### 1. THE EROSION CONTROL PART OF THE CONTRACT. AND PLAN. **EROSION** SEDIMENT ALL EROSION CONTROL DEVICES SHALL BE INSTALLED CONTROL BE ADHERED TO AS A PER THE NARRATIVE

2. UNLESS OTHERWISE INDICATED ALL VEGETATIVE AND STRUCTURAL PRACTICES SHALL AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VA. SEDIMENT CONTROL HANDBOOK, LATEST EDITION. 3. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE COMMENCEMENT LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION. BE CONSTRUCTED

EROSION AND

4. ALL EROSION GRADING. 6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE CITY OF ROANOKE INSPECTOR. A COPY OF THE APPROVED EROSION CONTROL PLANS SHALL BE KEPT ON SITE AT ALL TIMES. AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED AS THE FIRST Z

9. DURING CONSTRUCTION, SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES AND STABILIZED WITH TEMPORARY VEGETATION IF UNUSED FOR 30 DAYS OR LONGER. 8. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DISTURBED AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADES. TEMPORARY, DENUDED AREAS THAT ARE TO BE EXPOSED LONGER THAN THIRTY DAYS SHALL BE SEEDED WITH TEMPORARY VEGETATION. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL DEVICES FRING LAND DISTURBING ACTIVITIES AND UNTIL FINAL STABILIZATION IS ACHIEVED.

11. THE CONTRACTOR IS TO BOND RELEASE. 10. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY EACH MAJOR RAINFALL EVENT. ANY REPAIRS NECESSARY SHALL BE MADE IMMEDIATELY PROTECTION OF OFFSITE PROPERTIES. TEMPORARY AND PERMANENT SEEDING SHALL ADHERE TO THE SPECIFICATIONS SHOWN HEREON. 70 SILT FROM STREAMS AND TO ENSURE 품

14. MINIMUM STANDARD # 3: PERMANENT STABILIZATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE, AND WILL INHIBIT EROSION. AREAS THAT DO NOT BECOME ESTABLISHED WILL REQUIRE ADDITIONAL STABILIZATION MEASURES. 13. REFER TO THE MINIMUM STANDARD REFERENCES FOLLOWING EROSION SEDIMENT CONTROL REQUIREMENTS. FOR STATE SPECIFIC REFERENCES 70

15. MINIMUM STANDARD # 7 & 8: CUT AND FILL SLOPES MUST BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT BEGIN TO ERODE EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION MUST BE PROVIDED WITH ADDITIONAL STABILIZATION UNTIL THE PROBLEM IS CORRECTED. MINIMUM STANDARD # 11: BEFORE NEWLY CONSTRUCTED STORM WATER CONVEYANCE CHANNELS MADE OPERATIONAL, OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT LINING TO BE INSTALLED IN BOTH CONVEYANCE AND RECEIVING CHANNELS. ALL CHANNELS AND OUTLETS TO BE CHECKED FOR ADEQUACY AND EROSION CONTROL MEASURES.

17. A. THE 17. MINIMUM STANDARD #16: UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCO THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.

B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.

D. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH E&S REGULATIONS.

E. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH. IN ACCORDANCE WITH 4 AN APPROVED ADVERSELY

19. MINIMUM STANDARD # 18: TRAPPED SEDIMENT AND DISTURBED AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY PRACTICES MUST BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION. 18. MINIMUM STANDARD # 17: ANY SEDIMENT WHICH IS TRACKED ONTO PUBLIC ROADS MUST BE REMOVED FROM THE ROAD DAILY, BY EITHER SHOVELING OR SWEEPING, AND TRANSPORTED TO AN APPROVED DISPOSAL AREA.

20. MINIMUM STANDARD # 19: PROPERTIES AND WATERWAYS FROM THE DEVELOPMENT SITE SHALL BE BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE PRACTICES AND CRITERA SET FORTH IN THE VIRGINIA EROSION AND SEDIMENT CONTROL MANUAL.

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#### GENERAL SITE NOTES:

1. THIS SITE DOES NOT LIE WITHIN A F.E.M.A. DESIGNATED FLOOD ZONE.

2. TOPOGRAPHIC INFORMATION FROM FIELD RUN TOPOGRAPHY BY ENGINEERING CONCEPTS, INC. DATED JUNE 2000.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS.

4. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO ELIMINATE THE POSSIBILITY OF ANY DISTURBANCE OR DAMAGE TO PUBLIC OR PRIVATELY OWNED UTILITIES, STRUCTURES, OTHER FACILITIES OR OBSTRUCTION RESULTING FROM HIS ACTIVITIES. TO THIS END, CONTRACTOR SHALL AT NO ADDITIONAL COST TO THE OWNER, TAKE ALL MEASURES NECESSARY TO PROVIDE, AND SHALL BE SOLELY RESPONSIBLE FOR, TEMPORARY SUPPORT AND SHORING, ADEQUATE PROTECTION, AND MAINTENANCE OF CONTINUOUS OPERATION OF ALL UNDER AND SHORING, ADEQUATE PROTECTION, AND MAINTENANCE OF COMMENCING WORK ON EXISTING UTILITY ENDING ABOURS PRIOR TO DIGGING. ALL UTILITY TIE—INS ARE TO BE COORDINATED WITH THE APPROPRIATE PUBLIC OR PRIVATE UTILITY AUTHORITY BEFORE COMMENCING WORK ON EXISTING UTILITIES. THE CONTRACTOR SHALL SUPPLY ALL UTILITY COMPANIES WITH APPROVED PLAN COPIES FOR COORDINATION OF EXTENSION AND TIE—IN EFFORTS.

5. SITE CONDITIONS MAY NECESSITATE SLIGHT DEVIATIONS IN ALIGNMENT, GRADE, AND/OR LOCATION OF NEW FACILITIES

TO SUCH DEVIATIONS AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST OR FINE TO THE OWNER. SHOULD PLAN DEVIATIONS BE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO UNDER TAKING ANY REVISION.

6. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CURRENT BOCA AND/OR STATE AND

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15. SITE ON THE PROPERMENT OF THE ENGINEER PRIOR TO UNDER TAKING ANY REVISION.

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16. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CURRENT BOCA AND/OR STATE AND

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17. THE SONTIES THE POSSIBLE OF THE TOP THE PROPERMENT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PROPERMENT. THE CONTRACTOR SHAL

OR SO

BUILDING CODES AS WELL AS THE CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION.

7. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION AREA IN A SAFE AND ACCEPTABLE MANNER AND SHALL BE RESPONSIBLE FOR REMEDIATING ANY DAMAGES RESULTING FROM HIS FAILURE TO DO SO.

8. THE CONTRACTOR SHALL MAINTAIN LIMITS OF CONSTRUCTION WITHIN THE PROPERTY BOUNDARIES OR EASEMENTS AS INDICATED.

9. AN APPROVED SET OF PLANS SHALL BE KEPT ON THE SITE AT ALL TIMES.

10. ALL CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED IN CONFORMANCE WITH THE VIRGINIA LITTER CONTROL ACT AND DISPOSED OF IN A MANNER AND LOCATION ACCEPTABLE TO THE GOVERNING JURISDICTION.

11. TEMPORARY TOILETS SHALL BE PROVIDED ONSITE AT A RATIO OF ONE TOILET PER 30 WORKERS DURING THE CONSTRUCTION PERIOD.

12. GRADE STAKES SHALL BE SET FOR ROADWAY, CURB & GUTTER, CULVERTS, AND STORM SEWER.

13. LOTS TO BE SERVED BY CITY OF ROANOKE SEWER AND WATER SYSTEMS. A PERMIT MAY BE REQUIRED BY THE CITY OF ROANOKE HEALTH DEPARTMENT. CONTACT HEALTH DEPARTMENT FOR COPIES OF APPROVED PERMITS. LITTER

#### GRADING NOTES:

2. PRIOR TO BEGINNING EARTHWORK OPERATIONS, THE CONTRACTOR PROFESSIONAL GEOTECHNICAL ENGINEER LICENSED IN THE COMMONWE OF ONSITE TESTING, THE GEOTECHNICAL ENGINEER SHALL MAKE RECOI ONSITE PLACEMENT OF FILL MATERIAL AND PROPER COMPACTION METHORY THE OWNER OR ENGINEER FOR ANY SUBSURFACE CONDITIONS ON 1. THE GRADING CONTRACTOR SHALL OBTAIN ALL NECESSARY LANG CITY OF ROANOKE PRIOR TO COMMENCING GRADING OPERATIONS. 1 EXCAVATION FOR THE ACCESS ROAD. OR SHALL EMPLOY A QUALIFIED,
WEALTH OF VIRGINIA. AS A RESULT
COMMENDATIONS REGARDING THE
ETHODS. NO WARRANTIES ARE MADE
ON THE PROPERTY. DISTURBING PERMITS FROM THE

3. FILL SHALL BE PLACED ONLY ON FIRM SUBGRADES APPROVED BY THE SOILS ENGINEER. SUBGRADES SHALL BE SCARIFIED TO A DEPTH OF 4 INCHES PRIOR TO FILL PLACEMENT TO ASSURE BONDING BETWEEN THE TWO SOILS. ALL EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY (ASTM D698).

