

CITY GENERAL NOTES

1. Work in this project shall conform to the latest editions of the Virginia Department of Transportation (VDOT) Road and Bridge Specifications, the VDOT Road and Bridge Standards, the Virginia Erosion and Sediment Control Handbook, the Virginia Erosion and Sediment Control Regulations and the City of Harrisonburg Design and Construction Standards Manual. In the event of conflict between any of these standards, specifications or plans, the most stringent shall govern. All utilities to be dedicated to the City of Harrisonburg Municipal Water and/or Sanitary Sewer System shall be constructed and tested to conform to Commonwealth of Virginia/State Board of Health Waterworks and/or Sewerage Regulations and the City of Harrisonburg Design and Construction Standards manual.

2. Erosion and sediment control measures shall be maintained continuously, relocated when and as necessary and shall be checked after every rainfall. Seeded areas shall be checked regularly and shall be measured, fertilized, reseeded and mulched as necessary to obtain a dense stand of grass.

3. All drain inlets shall be protected from siltation. Ineffective protection devices shall be immediately replaced and the inlet cleaned. Flushing is not an acceptable method of cleaning.

4. When the crushed stone construction entrance has been covered with soil or has been pushed into the soil by construction traffic, it shall be replaced with a depth of stone equal to that of original application.

5. The location of existing utilities as shown is approximate only. The contractor is responsible for locating all public or private utilities which lie in or adjacent to the construction site. The contractor shall be responsible for repairing, at his expense, all existing utilities damaged during construction. Forty-eight (48) hours prior to any excavation call Miss Utility 1 (800) 552-7001.

6. All underground facilities located within the City's rights-of-way shall be installed prior to the placement of any part of the pavement structure.

7. Installation of concrete storm pipe shall comply with VDOT standard Drawing PB-1.

8. All materials used for fill or back-fill shall be free of wood, roots, rocks, boulders or any other non-compatible soil type material. Unsatisfactory materials also include man-made fills and refuse debris derived from any source.

9. Satisfactory material for use as fill for public streets include material classified in ASTM D-2487 as GW, GP, GM, GC, SW, SP, SM, SC, ML and CL groups. The moisture content shall be controlled within plus or minus 2 percentage points of optimum to facilitate compaction. Generally, unsatisfactory materials include materials classified in ASTM D-2487 as PT, CH, MH, OH, and any soil too wet to facilitate compaction. CH and MH soils may be used subject to approval of the City Engineer. Soils shall have a minimum dry density of 92 lb/cu. ft. per ASTM D-698 and shall have a plasticity index less than 17.

10. Compaction of fill material under building slabs shall be based upon recommendations of soils engineer after completion of standard Proctor test and shall meet bearing requirements of architect of buildings. The contractor shall be responsible for testing.

11. Materials used to construct embankments for any purpose, back-fill around drainage structures or in utility trenches or any other depression requiring fill or back-fill shall be compacted to 95% of maximum density as determined by the standard Proctor test as set out in ASTM standard D-698. The contractor shall, prior to any operations involving filling or back-filling submit the results of the Proctor test together with a certification that the soil tested is representative of the materials to be used on the project. Tests shall be conducted by a certified materials testing laboratory and the certifications made by a licensed professional engineer representing the laboratory.

12. Embankment fill and trench back-fill shall be placed in lifts at a maximum uncompacted depth of 8-inches and 6-inches, respectively. Density tests shall be conducted at the following minimum frequencies:

- (a) Embankments for roads, street, dams, etc.;
One test per lift per 10,000 square feet of lift.
- (b) Back-fill around structures and in trenches:
One test per lift per 500 lineal feet of trench.

13. All excavations, including trenches, shall be kept dry to protect their integrity.

14. Test results shall be submitted to the City Engineer. Failure to conduct density tests shall be cause for non-acceptance of the facility. Tests shall be conducted at the sole cost of the developer or his agent.

15. City inspectors have full authority to reject fill or backfill materials, require undercutting or subgrade stabilization, require provisions for subdrainage, or require other measures which affect the integrity of road and utility construction. Failure to comply with Inspector's directives shall be cause for non-acceptance to the facility.

16. Any discrepancies found between the drawings and specifications and site conditions or on inconsistencies or ambiguities in drawings or specifications shall be immediately reported to the engineer, in writing, who shall promptly address such inconsistencies or ambiguities. Work done by the contractor after his discovery of such discrepancies, inconsistencies, or ambiguities shall be done at the contractor's risk.

17. A preconstruction conference shall be held prior to the start of the construction. The contractor shall arrange the meeting with the City Engineer.

EXTRA NOTES:

17. If water and sanitary sewer laterals are placed in the same trench, construction must comply with BOCA, 1987 Section P-1502.2. Requiring water service to be 12" above and on a shelf to the side of the sanitary sewer.

18. Refer to pipe schedule on sheet 2 for installation for storm sewer piping and structures.

19. Sewer laterals are to be 4" PVC with a minimum slope of 1/4" per ft. Contractor to connect new laterals to existing cleanouts for all sewer laterals.

20. Trash collection shall be by a private collection service. The dumpsters are to be screened from view in accordance with City ordinance.

21. The main drive is to act as the emergency access and permanent fire lane, and is to remain free of obstructions during and after site development.

22. The finished floor elevation on some of the buildings are lower than some of the exterior grades around the building. The below grade walls are to be built out of concrete or CMU's and waterproofed in accordance with BOCA. These walls are to at least extend 6" above finished grade.

23. Handicap spaces to have vertical signs with the international handicap symbol. At least one space must be van accessible with "Van Accessible" sign below the international sign. Minimum height to sign bottom is 4'-0", maximum is 7'-0".

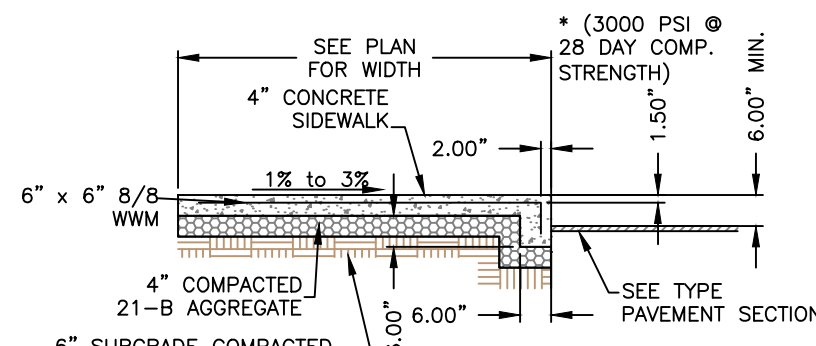
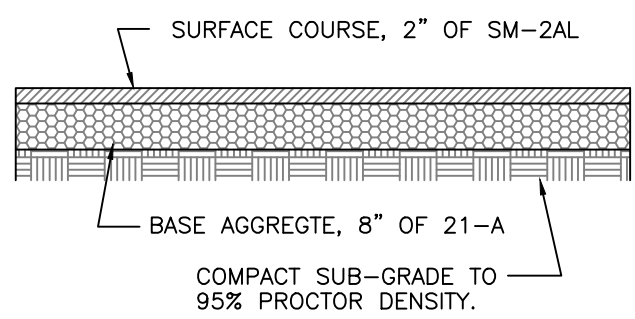
24. Power use is unknown at this time. It will depend on the use of each building. Owner to coordinate with HEC for both power needs and easement locations.

25. A separate sign permit is required for all advertising signs

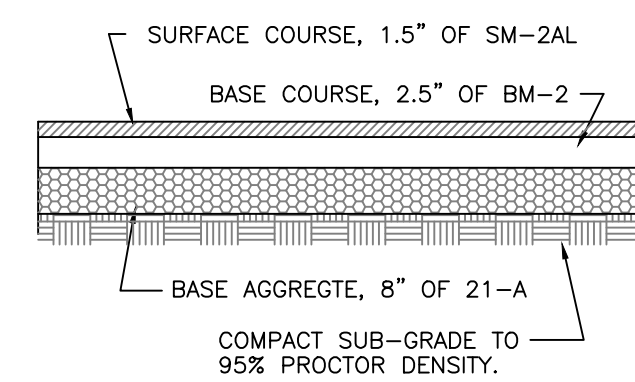
PROPOSED USE AND PARKING REQUIREMENTS						
BLDG	USE	SIZE, sq	RATE	EMPLOYEES	TRUCKS	REQUIRED SPACES
2B-4	WAREHOUSE-MANUFACTURING	10000±	1 PER 2 EMPLOYEES	46	2	24
5-6	WAREHOUSE-MANUFACTURING	10240±	1 PER 2 EMPLOYEES	38	2	20
7	WAREHOUSE-MANUFACTURING	7560±	1 PER 2 EMPLOYEES	22	2	13
				TOTAL REQUIRED SPACES		
				HANDICAP REQUIRED		
				EXISTING PARKING		
				TOTAL PROVIDED SPACES (6 TRUCK SPACES)		
				HANDICAP PROVIDED		
				BICYCLE PARKING PROVIDED		

