN.H-1	LENGTH
15"	3'-0"	2'-4"	2'-6"	2'-10"
18"	3'-0"	2'-4"	2'-10"	2'-10"
24"	3'-0"	2'-4"	3'-4"	2'-10"

GENERAL NOTES :

1. TWO 4" x 4"x 3/8" ANGLE IRONS MAY BE SUBSTITUTED FOR THE W10x39 BEAM.
2. ALL CONCRETE TO BE 3600 PSI COMPRESSIVE STRENGTH.
3. MORTAR JOINT SHOULD BE BETWEEN 3/8" TO 5/8" THICK.
4. ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH METAL STEPS ON 1'-2" CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD 20.12.
5. CONCRETE BRICK MAY BE USED IN LIEU OF HARD COMMON CLAY BRICK. JUMBO BRICK WILL BE PERMITTED.
6. FOR 8'-0" IN HEIGHTS OR LESS USE 8" WALL, OVER 8'-0" IN HEIGHT USE 12"
7. FOR FRAME AND GRATE DETAIL SEE STANDARD 20.02.
8. ALL PIPE IN STORM DRAIN STRUCTURE SHALL BE STRUCK EVEN WITH THE INSIDE WALL, GROUTED AND BRUSHED SMOOTH.
9. WEEP HOLE(S) SHALL BE PLACED IN BACK WALL. A STONE DRAIN CONSISTING OF 1 (ONE) CUBIC FOOT OF NUMBER 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.

BRICK DOUBLE CATCH BASIN 15" THRU 24" PIPE

NOT TO SCALE

APPROVALS

PROJECT ENGR: J.E.W.
DESIGNED BY : R.J.H.
DRAWN BY : D.J.N.
CHECKED BY : R.J.H.
APPROVED BY:

PREPARED BY

POWER ENGINEERING COMPANY, INC.
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SEALS

NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION

SEAL 7571

PROJECT

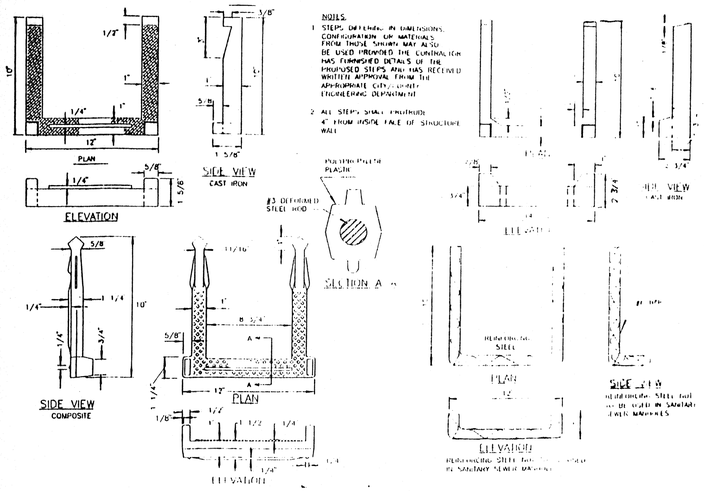
HUNTERSVILLE FORD
TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA

NO.	DATE	REVISIONS	BY

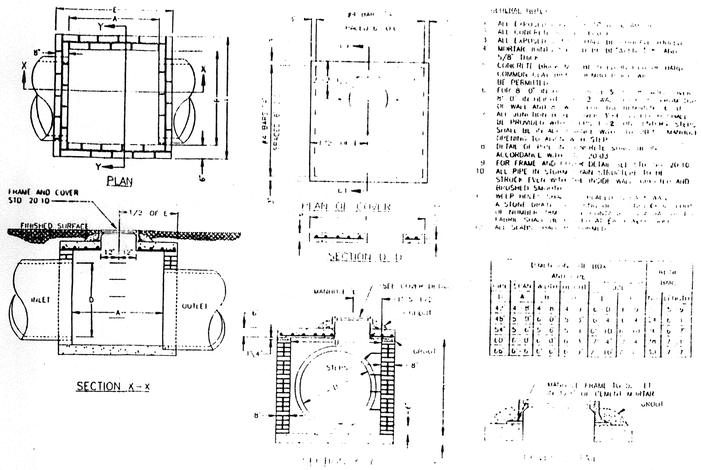
SHEET TITLE

DRAINAGE DETAILS

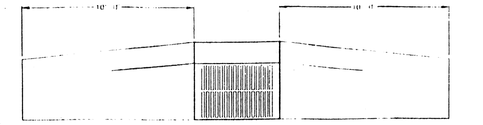
SCALE: NTS
DATE: OCTOBER 17, 1997
JOB NO. 5409
SHEET 8 OF 12



DRAINAGE STRUCTURE STEPS



BRICK JUNCTION BOX
42" THRU 66" PIPE



PLAN FOR TANGENT SLOPE

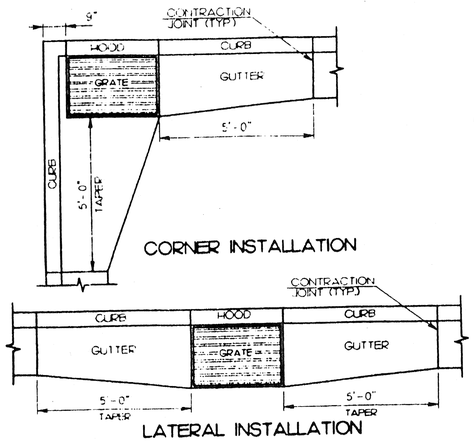
DIMENSIONS AND CONCRETE QUANTITIES													
USING CONCRETE PIPE								USING CORRUGATED METAL PIPE					
COMMON DIMS.					SINGLE PIPE			COMMON				SINGLE PIPE	
D	H	B	G	T	L	CU. YD.		H	B	G	E	CU. YD.	
15"	3'-4"	1'-8"	2'-8"	1 7/8"	3'-8"	0.734		3'-0"	1'-8"	2'-8"	5'-0"	0.573	
18"	3'-7"	1'-10"	3'-3"	2"	4'-4"	0.858		3'-3"	1'-8"	2'-11"	5'-10"	0.767	
24"	4'-2"	2'-1"	4'-0"	2 1/2"	5'-0"	1.308		3'-8"	1'-11"	3'-8"	7'-4"	1.200	
30"	4'-9"	2'-3"	4'-7"	2 3/4"	5'-2"	2.145		4'-3"	2'-2"	4'-3"	8'-10"	1.757	
36"	5'-3"	2'-8"	5'-8"	3"	11'-0"	3.040		4'-8"	2'-5"	5'-2"	10'-4"	2.456	
42"	5'-10"	2'-11"	6'-4"	3 1/2"	12'-8"	4.120		5'-3"	2'-8"	5'-11"	11'-10"	3.310	
48"	6'-3"	3'-3"	7'-2"	4"	14'-4"	5.530		5'-8"	2'-11"	6'-8"	13'-4"	4.327	

DOWELS IN ENDWALL WITH REINFORCED CONCRETE PIPE										
L O C	PIPE DIA.	SINGLE PIPE								
		15"	18"	24"	30"	36"	42"	48"		
	BARS	X"	X"	X"	X"	X"	X"	X"	X"	Y"
G	QTY.	2	2	3	3	4	4	-	5	2
W	QTY.	-	-	-	-	-	-	2	-	
G	QTY.	2	2	3	3	4	4	-	5	
TOT. LBS.		9	9	14	14	19	58		85	

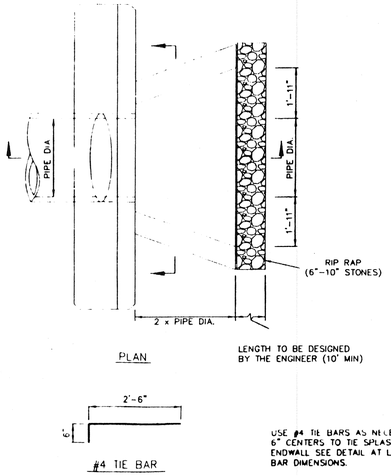
* SEE NOTES

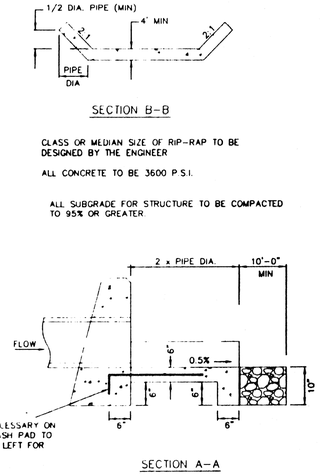
DOWELS IN ENDWALL WITH CORRUGATED METAL PIPE										
L O C	PIPE DIA.	SINGLE PIPE								
		15"	18"	24"	30"	36"	42"	48"		
	BARS	X"	X"	X"	X"	X"	X"	X"	X"	Y"
G	QTY.	2	2	3	3	4	4	-	5	2
W	QTY.	-	-	-	-	-	-	2	-	
G	QTY.	2	2	3	3	-	-	-	5	
TOT. LBS.		9	9	14	14	19	53		82	

* SEE NOTES



GUTTER TRANSITION DETAIL





CONCRETE ENDWALL FOR SINGLE PIPE CULVERTS
15" THRU 48" PIPE – 90° SKEW

NOT TO SCALE

GENERAL NOTES:

ALL CORNERS TO BE CHAMFERED 1".

THE CONTRACTOR WILL BE REQUIRED TO PLACE 2-#8 BARS "X" IN THE TOP OF ALL ENDWALLS FOR PIPE CULVERTS 42" AND OVER WITH A MINIMUM OF 3" COVER AND A LENGTH OF 8' LESS THAN ENDWALL.

FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB

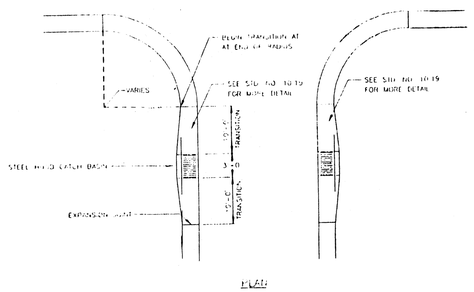
WALL THICKNESS (T) SHOWN IS NOT TO BE INTERPRETED TO MEAN THE THICKNESS ACCEPTABLE, BUT ARE USED ONLY IN COMPUTING ENDWALL QUANTITIES.