THE COMPACTION SHALL BE ACCOMPLISHED BY PLACING FILL IN 6 TO 8 INCH LIFTS AND MECHANICALLY COMPACTING EACH LIFT TO THE REQUIRED DENSITY. THE SOILS ENGINEER SHALL PERFORM FIELD DENSITY TEST ON EACH LIFT OR AS NECESSARY TO ASCERTAIN THAT ADEQUATE COMPACTION HAS BEEN ACHIEVED. CALIFORNIA BEARING RATIO TESTS SHALL BE PERFORMED IN MATERIAL PROPOSED FOR USE BENEATH PAVEMENT WHETHER CUT OR FILL.

4. CLEAR SITE LIMITS. OF GRADING

5. REMOVE TREES, SHRUBS, GRASS AND OTHER VEGETATION, IMPRORED TO PERMIT INSTALLATION OF NEW CONSTRUCTION. ALL UNDISPOSED OF IN A MANNER AND LOCATION ACCEPTABLE TO THE GONTREES AND OTHER VEGETATION, INCLUDING STUMPS AND ROOTS, CONSUBSEQUENT SEEDING. REMOVE TREES AND STUMPS IN AREAS TO I ROVEMENTS OR OBSTRUCTIONS AS UNSUITABLE MATERIAL SHALL BE OVERNING AUTHORITY. REMOVE COMPLETELY IN AREAS REQUIRED FOR RECEIVE FILL.

6. BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS AS RECOMMENDED BY AUTHORITIES HAVING JURISDICTION. ORK AND OPERATE WARNING LIGHTS

7. EXCAVATION FOR STRUCTURES:

B. PROVIDE TRUE AND STRAIGHT FOOTING EXCAVATIONS WITH UNIFORM LEVEL BOTTOMS OF THE WIDTH INDICATED TO ENSURE PROPER PLACEMENT AND COVER OF ALL REINFORCEMENT.

C. REMOVE ALL LOOSE MATERIALS FROM THE EXCAVATION PRIOR TO PLACEMENT OF CONCRETE.

D. PROVIDE A MINIMUM OF 2'-0" FROM THE FINISHED GRADE TO TOP OF ALL EXTERIOR WALL FOOTINGS.

E. FOOTINGS.

E. FOOTINGS WHICH SUPPORT CONCRETE MASONRY UNITS MAY BE STEPPED PROVIDED THE VERTICAL STEP DOES NOT EXCEED ONE HALF OF THE HORIZONTAL DISTANCE BETWEEN STEPS AND HORIZONTAL DISTANCE BETWEEN STEPS IS NOT LESS THAN TWO FEET.

F. IF ROCK IS ENCOUNTERED IN A FOOTING EXCAVATION, UNDERCUT IT A MINIMUM OF 12" BELOW THE BOTTOM OF THE FOOTINGS AND FILL THE RESULTING OVER—EXCAVATION WITH CONTROLLED FILL.

8. CUT SURFACE UNDER PAVEMENTS TO COMPLY WITH CROSS INDICATED. SECTIONS, ELEVATIONS, AND GRADES AS

9. EXCAVATE TRENCHES TO UNIFORM WIDTH CONFORMING TO VDOT DRAINAGE PIPING AND UB-1 FOR SANITARY SEWER AND WATER. BACONTROLLED FILL. STANDARD PB-1 FOR STORM CKFILL TRENCHES WITH

10. PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. DO IN EXCAVATIONS. REMOVE WATER TO PREVENT SOFTENING OF FOUNI FOOTINGS, AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGR WATER REMOVED FROM EXCAVATIONS AND RAIN WATER TO COLLECTIN AND MAINTAIN TEMPORARY DRAINAGE DITCHES AND OTHER DIVERSION EACH STRUCTURE. DO NOT USE TRENCH EXCAVATIONS AS TEMPORA 11. PROTECT EXCAVATED BOTTOMS TEMPERATURE IS LESS THAN 35 F OF ALL FOOTINGS F (1 C). TRENCHES ER FROM FLOWING INTO EXCAVATIONS
O NOT ALLOW WATER TO ACCUMULATE
JUNDATION BOTTOMS, UNDERCUTTING
GRADES AND FOUNDATIONS. CONVEY
TING OR RUNOFF AREAS. ESTABLISH
DNS OUTSIDE EXCAVATION LIMITS FOR
RARY DITCHES. AGAINST FREEZING WHEN

12. BACKFILLING:

A. COMPACT THE BACKFILL AROUND THE OUTSIDE OF EACH BUILDING TO A MINIMUM OF 85% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698 STANDARD PROCTOR. DO NOT ALLOW HEAVY COMPACTION EQUIPMENT SUCH AS ROLLERS, ETC., CLOSER TO ANY FOOTING THAN THE HORIZONTAL DISTANCE SUBTENDED BY A 45 ANGLE WITH THE TOP EDGE OF THE FOOTINGS AND THE SURFACE OF THE GROUND.

