The purpose of this project is to construct an erosion and sediment controls for future housing in the northwestern section of Roanoke, Virginia. This project will contain 7 lots with an average lot size of 7,549 SF. The total acreage of the project is 1.21 acres.

# **EXISTING SITE CONDITIONS**

The site is a series of vacant lots along Melrose Avenue and 12th Street, Northwest in the City of Roanoke.

### ADJACENT AREAS

The site is bordered to the northwest by an alley, to the northeast by 12th Street, to the southeast by Melrose Avenue and to the southwest by residential property.

Soils found at this site are common to the area. The City of Roanoke Soil Survey classifies the soil in this area as Chiswell-Litz-Urban land complex (6C). Erosion Potential is High.

### EROSION AND SEDIMENT CONTROL MEASURES

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the handbook. The minimum standards of the VESCR shall be adhered to unless otherwise waived or approved by a variance.

## STRUCTURAL PRACTICES

- Temporary Construction Entrance (Section 3.02) One temporary construction entrance will be installed. Vehicles will be washed to limit tracking onto public roads. Should tracking occur the road will be immediately cleaned. Temporary straw bale barriers will be placed and entrenched and anchored as indicated on the site plan.
- Straw Bale Barrier (Section 3.04)
- Silt Fence (Section 3.05) Temporary silt fences will be installed as indicated on the site plan.
- Outlet Protection (Section 3.18) Outlet protection will be placed at all discharge points from controlled flow to open flow. All outlet protection will be permanently designed and installed.
- Surface Roughening (Section 3.29) Surface roughening will be employed on all slopes exceeding 2:1.
- Temporary Seeding (Section 3.31) Temporary seeding will be placed on all disturbed areas that will not be brought to final grade within one year or less. Temporary seeding will aid in the reduction of dust and sediment. Temporary seeding will be Annual Ryegrass (100 #/ac), Feb 16 - April 30, German Millet (60 #/ac), May 1 — Aug. 31.
- 7. Permanent Seeding (Section 3.32) After final grading permanent seeding will be employed to reduce erosion and sediment yield. Seeding Specifications:

Permanent seeding shall be 50% Kentucky 31 Tall Fescue, 20% Annual Rye, 20% Perennial Rye, and 10% Creeping Red Fescue blended to contain 4 or more varieties, with no one variety exceeding 50%. The seeding will be applied at 140 lb. per acre. On slopes 2:1 or greater a mixture of Crown Vetch (50%), Perennial Ryegrass (40%), and Redtop (10%) will be used.

All seeding, with required associated practices, will be in accordance with all applicable sections of the Virginia Erosion and Sediment Control

- 8. Dust Control (Section 3.39) If arid conditions prevail dust control practices will be employed as required.
- 9. Construction Road Stabilization (Section 3.03) All roads and parking areas on the site shall be stabilized with gravel immediately after grading. Traffic is prohibited from entering drainage swales or streams unless absolutely necessary.
- 10. Temporary Sediment Basin (Section 3.14)
- 11. Riprap (Section 3.19) Riprap shall be placed at the outlet of all pipes in accordance with VDOT standard EC-2 as indicated on the plans. Riprap along the ditches shall be VDOT Class 1 riprap installed over a six inch filter consisting of #57 stone.

12. Check Dams (Section 3.20)

## MANAGEMENT

- 1. Construction should be sequenced so that grading operations can begin and end as quickly as possible.
- 2. Erosion and Sediment control devices shall be installed as the first step of construction.
- 3. Areas which are not to be disturbed shall be clearly marked by flags, signs, etc.
- The grading contractor shall be responsible for the installation and maintenance of all erosion and sediment control practices. Inspections are to be made periodically and after every significant rainfall.
- 5. After achieving adequate stabilization, the temporary E&S controls will be cleaned up and removed, and the sediment basins will be cleaned out and converted to permanent stormwater management basins.

All areas disturbed by construction shall be stabilized with permanent seeding immediately following finish grading. Seeding shall be done with 20% Kentucky 31 Tall Fescue, 20% Annual Rye, blankets will be installed over fill slopes which have been from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas. In all seeding operations, seed, fertilizer and lime will be applied prior to mulching.