LEGEND

---	CENTER LINE
---	EXISTING BUILDING
---	PROPOSED BUILDING
---	PROPOSED ROAD/EOP
---	EXISTING ROAD
---	E/T
---	ELECTRIC/TELEPHONE
---	WATER LINES
---	SANITARY LINES
---	STORM SEWER
---	EXISTING PROPERTY LINE
---	PROPOSED PROPERTY
---	SETBACK LINE
---	EASEMENT LINES
---	CURB AND GUTTER, CG-6
---	FIRE HYDRANT
---	EXISTING FIRE HYDRANT
---	WATER VALVE
---	WATER METER
---	HANDICAP PARKING
---	PROPOSED LIGHT PAVEMENT SECTION
---	PROPOSED HEAVY PAVEMENT SECTION
---	CONCRETE PAVING
---	PROPOSED GRASS AREA
---	EXISTING GRASS AREA
---	BIKE RACK

CURB & GUTTER (CG-6)
NTSTYPICAL SIDEWALK
DETAIL
NTS

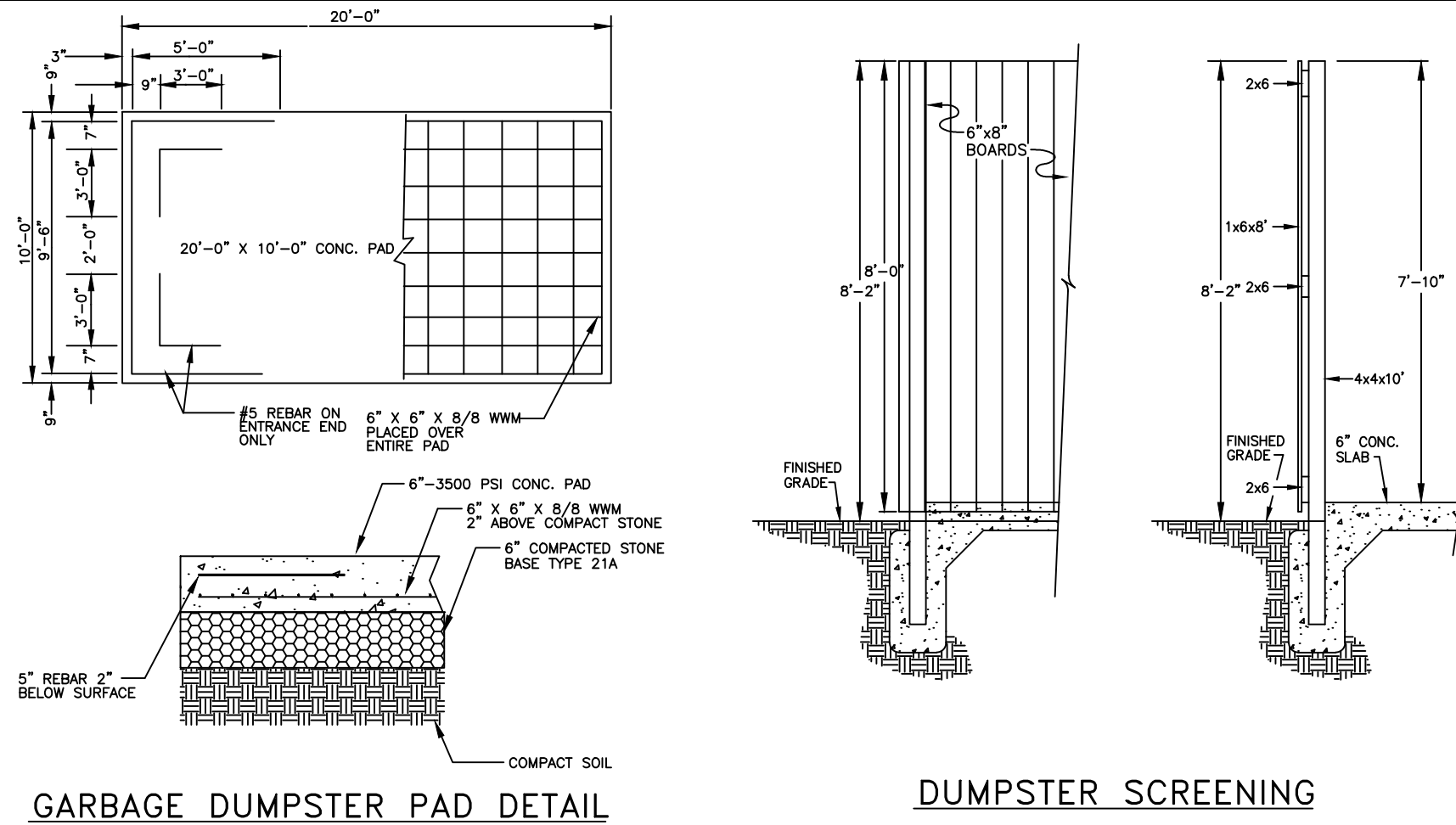
PARKING LOT SECTION



TRUCK-MAIN DRIVE SECTION

OWNER:

ACORN ENTERPRISES, INC.
950 ACORN DRIVE
HARRISONBURG, VA 22802
TM# 56-A-2 - ZONE: M-1
AREA = 6.06 ACRES.

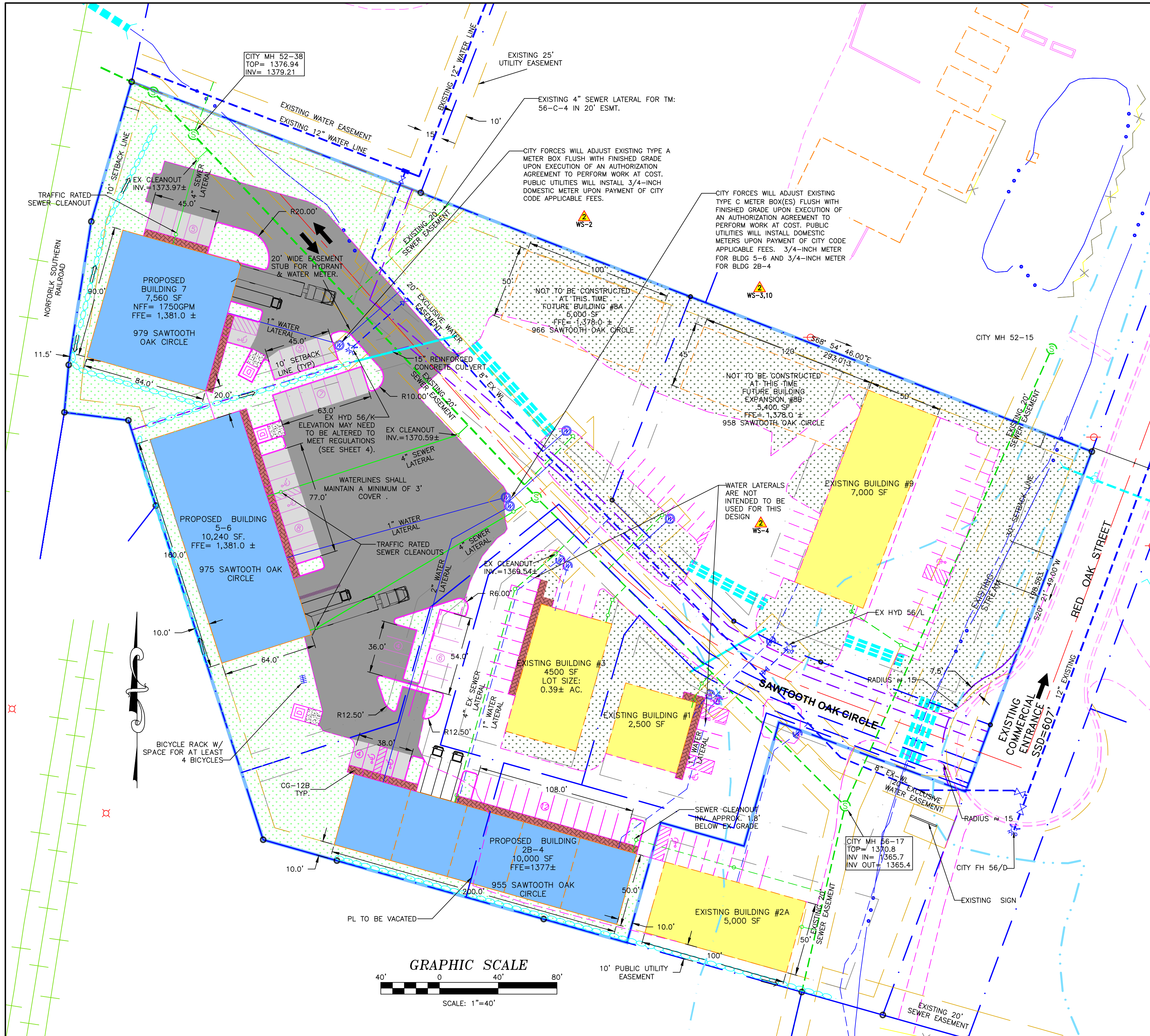
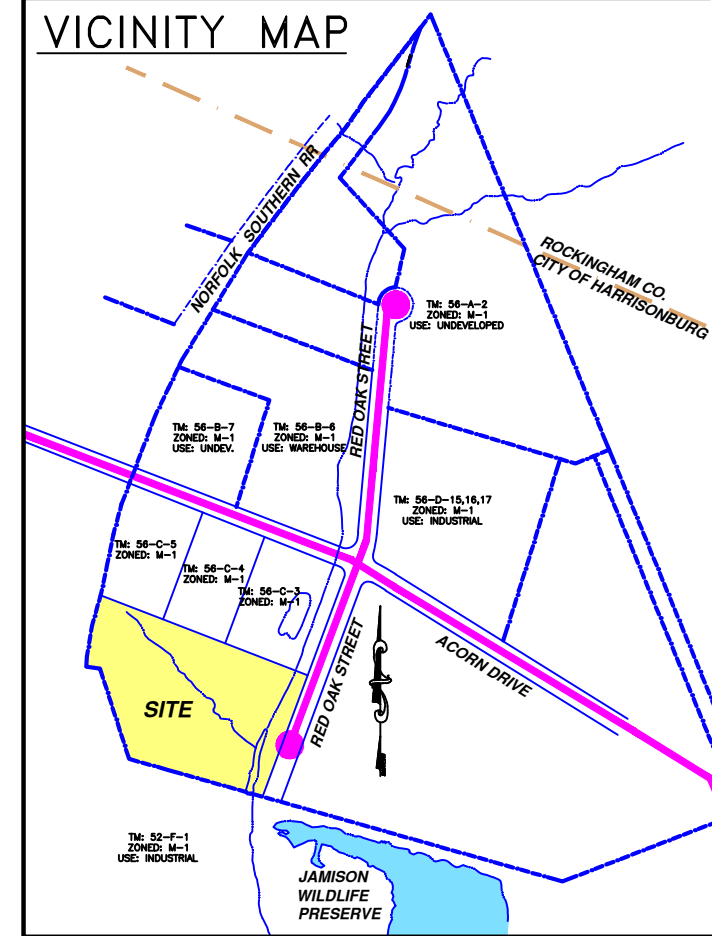