B. BACKFILL BEHIND WALLS AFTER PERMANENT CONSTRUCTION WHICH BRACES THE WALL IS IN PLACE OR TEMPORARY BRACING OF THE WALL IS PROPERLY INSTALLED, AND AFTER ACCEPTANCE OF CONSTRUCTION BELOW FINISH GRADE INCLUDING DAMP—PROOFING, REMOVAL OF CONCRETE FORMWORK, AND REMOVAL OF TRASH AND DEBRIS.

13. UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING INCLUDING SMOOTH FINISHED SURFACES WITHIN SPECIFIED TOLERANCES, COMPASLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN, OR BETW GRADES. GRADE AREAS ADJACENT TO BUILDING LINES TO DRAIN AW PREVENT PONDING. 14. FINISH LAWN AREAS TO WITHIN ONE INCH ABOVE OR BELOW REISHAPE SURFACE UNDER WALKS AND PAVEMENTS TO LINE, GRADE, A MORE THAN  $1/2^{\circ}$  ABOVE OR BELOW REQUIRED SUBGRADE ELEVATION G ADJACENT TRANSITION AREAS.
PACT WITH UNIFORM LEVELS OR
TWEEN SUCH POINTS AND EXISTING
AWAY FROM STRUCTURES AND TO QUIRED SUBGRADE ELEVATIONS.

17. UNDER FOUNDATIONS, SIDEWALKS, AND PAVEMENTS COMPACT EACH LAYER TO 95% MAXIMUM DRY DENSITY ASTM D698 (STANDARD PROCTOR). 16. PROTECT GRADED AREAS FROM TRAFFIC AND EROSION. REPAIR ERODED, OR BECOME DAMAGED DUE TO CONSTRUCTION ACTIVITIES A 15. GRADE SURFACE UNDER BUILDING SLABS SMOOTH AND EVEN, FREE OF VOIDS. PROVIDE FINAL GRADES WITHIN 1/2" OF THOSE INDICATED WHEN TESTED WITH A 10' STRAIGHT EDGE. AREAS WHICH HAVE SETTLED, IT NO ADDITIONAL COST TO OWNER.

19. ALL SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL NEAREST STORM SEWER SYSTEM OR NATURAL WATERCOURSE. DIAMETER AND CONFORM TO V.D.O.T. STANDARD SB-1. 18. UNDER LAWN OR UNPAVED AREAS, DENSITY (STANDARD PROCTOR). . 로 R CAPPED AND PIPED TO THE PIPE SHALL BE A MINIMUM OF ož

COMPACT

SUBGRADE

AND

CH LAYER TO 85% MAXIMUM DRY

20. ALL ONSITE SURPLUS EXCAVATION, TOPSOIL AND ROOT MATTING MANNER AND LOCATION ACCEPTABLE TO THE CITY OF ROANOKE. SHALL BE DISPOSED 우 코

#### STORM SEWER SPECIFICATIONS:

2. THE STORM SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND THESE SPECIFICATIONS. THE PIPE SHALL BE LAID IN A TRUE, STRAIGHT LINE WITH THE BELL ENDS UPSTREAM AND WITH THE INVERT OF THE PIPE BEING THE TRUE ELEVATION AND GRADE OF THE SYSTEM. THE PIPE SHALL BE VISUALLY INSPECTED FOR DEFECTS BEFORE LOWERING THE PIPE INTO THE TRENCH. FIELD CUTTING OF THE PIPE SHALL BE DONE IN A NEAT MANNER, SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL STORM SEWER PIPE AND FITTINGS SHALL 踞 S CLASSIFIED ON THE PROFILE DRAWINGS

TRENCHES SHALL BE EXCAVATED IN STRAIGHT LINES AND SHALL RMIT THE PROPER INSTALLATION OF BRACING, SHORING OR SHEE CEED MANUFACTURER'S RECOMMENDATION. THE BOTTOM OF THE A MINIMUM OVER DEPTH OF 4 INCHES BELOW THE BOTTOM OF MPACTED BEDDING MATERIAL. BE OF SUFFICIENT WIDTH TO
ING. TRENCH WIDTH SHALL NOT
PIPE TRENCH SHALL BE EXCAVATED
THE PIPE, TO PROVIDE FOR THE

4. BACKFILL MATERIAL SHALL BE EITHER APPROVED EXCAVATED MATERIAL OR APPROVED SUITABLE MATERIAL FROM OTHER SOURCES THAT IS FREE OF ORGANIC MATTER OR OTHER OBJECTIONABLE MATERIAL. BACKFILL FROM PIPE BEDDING TO MINIMUM ONE FOOT ABOVE THE TOP OF THE PIPE SHALL BE FREE OF STONES LARGER THAN 2 INCHES AND SHALL BE PLACED IN 6 INCH LAYERS AND COMPACTED WITH HAND TAMPERS. BACKFILL FROM THIS POINT TO THE TOP OF THE TRENCH SHALL BE FREE OF STONES LARGER THAN 4 INCHES AND SHALL BE PLACED IN LAYERS NOT TO EXCEED 8 INCHES AND COMPACTED WITH MECHANICAL TAMPERS.

