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EROSION & SEDIMENT CONTROL LEGEND PHASE ONE

- (CE) TEMPORARY CONSTRUCTION ENTRANCE WITH WASH RACK (SPEC. 3.02) — MIN. LENGTH=75'
- (SF) SILT FENCE (SPEC. 3.05)
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- EX. TREES / PROP. TREES
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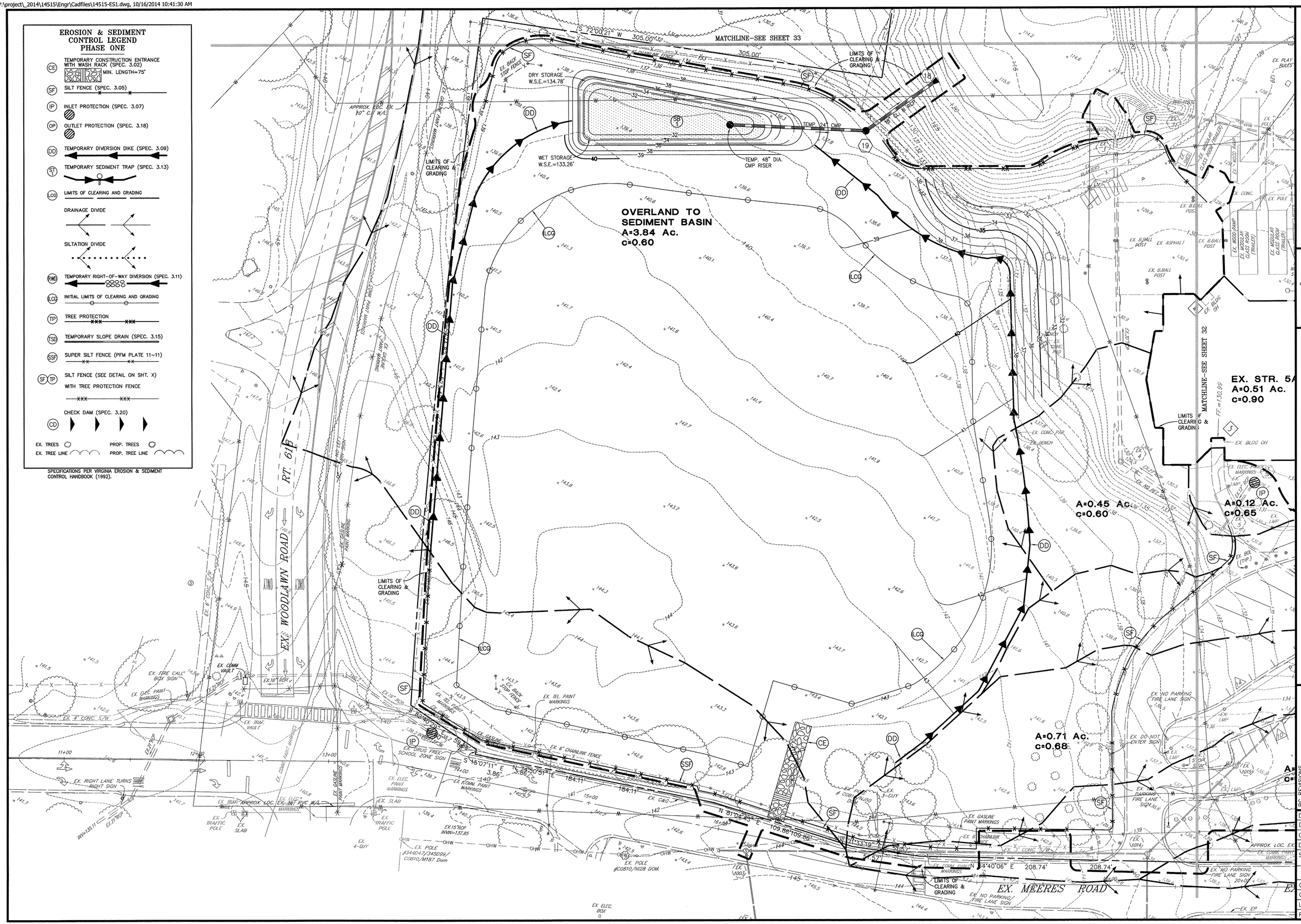
SPECIFICATIONS PER VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK (1992).



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COMMONWEALTH OF VIRGINIA — MARK D. LIBERATI — Lic. No. 21211 — PROFESSIONAL ENGINEER

EROSION & SEDIMENT CONTROL – PHASE I

FORT BELVOIR ELEMENTARY SCHOOL II

MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

BC REVISIONS

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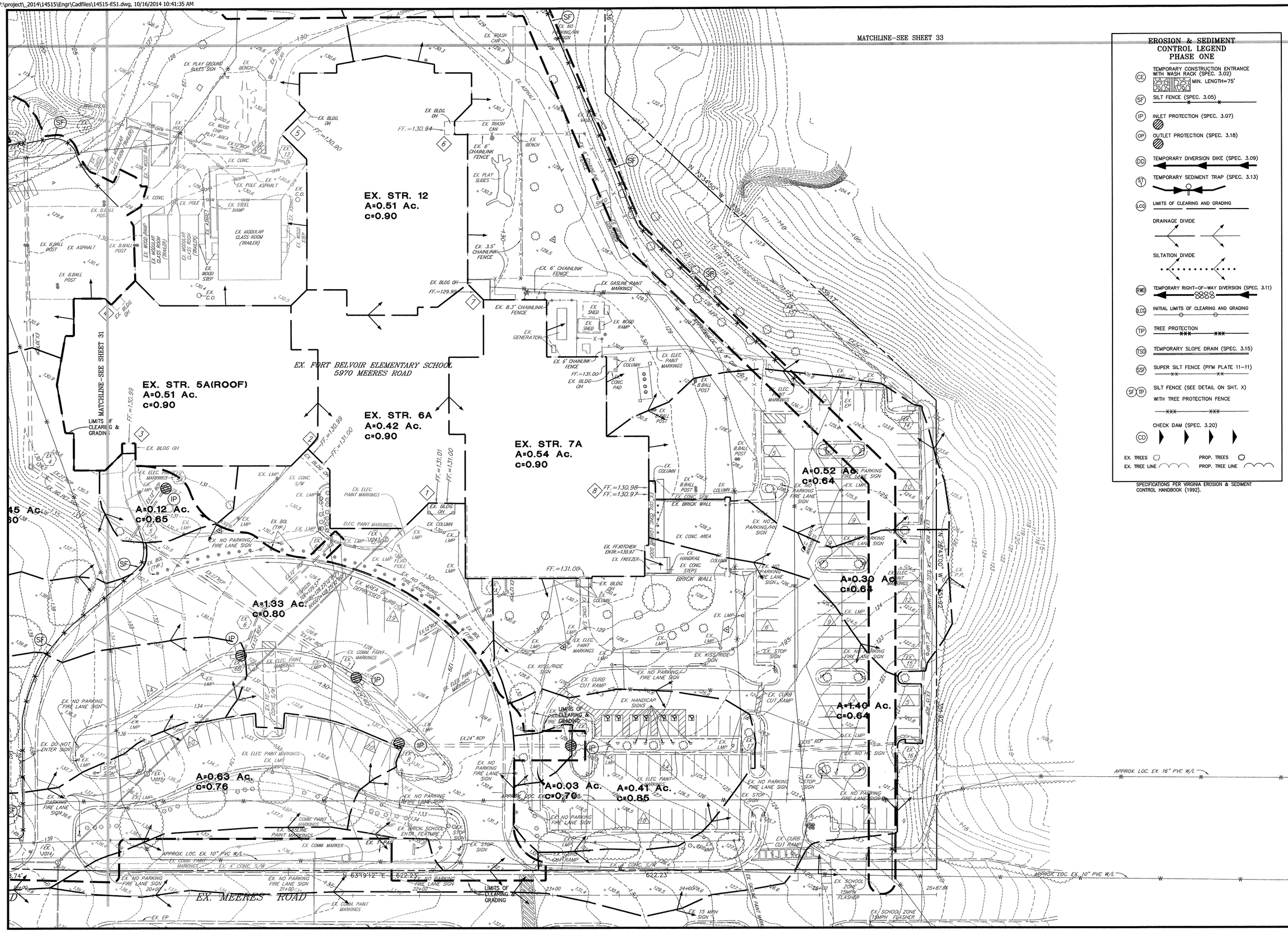