SITE DESIGN:
BLACKWELL ENGINEERING
ATTN: NATHAN BLACKWELL
566 EAST MARKET STREET
HARRISONBURG, VA 22801
540-433-9555

DEVELOPER:
ACORN ENTERPRISES, INC.
950 ACORN DRIVE
HARRISONBURG, VA 22802
(540)433-7222

PROPERTY INFO:
TM# 56-(A)-2
NEAR 1630 RED OAK ST.
HARRISONBURG, VA 22802
AREA= 5.45±AC
ZONED: M-1
PROPOSED USE: INDUSTRIAL
FEWA FLOOD ZONE X
DISTURBED AREA = 2.76 AC
IBC CLASS PRO BLDGS: F-1

VICINITY MAP



Date: 11/3/2015

Scale: 1"=40'

Designed by: NWB

Drawn by: JRC

Checked by: NWB

BLACKWELL ENGINEERING, PLC
566 East Market Street
Harrisonburg, Virginia 22801
PHONE: (540)433-9555 FAX: (540)434-7604
E-Mail: E@BlackwellEngineering.com



REVISION DATES
1/8/2016 PER CITY
1/28/2016 PER CITY

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GENERAL EROSION & SEDIMENT CONTROL NOTES

- ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VACS-30 EROSION AND SEDIMENT CONTROL REGULATIONS.
- ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
- ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

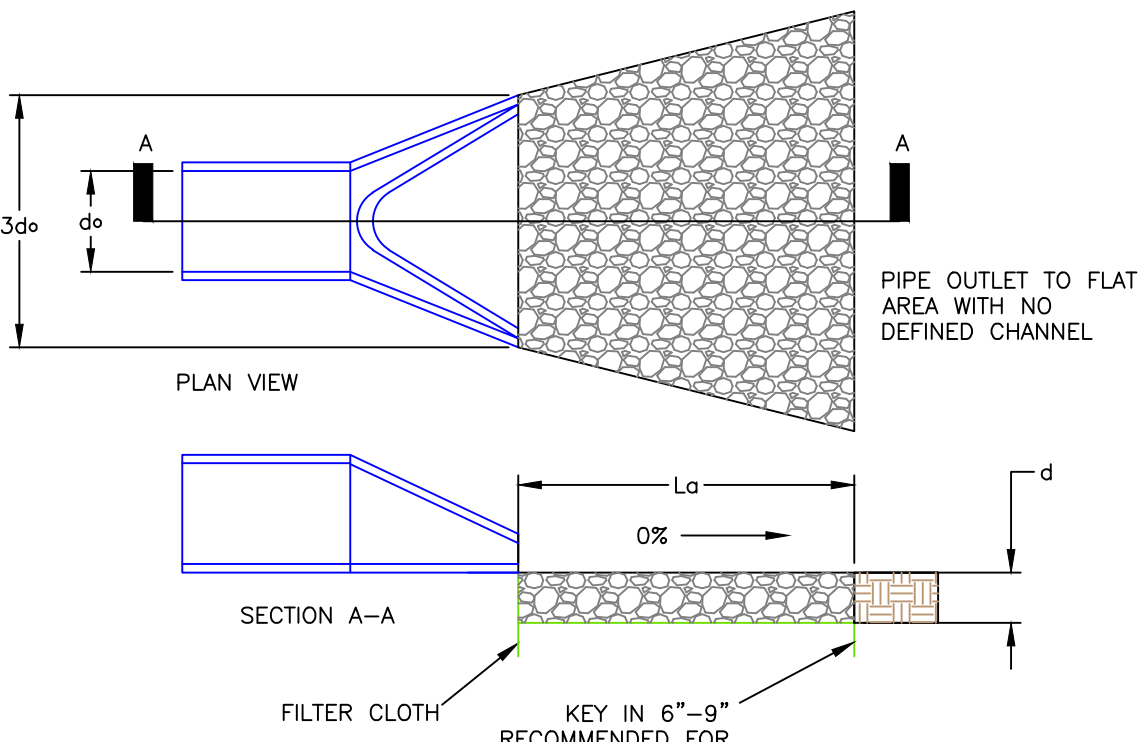
ADDITIONAL ESC GENERAL NOTES AND SCHEDULE:

1. CONSTRUCTION ENTRANCE, SEDIMENT TRAPS/BASINS, PERIMETER DIKES, SEDIMENT BARRIERS AND ANY OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCES TAKE PLACE.
2. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
3. PERMANENT OR TEMPORARY SOIL STABILIZATIONS SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE A FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED FOR LONGER THAN 30 DAYS). PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
4. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
5. DURING CONSTRUCTION OF THE PROJECT SOIL STOCK PILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES.
6. CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OR PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
7. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
8. BEFORE NEWLY CONSTRUCTED STORM WATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
9. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NON-ERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NON-ERODIBLE COVER MATERIALS.
10. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN A SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NON-ERODIBLE MATERIAL SHALL BE PROVIDED.
11. THE BED AND BANKS OF A WATERCOURSE SHALL BE SEEDED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETE.
12. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH 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 AN APPROVED SEDIMENT TRAPPING DEVICE OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
E. RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
13. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROAD BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
14. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM ADMINISTRATOR. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
15. THE GLOBAL STABILITY OF CUT OR FILL SLOPES THAT ARE STEEPER THAN 2H:1V SHALL BE DETERMINED BY A LICENSED GEOTECHNICAL ENGINEER. THE NEED FOR AND DESIGN OF REINFORCEMENT FOR CUT OR FILL SLOPES THAT ARE STEEPER THAN 2H:1V SHALL BE DETERMINED IN THE FIELD BY THE ONSITE GEOTECHNICAL ENGINEER PRIOR TO GRADING OR FILLING.
16. THE FOLLOWING ESC SCHEDULE SHALL BE FOLLOWED DURING CONSTRUCTION:
1) INSTALL CONSTRUCTION ENTRANCE, SILT FENCE, AND SEDIMENT TRAP AS SHOWN ON THE PLANS.
2) INSTALL THE STORM NETWORK AS SOON AS GRADING ALLOWS. PLACE INLET PROTECTION IN FRONT OF ANY USED INLETS.
3) ONCE THE SITE IS TO ROUGH GRADE, INSTALL CONSTRUCTION ROAD STABILIZATION.
4) UPON RELEASE BY ESC ADMINISTRATOR THE SEDIMENT TRAP SHALL BE FILLED IN. WET STORAGE FROM SEDIMENT TRAP SHALL BE PASSED THROUGH A FILTER BAG OR OTHER FILTER DEVICE. WET SEDIMENT SHALL BE REMOVED AND DRIED. SEDIMENT TRAP CONVERTED INTO THE DETENTION POND.
5) SEED ENTIRE SITE IMMEDIATELY AFTER REACHING FINAL GRADE.
17. THE OWNER AND CONTRACTOR MAY NEED TO MAKE MODIFICATIONS TO THE PLANS TO MATCH FIELD CONDITIONS.