20 S. ROANOKE ST., P FINCASTLE, VIRGINIA 2 540.473.1253 FAX: 5

, PO BOX 619 1 24090 540.473.1254

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# GENERAL

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH VDOT'S ROAD AND BRIDGE SPECIFICATIONS DATED JANUARY 1997, THE 1996 ROAD AND BRIDGE STANDARDS, THE WORK AREA PROTECTION MANUAL DATED JANUARY 1, 1996 AND AS AMENDED BY THE CONTRACT PROVISIONS AND THE COMPLETE PAPER COPY OF THE PLAN ASSEMBLY. ALL MATERIALS USED SHALL BE TESTED IN ACCORDANCE WITH STANDARD POLICIES. THE DEVELOPER MUST CONTACT THE OFFICE OF THE RESIDENT ENGINEER PRIOR TO BEGINNING ANY CONSTRUCTION AT WHICH TIME AN INSPECTION AND TESTING PROCEDURE POLICY WILL BE DRAWN. THE DEVELOPER WILL PRODUCE TEST REPORTS FROM APPROVED INDEPENDENT LABORATORIES AT THE DEVELOPER'S EXPENSE.

THE PAVEMENT DESIGNS SHOWN ARE BASED ON A SUBGRADE RATING OF CBR10 OR GREATER. THE SUBGRADE SOIL IS TO BE TESTED BY AN INDEPENDENT LABORATORY AND THE RESULTS SUBMITTED TO THE VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO PAVEMENT CONSTRUCTION. SHOULD THE CBR VALUES BE LESS THAN CBR10, THEN ADDITIONAL BASE MATERIAL WILL BE REQUIRED IN ACCORDANCE WITH DEPARTMENTAL SPECIFICATIONS.

THE SUBGRADE MUST BE APPROVED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO PLACEMENT OF BASE MATERIAL. BASE MUST BE APPROVED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION FOR DEPTH, TEMPLATE, AND COMPACTION BEFORE SURFACE IS APPLIED. UTILITIES

PERMITS WILL BE REQUIRED FOR ALL UTILITIES WITHIN THE ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM. ALL NECESSARY LATERALS WILL BE PLACED PRIOR TO PAVEMENT BASE AND CONDUIT PROVISIONS FOR THE SAME (I.E. WATER, SEWER, GAS, AND TELEPHONE). STREET RIGHT-OF-WAY PRIOR

ANY EASEMENT GRANTED TO A UTILITY FOR PLACEMENT OF POWER, MUST BE RELEASED PRIOR TO ACCEPTANCE. PRIVATE ENTRANCES

PERMITS WILL BE REQUIRED FOR ALL PRIVATE ENTRANCES CONSTRUCTED PRIOR TO ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM. 8 STREET

EROSION CONTROL AND LANDSCAPING DUST, AND MUD FROM DAMAGING AND OTHERWISE CREATING A

THE ENTIRE CONSTRUCTION AREA BACK OF THE PAVEMENT SHALL BE BACKFILLED AND SEEDED TOGETHER WITH THE DITCHES AND CHANNELS, AT THE EARLIEST POSSIBLE TIME AFTER FINAL GRADING. CARE MUST BE TAKEN DURING CONSTRUCTION TO PREVENT EROSION, ADJACENT PROPERTY, CLOGGING DITCHES, TRACKING PUBLIC STREETS, PUBLIC NUISANCE TO SURROUNDING AREAS.

ALL VEGETATION AND OVERBURDEN TO BE REMOVED FROM SHOULDER TO SHOULDER PRIOR TO CONDITIONING (CUTTING AND/OR PREPARATION) OF THE SUBGRADE. DRAINAGE EASEMENTS MUST BE DEFINED BY EXCAVATED DITCHES OR CHANNELS FOR THEIR FULL LENGTH TO WELL DEFINED EXISTING NATURAL WATERCOURSES.

MINIMUM PAVEMENT RADIUS OF 25 FEET REQUIRED AT ALL STREET INTERSECTIONS. WHILE THESE PLANS HAVE BEEN APPROVED, SUCH APPROVAL DOES NOT EXEMPT CONNECTIONS WITH EXISTING STATE MAINTAINED ROADS FROM CRITICAL REVIEW AT THE TIME PERMIT APPLICATIONS ARE MADE. THIS IS NECESSARY IN ORDER THAT THE PREVAILING CONDITIONS BE TAKEN INTO CONSIDERATION REGARDING SAFETY ACCOMPANIMENTS SUCH AS TURNING LANES.