### MAINTENANCE OF DETENTION FACILITIES

The applicant shall obtain approval from the locality of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.

Calculation of runoff before and after development indicates that there will NOT be a net increase in peak runoff as a result of project development.

In general, all erosion and sediment control measures will be checked daily and after each significant rainfall. Any items not found in accordance with the Virginia Erosion and Sediment Control Handbook will be immediately replaced and/or repaired. The following items will be checked in particular:

The silt fence barrier will be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.

All materials and measures employed for erosion and sediment control will be in accordance with the Virginia Erosion and Sediment Control Handbook, latest edition.

If, during construction, additional Erosion and Sediment Control measures are deemed necessary, they shall be installed as directed by the Owner, Engineer or City agent.

Soil stockpile areas on site shall be protected with sediment trapping measures and stabilized with temporary and permanent seeding. Soi taken from the site, shall be taken to the approved site covered by

# BEST MANAGEMENT PRACTICE

A VEGETATIVE STRIP SHALL BE PROVIDED ALONG MELROSE AVENUE. SEEDING REQUIREMENTS ARE AS FOLLOWS:

# PERMANENT SEEDING

CONCENTRATED.

PERMANENT SEEDING WILL BE KENTUCKY BLUEGRASS BLENDED TOCONTAIN 4 OR MORE VARIETIES, WITH NO ONE VARIETY EXCEEDING 30% OF THE TOTAL MIX. RECOMMENDED BLUEGRASS VARIETIES ARE: ABBEY, APOLLO, COVENTRY, BLACKSBURG, AND RAVEN.

SEEDING SHALL BE APPLIED AT A MINIMUM RATE OF 175 LBS PER ACRE.

SEEDING SHALL BE DONE IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SEEDING BLEND WILL BE "BLUE TAG" CERTIFIED AND VARIETIES SELECTED WILL BE LISTED ON THE VIRGINIA TECH'S ANNUAL "TURFGRASS VARIETIES

RECOMMENDATIONS" LISTING AS APPROVED BY THE VIRGINIA CROP IMPROVEMENT ASSOCIATION (VCIA).

STONE VDOT # 57 STONE SHALL BE PLACED ALONG THE ALLEY ROADWAY AT THE SAME WIDTH AS THE EXISTING TRAVELED WAY. THE DEPTH OF STONE SHALL BE 6". THIS STONE WILL ALLOW SHEET FLOW TO CROSS THE ALLEY WITH OUT BEING

2" MINIMUM CALIPER B&B GREEN ASH (FRAXINUS PENNSYLVANICA) SHALL BE PLANTED ON 50' CENTERS ALONG MELROSE AND 12TH STREET.



# PERMANENT STABILIZATION

20% Perennial Rye, and 10% Creeping Red Fescue. Erosion control brought to final grade and have been seeded to protect the slopes

# STORMWATER MANAGEMENT

# MAINTENANCE

- The sediment basin will be cleaned out when the level of sediment buildup reaches the cleanout point indicated on the riser pipe.
- 2. The gravel outlets will be checked regularly for sediment buildup which will prevent drainage. If the gravel is clogged by sediment, it shall be removed and cleaned or replaced
- The seeded areas will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed.

# **GENERAL**

The erosion and sediment control measures shown on the construction plans are the minimum measures required. Due to construction phasing and other considerations all measures can not be shown. The owner, through his contractor, will employ whatever measures which may be required to assure that sediment laden runoff does not leave the site.

This project is to be constructed consistent with the 1992 Virginia Erosion And Sediment Control Regulations.

Erosion and Sediment Control Permit number 04-0021.

# 1. SET POSTS AND EXCAVATE A 4"X4" 2. STAPLE WIRE FENCING TO THE POSTS. TRENCH UPSLOPE ALONG THE LINE OF POSTS. 3. ATTACH THE FILTER FABRIC TO THE WIRE 4. BACKFILL AND COMPACT THE FENCE AND EXTEND IT INTO THE TRENCH. EXCAVATED SOIL.