SEEDING & MULCHING TABLE					
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING WITHIN 7 DAYS FOLLOWING FINISH GRADING. SEEDING SHALL BE DONE ACCORDING TO STANDARD & SPECIFICATION 3.31 TEMPORARY OR 3.32 PERMANENT SEEDING, OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. SEEDING MIXTURE SHALL BE AS INDICATED BELOW.					
TEMPORARY			PERMANENT		
SPECIES		LBS/ACRE	SPECIES	LBS/ACRE	
ANNUAL RYEGRASS & CEREAL RYE		50-100	KENTUCKY 31 FESCUE	128	
ANNUAL RYE GRASS		60-100	RED TOP GRASS	2	
GERMAN MILLET		50	SEASONAL NURSE CROP*	20	
TOTAL		160-250	TOTAL	150	
*USE SEASONAL NURSE CROP AS INDICATED BELOW					
<input type="checkbox"/>	SEPT. 1st - FEB. 15th	ANNUAL RYE & CEREAL RYE	<input type="checkbox"/>	MAR. - MAY 15th	ANNUAL RYE
<input type="checkbox"/>	FEB. 16th - APR. 30th	ANNUAL RYEGRASS	<input type="checkbox"/>	MAY 16th - AUG. 15th	FOXTAIL MILLET
<input type="checkbox"/>	MAY 1st - AUG. 31st	GERMAN MILLET	<input type="checkbox"/>	AUG. 16th - OCT.	ANNUAL RYE
			<input type="checkbox"/>	NOV. - FEB.	WINTER RYE
ORGANIC MULCH MATERIALS AND APPLICATION RATES					
VESCH TABLE 3.35-A					
MULCHES	RATES		NOTES:		
	PER ACRE	PER 1000 SF			
STRAW OR HAY	1 1/2 - 2 TONS (MIN. 2 TONS FOR WINTER COVER)	70 - 90 lbs.	FREE FROM WEEDS AND COARSE MATTER. MUST BE ANCHORED. SPREAD WITH MULCH BLOWER OR BY HAND		
FIBER MULCH	MINIMUM 1500 lbs.	35 lbs.	DO NOT USE AS MULCH FOR WINTER COVER OR DURING HOT, DRY PERIODS.* APPLY AS SLURRY		
CORN STALKS	4 - 6 tons	185 - 275 lbs.	CUT OR SHREDDED IN 4-6" LENGTHS. AIR DRIED. DO NOT USE IN FINE TURF AREAS. APPLY WITH MULCH BLOWER OR BY HAND.		
WOOD CHIPS	4 - 6 tons	185 - 275 lbs.	FREE OF COARSE MATTER, AIR-DRIED. TREAT WITH 12 lbs. NITROGEN PER TON. DO NOT USE IN FINE TURF AREAS. APPLY WITH MULCH BLOWER, CHIP HANDLER, OR BY HAND.		
BARK CHIPS OR SHREDDED BARK	50 - 70 c.y.	1 - 2 c.y.	FREE OF COARSE MATTER, AIR-DRIED. DO NOT USE IN FINE TURF AREAS. APPLY WITH MULCH BLOWER, CHIP HANDLER, OR BY HAND.		
* WHEN FIBER MULCH IS THE ONLY AVAILABLE MULCH DURING PERIODS WHEN STRAW SHOULD BE USED, APPLY AT A MINIMUM RATE OF 2000 lbs./ac. OR 45 lbs./1000 sq. ft.					

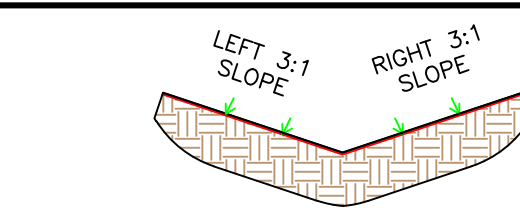
LEGEND

- EXISTING BUILDING
PROPOSED BUILDING
PROPOSED ROAD/EOP
EXISTING ROAD
REVISION SYMBOLS
EXISTING CONTOURS
PROPOSED CONTOURS
PROPOSED/EX DITCH OR SWALE
PROPOSED SPOT ELEVATION
PROPOSED DRAINAGE FLOW
EXISTING DRAINAGE FLOW
CONSTRUCTION ENTRANCE (3.02)
CONSTRUCTION ROAD STABILIZATION (3.03)
DIVERSION DIKE (3.09)
TEMPORARY SEEDING (3.31)
PERMANENT SEEDING (3.32)
TOPSOILING
SILT FENCE (3.05)
TEMPORARY SEDIMENT TRAP (3.13)
OUTLET PROTECTION (3.18)
CULVERT INLET PROTECTION (3.08)
RIGHT OF WAY DIVERSION (3.11)
EXISTING ESC MEASURES
DISTURBED AREA
EXISTING STREAM OR POND
STORM SEWER PIPE
NUMBERS IN PARENTHESES REFER TO VESCH MEASURES



PIPE OUTLET CONDITIONS

NTS

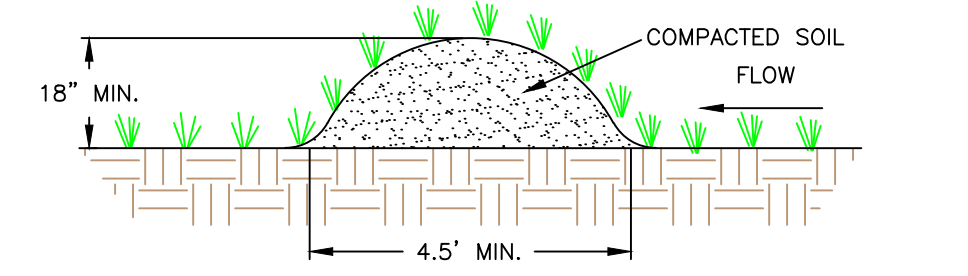


TYPICAL DITCH SECTION

NTS

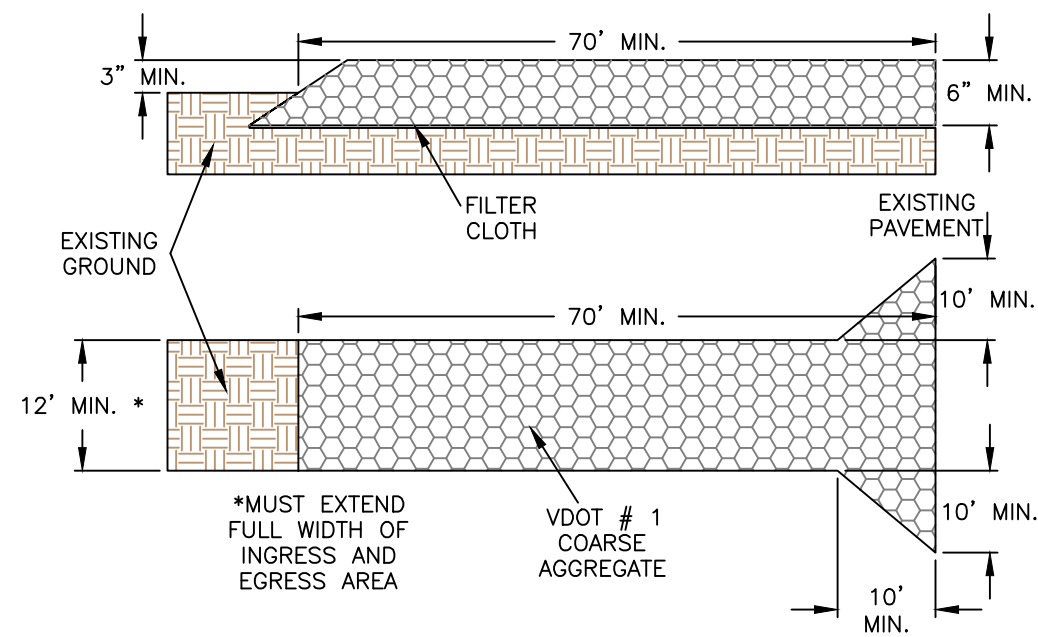
DITCH TABLE									
DITCH	BOTTOM WIDTH	LEFT SLOPE	RIGHT SLOPE	10 YR. DEPTH	DITCH DEPTH	2 YR. VEL. (FPS)	SLOPE	LINER	
#1	0'	3:1	3:1	0.48'	1.00'	1.37	1.2%	GRASS	
#2	0'	3:1	3:1	0.48'	1.20'	1.59	1.6%	GRASS	
#3	0'	3:1	3:1	0.29	1.10'	3.14	10.5%	GRASS	
#4	0'	3:1	3:1	.35'	1.00'	2.55	6.0%	GRASS	
#5	0'	3:1	3:1	.31'	1.00'	1.31	3.5%	GRASS	
EXISTING	0'	3:1	3:1	.31'	1.00'	1.31	3.5%	GRASS	

NOTE: DITCH DEPTH IS MINIMUM DEPTH OF CONSTRUCTED DITCH.