STANDARD GUARDRAIL WITH SAFETY END SECTIONS MAY BE REQUIRED ON FILLS AS DEEMED NECESSARY BY THE VDOT ENGINEER. AFTER COMPLETION OF ROUGH GRADING OPERATIONS, THE VDOT ENGINEER SHALL BE NOTIFIED SO THAT A FIELD REVIEW MAY BE MADE OF THE PROPOSED LOCATIONS.

FIELD REVIEW WILL BE MADE DURING CONSTRUCTION TO DETERMINE THE NEED AND LIMITS OF PAVED GUTTER AND/OR DITCH STABILIZATION TREATMENTS, TO DETERMINE THE NEED AND LIMITS OF ADDITIONAL DRAINAGE EASEMENTS. ALL DRAINAGE EASEMENTS MUST BE CUT AND MADE TO FUNCTION TO A NATURAL WATERCOURSE. ANY EROSION PROBLEMS ENCOUNTERED IN AN EASEMENT MUST BE CORRECTED BY WHATEVER MEANS NECESSARY PRIOR TO SUBDIVISION ACCEPTANCE.

VALUE

SLOPES

AN INSPECTOR WILL NOT BE FURNISHED EXCEPT FOR PERIODIC PROGRESS INSPECTION, THE ABOVE MENTIONED FIELD REVIEWS, AND CHECKING THE REQUIRED STONE DEPTHS. THE DEVELOPER WILL BE REQUIRED TO POST A SURETY TO GUARANTEE THE ROAD FREE OF DEFECTS FOR ONE YEAR AFTER ACCEPTANCE BY THE VIRGINIA DEPARTMENT OF HIGHWAYS AND TRANSPORTATION. CONTRACTOR SHALL OBTAIN ENTRANCE PERMIT TO THE EXISTING VIRGINIA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY FROM THE RESIDENT ENGINEER PRIOR TO ROAD CONSTRUCTION.

IN ORDER TO MEET PUBLIC SERVICE REQUIREMENTS, ALL STREETS MUST SERVE A MINIMUM OF THREE OCCUPIED DWELLINGS PRIOR TO ACCEPTANCE. THE STREETS MUST BE PROPERLY MAINTAINED UNTIL ACCEPTANCE. AT SUCH TIME AS ALL REQUIREMENTS HAVE BEEN MET FOR ACCEPTANCE, ANOTHER INSPECTION WILL BE MADE TO DETERMINE THAT THE STREET HAS BEEN PROPERLY MAINTAINED.

THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT THE ENGINEER IMMEDIATELY IF THE LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLAN. IF THERE APPEARS TO BE A CONFLICT, AND UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THIS PLAN, CONTACT "MISS UTILITY" OF CENTRAL VIRGINIA AT 1-800-552-7001. APPROVAL OF THESE PLANS WILL BE BASED ON SPECIFICATIONS AND STANDARDS IN EFFECT AT THE TIME OF APPROVAL AND WILL BE SUBJECT, UNTIL COMPLETION OF THE ROADWAY AND ACCEPTANCE BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION, TO FUTURE REVISIONS OF THE SPECIFICATIONS AND STANDARDS.

## SANITARY SEWER NOTES & SPECIFICATIONS

1.PIPE & FITTINGS: ALL SANITARY SEWER PIPE AND FITTINGS SDR 35, AND SHALL CONFORM WITH ASTM D-3034. SHALL BE (PVC),

2.INSTALLATION: THE SANITARY SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND THESE SPECIFICATIONS. THE PIPE SHALL BE LAID IN TRUE STRAIGHT LINES WITH THE BALL ENDS UPSTREAM AND WITH THE INVERT OF THE PIPE BEING THE TRUE ELEVATION AND GRADE OF THE SYSTEM. THE PIPE SHALL BE VISUALLY INSPECTED FOR DEFECTS BEFORE LOWERING THE PIPE IN THE TRENCH. FIELD CUTTING OF THE PIPE SHALL BE DONE SO IN A NEAT AND WORKMANLIKE MANNER, SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF

4.BEDDING: BEDDING MATERIAL SHALL BE COARSE AGGREGATE SIZE NUMBER 57 AND SHALL CONFORM WITH VDOT SECTION 203 AND/OR ASTM C33. BEDDING MATERIAL SHALL BE PLACED AND COMPACTED IN FOUR (4) INCHES BELOW THE PIPE AND AS A MINIMUM UP TO THE SPRINGLINE OF THE PIPE. CARE SHALL BE TAKEN TO ENSURE THE BEDDING MATERIAL FULLY SUPPORTS THE SIDE AND BOTTOM OF THE PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. 3.IRENCH EXCAVATION: TRENCHES SHALL BE EXCAVATED IN STRAIGHT LINES AND SHALL BE OF SUFFICIENT WIDTH TO PERMIT THE PROPER INSTALLATION OF BRACING, SHORING OR SHEETING. TRENCH WIDTH SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. THE BOTTOM OF THE PIPE TRENCH SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF FOUR (4) INCHES BELOW THE BOTTOM OF THE PIPE, TO PROVIDE FOR THE COMPACTED BEDDING MATERIAL.