IF CONTRACTOR ELECTS TO USE CONSTRUCTION JOINTS AT BOTTOM OF PIPE, BAR X (DOWELS) SHALL BE PLACED IN THE BASE AS SHOWN ON PLANS. SPACING OF BARS TO BE APPROXIMATELY 12" CENTERS UNLESS ENGINEER DIRECTS OTHERWISE.

WHEN CONTRACTOR ELECTS TO USE CONSTRUCTION JOINTS AT BOTTOM OF PIPE AND POURS BASE SEPARATELY, THE TOP OF BASE SHALL BE LEFT ROUGH.

WHEN SKEW ANGLE OF PIPE IS OVER 45° USE G-1 DIMENSION FOR 45° PLUS 6" FOR EACH 5° OVER 45°. G-2 DIMENSION WILL BE THE NEW G-1 DIMENSION DIVIDED BY THE COSINE OF THE ANGLE PIPE SKEW.

ALL CONCRETE TO BE 3600 P.S.I.



CATCH BASIN PLACEMENT
AT INTERSECTION

APPROVALS	PREPARED BY	SEALS	PROJECT	NO.	DATE	REVISIONS	BY	SHEET TITLE	
PROJECT ENGR: J.E.W. DESIGNED BY: R.J.H. DRAWN BY: D.J.N. CHECKED BY: R.J.H. APPROVED BY:	POWER ENGINEERING COMPANY, INC. ENGINEERS – PLANNERS – SURVEYORS P.O. BOX 411481 CHARLOTTE, NORTH CAROLINA 28241 PH:(704)588-4204 FAX (704)588-1838	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION SEAL 7541	HUNTERSVILLE FORD TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA					DRAINAGE DETAILS	

SCALE: NTS
DATE: OCTOBER 17, 1997
JOB NO. 5409
SHEET 9 OF 12

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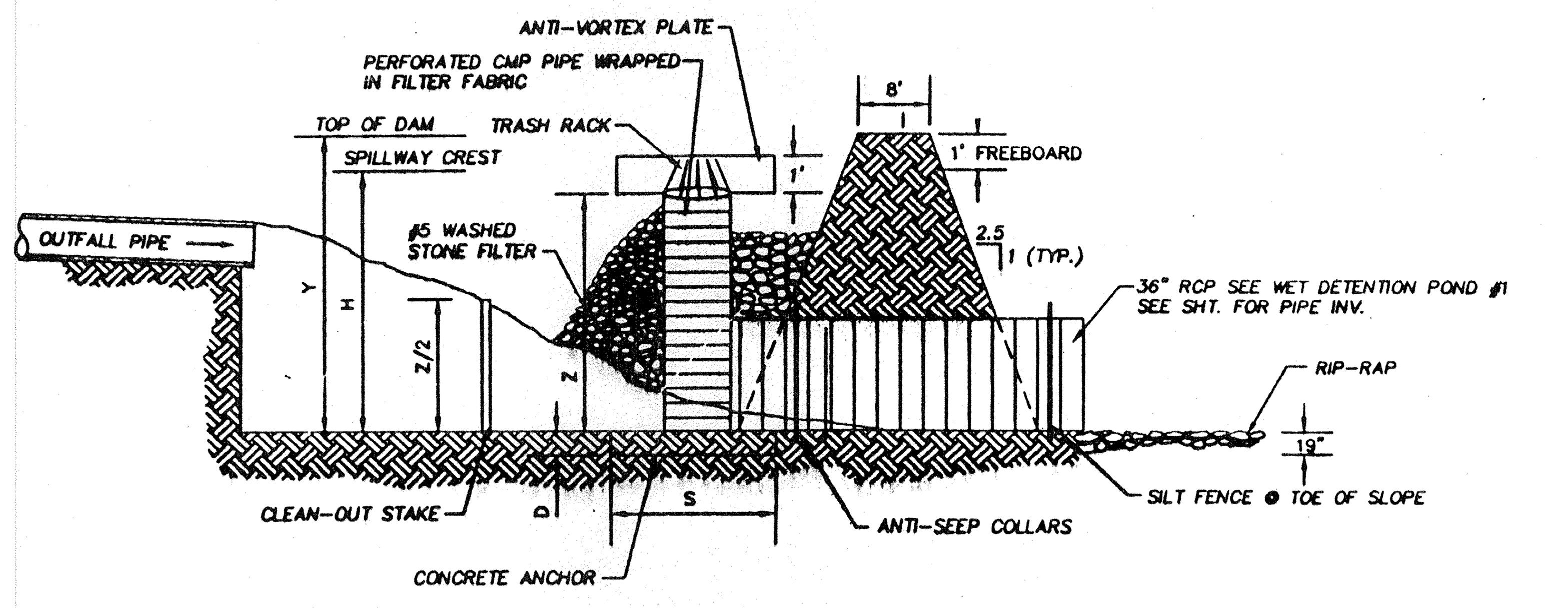
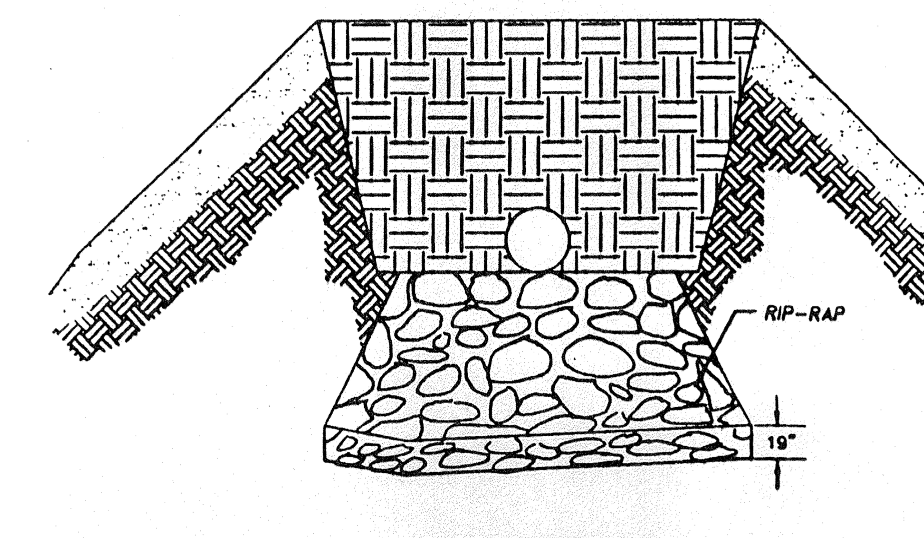


ELEVATION

RISER DIA.	BARREL DIA.	BARREL SLOPE	D (MIN.)	S (MIN.)	Y (MIN.)	H (MIN.)	Z (MIN.)	SEDIMENT STORAGE REQ.
24"	36"	0.5%	1'	4'	6'	5'	4'	19,854 (CF)

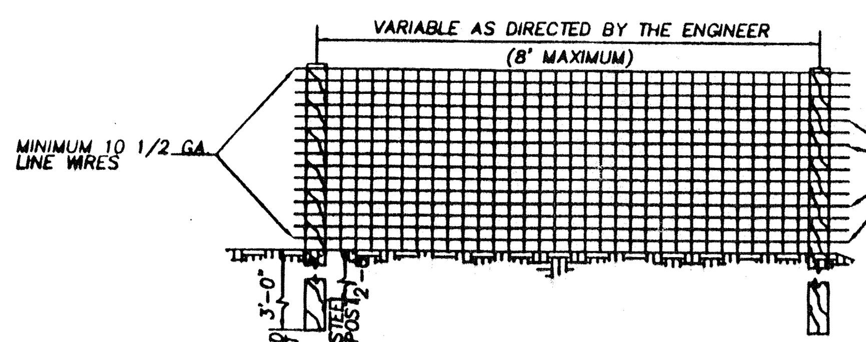
GENERAL NOTES:

1. SEDIMENT BASIN TO BE CLEANED OUT WHEN THE SEDIMENT DEPYH EQUALS Z/2.
2. SEDIMENT BASIN TO BE MAINTAINED UNTIL ALL CONSTRUCTION HAS CEASED. AT THIS TIME THE TRAP WILL BE CONVERTED TO A DETENTION POND.
3. RIP-RAP SIZE (6" TO 10" STONES)



SIDE ELEVATION

OUTLET STRUCTURE DETAIL
NOT TO SCALE

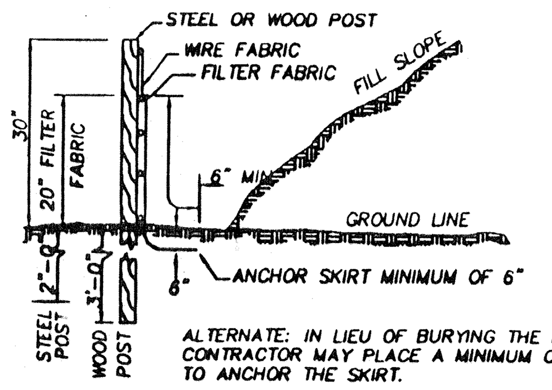


TEMPORARY SILT FENCE GENERAL NOTES:

1. FENCE FABRIC SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
2. WOVEN FILTER FABRIC BE USED WHERE SILT FENCE IS TO REMAIN FOR PERIOD OF MORE THAN 30 DAYS.
3. STEEL POSTS SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
4. WOOD POSTS SHALL BE 6 TO 7 FEET IN HEIGHT AND 3 TO 4 INCHES IN DIAMETER. WIRE FABRIC SHALL BE FASTENED TO WOODEN POST WITH NOT LESS THAN #9 WIRE STAPLES 1 1/2" LONG.
5. WASHED STONE SHALL BE USED TO BURY SKIRT WHEN SILT FENCE IS USED ADJACENT TO A CHANNEL, CREEK OR POND.
6. TURN SILT FENCE UP SLOPE AT ENDS.
7. WHEN FABRIC IS USED WITH WIRE MESH 8' CENTERED POSTS MAY BE USED.