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EROSION & SEDIMENT CONTROL – PHASE I

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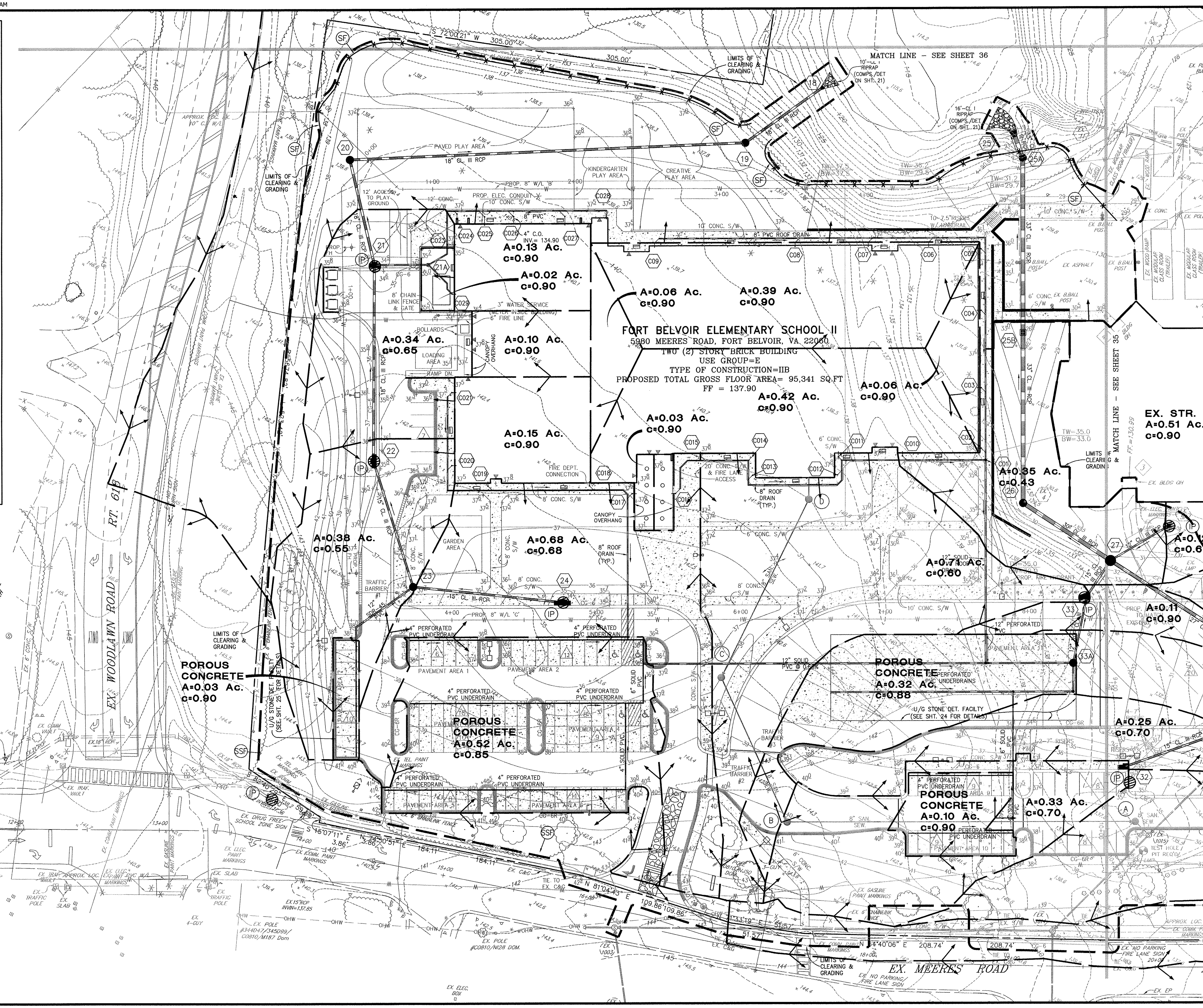

EROSION & SEDIMENT CONTROL - PHASE II

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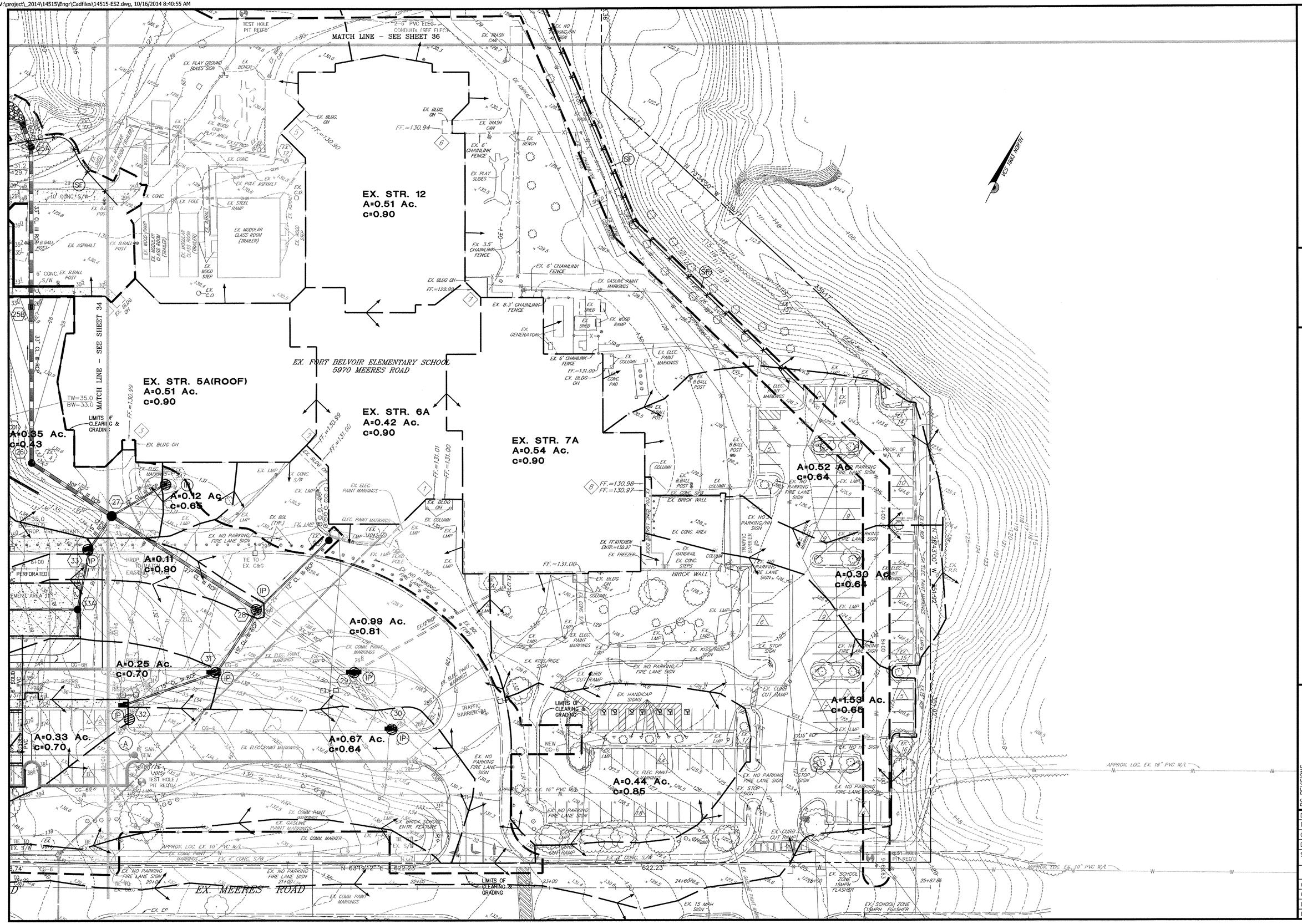