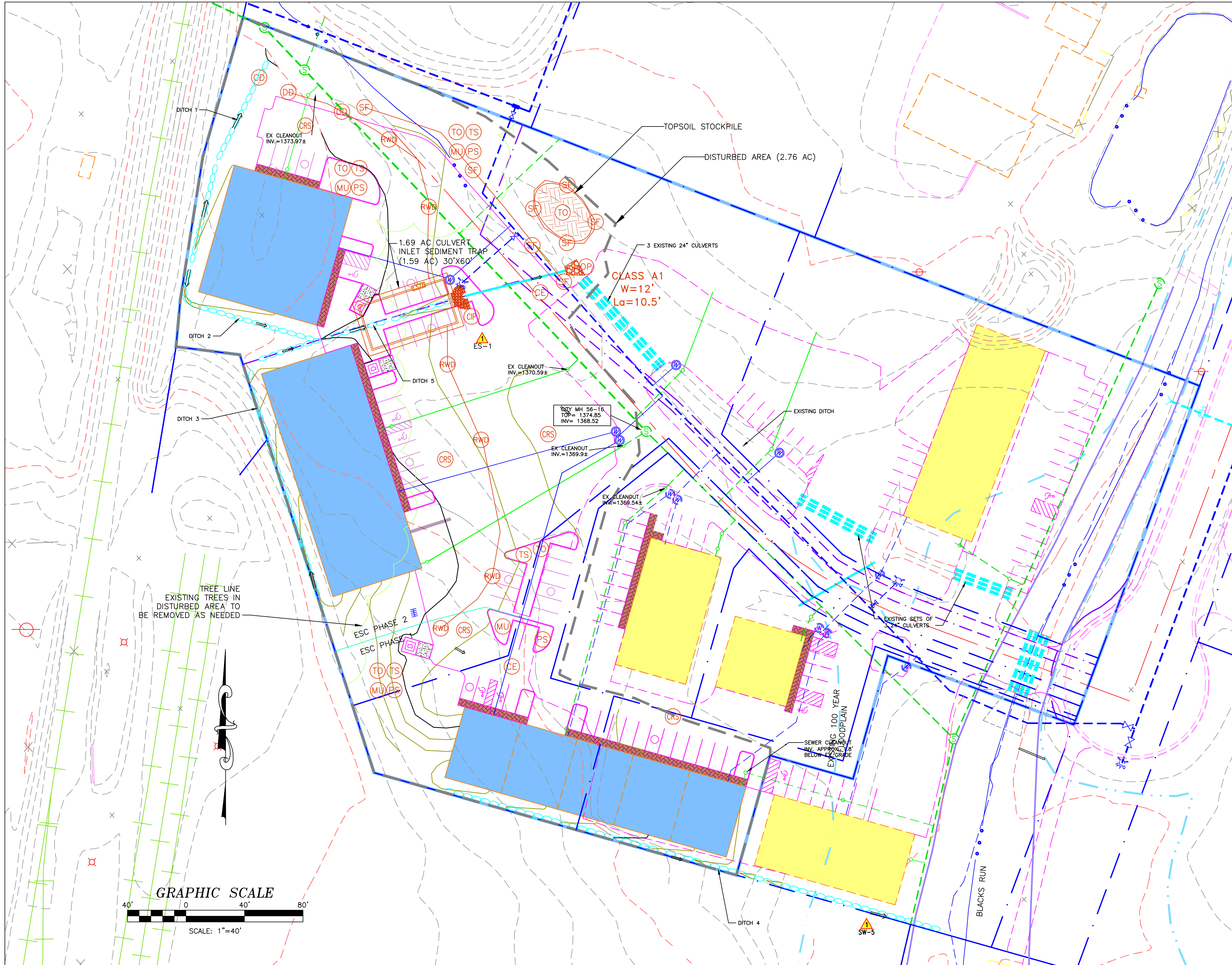
DIVERSION DIKE

NTS



STONE CONSTRUCTION ENTRANCE

NTS



Date: 11/3/2015

Scale: 1"=40'

Designed by: NWB

Drawn by: JRC

Checked by: NWB

BLACKWELL ENGINEERING, PLC

566 East Market Street
Harrisonburg, Virginia 22801

PHONE: (540) 332-9555 FAX: (540) 434-7604
E-Mail: BBlackwellEngineering.com



Revision Dates	
<input type="checkbox"/> 1/8/2016	PER CITY
<input type="checkbox"/> 1/28/2016	PER CITY

ESC PLAN

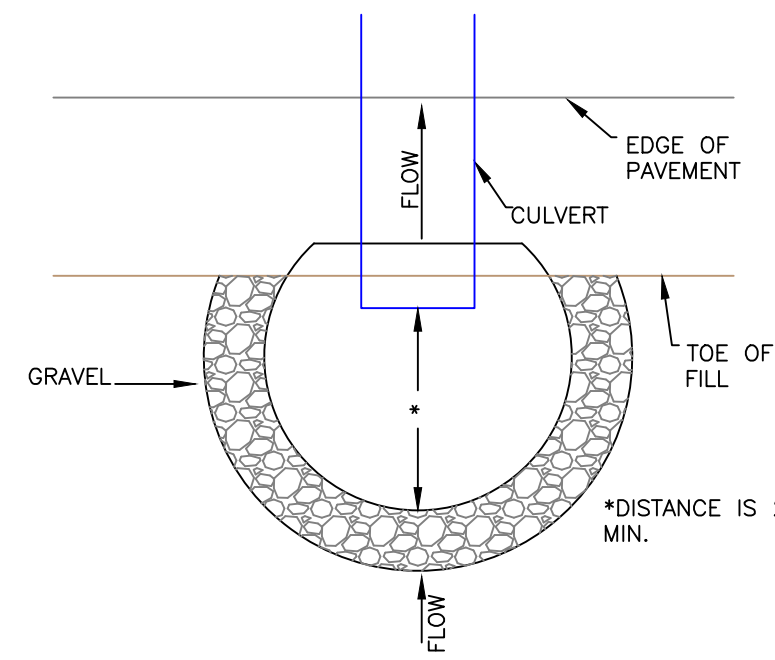
RED OAK SOUTH BUSINESS PARK
LEE AND ASSOCIATES (540) 433-7222
950 ACORN DRIVE
HARRISONBURG, VA 22801

Drawing No.

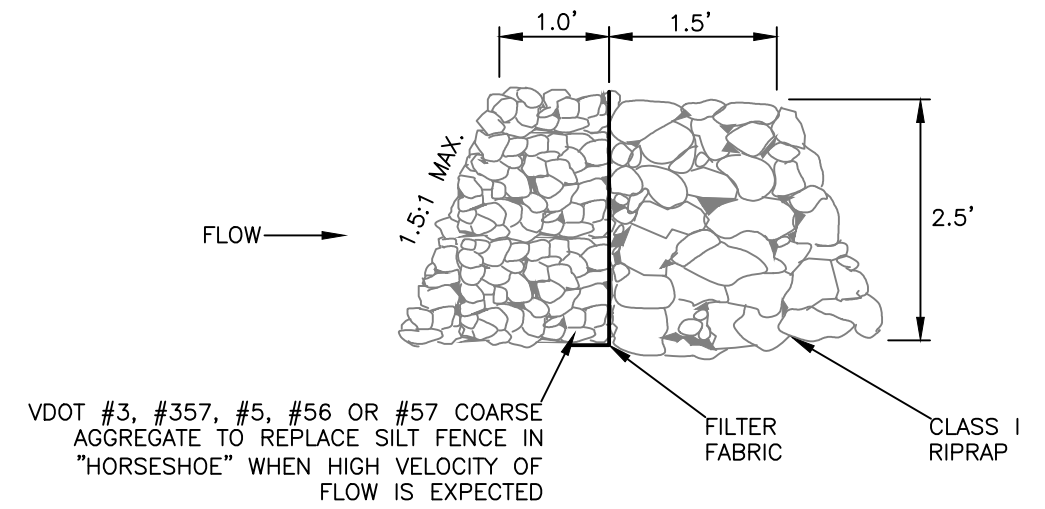
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of 5 Sheets

Job No. 998

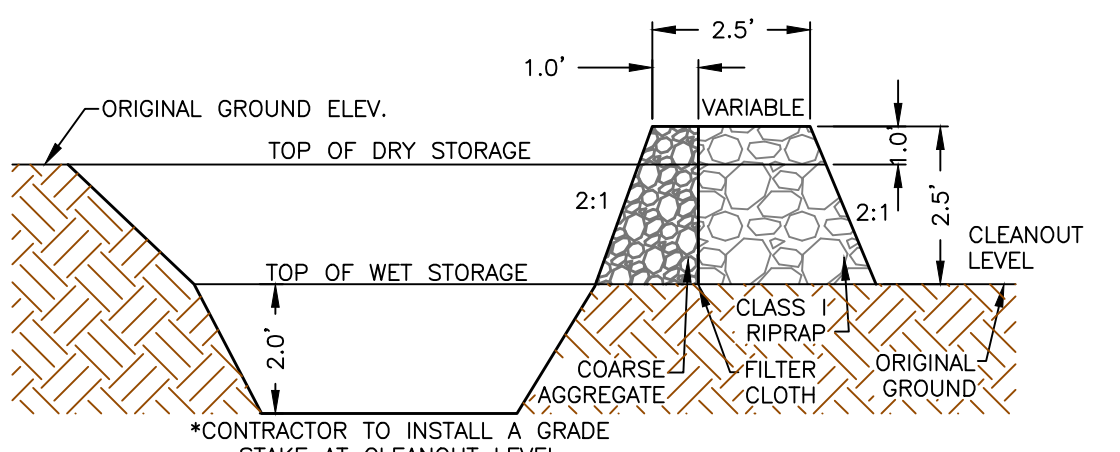


GRAVEL CULVERT INLET PROTECTION
XA-CIP NTS

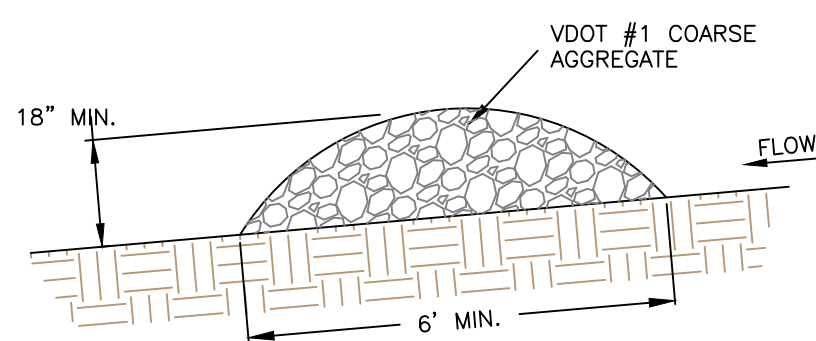


CULVERT INLET PROTECTION STONE COMBINATION
NTS

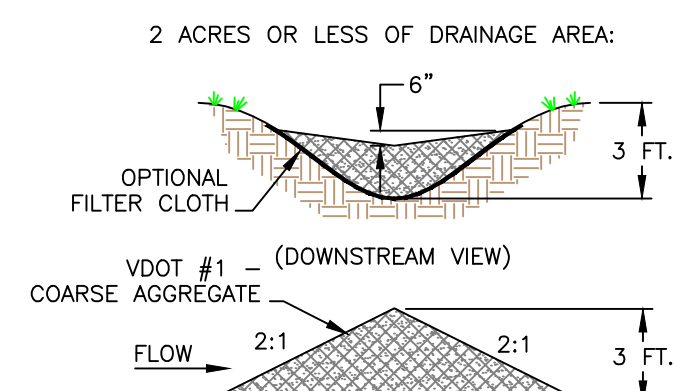
	ST
ST CAPACITY (AC)	1.69
DRAINAGE AREA (AC)	1.69
OUTLET LENGTH (FT)	10
TOP WIDTH (FT)	2.5
WET DEPTH (FT)	2
DRY DEPTH (FT)	1.5
BOTTOM ELEVATION (FT)	1375±
BOTTOM WIDTH (FT)	30
BOTTOM LENGTH (FT)	60
MIN. WET STORAGE (CF)	3060
MIN. DRY STORAGE (CF)	3288
SIDE SLOPE, X	2
CLEAN OUT HEIGHT FOR SEDIMENT (FT)	1