5.BACKFILL: BACKFILL MATERIAL SHALL BE EITHER APPROVED EXCAVATED MATERIAL OR APPROVED SUITABLE MATERIAL FROM OTHER SOURCES THAT IS FREE OF ORGANIC MATERIAL, LOAM, DEBRIS, OR MINIMUM ONE (1) FOOT ABOVE THE TOP OF PIPE SHALL BE FREE OF STONES LARGER THAN TWO (2) INCHES AND SHALL BE PLACED IN SIX (6) INCH LAYERS AND COMPACTED WITH HAND TAMPERS.

BACKFILL FROM THIS POINT TO TOP OF TRENCH SHALL BE FREE OF STONES LARGER THAN FOUR (4) INCHES AND SHALL BE PLACED IN LAYERS NOT TO EXCEED EIGHT (8) INCHES AND COMPACTED WITH MECHANICAL TAMPERS.

BACKFILL BELOW UNPAVED AREAS SHALL BE COMPACTED TO 90%. BACKFILL BELOW PAVED AREAS SHALL BE COMPACTED TO 95%. BACKFILL BELOW PAVED AREAS SHALL BE COMPACTED TO 95%.

8. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING ALL MANHOLES PAVING. MANHOLE TOPS SHALL BE ADJUSTED TO GRADE IF NECESSARY.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR PAVING AND ADJUSTMENT FOR FINAL GRADE IF A MINIMUM COVER OF THREE (3) FEET IS LOCATING AND UNCOVERING VALVE VAULTS AFTER NECESSARY. REQUIRED OVER PROPOSED LINES.

3. ALL EXISTING UTILITIES MAY NOT BE SHOWN IN THE EXACT LOCATION. THE CONTRACTOR SHALL COMPLY WITH THE STATE WATER WORKS REGULATIONS, SECTION 12.05.03, WHERE LINES CROSS IGHWAY RIGHTS-OF-WAY SHALL BE COMPACTED

4. ALL TRENCHES IN EXISTING OR FUTURE HACCORDING TO V.D.O.T. STANDARDS. WATER MAIN SHALL BE AS A MINIMUM DUCTILE IRON PIPE CL. LINES SHALL BE STAKED PRIOR TO

7. A CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED IN THE TRENCH FOR ALL PIPE STONES AND ROCKS FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST SIX (6) INCHES BELOW THE BOTTOM OF THE PIPE AND TAMPED SELECTED FILL BEDDING PROVIDED. AFTER THE PIPE HAS BEEN PLACED IN THE TRENCH, THE TRENCH SHALL BE BACKFILLED WITH SELECTED MATERIAL, THOROUGHLY COMPACTED TO 90%, 95% UNDER PAVEMENT OR CONCRETE SLAB, OF THE STANDARD PROCTOR (ASTM D-698) USING CARE NOT TO DAMAGE THE PIPE.

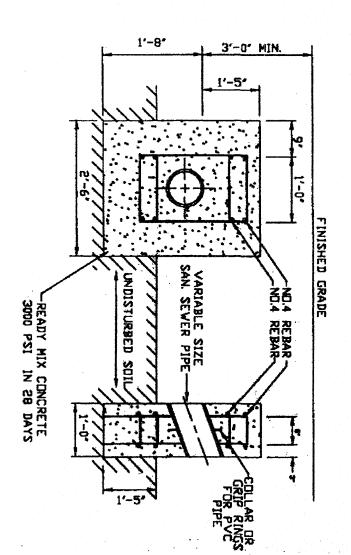
B. ALL WATER MAINS SHALL BE PRESSURE TE DEPARTMENT. COORDINATE INSPECTIONS FOR STED IN ACCORDANCE TESTING. WITH ROANOKE CITY WATER