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EROSION & SEDIMENT CONTROL - PHASE II

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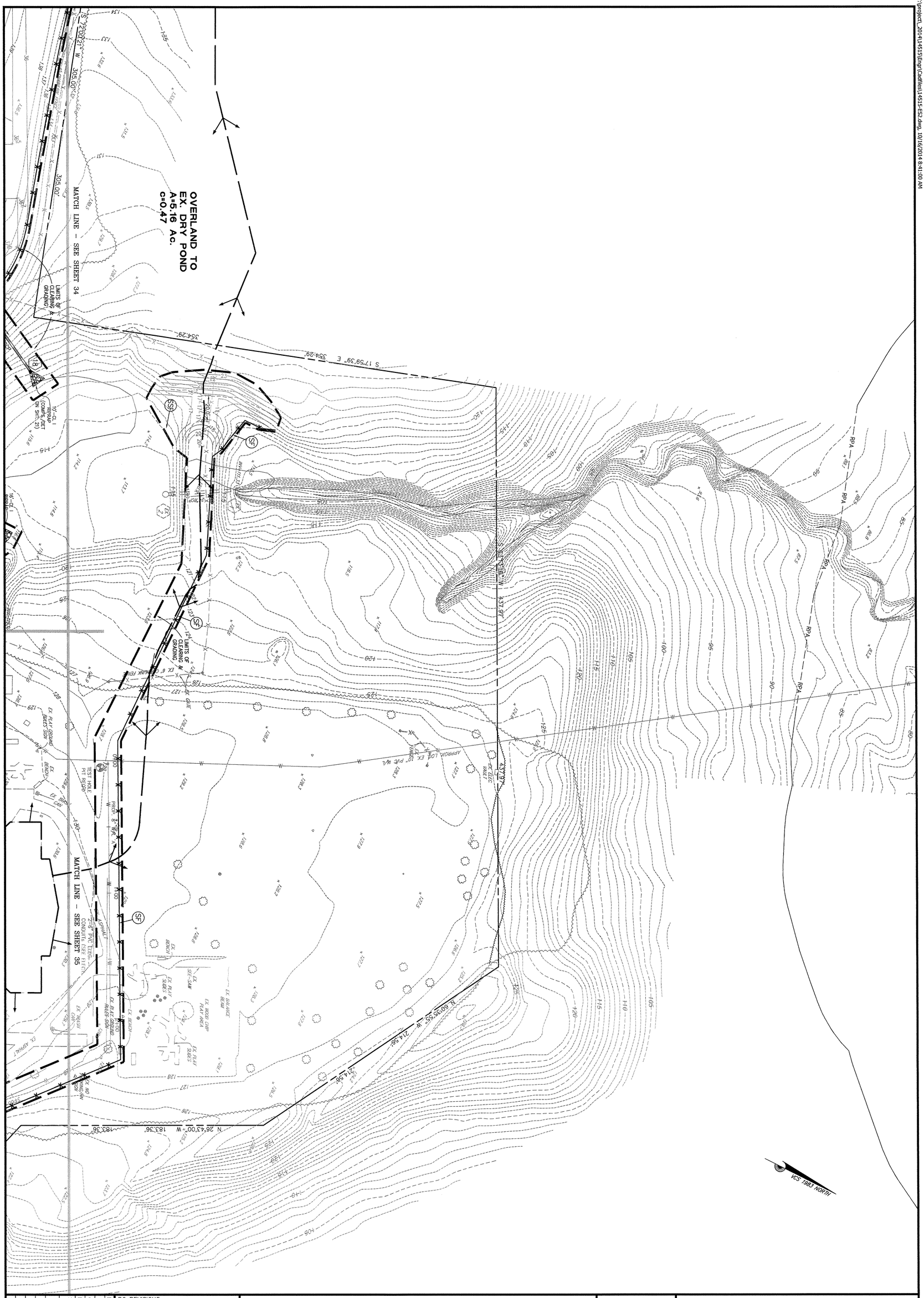

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EROSION & SEDIMENT CONTROL – PHASE II

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EROSION AND SEDIMENT CONTROL NARRATIVE

DESCRIPTION:
THIS PROJECT INCLUDES THE DEVELOPMENT OF A NEW ELEMENTARY SCHOOL BUILDING WITH ASSOCIATED ADDITIONAL PARKING, UTILITIES, AND GRADING. THE TOTAL SITE AREA IS 19.79 ACRES AND APPROXIMATELY 9.37 ACRES WILL BE DISTURBED, INCLUDING ABOUT 0.23 ACRES OFFSITE. THE SITE IS LOCATED IN THE DOGUE CREEK WATERSHED.

EXISTING SITE CONDITIONS:
THE SITE CONSISTS OF AN EXISTING ELEMENTARY SCHOOL, ASSOCIATED PARKING LOTS, DRIVE AISLES, AND INFRASTRUCTURE AS SHOWN ON SHEET 3. THE SITE IS LOCATED ON FORT BELVOIR MILITARY RESERVATION. THE MAJORITY OF THE DRAINAGE FROM THE SITE FLOWS TO THE NORTH TO AN EXISTING DRY POND FACILITY, WHICH HAS A CONCENTRATED OUTFALL AT THE NORTHERN PROPERTY LINE. THERE IS A SECOND CONCENTRATED OUTFALL TO THE EASTERN PROPERTY LINE, CONSISTING OF THE DRAINAGE SYSTEM IN THE EASTERN PARKING AREA. THE REMAINDER OF THE SITE DRAINS AS SHEET FLOW, TO MEERES ROAD IN THE SOUTH AND WOODED AREAS TO THE NORTH AND EAST.

ADJACENT AREAS:
THE SITE IS BORDERED BY MEERES ROAD TO THE SOUTH AND WOODLAWN ROAD TO THE WEST. THE SITE IS BORDERED BY WOODED AREAS TO THE EAST AND NORTH.

OFFSITE CONSTRUCTION:
THERE WILL BE DISTURBANCE OFFSITE WITHIN THE MEERES ROAD RIGHT OF WAY. THE WESTERN ENTRANCE TO THE SITE FROM MEERES ROAD WILL BE REMOVED AND REPLACED WITH NEW CURB & GUTTER. THE EASTERN EXISTING ENTRANCE WILL BE WIDENED TO PROVIDE AN ADDITIONAL TURN LANE EXITING THE PROPERTY. A THIRD, PROPOSED ENTRANCE IS TO BE ADDED TO THE WEST OF THE SITE ALONG MEERES ROAD TO PROVIDE ACCESS TO THE NEW PARKING LOT AND SCHOOL BUILDING. THERE WILL ALSO BE A SANITARY CONNECTION IN MEERES ROAD NEAR THIS LOCATION.

IT IS THE RESPONSIBILITY OF THE LAND DISTURBER TO ENSURE ANY OFFSITE LOCATIONS USED FOR BORROW OR WASTE WILL HAVE ADEQUATE EROSION AND SEDIMENT CONTROLS THAT COMPLY WITH THE VIRGINIA EROSION AND SEDIMENTS CONTROL HANDBOOK (VESCH).

SOILS:
SEE SHEET 1 FOR SOILS MAP AND DESCRIPTIONS.

CRITICAL AREAS:
THERE ARE NO CRITICAL AREAS ON SITE.

EROSION AND SEDIMENT CONTROL MEASURES:
UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE CURRENT EDITION OF THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK (VESCH) AND THE FAIRFAX CO. PUBLIC FACILITIES MANUAL (PFM). IF E&S CONTROLS ARE NOT PROVIDED, MOST DISTURBED RUNOFF WILL DRAIN INTO THE EXISTING DRY POND/PROPOSED SEDIMENT BASIN. THE REMAINING DRAINAGE WOULD SHEET FLOW ON TO MEERES ROAD.