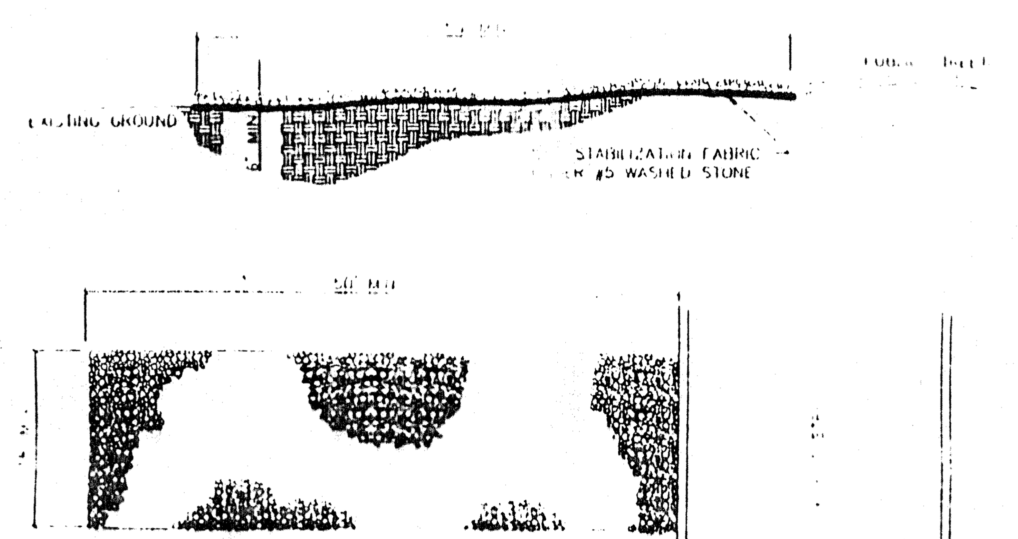
MAINTENANCE NOTES:

1. FILTER BARRIERS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY. THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT OR SILT FENCE SHOULD BE REPLACED. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROX. HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.



ALTERNATE: IN LIEU OF BURYING THE FABRIC SKIRT THE CONTRACTOR MAY PLACE A MINIMUM OF 6" OF #5 STONE TO ANCHOR THE SKIRT.

TEMPORARY SILT FENCE
NOT TO SCALE



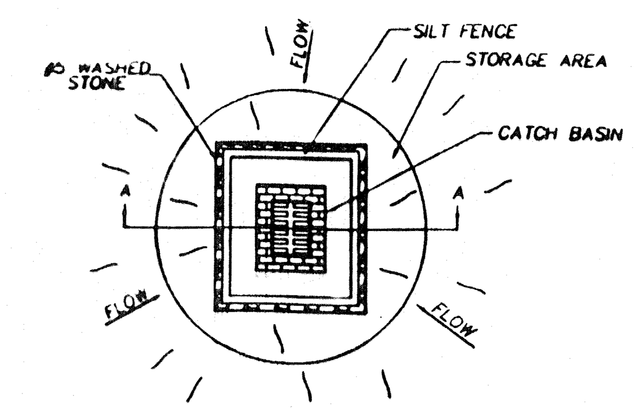
NOTES:

1. A STABILIZED ENTRANCE PAD OF #5 WASHED STONE [illegible] BALLAST SHALL BE LOCATED WHERE TRAFFIC WILL ENTER OR LEAVE THE CONSTRUCTION SITE ONTO A PUBLIC STREET.
2. FILTER FABRIC OR COMPACTED CRUSHER RUN STONE MAY BE USED AS A BASE FOR THE CONSTRUCTION ENTRANCE.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OF EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS WARRANT AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
4. ANY SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC STREETS MUST BE REMOVED IMMEDIATELY.
5. WHEN APPROPRIATE, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN SEE STD. NO. 30.11B
6. SOIL STABILIZATION FABRIC (AS SPECIFIED BY THE DESIGNER) SHALL BE USED.
7. DOT MAY REQUIRE A STANDARD COMMERCIAL DRIVEWAY [illegible] TO ACCESS THE CONSTRUCTION SITE IF THE DRIVEWAY IS OFF A [illegible] ROAD.

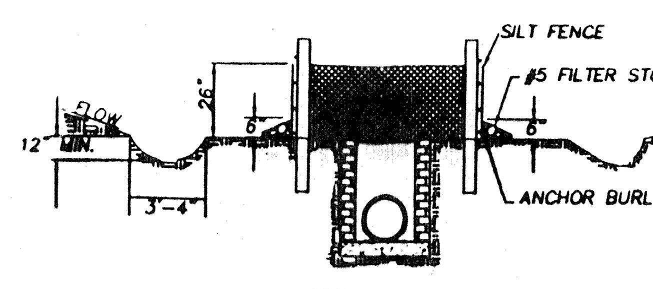
STABILIZED CONSTRUCTION ENTRANCE

SEDIMENT AND EROSION CONTROL NOTES

1. ALL "STD." NUMBERS REFER TO THE CHARLOTTE/MECKLENBURG LAND DEVELOPMENT STANDARDS MANUAL.
2. ON SITE BURIAL PITS REQUIRE AN ON-SITE DEMOLITION LANDFILL PERMIT FROM THE ZONING ADMINISTRATOR.
3. ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE CITY/COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
4. GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF THE CITY/COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
5. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE SHOWN ON THE PLAN. ALL GRADED SLOPES MUST BE SEEDED AND MULCHED WITHIN 30 DAYS OF COMPLETION OF GRADING. ALL REMAINING AREAS ARE TO BE SEEDED AND MULCHED WITHIN 120 DAYS.
6. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY A REPRESENTATIVE OF THE CITY/COUNTY ENGINEERING DEPARTMENT.
7. ANY LAND-DISTURBING ACTIVITY ≥ 5 ACRES REQUIRES COMPLIANCE WITH ALL CONDITIONS OF THE GENERAL PERMIT TO DISCHARGE STORM WATER UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM [PERMIT NO. NCG010000]. ANY PERMIT NONCOMPLIANCE IS A VIOLATION OF THE CLEAN WATER ACT AND MAY REQUIRE ENFORCEMENT ACTION BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES. (FOR QUESTIONS CONTACT MOORESVILLE REGIONAL OFFICE WATER QUALITY STAFF AT 663-1699)
8. CONTROL STRUCTURES INDICATED ON THE PLANS ARE TO BE INSTALLED PRIOR TO ANY DIGGING OR DISRUPTION OF VEGETATION. CONTRACTOR SHALL MAINTAIN ALL ROADSIDE DITCHES AND STORM DRAINAGE STRUCTURES FREE OF SEDIMENT.
9. CONSTRUCTION EASEMENTS SHALL NOT BE CLEARED UNLESS ABSOLUTELY NECESSARY.
10. ALL REASONABLE EFFORTS SHOULD BE MADE TO MAINTAIN A NATURAL BUFFER (UNDISTURBED VEGETATION) BETWEEN CONSTRUCTION AREAS AND STREAMS AND OTHER SENSITIVE AREAS. CONSTRUCT AND MAINTAIN DIVERSION DITCHES ON STREAM SIDE OF CONSTRUCTION. WHEN CLEANING SEDIMENT FROM THE DIVERSION DITCHES, DEPOSIT THE EXCAVATED MATERIAL ON THE UPHILL SIDE OF THE DITCH OR IN AN AREA WHICH EMPTIES TO A SEDIMENT TRAP OR BASIN.
11. ALL RIP-RAP IS TO BE INSTALLED PRIOR TO CONSTRUCTION, EXCEPT IN LOCATIONS WHERE THE LINE ACTUALLY CROSSES PROPOSED RIP-RAP AREA.
12. USE RIP-RAP WHERE REQUIRED ON ANY DISTURBED STREAM BANKS. CONTRACTOR SHALL PLAN WORK SO THAT STOCKPILES OF EXCAVATED MATERIAL ARE NOT SUBJECT TO WASHING INTO ANY STREAM OR DRAINAGE STRUCTURE.
13. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES IN A SATISFACTORY MANNER THROUGH PERIODIC MAINTENANCE OR BY RECONSTRUCTING THE CONTROL STRUCTURES WHEN NECESSARY.
14. UPON GRADING AREAS TO FINAL ELEVATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND LEGAL DISPOSAL OF ALL WASTE MATERIALS FROM THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE THAT THE DISPOSAL METHODS UTILIZED SHALL NOT CONTRIBUTE TO THE ACCELERATION OF EROSION OR SEDIMENT DAMAGE TO OFF-SITE WASTE AREAS.
15. ALL AREAS NOT TO BE COVERED WITH A HARD SURFACE ARE TO BE GRASSED IN ACCORDANCE WITH SPECIFICATION SECTION 2100.
16. ONCE GROUND COVER IS FIRMLY ESTABLISHED, ALL TEMPORARY EROSION CONTROL STRUCTURES ARE TO BE REMOVED.
17. ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD. ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION HAS BEEN OBTAINED.
18. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 21 DAYS.



PLAN VIEW



SECTION A-A

STORM INLET SEDIMENT FILTER
NOT TO SCALE

STORM INLET GENERAL NOTES:

1. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
2. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. THE STRUCTURE SHALL BE INSPECTED AFTER EACH STORM EVENT BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT AND REPAIRS MADE AS NECESSARY.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT INSUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED. NECESSARY.
5. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABLIZED WHEN THE DRAINAGE BASIN HAS BEEN PROPERLY STABLIZED. NECESSARY.
6. SILT FENCE INSTALLATION SHALL BE IN ACCORDANCE WITH STD. NO. 30.06
7. STORM INLET SEDIMENT FILTERS ARE TO BE INSTALLED AT ALL STORMWATER STRUCTURES (CATCH BASINS, JUNCTION BOXES, ETC.) AS SOON AS THE STRUCTURE IS INSTALLED. THE FILTER IS TO REMAIN (AND MAINTAINED) UNTIL THE THREAT OF EROSION AND SEDIMENT LOSS FOR THAT STRUCTURES DRAINAGE BASIN HAS DIMINISHED.