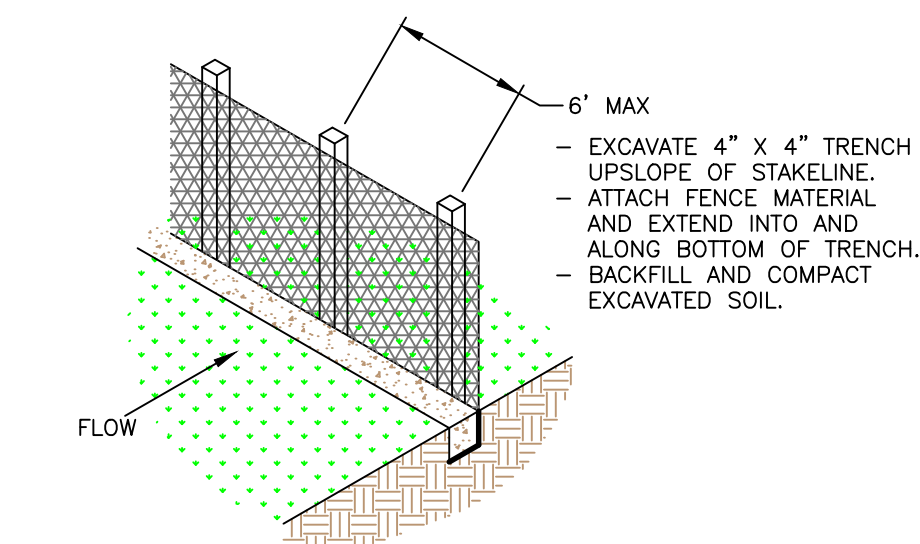
CULVERT INLET SEDIMENT TRAP
NTS



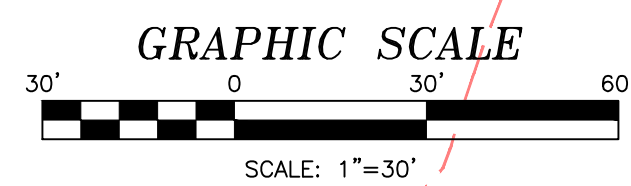
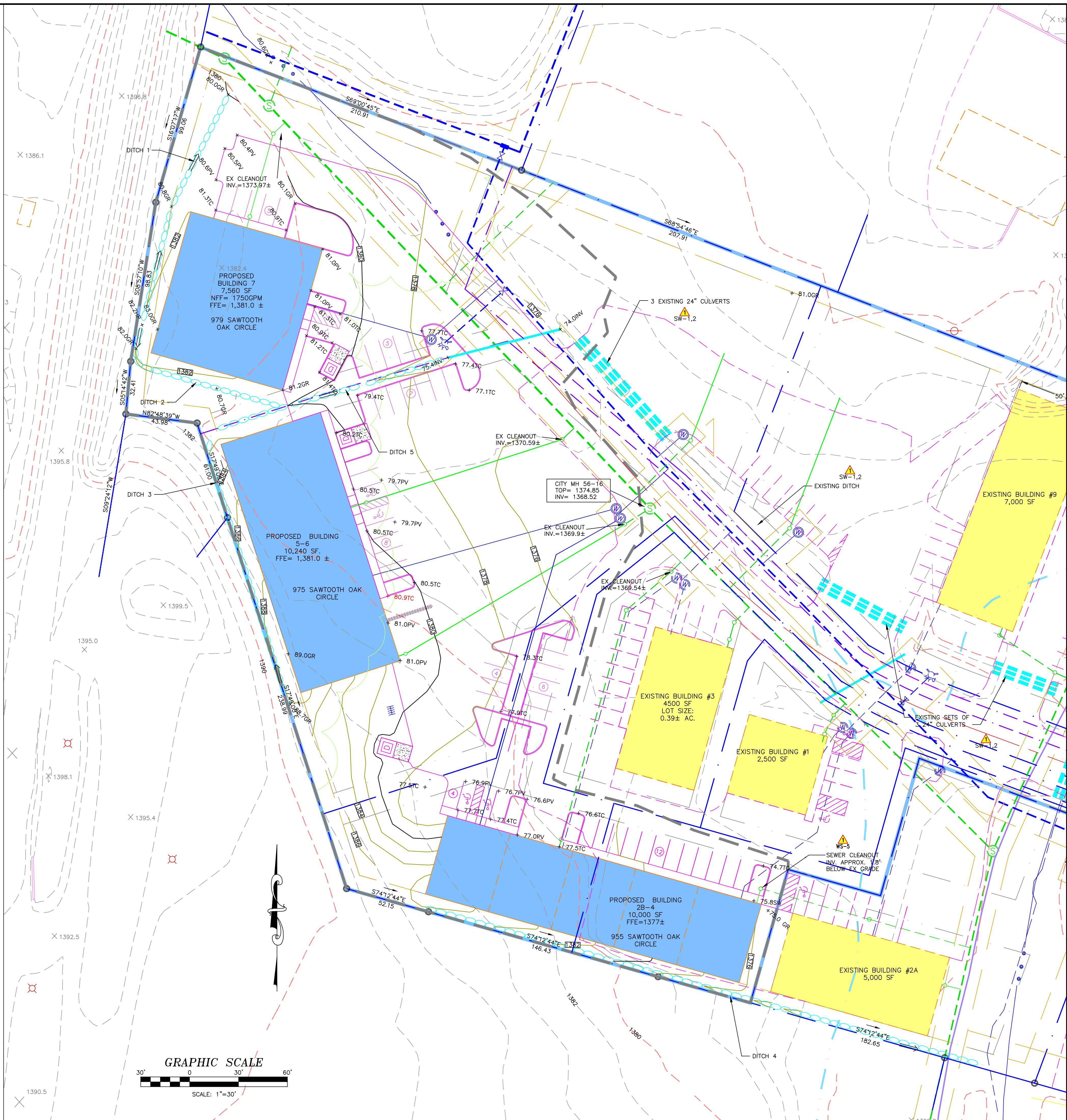
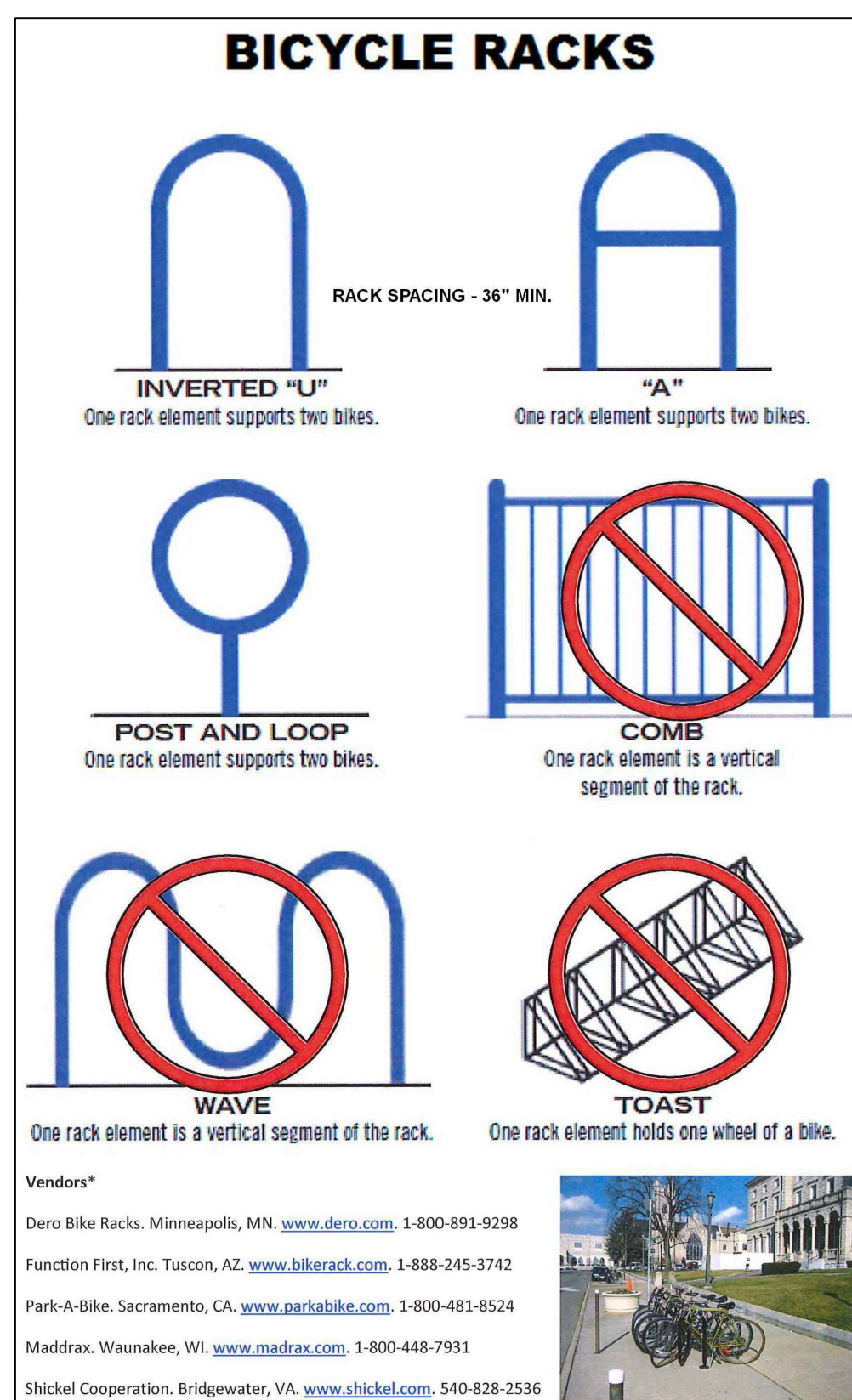
RIGHT-OF-WAY DIVERSION
NTS