RESIDENTIAL ENTRANCE DETAIL  N.T.S.  EXTEND 218 BASE	1. Standard residential "Entrance" shall have a curb radius (R) of 2 feet. 2. Minimum Entrance width to be 12 feet at P.T. of radius return. 3. Where curb & gutter already exists, both curb & gutter shall be removed. If proposed entrance falls within five (5) feet of an existing joint, removal & reconstruction shall be that joint. Any concrete removed at other than an existing joint shall be cut with a measure sidewalk exists, or is to be constructed across driveways, the thickness thereof must correspond with the thickness of the entrance. 5. Whenever "Entrances" exceed twenty—four (24) feet in width a 1/2" premolded expansion joint filler shall be installed through the center perpendicular to flow line. 6. Finish: "Entrances" shall have a "course broom finish" running parallel to flow line. 7. Curing shall be accomplished by the use of a liquid membrance seal containing white pig applied at the rate of one (1) gallon per 150 square feet. 8. All "Entrance Ways" shall be constructed according to City of Roanoke specifications and to line and grades approved by the City Engineering Department. 9. Entrances exceeding 30 feet in width shall be approved by the City Manager.			HALF PLAN A THIS	2'-0"  ENTRANCE ONLY 4'-6  FOR SIDEWALK BUILT CON (ENTRANCE TO BE PO	1/2" PREMOLDED EXPANSION    VIDTH OF ENTRANCE   1/2" premoided   EXISTING OR PROPOSED   C C C C   C C   C C   C C   C C   C C C   C C C   C
BITUMINOUS SURFACE  1":1'-0" PAST CG-6  BASE  SUBGRADE TO 95% MAX  DENSITY PER ASTM D-698  CBR NOTE: SUBBASE DEPTH FOR SUBGRADE BASED UPON A CBR VALUE OF 7. SOIL TEST OF SUBGRADE MUST BE TAKEN FOR ACTUAL DETERMINATION OF REQUIRED SUBBASE THICKNESS PRIOR TO CONSTRUCTION.	ed   be to mechanical nt.   Sion	DESIGN SPEED IS 40 MEY OR LESS ON RURAL HIGHWAYS AND 45 MPH OR LESS IN DEVELOPED URBAN & SUBURBAN AREAS	COMBINATION 6" REVERSE CURB & GUTTER  (CG-6R)  NOTE: COMB. CURB & CURTER  HAVING A RADIUS OF SOO' OR LESS (ALONG FOR AS RADIAL COMBINATION CURB & GUTTER THESE CURBS ARE TO BE CLASS AS IF CAST IN PLACE, 4000 PSI IF PRECAST.  THESE CURBS ARE TO BE SEED WHEN	AREA MAY BE CONCRETE.  AT THE OPTION OF THE CONTRACTOR  AT THE OPTION OF THE CONTRACTOR  A MINIMUM DEPTH OF 7° IS MAINTAINED  A MINIMUM DEPTH OF 7° IS MAINTAINED	N.T.S. (CG-6)	COMBINATION 6" CURB & GUTTER

6.IESTING OF SANITARY SEWER: TESTING FOR WATER TIGHTNESS SHALL BE MADE UTILIZING A LOW PRESSURE AIR TEST. THE TESTING EQUIPMENT, PROCEDURE AND RESULTS WILL ALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER. THE AIR TEST SHALL BE IN ACCORDANCE WITH ASTM C-828, CURRENT REVISION.
THE CONTRACTOR SHALL DEFLECTION TEST THE ENTIRE LENGTH OF PIPE BY MEANS OF A GO-NO-GO MANDREL TO ASSURE THAT A 5.0% DEFLECTION HAS NOT BEEN EXCEEDED. MANDREL SHALL BE SIZED AT 5% LESS THAN ASTM DIMENSION FOR THE SEWER. E ENTIRE LENGTH OF PIPE BY MEANS OF A GO-NO-GO HAS NOT BEEN EXCEEDED. MANDREL SHALL BE SIZED SEWER.

9. ALL EXISTING UTILITIES MAY NOT BE SHOWN CONTRACTOR SHALL COMPLY WITH STATE WATER CROSS. A MINIMUM COVER OF THREE (3) FEET IS REQUIRED OVER PROPOSED LINES. OR MAY NOT BE SHOWN IN THE EXACT LOCATION. THE WORKS REGULATIONS, SECTION 12.05.03, WHERE LINES

10. HOUSE CONNECTIONS ARE TO BE MADE WITH 4" PIPE INSTALLED AT A MINIMUM GRADE OF 1/4 INCH TO 1 FOOT IN ACCESS AND UTILITY EASEMENT. 11. LINES SHALL BE STAKED PRIOR TO CONSTRUCTION.



ANCHOR GRADES 20% TO 35% GRADES 35% TO 50% GRADES 50% TO 60% WITH WRITTEN APPROVAL 〇 〇 八 ス 36 FT DN CENTER 24 FT DN CENTER 16 FT DN CENTER OF UTILITY DIRECTOR DE  $\geq$ 

NO SCALE MANUALER, JR. VIII NEALTH OF

Approved RHW	Checked	Designed MSM.I	Drawn MSMJ
CITY OF ROANOKE, VIRGINIA	_	& DETAILS	MISCELLANEOUS NOTES
C11 of	PROJECT: 00045	AUG. 9, 2000	SCALE: NONE