SEEDING AND MULCHING NOTES

GRADED SLOPES AND FILLS – THE SLOPES FOR NEWLY GRADED AREAS SHALL BE NO STEEPER THAN THE SLOPE WHICH CAN ADEQUATELY RETAIN VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED SHALL, WITHIN 30 WORKING DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

SEED BED PREPARATION – THE SEED BED SHALL BE PREPARED BY PULVERIZING THE SOIL IN AN APPROVED MANNER TO A DEPTH OF THREE INCHES FOR SLOPES THAT ARE 3:1 OR FLATTER, OR TO A DEPTH OF ONE TO THREE INCHES FOR SLOPES STEEPER THAN 3:1. TILLAGE SHALL CONTINUE UNTIL A WELL PULVERIZED, FIRM, UNIFORM SEED BED IS PREPARED CONFORMING SUBSTANTIALLY TO GROUND ELEVATIONS AS SHOWN ON THE PLANS AND/OR AS WAS EXISTING PRIOR TO CONSTRUCTION, BLENDING WITH THE ADJACENT TOPOGRAPHY. GOOD SURFACE DRAINAGE MUST BE PROVIDED. ALLOWANCES FOR SETTLEMENT MUST BE MADE, AND THE CORRESPONDING GROUND ELEVATIONS ADJUSTED ACCORDINGLY. ALL STONES, ROOTS, STICKS, RUBBISH, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF-SITE.

SEEDING AND FERTILIZATION – FERTILIZER (10-10-10) SHALL BE APPLIED AT A RATE OF 30 POUNDS PER 1000 SQUARE FEET. IN ESTABLISHED LAWN AREAS, AN ADDITIONAL LIME TREATMENT APPLIED AT A RATE OF 100 POUNDS PER 1000 SQUARE FEET SHALL ALSO BE PROVIDED.

ALL SEEDING MATERIAL SHALL BE LABELED TO SHOW THAT IT MEETS THE LATEST REQUIREMENTS OF NORTH CAROLINA SEED LAW. SEED SHALL HAVE BEEN TESTED WITHIN THE LAST SIX MONTHS. KENTUCKY FESCUE #31 SHALL BE A MINIMUM 89% PURE LIVE SEED; MAXIMUM 1% WEED SEED; MINIMUM 90% GERMINATION. RYE GRASS SHALL BE A MINIMUM 98% PURE LIVE SEED; MAXIMUM 0.10% WEED SEED; 85% GERMINATION.

WHEN THE WORK IS PERFORMED WITHIN THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RIGHTS-OF-WAY, THE CONTRACTOR SHALL FURNISH THE STATE LANDSCAPE SUPERVISOR THE NAME OF THE SUPPLIER OF SEED, THE SEED TYPE, AND THE TOTAL AMOUNT OF SEED TO BE USED IN RESTORING THE DISTURBED GROUND COVER.

SEEDING SHALL BE DONE WITHIN THIRTY (30) DAYS AFTER THE INITIAL GROUND DISTURBANCE. THE SEED BED SHALL BE IN A GOOD FRIABLE CONDITION. SEED SHALL BE APPLIED AT THE RATE RECOMMENDED BY THE SUPPLIER AND RAKED OR TILLED INTO THE TOPSOIL WITH THE RESULTING FURROWS RUNNING ACROSS THE NATURAL GROUND SLOPE.

THE FOLLOWING MATERIALS SHALL BE USED FOR RESEEDING DISTURBED AREAS.
NOTE: ALL RATES ARE PER 1000 SQUARE FEET.

SEPTEMBER 15 THROUGH MARCH 1
6# KENTUCKY FESCUE NO. 31
2# RYE GRAIN
30# FERTILIZER (10-10-10)
100# LIME

FEBRUARY 1 THROUGH OCTOBER 15
8# KENTUCKY FESCUE NO. 31
30# FERTILIZER (10-10-10)

MAY 1 THROUGH SEPTEMBER 30
ADD 0.4# SUDAN OR MILLET TO ABOVE

MULCHING – AFTER FERTILIZING, SEEDING, RAKING AND TILLING, DRIED STRAW SHALL BE UNIFORMLY SPREAD OVER THE AREA AT A RATE OF 90 POUNDS PER 100 SQUARE FEET. APPROXIMATELY 1/4 OF THE GROUND SHOULD REMAIN VISIBLE TO AVOID SMOTHERING THE SEEDLINGS. THE STRAW SHALL BE SPRAYED WITH LIQUID ASPHALT TO BOND THE STRAW TOGETHER AND ANCHOR IT IN PLACE, THUS PREVENTING IT FROM BEING SCATTERED BY THE WIND AND RAIN.

ASPHALT APPLICATION – LIQUID ASPHALT (THINNED WITH KEROSENE) USED DURING FREEZING WEATHER SHALL BE EITHER RAPID OR MEDIUM CURING, APPLIED AT A RATE OF 200 GALLONS PER TON OF STRAW (APPROXIMATELY 9 GALLONS PER 1000 SQUARE FEET). EMULSIFIED ASPHALT (THINNED WITH WATER) USED WHEN TEMPERATURES ARE LESS SEVERE SHALL BE RAPID CURE ONLY, APPLIED AT A RATE OF 150 GALLONS PER TON OF STRAW (APPROXIMATELY 7 GALLONS PER 1000 SQUARE FEET).

MATTING – JUTE MATTING OR HOLD GRO SHALL BE USED FOR TEMPORARY STABILIZATION DURING THE ESTABLISHMENT OF PERMANENT COVER ON PROBLEM AREAS SUCH AS FUTURE GRASSED DITCHES, CHANNELS, LONG SLOPES, AND STEEP BANKS.

MISCELLANEOUS – ESTABLISHED LAWNS AND LANDSCAPED AREAS DAMAGED BY CONSTRUCTION SHALL BE RESTORED TO THEIR FORMER CONDITION.

SEEDING AND MULCHING SHALL BE PAID FOR AT THE UNIT PRICE, PER SQUARE YARD, APPLIED, AS APPROVED BY THE CONSTRUCTION OBSERVER.

MAINTENANCE SCHEDULE

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUN-OFF PRODUCING RAINFALL BUT IN NO CASE THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS NECESSARY.
2. SILT WILL BE REMOVED FROM BEHIND THE SILT FENCE AND AT THE INLET PROTECTION SEDIMENT FENCE WHEN IT BECOMES ABOUT 0.5 FT. DEEP. AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER.
3. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED AS NECESSARY AND MULCHED ACCORDING TO SPECIFICATIONS TO MAINTAIN A VIGOROUS DENSE VEGETATIVE COVER.

CONSTRUCTION SEQUENCE

PRE-CONSTRUCTION SEQUENCE

1. REQUEST PRE-CONSTRUCTION CONFERENCE WITH WILSON [illegible] AT 704-336-4368 OR JIM MAGENNIS AT 704-336-4313 MCED INSPECTOR.

2a. INSTALL STONE CONSTRUCTION ENTRANCE AND EROSION CONTROL DEVICES NECESSARY FOR THE PHASE OF GRADING PER THE INSPECTOR.
b. INSTALL SILT FENCE ALONG 50' BUFFER FOR TREE PROTECTION PRIOR TO GRADING.
c. SEDIMENT POND TO BE GRADED TO FINAL GRADE OF DETENTION POND AND PIPE INSTALLED PER SHEET 12 OF 12. SEDIMENT POND OUTLET STRUCTURE TO BE PLACED PER DETAIL THIS SHEET.

3. INFORM MCED INSPECTOR OF COMPLETION OF DEVICE INSTALLATION AND REQUEST AN INSPECTION FOR COMPLIANCE WITH STANDARDS.
4. RECEIVE GRADING PERMIT FROM MCED INSPECTOR.

CLEARING AND GRUBBING PHASE:

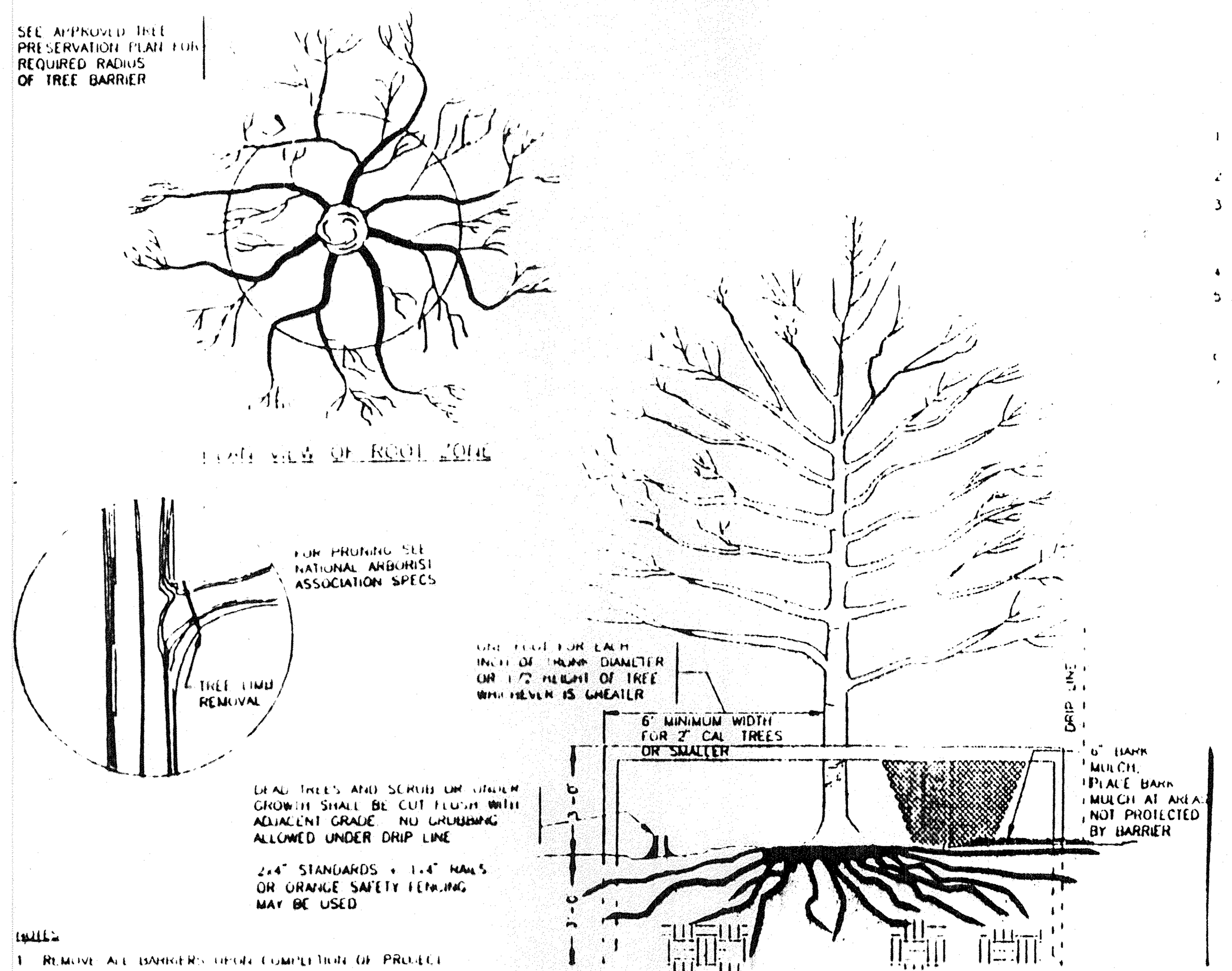
5. BEGIN CLEARING AND GRADING OPERATIONS.