EXTENSION OF FABRIC AND WIRE INTO THE TRENCH

STONE CONSTRUCTION ENTRANCE

SIDE ELEVATION

-WASHRACK

(OPTIONAL)

-POSITIVE DRAINAGE

TRAPPING DEVICE

TO SEDIMENT

**PLAN VIEW** 

- SECTION A-A

**SECTION B-B** 

CONSTRUCTION OF A SILT FENCE

(WITH WIRE SUPPORT)

EARTH

VDOT #1 —/ COURSE AGGREGATE

OPERATION

EARTH

REINFORCED CONCRETE

LEGEND

TEMPORARY SEEDING

PERMANENT SEEDING

CONSTRUCTION ENTRANCE

CRS CONSTRUCTION ROAD STABILIZATION

SF SILT FENCE

(PS)

(CE)

(DD) DIVERSION DIKE

SILT TRAP

\* MUST EXTEND FULL WIDTH

OF INGRESS AND EGRESS

-EXISTING

PAVEMENT

-MOUNTABLE BERN

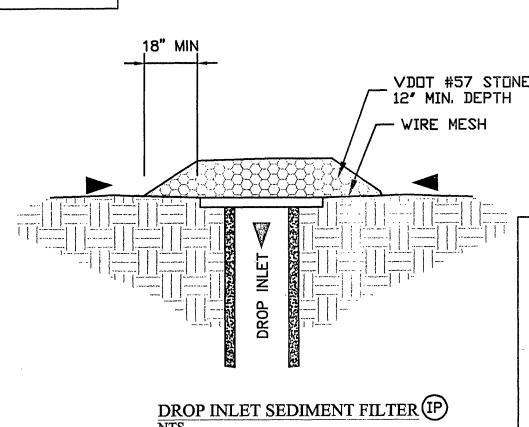
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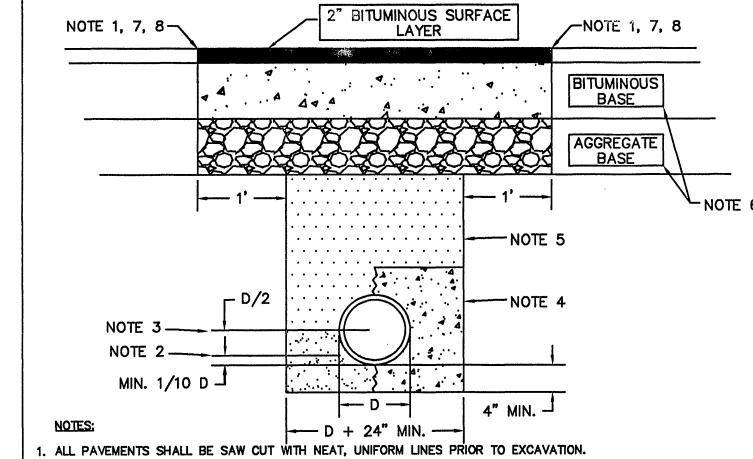
**EXISTING** 

MIN.

-DRAIN SPACE

**PAVEMENT** 





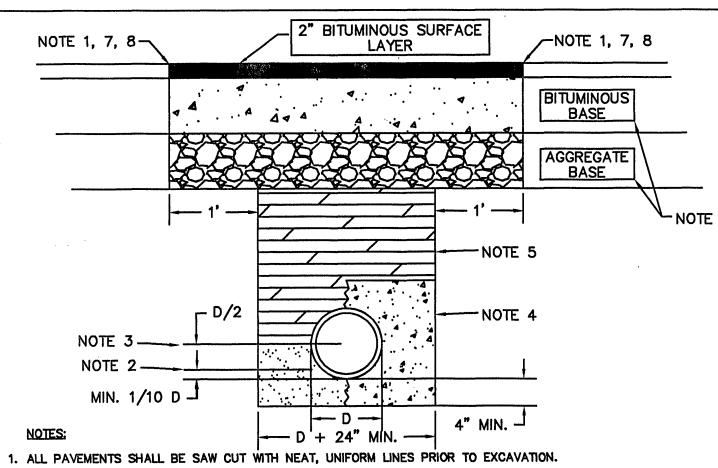
- 2. PIPE BEDDING MATERIAL SHALL BE CRUSHER RUN (VDOT NO. 25 OR 26) OR OPEN GRADED AGGREGATE (VDOT NO. 57, 68, 7, OR 8). ALTERNATE MATERIAL MUST BE APPROVED BY THE CITY ENGINEER.
- 3. MAXIMUM DEPTH OF PIPE BEDDING MATERIAL IF USING OPEN GRADED AGGREGATE FOR BEDDING.
- . OPTIONAL CONCRETE ENCASEMENT FOR POWER OR COMMUNICATION CONDUIT. PROVIDE A MINIMUM OF 4" CONCRETE COVER FROM ALL SIDES OF CONDUIT.
- FLOWABLE BACKFILL. THE MATERIAL MUST BE PLANT-CERTIFIED TO PROVIDE A 28-DAY COMPRESSIVE STRENGTH BETWEEN 30 AND 200 PSI. A CERTIFICATE OF MIX DESIGN MUST BE SUBMITTED TO THE INSPECTOR PRIOR TO PLACING THE MATERIAL IN THE TRENCH.