CONSTRUCTION ACCESS AND HOURS:
THE STAGING AND PARKING OF CONSTRUCTION VEHICLES WILL OCCUR ON THE PROPERTY, INCLUDING PERSONAL VEHICLES UTILIZED BY CONSTRUCTION WORKERS. NO PARKING SHALL OCCUR ON ADJACENT ROADWAYS. THE HOURS OF INITIAL CONSTRUCTION WILL BE POSTED IN ENGLISH AND IN SPANISH AND WILL BE LIMITED TO THE HOURS BETWEEN 7:00 A.M. AND 7:30 P.M. MONDAY THROUGH FRIDAY AND 8:00 A.M. TO 7:30 P.M. ON SATURDAYS. NO CONSTRUCTION WILL OCCUR ON SUNDAYS OR FEDERAL HOLIDAYS. THIS WILL BE DISCLOSED TO ALL CONTRACTORS AND SUB-CONTRACTORS WHO PERFORM WORK ON THE SUBJECT PROPERTY DURING SITE CONSTRUCTION.

STABILIZATION PROGRAM:
PERMANENT SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADING IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN (14) DAYS, EXCEPT FOR THAT PORTION OF THE SITE ON WHICH WORK WILL BE CONTINUOUS BEYOND FOURTEEN (14) DAYS. PERMANENT SOIL STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAT SIX (6) MONTHS. FOR WINTER STABILIZATION, ANY AREA DENUDED FOR MORE THAN FOURTEEN (14) DAYS AFTER NOVEMBER 1 AND BEFORE MARCH 1 SHALL BE MULCHED AND SEEDED APPROPRIATE TO THE SEASON AND SITE CONDITIONS. PERMANENT AND TEMPORARY SEEDING SELECTIONS SHALL BE BASED ON TABLE 3.32-A & B (VESCH 3.32).

STORMWATER RUNOFF CONSIDERATIONS:
THE EXISTING EXTENDED DETENTION DRY POND IS IN PLACE TO PROVIDE STORMWATER DETENTION AND BMP'S. SEE SHEETS 3-5 FOR LOCATION.

EROSION CONTROL PROGRAM:
TEMPORARY SEEDING AND MULCHING IS TO BE APPLIED TO ANY AREA WITHIN THE SITE NOT CONTINUOUSLY WORKED FOR 14 DAYS AFTER CLEARING AND ROUGH GRADING. CONSTRUCTION SHOULD BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.

STRUCTURAL PRACTICES (PHASE 1):
SUPER SILT FENCE - FAIRFAX COUNTY PFM PLATE 11-11
SUPER SILT FENCE SEDIMENT BARRIERS WILL BE INSTALLED DOWN SLOPE OF DISTURBED AREAS TO FILTER SEDIMENT LADEN RUNOFF IN THE LOCATIONS SHOWN ON THE PLAN. ALL AREAS FLOWING TO THE SUPER SILT FENCE ARE ADEQUATE BASED ON THE PFM STANDARD 11-0110.3J. SEE DETAIL ON SHEET 7. SUPER SILT FENCE WILL ALSO SERVE AS TREE PROTECTION IN SOME LOCATIONS. WHERE SUPER SILT FENCE IS PROVIDED ADJACENT TO TREE SAVE AREAS, SIGNAGE SHALL BE PROVIDED ON THE FENCE IN ACCORDANCE WITH PFM 12-0703.3 AS SHOWN ON SHEET 7.

CONSTRUCTION ENTRANCE - 3.02 VESCH
CONSTRUCTION ENTRANCE (75' MIN) SHALL BE INSTALLED IN THE LOCATION SHOWN ON SHEET 3. DETAIL ON SHEET 7.

SILT FENCE BARRIER - 3.05 VESCH
SILT FENCE SEDIMENT BARRIERS WILL BE INSTALLED DOWN SLOPE OF AREAS WITH MINIMAL GRADES TO FILTER SEDIMENT RUNOFF. ALL AREAS FLOWING TO THE SILT FENCE ARE ADEQUATE BASED ON THE PFM STANDARD 11-0110.3J. THE HEIGHT OF SILT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES. DETAIL ON SHEET 7.

TEMPORARY DIVERSION DIKE - 3.09 VESCH
TEMPORARY DIVERSION DIKE SHALL BE BE INSTALLED IN THE LOCATIONS SHOWN ON SHEET XX TO DIVERT RUNOFF TO THE SEDIMENT BASIN. TEMPORARY DIVERSION DIKE SHALL BE STABILIZED IMMEDIATELY AFTER INSTALLATION. DETAIL ON SHEET 7.

TEMPORARY SEDIMENT BASIN - 3.14 VESCH
A TEMPORARY BARRIER OR DAM WITH A CONTROLLED STORMWATER RELEASE STRUCTURE FORMED BY CONSTRUCTING AN EMBANKMENT OF COMPACTED SOIL ACROSS A DRAINAGEWAY TO DETAIN SEDIMENT-LADEN RUNOFF FROM DISTURBED AREAS IN "WET" AND "DRY" STORAGE LONG ENOUGH FOR THE MAJORITY OF THE SEDIMENT TO SETTLE OUT. THE SEDIMENT BASIN IS TO BE INSTALLED IN THE LOCATION SHOWN ON SHEETS 3-5. DETAIL ON SHEET 7.

TEMPORARY SEEDING - 3.31 VESCH
TEMPORARY SEEDING IS TO BE PROVIDED IN ACCORDANCE WITH VESCH REQUIREMENTS. SEE SPECIFICATIONS ON SHEET 7.

STRUCTURAL PRACTICES (PHASE 2):
STORM DRAIN INLET PROTECTION - 3.07 VESCH
INLET PROTECTION IS TO BE PROVIDED IN THE LOCATIONS SHOWN TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAINAGE SYSTEM PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA. FILTER SOCKS (FILTREXX OR EQUIVALENT) ARE TO BE USED ON ALL CURB INLETS IN VDOT RIGHT-OF-WAYS THAT ARE CURRENTLY PAVED OR WILL BE PAVED. DETAIL ON SHEET 38.

OUTLET PROTECTION - 3.18 VESCH
RIP RAP WILL BE INSTALLED IN THE LOCATIONS SHOWN TO PREVENT SCOUR AND TO MINIMIZE POTENTIAL FOR DOWNSTREAM EROSION BY REDUCING VELOCITY OF THE CONCENTRATED STORMWATER.

PERMANENT SEEDING - 3.32 VESCH
ALL AREAS DENUDED BY THIS CONSTRUCTION SHALL BE PERMANENTLY STABILIZED AND SEEDED IN ACCORDANCE WITH VESCH REQUIREMENTS. SEE SPECIFICATIONS ON SHEET 38.

MULCHING - 3.35 VESCH
DENUDED AREAS ARE TO BE MULCHED IN ACCORDANCE WITH VESCH REQUIREMENTS. SEE SPECIFICATIONS ON SHEET 38.

EROSION AND SEDIMENT CONTROL NARRATIVE (CONT.)

SEDIMENT CONTROL PROGRAM:
1. INSTALL TEMPORARY CONSTRUCTION ENTRANCE WITH WASH RACK AND FILTER FABRIC AS SHOWN ON THE PLAN. MUD AND DEBRIS SHALL BE WASHED FROM ALL CONSTRUCTION VEHICLES AND EQUIPMENT BEFORE LEAVING THE SITE. THE SEDIMENT LADEN WATER WILL BE DIVERTED TO NEARBY SEDIMENT TRAPPING CONTROL. WATER TANKS WILL BE USED IF PUBLIC WATER IS NOT AVAILABLE.
2. CLEAR AND GRUB THE AREA INSIDE THE INITIAL CLEARING LIMITS TO INSTALL THE SILT FENCE/SUPER SILT PERIMETER CONTROLS AND TREE PROTECTION INDICATED ON SHEETS 3-5. SUPER SILT FENCE, WHERE SHOWN, IS TO BE UTILIZED AND SERVE AS TREE PROTECTION FENCING. AREAS THAT ARE NOT TO BE DISTURBED WILL BE CLEARLY MARKED BY FLAGS.
3. INSTALL TEMPORARY SEDIMENT BASIN #1, INCLUDING THE TEMPORARY RISER STRUCTURE AND TEMPORARY CMP TO PERMANENT STRUCTURE #19. INSTALL PERMANENT PIPE AND OUTFALL STRUCTURE #18 TO THE EXISTING DRY POND. INSTALL THE DIVERSION DIKES AS SHOWN ON SHEETS 33-32.
4. ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES, TO THE SATISFACTION OF THE FAIRFAX COUNTY INSPECTOR, SHALL BE PROVIDED ON ALL STOCKPILES.
5. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
6. FOLLOWING THE SATISFACTORY COMPLETION OF THE INITIAL TEMPORARY SEDIMENT CONTROLS, APPROVAL MUST BE GRANTED BY THE INSPECTOR BEFORE THE REMAINDER OF THE SITE CAN BE CLEARED AND GRADED.
7. IF STOCKPILES ARE NEEDED FOR CONSTRUCTION, THE CONTRACTOR SHALL TEMPORARY SEED THE AREA IF LEFT DENUDED FOR A PERIOD OF MORE THAN 14 DAYS. IF THE STOCKPILE IS OUTSIDE THE DRAINAGE AREA OF THE SEDIMENT BASIN, SILT FENCE SHALL BE PLACED AROUND THE DOWNHILL SLOPE OF THE STOCKPILE.