SITE IMPROVEMENTS PHASE:

6. RECEIVE APPROVAL FOR IMPROVEMENT CONSTRUCTION.
7. BEGIN STORM DRAINAGE AND INFRASTRUCTURE INSTALLATION.
8. COMPLETE SITE CONSTRUCTION AND STABILIZE SITE.

FINAL INSPECTION PHASE:

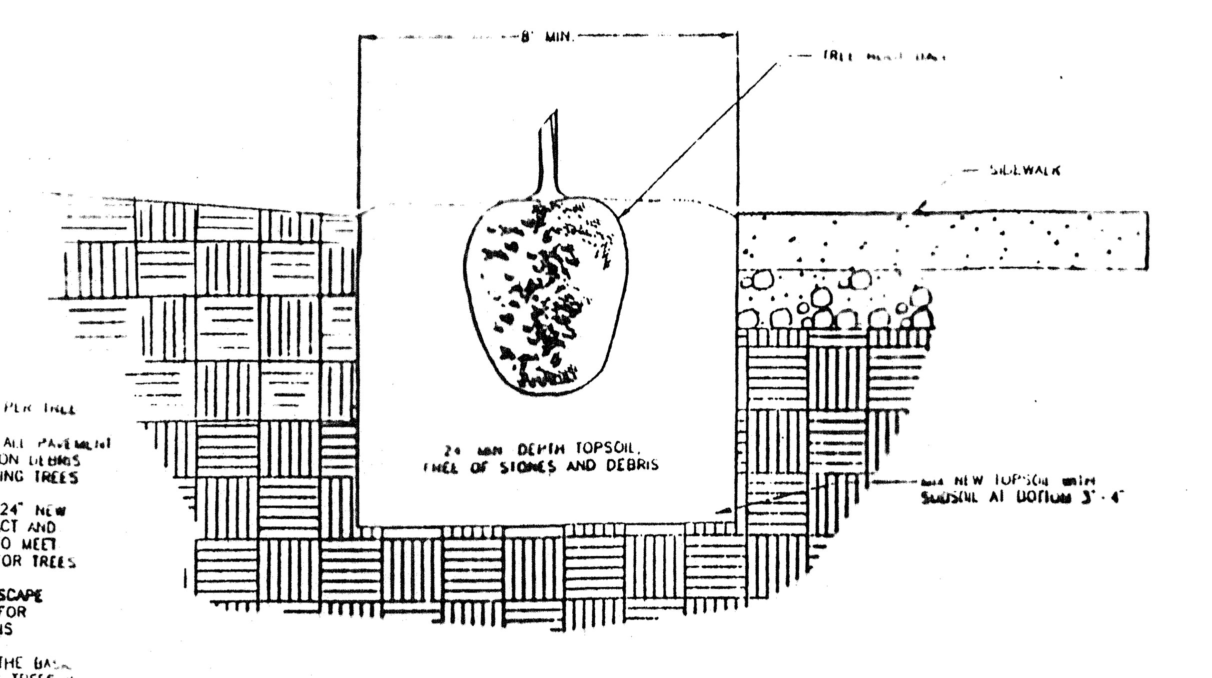
9. REMOVE TEMPORARY EROSION CONTROL DEVICES AND STABILIZE THOSE LOCATIONS.
10. INSTALL PERMANENT DETENTION POND. REMOVE SEDIMENT POND OUTLET STRUCTURE AND REPLACE WITH DETENTION POND OUTLET STRUCTURE.
11. REQUEST PRE-FINAL INSPECTION FOR "PUNCHLIST" ITEMS.
12. REQUEST FINAL INSPECTION.
13. SITE APPROVED, BOND RELEASED OR MCED CERTIFICATE OF OCCUPANCY HOLD REMOVED.



NOTES:

1. REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT
2. SEE PLANS FOR LOCATION OF ALL TREE PROTECTION FENCES
3. REFER TO CITY OF CHARLOTTE LANDSCAPE CONSTRUCTION STANDARDS MANUAL FOR GENERAL SPECIFICATION REGARDING TREE PROTECTION

TREE PROTECTION DETAIL



NOTES:

1. [illegible] TOTAL REQUIRED AREA PER TREE
2. FOR NEW PLANTING AREAS, REMOVE ALL PAVEMENT, GRAVEL SUB-BASE AND CONSTRUCTION DEBRIS BEFORE PREPARING SOIL AND PLANTING TREES
3. REMOVE COMPACTED SOIL AND ADD 24" NEW TOPSOIL/PLANTING MIX OR UNCOMPACT AND AMEND TOP 24" OF EXISTING SOIL TO MEET TOPSOIL/PLANTING MIX STANDARDS FOR TREES
4. REFER TO CITY OF CHARLOTTE LANDSCAPE CONSTRUCTION STANDARDS MANUAL FOR TOPSOIL/PLANTING MIX SPECIFICATIONS
5. THIS DETAIL IS INTENDED TO SHOW THE BASIC ELEMENTS REQUIRED FOR INSTALLING TREES IN THE STREET RIGHT-OF-WAY

DETAIL FOR TREE PLANTING STRIP

APPROVALS	
PROJECT ENGR:	J.E.W.
DESIGNED BY:	R.J.H.
DRAWN BY:	D.J.N.
CHECKED BY:	R.J.H.
APPROVED BY:	

PREPARED BY
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SEALS
NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION
SEAL 7571 ENGINEER

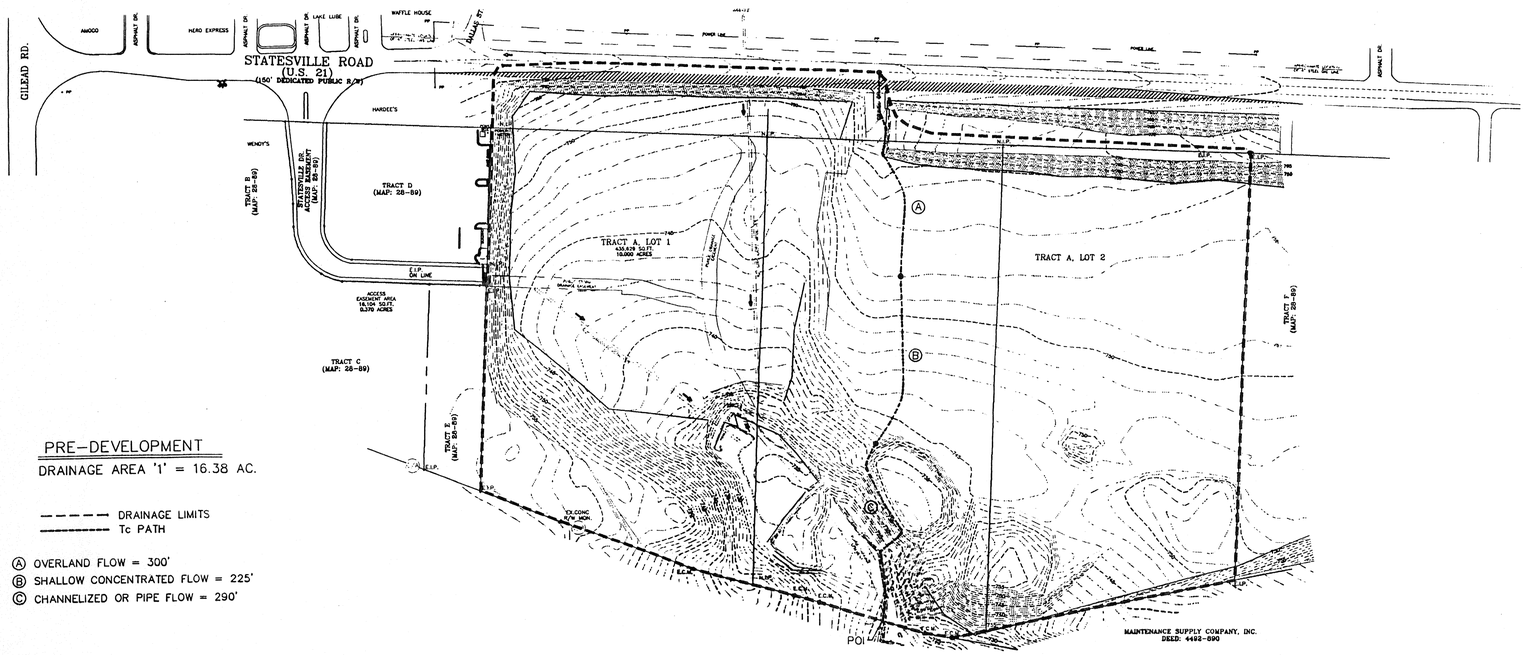
PROJECT
HUNTERSVILLE FORD
TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA

NO.	DATE	REVISIONS	BY
1	11/19/97	PER HUNTERSVILLE & MECKLENBURG COMMENTS	DJN
1	12/08/97	PER TOWN OF HUNTERSVILLE	DJN

SHEET TITLE
EROSION CONTROL DETAILS

SCALE: NO SCALE
DATE: OCTOBER 17, 1997
JOB NO. 5409
SHEET 10 OF 12

:\DWG\P\5409\EC_DTL · Mon Dec 8 15 44 30 1997 POWER ENGINEERING CO., INC.