ROCK CHECK DAM
NTS



SILT FENCE (SHEET FLOW PROTECTION)
NTS



Date: 11/3/2015

Scale: 1"=30'

Designed by: NWB

Drawn by: JRC

Checked by: NWB

BLACKWELL ENGINEERING, PLC

566 East Market Street
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COMMONWEALTH OF VIRGINIA

NATLAN W. BLACKWELL
Lic. No.045075

PROFESSIONAL ENGINEER

Revision Dates

1/8/2016 PER CITY

1/28/2016 PER CITY

GRADING PLAN

RED OAK SOUTH BUSINESS PARK

LEE AND ASSOCIATES (540)433-7222

950 ACORN DRIVE

HARRISONBURG, VA 22801

Drawing No.

3

of 5 Sheets

Job No. 998

Water Service Design Table Red Oak South Business Park												
Bldg ID	Design flow rate (gpm)	Service line size (in)	Service line length main to meter (ft)	Meter size and type	Service layout type	Static Pressure at meter (psi)	Residual Pressure at meter (psi)	Service line size (in)	Service line length meter to bldg (ft)	Static Pressure at fixture (psi)	Residual Pressure at fixture (psi)	
2B-4	19.9	1 (2 lines)	50	0.75 Inch	B	20.4	48.9	1 (2 lines)	180	69.9	20.4	
5-6	20.1	1	41	0.75 Inch	B	72	49.5	1	150	68.1	23.7	
7	19.6	1	53	0.75 Inch	B	71	47.4	1	76	68.1	34.2	

LEGEND

- 0.25 0.25 FOOT CANDLES
- 0.5 0.5 FOOT CANDLES
- 1.0 1.0 FOOT CANDLES
- 2.0 2.0 FOOT CANDLES
- 5.0 5.0 FOOT CANDLES
- 10.0 10.0 FOOT CANDLES

LIGHTING NOTES:



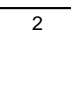

- LIGHTING TO ADHERE TO CITY OF HARRISONBURG STANDARDS.
- LIGHTING FIXTURES MAY BE ADJUSTED ON SITE BY CONTRACTOR IF NEEDED.
- CALCULATIONS ARE MEASURED ON HORIZONTAL PLANE AT GRADE.
- LIGHTING FIXTURES TO BE TYPE SHOWN OR EQUIVALENT. TO MATCH THE EXISTING FIXTURES IN THE PREVIOUSLY DEVELOPED SECTION.

Impervious Square Footage for Stormwater Utility Fee Calculations Commercial Structure(s) that do NOT share Common Area			
	Current Impervious SF	Total Change in Impervious SF	Total Impervious SF After Development
Commercial Structure(s) that do not share Common Area	0	27,800	27,800
Estimated Private Amenities Lot, walkways, Patios, Outdoor Seating, etc.	5,120	35,620	40,740

*Not including Future Proposed Buildings

SW-3

Project Name: Red Oak South Business Park			
BMP TABLE			
Type (see below)	Design Level (1 or 2)	Acres Treated	HUC
16. Other - Purchase Credits - (Only Current Pro Buildings)		2.50	PS22 - Blacks Run
Pollutant Removal Achieved (lb / yr.)		P 2.30	— N/A —
Pollutant Removal Required (lb / yr.)		P 2.30	— N/A —
Excess Pollutant Removal (if any) (lb / yr.)		P 0.00	— N/A —
Types (per Virginia BMP Clearinghouse):			
1. Rooftop Disconnection			
2. Sheetflow to Veg. Filter / Open Space			
3. Grass Channel			
4. Soil Amendments			Hydrological Unit Codes (HUC):
5. Vegetated Roof			PS22 - Blacks Run
6. Rainwater Harvesting			PS23 - Cooks Creek
7. Permeable Pavement			PS26 - Congers Creek
8. Infiltration			PS33 - Cub Run
9. BioRetention			PS56 - Linville Creek
10. Urban BioRetention			PS59 - Dry Fork
11. Dry Swale			
12. Wet Swale			Note: All waters above are either impaired or discharges to impaired waters.
13. Constructed Wetland			
14. Wet Pond			
15. Extended Detention Pond			
16. Other - Purchase Credits			
Note: Table required for all projects with a stormwater management plan.			

Luminaire Schedule											
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	A	1	Lithonia Lighting	KAD 400M R4 (PROBE)	Area Luminaire, 400W MH, R4 Reflector, Full Cutoff MEETS THE NIGHTTIME FRIENDLY CRITERIA	ONE 400-WATT CLEAR BT-37 METAL HALIDE, HORIZONTAL POSITION.	1	KAD_400M_R4_(PROBE).ies	32000	1	462
	B	1	Lithonia Lighting	KAD 400M R3 (PROBE)	Area Luminaire, 400W MH, R3 Reflector, Full Cutoff MEETS THE NIGHTTIME FRIENDLY CRITERIA	ONE 400-WATT CLEAR BT-37 METAL HALIDE, HORIZONTAL POSITION.	1	KAD_400M_R3_(PROBE).ies	32000	1	462
	D	2	Lithonia Lighting	KAD 400M R4 (PROBE)	Area Luminaire, 400W MH, R4 Reflector, Full Cutoff MEETS THE NIGHTTIME FRIENDLY CRITERIA	ONE 400-WATT CLEAR BT-37 METAL HALIDE, HORIZONTAL POSITION.	1	KAD_400M_R4_(PROBE).ies	32000	1	924
	E	8 (2 for Future Proposed Buildings)	Lithonia Lighting	KAD 400M R3 (PROBE)	Area Luminaire, 400W MH, R3 Reflector, Full Cutoff MEETS THE NIGHTTIME FRIENDLY CRITERIA	ONE 400-WATT CLEAR BT-37 METAL HALIDE, HORIZONTAL POSITION.	1	KAD_400M_R3_(PROBE).ies	32000	1	462

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
SITE	+	0.8 fc	36.4 fc	0.0 fc	N/A	N/A

Luminaire Locations				
No.	Label	MH	Orientation	Tilt
1	A	25.00	203.96	0.00
3	B	25.00	221.99	0.00
1	D	25.00	14.04	0.00
2	D	25.00	0.00	0.00
1	E	12.00	71.90	0.00
2	E	12.00	107.57	0.00
3	E	12.00	17.65	0.00
4	E	12.00	10.30	0.00
5	E	12.00	12.72	0.00
6	E	12.00	15.95	0.00
7	E	12.00	202.62	0.00
8	E	12.00	199.29	0.00



FEATURES & SPECIFICATIONS

INTENDED USE — Ideal for parking areas, street lighting, walkways and car lots.

CONSTRUCTION — Rugged, die-cast, soft corner aluminum housing with 0.12" nominal wall thickness. Die-cast door frame has impact resistant tempered glass lens that is fully galvanized with one-piece modular silicone. Finish: Standard finish is dark bronze (DBB) polyester powder finish, with other architectural colors available.

OPTICS — Anodized, aluminum reflectors; IE5 full cutoff distributions R2 (symmetric), R3 (asymmetric), R4 (forward throw) and R5 (square) are interchangeable. High-performance anodized, segmented aluminum reflectors; IE5 full cutoff distributions S82 (asymmetric), S81 (asymmetric) and S86C (forward throw, sharp cutoff). High-performance reflectors attach with tool-less fasteners and are rotatable and interchangeable.