MAINTENANCE PROGRAM:
1. THE SITE SUPERINTENDENT, OR HIS/HER REPRESENTATIVE, SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (I.E. SEEDED AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS; ESPECIALLY AFTER A HEAVY RAINFALL EVENT TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING OR RE-SODDING IF NECESSARY.
2. ALL SEDIMENT TRAPPING DEVICES SHALL BE CLEANED OUT AT 50% OF WET STORAGE TRAP CAPACITY, AND THE SEDIMENT SHALL BE DISPOSED OF BY SPREADING ON THE SITE OR HAULING AWAY IF NOT SUITABLE FOR FILL.

SEEDING:
1. SELECTION OF TEMPORARY PLANT MATERIALS IS BASED ON CLIMATE, TOPOGRAPHY, SOILS, LAND USE, AND PLANTING SEASON. TO DETERMINE WHICH PLANT MATERIALS ARE BEST ADAPTED TO A SPECIFIC SITE, USE VESCH TABLES 3.32-A AND 3.32-B WHICH DESCRIBE PLANT CHARACTERISTICS AND LIST RECOMMENDED VARIETIES.
2. FERTILIZERS FOR TEMPORARY SEEDING SHALL BE APPLIED AS 600 LBS PER SQUARE ACRE AND SHALL BE INCORPORATED INTO TOP 2-4" OF SOIL. LIMING REQUIREMENTS SHOULD BE BASED ON TABLE 3.31A OF VESCH.
3. SEED SHALL BE EVENLY APPLIED. SMALL GRAINS SHALL BE PLANTED NO MORE THAN 1-1/2 INCHES DEEP.
4. SEEDING MADE IN FALL FOR WINTER COVER AND DURING HOT SUMMER MONTHS SHALL BE MULCHED. SEE VESCH TABLE 3.35-A FOR MULCH MATERIALS AND APPLICATION RATES.
5. APPROPRIATE PERMANENT SEEDING MIXTURES FOR SITE CONDITIONS IN VIRGINIA ARE GIVEN IN VESCH TABLES 3.32-C, 3.32-D AND 3.32-E. THESE MIXTURES ARE DESIGNED FOR GENERAL USE, AND ARE KNOWN TO PERFORM WELL ON THE SITE DESCRIBED. CHECK VESCH TABLES 3.32-A AND 3.32-B FOR RECOMMENDED VARIETIES.
6. THE PLANTING SOIL MUST HAVE ENOUGH FINE GRAINED SOIL, SUFFICIENT PORE SPACE, SUFFICIENT DEPTH AND BE FREE FROM TOXIC OR EXCESSIVE QUANTITIES OF ROOTS AND SHALL BE APPLIED IN ACCORDANCE WITH VESCH STD. 3.30.

DUST:
1. PROVIDE DUST CONTROL IN ACCORDANCE WITH STD. AND SPEC. 3.39 OF VESCH.

TABLE 6-1: 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 VR 625-02-00 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, OFFSITE 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.

SW-10 STATEMENT

THE POTENTIAL INFLUENCE AREA OF 100 TIMES THE DISTURBED SITE AREA HAS BEEN ANALYZED, THERE ARE NO DOWNSTREAM IMPOUNDMENTS LOCATED WITHIN THIS AREA.

EROSION & SEDIMENT CONTROL MINIMUM STANDARDS (MS-19)

MS-1: PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS.

MS-2: DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES.

MS-3: A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED.

MS-4: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP OF CLEARING.

MS-5: STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSION IMMEDIATELY AFTER INSTALLATION.

MS-6: SEDIMENT TRAPS HAVE BEEN DESIGNED AND SHALL BE CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP.

MS-7: CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. ADDITIONAL SLOPE STABILIZATION MEASURES SHOULD BE PROVIDED TO PREVENT EXCESSIVE EROSION ON SLOPES.

MS-8: CONCENTRATED RUNOFF WILL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

MS-9: ADEQUATE DRAINAGE PROTECTION SHALL BE MADE WHENEVER WATER SEEPS FROM A SLOPE FACE.

MS-10: ALL STORM SEWER INLETS (IF ANY) THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED.

MS-11: ADEQUATE OUTLET PROTECTION AND TEMPORARY OR PERMANENT LINING SHALL BE INSTALLED IN BOTH CONVEYANCE CHANNELS AND RECEIVING CHANNELS BEFORE THEY ARE MADE OPERATIONAL.

MS-12-14: ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS TO WORKING WITHIN OR CROSSING A WATERCOURSE SHALL BE MET.

MS-15: THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER THE WORK IS COMPLETED.

MS-16: ALL UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH VESCH CHAPTER 8, PAGE 22.

A. NO MORE THAN 500 FEET OF TRENCH MAY BE OPEN 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 OFFSITE PROPERTY.

D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.

F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

MS-17: PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE AREA, WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PUBLIC OR PAVED ROADS.

MS-18: ALL TEMPORARY EROSION/SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION WITH, THE PERMISSION OF THE INSPECTOR.

MS-19: THIS SITE OUTFALLS INTO AN ADEQUATE CHANNEL. SEE NARRATIVE, SHEET 8.

GENERAL LAND CONSERVATION NOTES

1. (38-93-PFM) NO DISTURBED AREA THAT IS NOT ACTIVELY BEING WORKED SHALL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR.
2. ALL E&S CONTROL MEASURES APPROVED WITH THE PHASE I E&S CONTROL PLAN SHALL BE PLACED AS THE FIRST STEP IN GRADING.
3. (38-93-PFM) ALL STORM AND SANITARY SEWER LINES NOT IN STREETS SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS AFTER BACKFILL. NO MORE THAN 500' (150 M) SHALL BE OPEN AT ANY ONE TIME.
4. (38-93-PFM) ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES SHALL BE COMPACTED, SEEDED AND MULCHED WITHIN 7 DAYS AFTER BACKFILL.
5. (38-93-PFM) ALL TEMPORARY EARTH BERMS, DIVERSIONS AND SEDIMENT CONTROL DAMS SHALL BE SEEDED AND MULCHED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY (AS SOON AS POSSIBLE BUT NO LATER THAN 48 HR) AFTER COMPLETION OF GRADING. STRAW OR HAY MULCH IS REQUIRED. ALL SOIL STOCKPILES SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS AFTER GRADING.
6. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE.
7. DURING CONSTRUCTION, ALL STORM SEWER INLETS SHALL BE PROTECTED BY SEDIMENT TRAPS, MAINTAINED AND MODIFIED DURING CONSTRUCTION PROGRESS AS REQUIRED.
8. ANY DISTURBED AREA NOT COVERED BY § 11-0406.1 AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED IMMEDIATELY WITH HAY OR STRAW MULCH AT THE RATE OF 2 TONS/ACRE (4483 KG/HA) AND OVER-SEEDED BY APRIL 15.
9. AT THE COMPLETION OF ANY PROJECT CONSTRUCTION AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED.