BACKFILL MATERIAL SHALL BE FLOWABLE FILL MEETING THE REQUIREMENTS OF VDOT SPECIAL PROVISION FOR

- A MINIMUM OF FOUR 6x12 TEST CYLINDERS SHALL BE TAKEN EVERY 50 CY OF PLACEMENT. CYLINDERS SHALL BE TESTED BY A QUALIFIED TESTING LABORATORY FOR 28—DAY STRENGTH. RESULTS SHALL BE PROVIDED TO THE INSPECTOR WITHIN 24 HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. IF THE REPORT INDICATES THE COMPRESSIVE STRENGTHS ARE NOT BETWEEN 30 AND 200 PSI, THE PERMITTEE WILL BE RESPONSIBLE FOR REMOVING AND REPLACING THE BACKFILL WITH ACCEPTABLE BACKFILL AND COMPLETING THE RESTORATION OF THE STREET AT NO COST TO THE CITY.
- 3. ALL PAVEMENTS SHALL BE RESTORED TO MATCH DEPTHS OF EXISTING SURFACE, BASE, AND AGGREGATE LAYERS. THE ASPHALT SURFACE LAYER SHALL BE A MINIMUM OF 2" THICK AND EXTEND OVER UNDISTURBED BASE A MINIMUM OF 12" ON ALL SIDES. ALL PAVEMENT MATERIALS SHALL MEET VDOT REQUIREMENTS FOR SURFACE MIX (SM-9.5AL, SM-9.5A, OR SM-12.5D), BASE MIX (BM-25), AND STONE AGGREGATE (21A OR 21B). PLANT CERTIFICATION FOR EACH MIX INCORPORATED INTO THE WORK SHALL BE PROVIDED TO THE INSPECTOR. WHEN MATCHING NON-STANDARD MATERIALS, THE INSPECTOR SHALL DETERMINE AN ACCEPTABLE MATERIAL.
- . THE REPAIR SHALL BE RECTANGULAR AND SAW CUT IN STRAIGHT, UNIFORM LINES THAT ARE ALIGNED WITH THE STREET CENTERLINE. WHEN EDGES OF PAVEMENT HAVE BEEN UNDERMINED, PAVEMENT SHALL BE REMOVED TO A NEAT LINE 12" BEYOND THE UNDERMINED AREA. THE FINISHED PATCH SURFACE SHALL BE WITHIN 1/4 INCH AT ANY POINT ACROSS THE PATCH AS IT RELATES TO THE SURROUNDING STREET SURFACE.

8. A FULL COVERAGE TACK COAT IS REQUIRED ON ALL SURFACES THAT WILL CONTACT THE NEW SURFACE LAYER. OFFICE OF THE CITY ENGINEER - ROANOKE. VIRGINIA

APPROVED UTILITY TRENCH REPAIR IN PAVEMENT UTR-2 USING CONTROLLED DENSITY FILL



2. PIPE BEDDING MATERIAL SHALL BE CRUSHER RUN (VDOT NO. 25 OR 26) OR OPEN GRADED AGGREGATE (VDOT NO. 57. 68. 7. OR 8). ALTERNATE MATERIAL MUST BE APPROVED BY THE CITY ENGINEER.