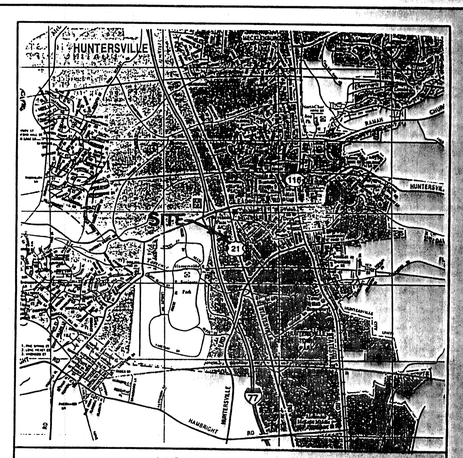


PRE-DEVELOPMENT

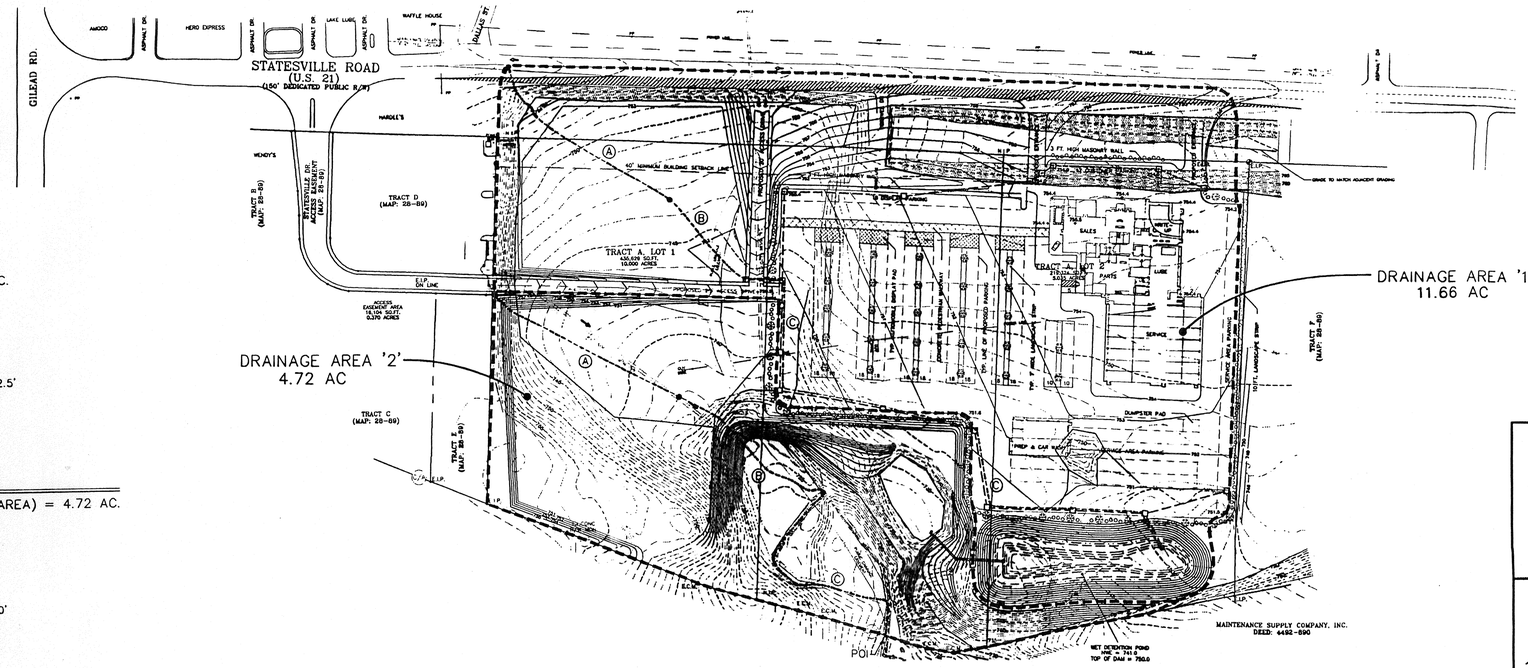
DRAINAGE AREA '1' = 16.38 AC.

- - - - - DRAINAGE LIMITS
——— Tc PATH

Ⓐ OVERLAND FLOW = 300'
Ⓑ SHALLOW CONCENTRATED FLOW = 225'
Ⓒ CHANNELIZED OR PIPE FLOW = 290'



VICINITY MAP NTS



POST-DEVELOPMENT

DRAINAGE AREA '1' = 11.66 AC.

- - - - - DRAINAGE LIMITS
——— Tc PATH

Ⓐ OVERLAND FLOW = 300'
Ⓑ SHALLOW CONCENTRATED FLOW = 152.5'
Ⓒ CHANNELIZED OR PIPE FLOW = 738'

POST-DEVELOPMENT

DRAINAGE AREA '2' (BYPASS AREA) = 4.72 AC.

- - - - - DRAINAGE LIMITS
——— Tc PATH

Ⓐ OVERLAND FLOW = 300'
Ⓑ SHALLOW CONCENTRATED FLOW = 250'
Ⓒ CHANNELIZED OR PIPE FLOW = 325'

		PRELIMINARY NOT FOR CONSTRUCTION	
1	11/17/97	REVISIONS PER COUNTY REVIEW	SMB
		REVISION	BY

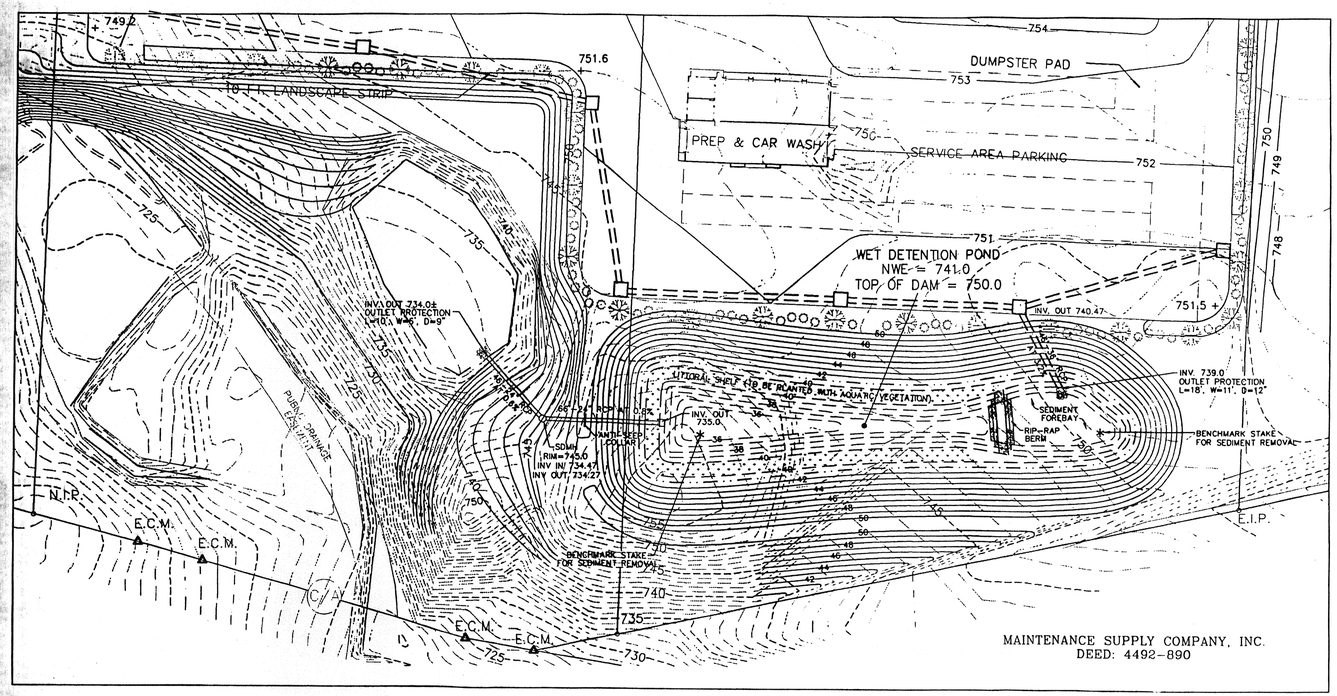
SHEET TITLE
DRAINAGE AREAS & Tc PATHS
PRE-& POST-DEVELOPMENT

PROJECT
HUNTERSVILLE FORD
HUNTERSVILLE, NC

NORTH CAROLINA PROFESSIONAL SEAL 17108 ENGINEER TERRY A. CRADLE 11/24/97

Land Design
ENGINEERING SERVICES INC.
1700 EAST BOULEVARD CHARLOTTE, NC 28203
PHONE(704) 376-7777 FAX(704) 376-8235

PROJECT NO.	87067
SCALE	1"=100'
DATE	OCTOBER 1997
DRAWN BY	SMB
CHECKED BY	TAC
FILE NAME	DRAINAR
DRAWING NO.	11 OF 12



MAINTENANCE SCHEDULE

INSPECTION EVERY THREE (3) MONTHS TO INCLUDE THE FOLLOWING:

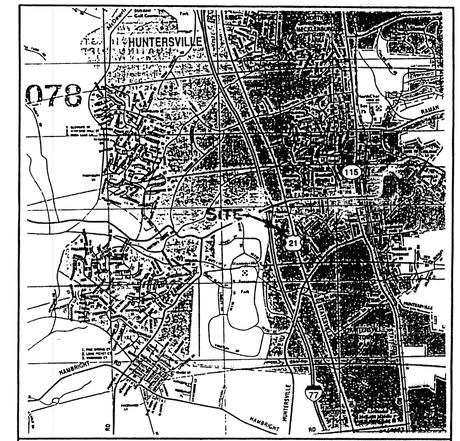
1. REMOVE DEBRIS AT SCREEN
2. CHECK AND FIX ANY EROSION PROBLEMS

FULL INSPECTION EVERY YEAR TO INCLUDE THE FOLLOWING:

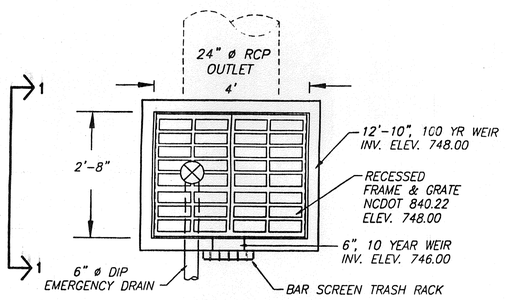
1. CHECK FOR SEEPAGE THROUGH THE EMBANKMENT
2. OPEN/CLOSE BOTTOM DRAIN TO ENSURE PROPER OPERATION
3. REMOVE WOODY VEGETATION (TREES & BRUSH) FROM EMBANKMENT

MAINTENANCE AS NEEDED TO INCLUDE THE FOLLOWING:

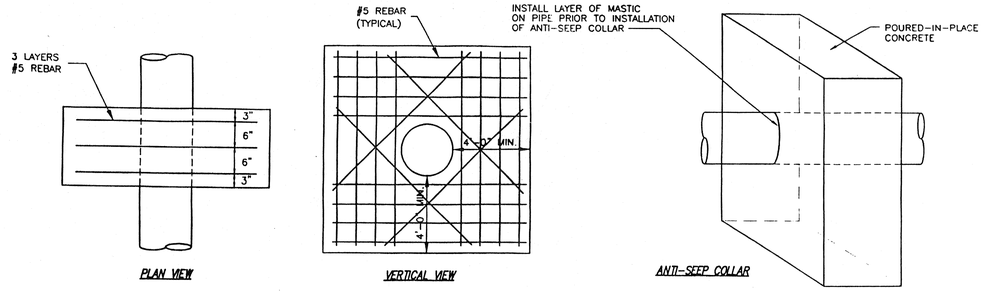
1. REMOVE SEDIMENT & DEBRIS BUILD-UP IN POND AND AT EMERGENCY SPILLWAY
2. MOW EMBANKMENTS
3. MAINTAIN ACCESS AREAS



VICINTY MAP NTS



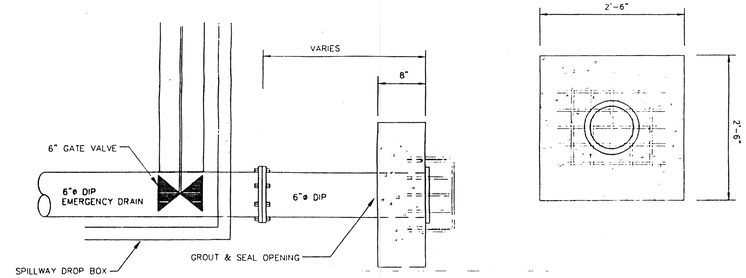
TOP VIEW



PLAN VIEW VERTICAL VIEW ANTI-SEEP COLLAR

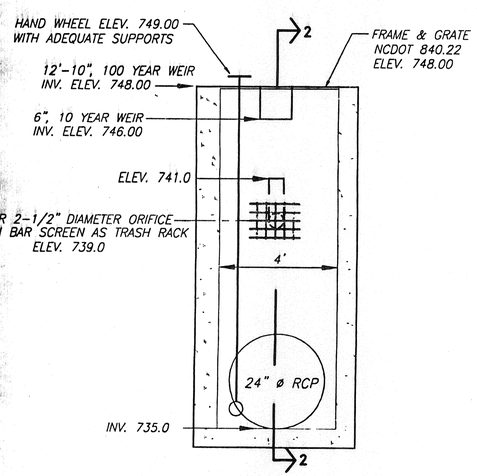
ANTI-SEEP COLLAR

SCALE: NOT TO SCALE

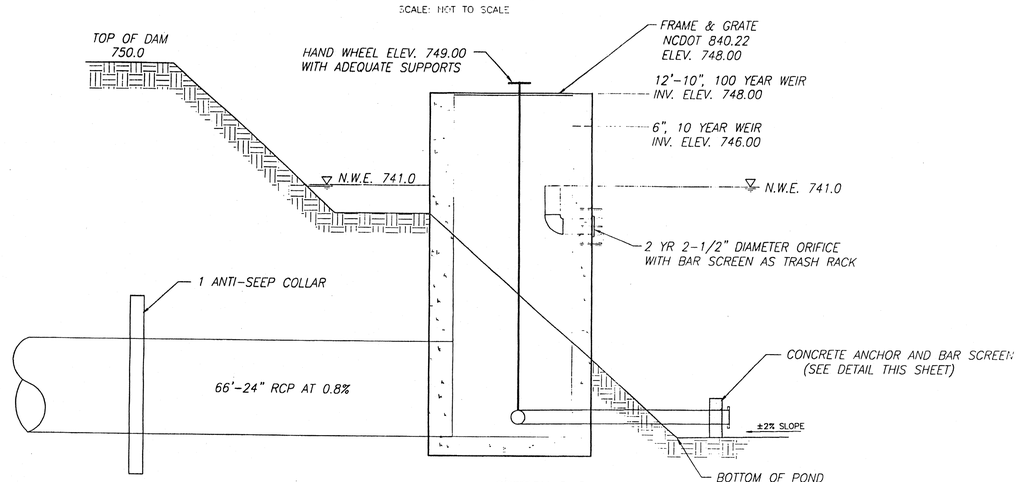


CONCRETE ANCHOR & BAR SCREEN DETAIL

N.T.S.



VIEW 1-1



SECTION 2-2

POND #1 OUTLET STRUCTURE DETAILS

NTS

NO	DATE		BY
		PRELIMINARY NOT FOR CONSTRUCTION	
1	11/13/97	REVISIONS PER COUNTY REVIEW	SMB

SHEET TITLE: WET DETENTION POND #1 OUTLET STRUCTURE DETAILS

PROJECT: HUNTERSVILLE FORD

HUNTERSVILLE, NC

PROJECT NO: 87067
SCALE: 1"=40'
DATE: OCTOBER 1997
DRAWN BY: SMB
CHECKED BY: TAC
FILE NAME: PONDDETAIL

NORTH CAROLINA PROFESSIONAL SEAL 17108 ENGINEER TERRY A. CRAGLE 11/24/97

Land Design
ENGINEERING SERVICES INC.
1700 EAST BOULEVARD CHARLOTTE, NC 28203
PHONE(704) 376-7777 FAX(704) 376-8235

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DUKE POWER PERFORMANCE STANDARDS COAL ASH STRUCTURAL FILL

A MINIMUM OF ONE DENSITY TEST SHALL BE PERFORMED FOR EVERY 2500 CUBIC YARDS OF ASH PLACED IN A FILL PROJECT. ALL FIELD TESTS FAILING TO MEET THE REQUIRED DENSITY ARE TO BE RETESTED UNTIL RESULTS ARE WITHIN COMPLIANCE SPECIFIED WITHIN THESE STANDARDS OR ALLOWED BY RESPONSIBLE ENGINEER. ALL FAILING TESTS AND RETESTS SHALL BE DOCUMENTED PRIOR TO CONTINUING WORK. IN THE EVENT OF THREE CONSECUTIVE FAILING TESTS, AN AREA COVERING APPROXIMATELY 100 SQUARE FEET MINIMUM SHALL BE REWORKED AND RETESTED UNTIL RESULTS ARE WITHIN REQUIRED DENSITY. APPROXIMATE ELEVATIONS OF TEST LOCATIONS AND POSITION RELATIVE TO BOUNDARY LINES SHALL BE RECORDED ON A PLAN VIEW OF PROJECT AND SUBMITTED WITH FINAL REPORT. ALLOWABLE TEST METHODS ARE ASTM D1556 (SAND CONE), ASTM D1587 (TUBING SAMPLING), ASTM D2167 (BALLOON), ASTM D2922 (NUCLEAR), AND ASTM D2937 (DRIVE CYLINDER). THE DRIVE CYLINDER METHOD OF FIELD DENSITY TESTING IS PREFERRED. REGARDLESS OF THE METHOD, FIELD TESTS SHALL BE CONSISTENT WITH RESPECT TO COMPARISON WITH THE LABORATORY COMPACTION RESULTS. ALL FIELD DENSITY TESTS SHALL BE COMPILED IN A REPORT AND PRESENTED TO DUKE POWER FOR FILE IN CONJUNCTION WITH FINAL CLOSURE AND RECORDATION OF PROJECT.

FINAL SOIL COVER REQUIREMENTS ARE A MINIMUM OF 18" FOR ALL EXPOSED COAL ASH SURFACES. IT IS RECOMMEND THAT ADDITIONAL COVER SOIL BE PLACED ON EXTERNAL SLOPES HAVING A POTENTIAL FOR EXTREME EROSION. ADDITIONAL COVER IN THIS CASE SHALL BE DETERMINED BY THE RESPONSIBLE ENGINEER. COVER SOIL DENSITY AND THICKNESS ON ALL HORIZONTAL SURFACES AND SLOPES SHALL BE VERIFIED BY DENSITY TESTS AND/OR OTHER METHODS BY SOIL TESTING SERVICE EMPLOYED BY OWNER. INFORMATION OBTAINED SHALL BE INCLUDED IN REPORT MENTIONED ABOVE. TWO METHODS OF ESTABLISHING SOIL COVER MAY BE IMPLEMENTED. METHOD 1) SOIL COVER SHALL BE PLACED ALONG PERIMETER OF FILL AREA IN CONJUNCTION WITH ASH FILL LIFTS TO PREVENT LOSS OF ASH DURING CONSTRUCTION PERIOD. METHOD 2) SOIL CONTAINMENT BERMS MAY BE ESTABLISHED PRIOR TO ASH PLACEMENT. THESE BERMS SHALL BE CONSTRUCTED IN COMPACTED LIFTS TO INSURE STRUCTURAL STABILITY.