FAIRFAX COUNTY PRIORITY RATING FORM FOR EROSION & SEDIMENT CONTROL

PROJECT NAME: Fort Belvoir Elementary School PROJECT NUMBER:
TAX MAP: 109-2 ((1)) EVALUATOR: Brent Boggs DATE: 7/30/2014

A. Percentage of Denuded Area to Total Site Area

		Rating
• > 60%	[ ]	5
• 31 to 60%	[X]	3
• 10 to 30%	[ ]	1

If the denuded area is greater than 10 acres, the project is initially rated a high priority.

B. Watercourse Crossing

		Rating
Yes	[ ]	*
No	[X]	0

*If yes, project is initially rated a high priority.

C. Distance of Denuded Area to Downstream Adjacent Property

		Rating
• < 50-feet	[ ]	5
• 50 to 150-feet	[ ]	3
• > 150-feet	[ ]	0

D. Distance of Any Portion of the Denuded Area to a Natural Watercourse

		Rating
• < 50-feet	[ ]	5
• 50 to 150-feet	[ ]	3
• > 150- feet	[X]	0

E. *Minimum Vegetative Buffer (Trees, Shrubs, Grasses and other Plants)

		Rating
• < 50-feet	[X]	0
• 50 to 150-feet	[ ]	-3
• > 150-feet	[ ]	-5

* Vegetation in Resource Protection Areas are not to be included as vegetative buffers for this application.

F. Distance Between the Site Outfall and any Downstream, Wet Pond, Wetland, Parkland or other Land Deemed Environmentally Sensitive by the Director.

		Rating
• < 2,500-feet	[X]	5
• 2,500 to 5,000-feet	[ ]	3
• > 5,000-feet	[ ]	0

G. Critical Slopes Within 50-feet of Adjacent Property

- Are there any slopes of 0 to 7%; greater than or equal to 300-feet in length; or,
- Are there any slopes of 7 to 15%; greater than or equal to 150-feet in length; or,
- Are there any slopes greater than 15% and greater than or equal to 75-feet in length

		Rating
If Yes to any of the above	[X]	5
Not Applicable if critical slope is > 50-feet from adjacent property	[ ]	0

H. Soil Erodibility (Based on Physiographic Setting)

Physiographic Provice		Rating
• Triassic Basin	[ ]	5
• Piedmont Upland	[ ]	3
• Coastal Plain	[X]	1

TOTAL/OVERALL RATING: 14

OVERALL RATING	PRIORITY (Mark with an "X")
If > 22	High ____
If > 14 and < or = to 22	Medium ____
If < or = to 14	Low X

PROJECT PRIORITY LEVEL: LOW

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APPROVED BY: _____ *DATE:* _____
Plan Reviewer

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EROSION & SEDIMENT CONTROL NARRATIVE
FORT BELVOIR ELEMENTARY SCHOOL II

MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

BC REVISIONS

OWNER:
FAIRFAX COUNTY PUBLIC SCHOOLS
8115 GATEHOUSE RD.
FALLS CHURCH, VA 22042

DESIGNED BY: BWB
DRAFTED BY: CAD
CHECKED BY: MDL
DATE: MAY, 2014
SCALE: HOR. VERT.
SHEET 37 OF 46
CO. NO.
CAD NAME: 14515-ESC
LAYOUT: ESC
FILE NO. 14515.02

XREFS:

TABLE 3.31-B

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug 31	German Millet (Setaria italica)	50

Source: Va. DSWC

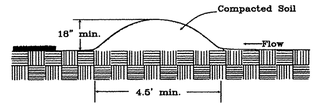
TABLE 3.31-A

LIMING REQUIREMENTS FOR TEMPORARY SITES

pH Test	Recommended Application of Agricultural Limestone
below 4.2	3 tons per acre
4.2 to 5.2	2 tons per acre
5.2 to 6	1 ton per acre

Source: Va. DSWC

TEMPORARY DIVERSION DIKE



SOURCE: VA. DSWC

PLATE 3.09-1

TABLE 3.31-C

TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES

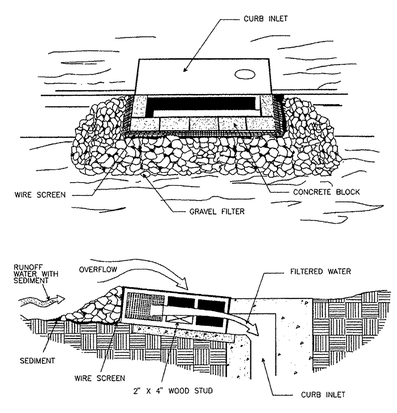
SPECIES	SEEDING RATE		NORTH[a]			SOUTH[b]			PLANT CHARACTERISTICS
	Acre	1000 ft²	3/1 to 4/30	5/1 to 8/15	8/15 to 11/1	2/15 to 4/30	5/1 to 9/1	9/1 to 11/15	
OATS (Avena sativa)	3 bu. (up to 100 lbs., not less than 50 lbs.)	2 lbs.	X	-	-	X	-	-	Use spring varieties (e.g., Noble).
RYE[d] (Secale cereale)	2 bu. (up to 110 lbs., not less than 50 lbs.)	2.5 lbs.	X	-	X	X	-	X	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
GERMAN MILLET (Setaria italica)	50 lbs.	approx. 1 lb.	-	X	-	-	X	-	Warm-season annual. Dies at first frost. May be added to summer mixes.
ANNUAL RYEGRASS[c] (Lolium multi-florum)	60 lbs.	1½ lbs.	X	-	X	X	-	X	May be added in mixes. Will mow out of most stands.
WEEPING LOVEGRASS (Eragrostis curvula)	15 lbs.	5½ ozs.	-	X	-	-	X	-	Warm-season perennial. May bunch. Tolerates hot, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDEZA[c] (Lespedeza stipulacea)	25 lbs.	approx. 1½ lbs.	X	X	-	X	X	-	Warm season annual legume. Tolerates acid soils. May be added to mixes.

[a] Northern Piedmont and Mountain region. See Plates 3.22-1 and 3.22-2.
[b] Southern Piedmont and Coastal Plain.
[c] May be used as a cover crop with spring seeding.
[d] May be used as a cover crop with fall seeding.
X May be planted between these dates.
\- May not be planted between these dates.

1992 3.31

1992 3.07

BLOCK & GRAVEL CURB INLET SEDIMENT FILTER



SPECIAL APPLICATION

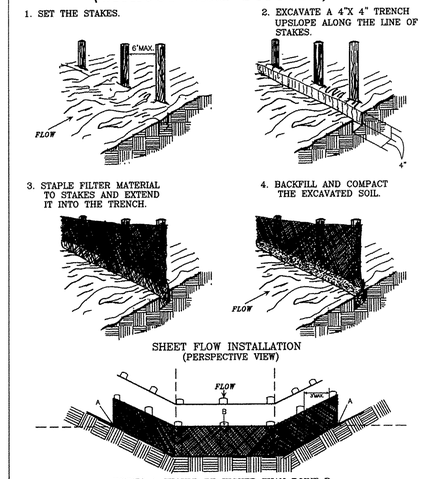
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE

Source: Va. DSWC

Plate 3.07-8

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

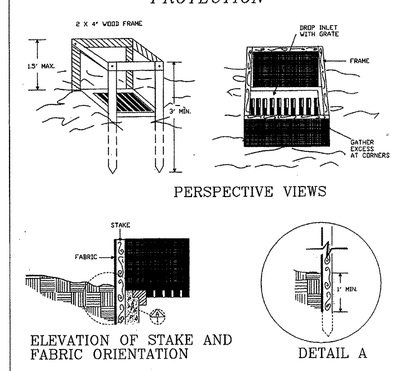


SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control,VA. DSWC Sherwood and Wyant