3. MAXIMUM DEPTH OF PIPE BEDDING MATERIAL IF USING OPEN GRADED AGGREGATE FOR BEDDING.

4. OPTIONAL CONCRETE ENCASEMENT FOR POWER OR COMMUNICATION CONDUIT. PROVIDE A MINIMUM OF 4" CONCRETE COVER FROM ALL SIDES OF CONDUIT.

5. BACKFILL MATERIAL SHALL BE VOOT NO. 21A AGGREGATE, PLACED IN LIFTS NOT EXCEEDING 6", AND COMPACTED TO AT LEAST 95% MAXIMUM DRY DENSITY WITHIN 2% OPTIMUM MOISTURE (ASTM D 698) WITH THE USE OF MECHANICAL TAMPERS OR VIBRATORY ROLLERS. WATER COMPACTION IS NOT PERMITTED. TYPE I SELECT MATERIAL MAY BE USED AS BACKFILL UPON PRIOR APPROVAL BY THE CITY ENGINEER. MATERIAL CLASSIFICATION SHALL BE PERFORMED ON THE ACTUAL SOIL TO VERIFY THAT SOIL MEETS VDOT SPECIFICATIONS BY A QUALIFIED TESTING LABORATORY AND TEST RESULTS SHALL BE CERTIFIED BY A VIRGINIA REGISTERED PROFESSIONAL ENGINEER. COMPACTION REQUIREMENS ARE THE SAME AS ABOVE.

ALL COMPACTION TESTING SHALL BE PERFORMED BY A VDOT-CERTIFIED TECHNICIAN. RESULTS SHALL BE PROVIDED TO THE INSPECTOR WITHIN 24 HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE RESPONSIBILITY OF THE PERMITTEE.

6. ALL PAVEMENTS SHALL BE RESTORED TO MATCH DEPTHS OF EXISTING SURFACE, BASE, AND AGGREGATE LAYERS. THE ASPHALT SURFACE LAYER SHALL BE A MINIMUM OF 2" THICK AND EXTEND OVER UNDISTURBED BASE A MINIMUM OF 12" ON ALL SIDES. ALL PAVEMENT MATERIALS SHALL MEET VDOT REQUIREMENTS FOR SURFACE MIX (SM-9.5AL, SM-9.5A, OR SM-12.5D), BASE MIX (BM-25), AND STONE AGGREGATE (21A OR 21B). PLANT CERTIFICATION FOR EACH MIX INCORPORATED INTO THE WORK SHALL BE PROVIDED TO THE INSPECTOR. WHEN MATCHING NON-STANDARD MATERIALS, THE INSPECTOR SHALL DETERMINE AN ACCEPTABLE MATERIAL.

THE REPAIR SHALL BE RECTANGULAR AND SAW CUT IN STRAIGHT, UNIFORM LINES THAT ARE ALIGNED WITH THE STREET CENTERLINE. WHEN EDGES OF PAVEMENT HAVE BEEN UNDERMINED, PAVEMENT SHALL BE REMOVED TO A NEAT LINE 12" BEYOND THE UNDERMINED AREA. THE FINISHED PATCH SURFACE SHALL BE WITHIN 1/4 INCH AT ANY POINT ACROSS THE PATCH AS IT RELATES TO THE SURROUNDING STREET SURFACE.

8. A FULL COVERAGE TACK COAT IS REQUIRED ON ALL SURFACES THAT WILL CONTACT THE NEW SURFACE LAYER. OFFICE OF THE CITY ENGINEER - ROANOKE, VIRGINIA

APPROVED UTILITY TRENCH REPAIR IN PAVEMENT USING VDOT NO. 21A AGGREGATE

NO. 020021 SSIONAL ENG Designed By RCW DJB Checked By RCW RCW Approved By

345. 342.

540. 540.

& HOUSING AUTHORITY ROSE AVENUE E, VIRGINIA

% MELRC

REDEVLOPMENT & 12th STREET & MELI CITY OF ROANOK

RCW Submitted By 2863A\_EROS 4/29/04 NONE Commission No. 2863A