MINIMUM DENSITY REQUIRED SHALL BE 95% OF STANDARD PROCTOR VALUE AS ESTABLISHED BY ASTM D698 METHOD A, UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER.

LIFT THICKNESS OF COAL ASH SHALL NOT EXCEED 12", EXCEPT BY APPROVAL FROM ENGINEERS.

MINIMUM 24" SOIL COVER SHALL BE PLACED ABOVE ALL SUB SURFACE DRAINS (i.e. FRENCH DRAINS) AND PIPES USED TO CONTROL WATER AT LOWEST ELEVATIONS PRIOR TO PLACEMENT OF COAL ASH AS STRUCTURAL FILL. NO COAL ASH SHALL BE PLACED WITHIN 24" OF THE SEASONAL HIGH GROUNDWATER TABLE.

DENSITY TESTS SHALL BE PERFORMED ON EXISTING SOIL BASE MATERIAL OF PROJECT SITE PRIOR TO ASH PLACEMENT AS FILL. DENSITY REQUIREMENT OF IN SITU MATERIAL BELOW ASH FILL AND CONTAINMENT BERMS MENTIONED PREVIOUSLY SHALL BE SPECIFIED BY RESPONSIBLE DESIGN ENGINEER.

FINAL SEEDING AND GRASSING REQUIREMENTS AS SPECIFIED BY THE ENGINEER'S DRAWING SHEET 10 OF 12, SHALL BE MODIFIED ONLY BY APPROVAL OF ENGINEER. ADEQUATE SEEDING SHALL BE PERFORMED IMMEDIATELY AFTER PLACEMENT OF FINAL COVER TO MINIMIZE EROSION.

UPON COMPLETION OF COAL ASH PLACEMENT AS FILL AND FINAL SOIL COVER, SITES UNDER THE GUIDANCE OF SOLED WASTE REGULATIONS SECTION 1700 SHALL COMPLY WITH THE GENERAL REQUIREMENTS AND SPECIFIC ITEMS OF 'CLOSURE' AS SHOWN IN SECTION 1706 AND 'RECORDATION' AS SHOWN IN SECTION 1707. THE CLOSURE COMPLIANCE DOCUMENT SHALL BE PREPARED BY THE DESIGN ENGINEER WITH HIS PROFESSIONAL ENGINEER STAMP OR SEAL. RECORDATION OF THE ASH FILL WITH THE REGISTER OF DEEDS SHALL BE THE RESPONSIBILITY OF THE OWNER.

SECTION 1700–REQUIREMENTS FOR BENEFICIAL USE OF COAL COMBUSTION BY–PRODUCTS (T15A: 13B.1700)

SITING FOR STRUCTURAL FILL FACILITIES

(a) COAL COMBUSTION BY–PRODUCTS USED AS A STRUCTURAL FILL SHALL NOT BE PLACED:
- (1) WITHIN 50 HORIZONTAL FEET OF A JURISDICTIONAL WETLAND UNLESS AFTER CONSIDERATION OF THE CHEMICAL AND PHYSICAL IMPACT ON THE WETLAND, THE U.S. CORPS OF ENGINEERS ISSUES A PERMIT OR WAIVER FOR THE FILL;
- (2) WITHIN 50 HORIZONTAL FEET OF THE TOP OF THE BANK OF A PERENNIAL STREAM OR OTHER SURFACE WATER BODY;
- (3) WITHIN TWO FEET OF THE SEASONAL HIGH GROUND–WATER TABLE;
- (4) WITHIN 100 HORIZONTAL FEET OF ANY SOURCE OF DRINKING WATER, SUCH AS A WELL, SPRING OR OTHER GROUNDWATER SOURCE OF DRINKING WATER;
- (5) WITHIN AN AREA SUBJECT TO A ONE–HUNDRED FLOOD, UNLESS IT CAN BE DEMONSTRATED TO THE DIVISION THAT THE FACILITY WILL BE PROTECTED FROM INUNDATION, AND WASHOUT, AND THE FLOW OF WATER IS NOT RESTRICTED AND THE STORAGE VOLUME OF THE FLOOD PLAIN WILL NOT BE SIGNIFICANTLY REDUCED.
- (6) WITHIN 25 FEET OF ANY PROPERTY BOUNDARY; AND
- (7) WITHIN 25 FEET OF A BEDROCK OUTCROP.

(b) THE DIVISION AND THE DEPARTMENT OF TRANSPORTATION MAY AGREE ON SPECIFIC STRUCTURAL FILL SITING CRITERIA THAT MAY BE USED ON DEPARTMENT OF TRANSPORTATION PROJECTS.

CLOSURE OF STRUCTURAL FILL FACILITIES

(a) NO LATER THAN 30 WORKING DAYS OR 60 CALENDAR DAYS, WHICHEVER IS LESS AFTER COAL COMBUSTION BY–PRODUCT PLACEMENT HAS CEASED, THE FINAL COVER SHALL BE APPLIED OVER THE COAL COMBUSTION BY–PRODUCT PLACEMENT AREA.

(b) THE FINAL SURFACE OF THE STRUCTURAL FILL SHALL BE GRADED AND PROVIDED WITH DRAINAGE SYSTEMS THAT:
- (1) MINIMIZE EROSION OF COVER MATERIALS; AND
- (2) PROMOTE DRAINAGE OF AREA PRECIPITATION, MINIMIZE INFILTRATION AND PREVENT PONDING OF SURFACE WATER ON THE STRUCTURAL FILL.

(c) OTHER EROSION CONTROL MEASURES, SUCH AS TEMPORARY MULCHING, SEEDING OR SILT BARRIERS SHALL BE INSTALLED TO ENSURE NO VISIBLE COAL COMBUSTION BY–PRODUCT MIGRATION TO ADJACENT PROPERTIES UNTIL THE BENEFICIAL END USE OF THE PROJECT IS REALIZED.

(d) THE CONSTRUCTOR OR OPERATOR SHALL SUBMIT A CERTIFICATION TO THE DIVISION SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER OR SIGNED BY THE SECRETARY OF THE DEPARTMENT OF TRANSPORTATION OR HIS DESIGNEE CERTIFYING THAT ALL REQUIREMENTS IN THE RULES OF THIS SECTION HAVE BEEN MET. THE REPORT SHALL BE SUBMITTED WITHIN 30 DAYS OF APPLICATION OF THE FINAL COVER.

(e) THE DIVISION AND THE DEPARTMENT OF TRANSPORTATION SHALL AGREE ON SPECIFIC CLOSURE CRITERIA THAT APPLY TO DEPARTMENT OF TRANSPORTATION PROJECTS.

RECORDATION OF STRUCTURAL FILL FACILITIES

(a) THE OWNERS OF LAND WHERE COAL COMBUSTION BY–PRODUCTS HAVE BEEN UTILIZED IN VOLUMES OF MORE THAN 1,000 CUBIC YARDS SHALL FILE A STATEMENT OF THE VOLUME AND LOCATIONS OF THE COAL COMBUSTION BY–PRODUCTS WITH THE REGISTER OF DEEDS IN THE COUNTY OR COUNTIES WHERE THE PROPERTY IS LOCATED. THE STATEMENT SHALL IDENTIFY THE PARCEL OF LAND ACCORDING TO THE COMPLETE LEGAL DESCRIBED BY G.S. 47–38 THROUGH 47–73.

(b) RECORDATION SHALL BE REQUIRED WITHIN 90 DAYS AFTER COMPLETION OF COAL COMBUSTION BY–PRODUCT FILL PROJECT.

(C) THE REGISTER OF DEEDS IN ACCORDANCE WITH G.S. 161–14 SHALL RECORD THE NOTARIZED STATEMENT AND INDEX IT IN THE GRANTOR INDEX UNDER THE NAME OF THE OWNER(S) OF THE LAND. THE ORIGINAL NOTARIZED STATEMENT WITH THE REGISTER'S SEAL AND THE DATE, BOOK AND PAGE NUMBER OF RECORDING SHALL BE RETURNED TO THE DIVISION AFTER RECORDING.

(d) WHEN PROPERTY WITH MORE THAN 1,000 CUBIC YARDS OF COAL COMBUSTION BY–PRODUCTS IS SOLD, LEASED, CONVEYED OR TRANSFERRED IN ANY MANNER, THE DEED OR OTHER INSTRUMENT OF TRANSFER SHALL CONTAIN IN THE DESCRIPTION SECTION IN NO SMALLER TYPE THAN USED IN THE BODY OF THE DEED OR INSTRUMENT A STATEMENT THAT COAL COMBUSTION BY–PRODUCTS HAVE BEEN USED AS FILL MATERIAL ON THE PROPERTY.

HISTORY NOTE: STATUTORY AUTHORITY G.S. 130A–294; EFF. JANUARY 4, 1994

APPROVALS	PREPARED BY	SEALS	PROJECT	NO.	DATE	REVISIONS	BY	SHEET TITLE	
PROJECT ENGR: J.E.W.	POWER ENGINEERING COMPANY, INC.	NORTH CAROLINA POWER ENGINEERING COMPANY, INC. No. C-0641 CERTIFICATE OF REGISTRATION	HUNTERSVILLE FORD					ALTERNATE FILL MATERIAL NOTES	SCALE: NTS
DESIGNED BY:	ENGINEERS – PLANNERS – SURVEYORS	SEAL 7571	TOWN OF HUNTERSVILLE, MECKLENBURG COUNTY, NORTH CAROLINA						DATE: NOVEMBER 24, 1997
DRAWN BY: D.J.N.	P.O. BOX 411481 CHARLOTTE, NORTH CAROLINA 28241								JOB NO. 5409
CHECKED BY: J.E.W.	PH:(704)588-4304 FAX (704)588-1838								ATTACHMENT 1
APPROVED BY:									

C:\JOBS\P\5409\ASPNOTE Mon Dec 8 16:52:00 1997 POWER ENGINEERING CO. INC.