PLATE 3.05-2

1992 3.07

SILT FENCE DROP INLET PROTECTION



SPECIFIC APPLICATION

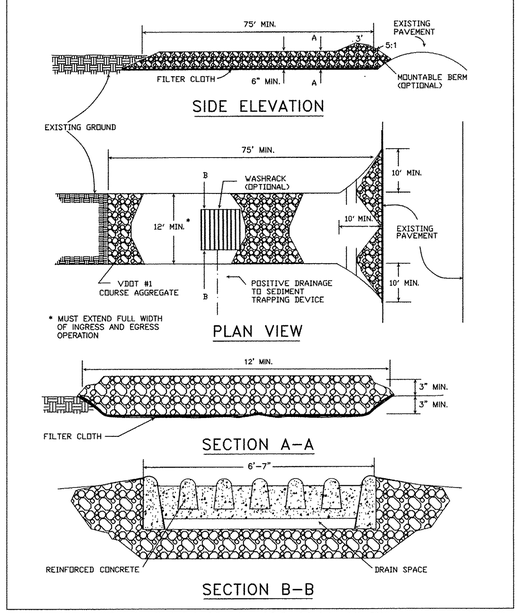
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

Source: N.C. Erosion and Sediment Control Planning and Design Manual, 1988

Plate 3.07-1

III - 35

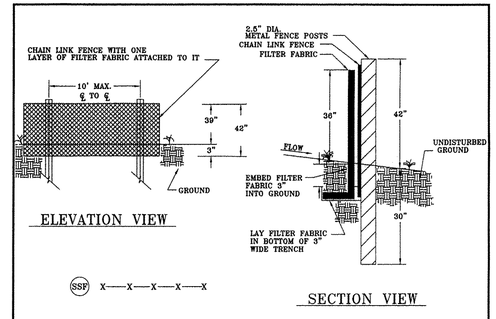
STONE CONSTRUCTION ENTRANCE



SOURCE: ADAPTED from 1983 Maryland Standards for Soil erosion and Sediment Control, and Va. DSWC

Plate 3.02-1

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



SUPER SILT FENCE
NO SCALE

FENCING

Chain link fence shall be 39" above grade with 3" embedded for a total fabric width of 42". The post shall be 42" above grade with 30" placed below grade (without concrete) for a total length of 72".

NOTES

1. Chain link fence shall be fastened securely to fence posts with wire ties.
2. Filter fabric shall be fastened securely to chain link fence with ties spaced horizontally 24" at the top and midsection.
3. Physical properties of the filter fabric shall conform to the latest edition of THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK.
4. When two sections of filter fabric adjoin each other, they shall be overlapped by 6".
5. Maintenance shall be performed as needed and material shall be removed when sediment build-up reaches 50% of the height of the super silt fence.

Ref. Sec. 11-0110.3J	SUPER SILT FENCE NO SCALE	PLATE NO.	STD. NO.
Rev. 1-00		11-11	

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DESIGNED BY: BWB
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DATE: MAY, 2014
SCALE: HOR. VERT.
SHEET 38 OF 46
CO. NO.
CAD NAME: 14515-ESC
LAYOUT: ESDET
FILE NO. 14515.02

XREFS:

Dewatering Device Calculation
(VESCH 3.14)
A= flow area of orifice
d= diameter of orifice, in feet
h= average driving head (maximum permissible head measured from radius of orifice to crest of principal spillway divided by 2), in feet
Q= volumetric flowrate through orifice needed to achieve approximate 6-hour drawdown, in cubic feet per second.
S= total storage available in dry storage area, cubic feet
Q= S / 21,600 seconds

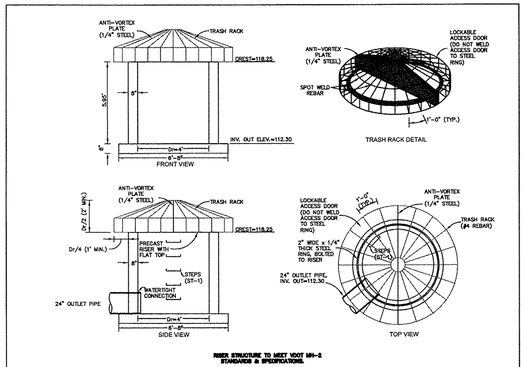
CALCULATION

1) Q= 6,947 (FT3) / 21,600 SECONDS = 0.32 CFS
2) h = 134.78(crest elev.) - [133.26(orifice inv. elev.) + (1.5"/12)(dia. of min. 3" orifice divided by 2)]
h= 1.40'/2 = 0.70ft
3) A = Q / ((64.32 x h)1/2 * 0.6)) = 0.32 / ((64.32 x 0.70)1/2 * 0.6)) = 0.08 ft2
4) d = 2* (A/3.14)1/2
d = 2*(0.08/3.14)1/2 = 0.32' or 3.84" *Use 4"

* Note: Diameter of dewatering orifice should never be less than 3 inches in order to prevent clogging by soil or debris.

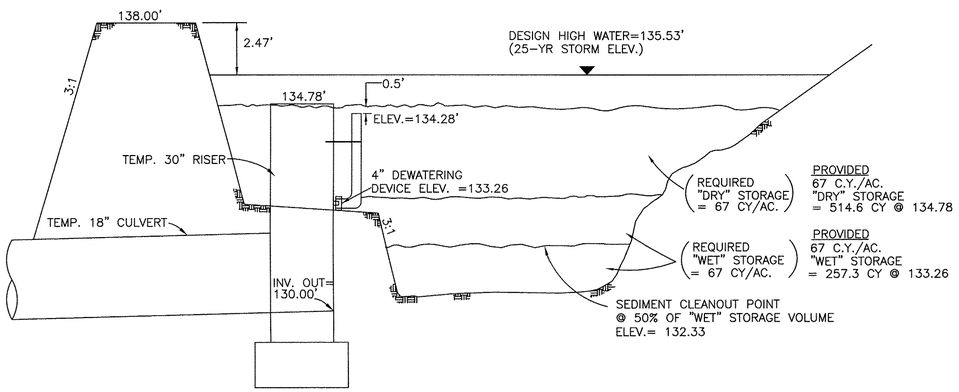
* Note: Flexible tubing used should be at least 2 inches larger in diameter than the calculated orifice to promote improved flow characteristics.

* From E&S Control Handbook: Temp. Sed. Basin section



SEDIMENT BASIN CONTROL STRUCTURE
(NOT TO SCALE)

SEDIMENT BASIN SCHEMATIC
(NOT TO SCALE)



SEDIMENT BASIN COMPUTATIONS

25-YEAR INFLOW HYDROGRAPH

```
No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =   134.78 ft
Starting Volume     =    13480 cu.ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0833 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =     20.96 cfs    at     .0833 hrs
Peak Outflow      =     15.31 cfs    at     .1667 hrs
-----------------------------------------------------
Peak Elevation    =    135.53 ft
Peak Storage =          17635 cu.ft
=====================================================

MASS BALANCE (cu.ft)
--------------------------
+ Initial Vol  =      13480
+ HYG Vol IN   =      31098
- Infiltration =          0
- HYG Vol OUT  =      31094
- Retained Vol =      13485
                   ----------
Unrouted Vol = -              cu.ft  (.000% of Inflow Volume)
```

25-YEAR OUTFLOW HYDROGRAPH

```
POND ROUTED TOTAL OUTFLOW HYG...
HYG file =
HYG ID   = SED. BASIN 1 OUT
HYG Tag  = 25
-----------------------------------
Peak Discharge =        15.31 cfs
Time to Peak   =        .1667 hrs
HYG Volume     =        31094 cu.ft
-----------------------------------
```

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0833 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	6.22	15.31	12.27	9.55
.4167	7.76	6.50	5.59	4.86	4.30
.8333	3.89	3.52	3.22	2.95	2.69
1.2500	2.45	2.23	2.00	1.77	1.52
1.6666	1.28	1.04	.84	.65	.43
2.0833	.25	.15	.09	.06	.05
2.4999	.04	.03	.03	.02	.02
2.9166	.02	.01	.01	.01	.01
3.3332	.01	.00	.00	.00	.00