ELECTRICAL — Ballast: High pressure sodium: 70-150W is high inductance. High power factor. Constant wattage autotransformer for 200-400W. Metal halide: 70-150W is high inductance. High power factor and is standard with pulse-start ignitor technology. SCW* not required. Constant wattage autotransformer for 175-400W. Super CW (pulse start ballast), MHV efficient and CSA legislation compliant. Is required for metal halide 151-400W (SCWA option) for US shipments only. CSA, NOM or IHL required for probe start shipments outside of the US. Pulse-start ballast (SCWA) required for 200W, 320W, or 350W. Ballast is 100% factory tested.

Socket: Porcelain, horizontally oriented medium base socket for 70-150W. Mogul base socket for 175W and above, and 70-400W, with copper alloy, nickel-plated screw shell and center contact. UL listed 1500W, 600V.

LISTINGS — UL listed (standard), CSA Certified (see options). UL listed for 25°C ambient and wet locations. IP65 rated in accordance with standard IEC 529.

WARRANTY — 1 year limited warranty. Complete warranty terms located at www.aclibbrands.com/CustomerService/terms_and_conditions.aspx

Note: Specifications subject to change without notice.

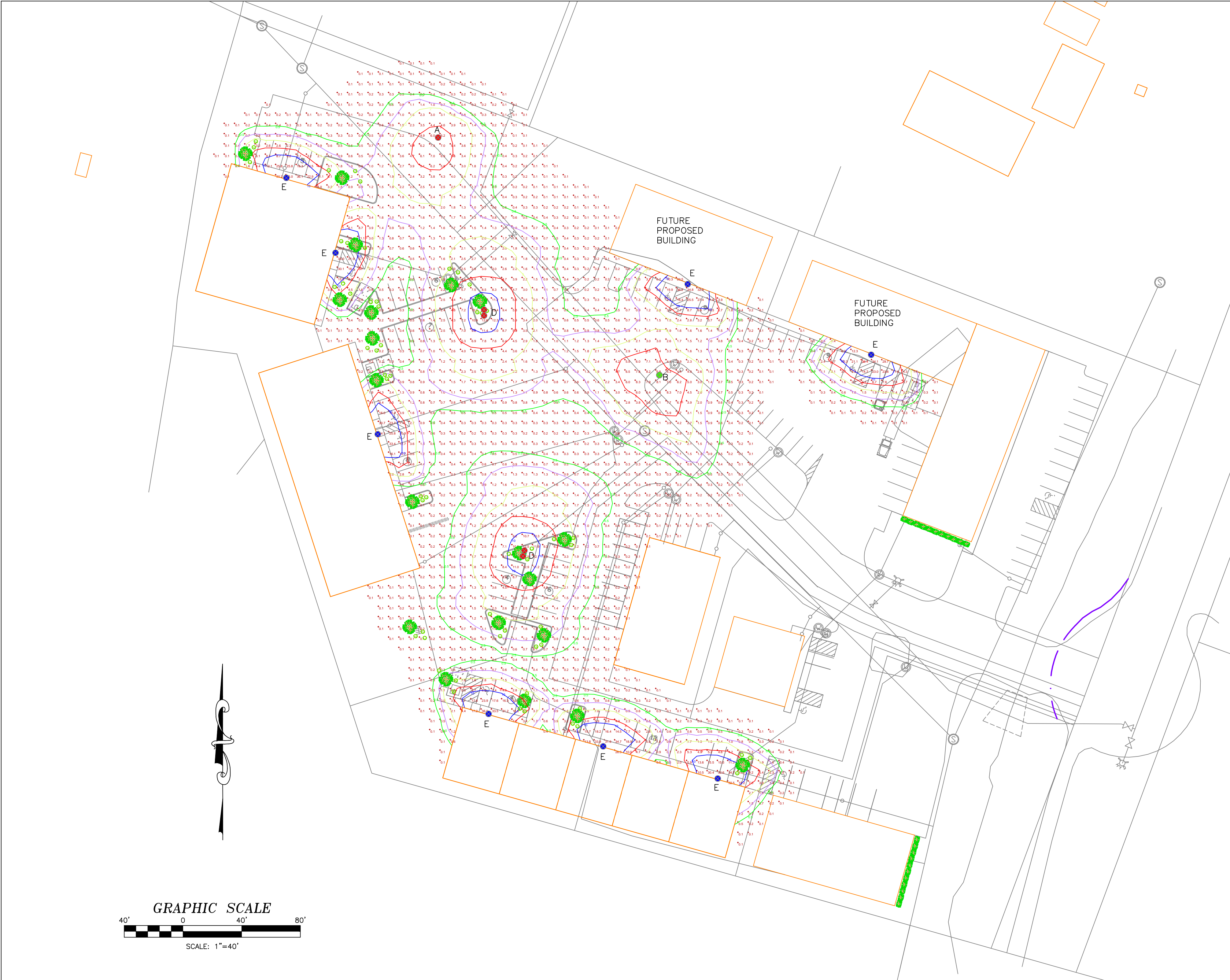


ORDERING INFORMATION For shortest lead times, configure product using bolded options. Example: KAD 400M R3 TB SCWA SPD04 LPI									
Series	Wattage	Distribution	Voltage	Ballast	Mounting ²				
KAD	Metal halide 70W ¹ 250W ¹ 100W ¹ 320W ¹ 150W 350W ¹ 175W ¹ 400W ¹ 200W ¹	High pressure sodium 705 1005 1505 2005 2505 4005	Ceramic metal halide 700MHCI ¹ 100MHCI ¹ 150MHCI ¹ 200MHCI ¹ 250MHCI ¹ 400MHCI ¹	Standard reflectors R2 IE5 type II symmetric ³ R3 IE5 type III asymmetric ³ R4 IE5 type IV asymmetric ³ R5 IE5 type V square ³	High performance reflectors ⁴ SR2 IE5 type II symmetric ³ SR3 IE5 type III asymmetric ³ SR4 IE5 type IV asymmetric ³ SR5 IE5 type V square ³	120 208 ⁵ 240 ⁵ 277 ⁵ 347 ⁵ 480 ⁵ TB ⁶ 220/240V ¹	(blank) Magnetic ballast SPD ⁷ Square pole RPO ⁸ Round pole WB ⁹ Wall bracket WHD ¹⁰ Wood or pole wall Slips separately ¹¹ SCWA ¹² Super CW pulse-start ballast DAD12V Degree arm (pole) DAD12WB Degree arm (wall) WBA ¹³ Decorative wall bracket ¹⁴ KWA ¹⁵ Most arm external filter KTMB ¹⁶ Twin mounting bar	Ship in fixture carton SPD ⁷ Square pole RPO ⁸ Round pole WB ⁹ Wall bracket WHD ¹⁰ Wood or pole wall Slips separately ¹¹ SCWA ¹² Super CW pulse-start ballast DAD12V Degree arm (pole) DAD12WB Degree arm (wall) WBA ¹³ Decorative wall bracket ¹⁴ KWA ¹⁵ Most arm external filter KTMB ¹⁶ Twin mounting bar	Arm length 04 4" arm 06 6" arm 09 9" arm 12 12" arm
Options									
Shipped installed in fixture		CSA CSA Certified	FINISH ¹⁷	Lamp ¹⁸					
SF Single face (120, 277, 347V) ¹⁹		INTL Available for probe start shipping outside the U.S.	DBL Dark bronze	DWH White		LPI Lamp included			
DF Double face (208, 240, 480V) ²⁰		REG1 California Title 20, effective 1/1/2010	DBL Dark bronze	DWH White		L/LP Less lamp			
PD Power tray ²¹		PER Shipped separately ²²	DBL Dark bronze	DWH White					
PER NEMA twist-lock receptacle only (no photocell)		HS House side shield	DBL Dark bronze	DWH White					
QRS Quartz restrict system ²³		PE1 NEMA twist-lock PE (120, 208, 240V)	DBL Dark bronze	DWH White					
QRTD QRS time delay ²⁴			DBL Dark bronze	DWH White					
WTB Terminal wiring block ²⁵			DBL Dark bronze	DWH White					

Accessories: Tension Mounting Splitter (RPSx required) Order as separate unit or bundle. Allow 24-hour lead time for shipping.									
Number of fixtures									
Tension D.O.	One	Two	Three	Four	Five	Six	Seven	Eight	Nine
2-3/8"	T25-190	T25-280	T25-290 ¹	T25-320	T25-330	T25-350 ²	T25-400 ³	T25-450 ⁴	T25-480 ⁵
2-7/8"	T25-190	T25-280	T25-290 ¹	T25-320	T25-330	T25-350 ²	T25-400 ³	T25-450 ⁴	T25-480 ⁵
4"	T25-190	T25-280	T25-290 ¹	T25-320	T25-330	T25-350 ²	T25-400 ³	T25-450 ⁴	T25-480 ⁵

OUTDOOR

KAD-M-S



Date: 11/3/2015

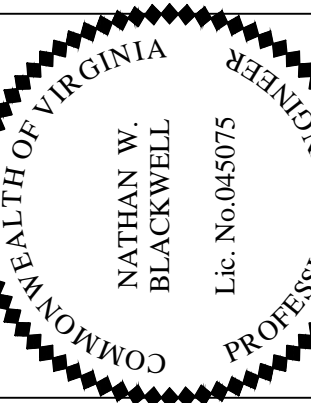
Scale: AS NOTED

Designed by: NWB

Drawn by: JRC

Checked by: NWB

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E-Mail: E@BlackwellEngineering.com



Revision Dates	
1/8/2016	PER CITY
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LANDSCAPING PLAN
RED OAK SOUTH BUSINESS PARK
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950 ACORN DRIVE
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Drawing No.
5
of 5 Sheets

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