10-YEAR SEDIMENT BASIN RELEASE RATE

```
No Infiltration

INITIAL CONDITIONS
----------------------------------
Starting WS Elev    =   134.78 ft
Starting Volume     =    13480 cu.ft
Starting Outflow    =      .00 cfs
Starting Infiltr.   =      .00 cfs
Starting Total Qout=       .00 cfs
Time Increment      =    .0833 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=====================================================
Peak Inflow       =     16.75 cfs    at     .0833 hrs
Peak Outflow      =     11.84 cfs    at     .1667 hrs
-----------------------------------------------------
Peak Elevation    =    135.41 ft
Peak Storage =          16945 cu.ft
=====================================================

MASS BALANCE (cu.ft)
--------------------------
+ Initial Vol  =      13480
+ HYG Vol IN   =      24593
- Infiltration =          0
- HYG Vol OUT  =      24589
- Retained Vol =      13484
                   ----------
Unrouted Vol =            0 cu.ft  (.000% of Inflow Volume)
```

OUTLET STRUCTURE 1

```
REQUESTED POND WS ELEVATIONS:

Min. Elev.=    130.00 ft
Increment =      .10 ft
Max. Elev.=    138.00 ft

*********************************************
OUTLET CONNECTIVITY
*********************************************

 ---> Forward Flow Only (UpStream to DnStream)
<---  Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

  Structure          No.        Outfall    E1, ft     E2, ft
 ------------------  ----       -------   ---------  ---------
 Stand Pipe          R0    --->   C0      134.780    138.000
 Culvert-Circular    C0    --->   TW      130.000    138.000
 TW SETUP, DS Channel
```

SEDIMENT BASIN 1 VOLUME COMPUTATIONS

Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (cu.ft)	Volume Sum (cu.ft)
130.00	-----	25	0	0	0
132.00	-----	3046	3347	2231	2231
134.00	-----	4482	11223	7482	9713
136.00	-----	6389	16222	10815	20528
138.00	-----	8352	22046	14697	35225

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Areal + Area2 + sq.rt.(Areal*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Temporary Sediment Basin Design Data Sheet

Total Area Draining to Basin = 3.84 acres

Basin Volume Design

Wet Storage:

1. Minimum required volume = 67 cu. Yds. X Total Drainage Area (Acres)

   67 cu. Yds. x 3.84 acres = 257.3 cu. Yds.

2. Available basin volume = 257.28 cu. Yds. At elevation 133.26
   (From storage-elevation curve)

3. Excavate _____ cu.yds. To obtain required volume. *

   * Elevation corresponding to required volume = invert of the dewatering orifice.

4. Available volume before cleanout required.

   33 cu. Yds. x 3.84 acres = 126.7 cu. Yds.

5. Elevation corresponding to cleanout level = 132.33
   (From storage-elevation curve)

6. Distance from invert of the dewatering orifice to cleanout level = 0.93 ft.
   (Min = 1.0 ft.)

Dry Storage:

7. Minimum required volume = 67 cu. Yds. X Total Drainage Area (acres).

   67 cu. Yds. x 3.84 acres = 257.3 cu. Yds.

8. Total available basin volume at crest of riser* = 514.6 cu. Yds. At elevation 134.78 (From storage-elevation curve)

   * Minimum = 134 cu. Yds./acre of total drainage area

9. Diameter of dewatering orifice = 4 in.

10. Diameter of flexible tubing = 6 in. (diameter of dewatering orifice plus 2 inches)

Preliminary Design Elevations

11. Crest of Riser = 134.78
    Top of Dam = 138.00
    Design High Water = 135.53
    Upstream Toe of Dam = 114.00

Basin Shape

12. Length of Flow (L) = 106
    Effective Width (We) 39.22

    If > 2, baffles are not required
    If < 2, baffles are required 2.70

Runoff

13. Q2 = 8.47 cfs
14. Q25 = 15.31 cfs

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(703)449-8100 (703)449-8108 (Fax)
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COMMONWEALTH OF VIRGINIA
MARK D. LIBERATI
Lic. No. 21211
10/16/14
REGISTERED PROFESSIONAL ENGINEER

SEDIMENT BASIN COMPUTATIONS & DETAILS

FORT BELVOIR ELEMENTARY SCHOOL II

MT. VERNON DISTRICT
FAIRFAX COUNTY, VIRGINIA

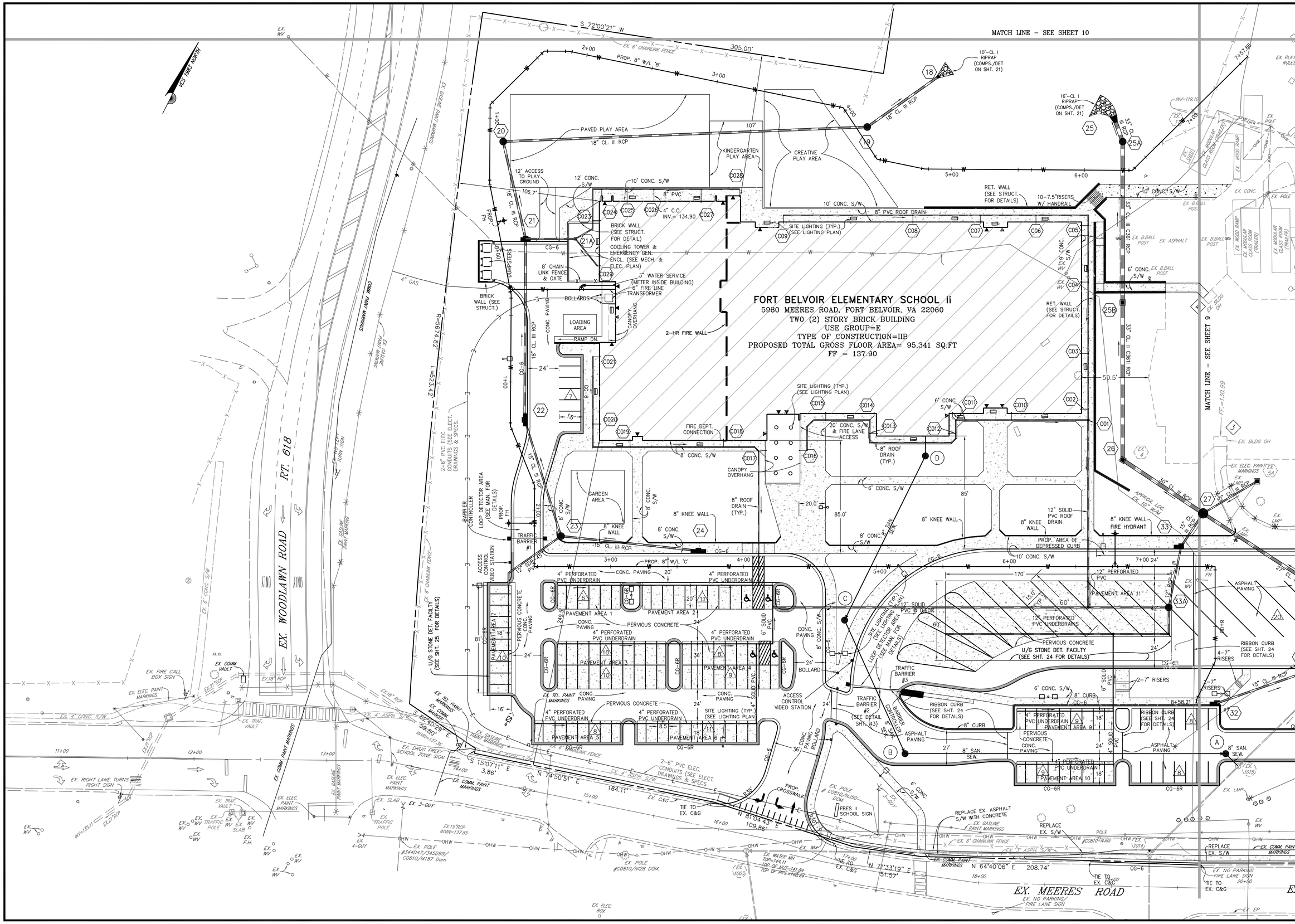
BC REVISIONS

OWNER:
FAIRFAX COUNTY PUBLIC SCHOOLS
8115 GATEHOUSE RD.
FALLS CHURCH, VA 22042

DESIGNED BY: BWB
DRAFTED BY: CAD
CHECKED BY: MDL
DATE: MAY, 2014
SCALE: HOR.
VERT.

CO. NO.
CAD NAME: 14515-ESC
LAYOUT: ROUTINGS
FILE NO. 14515.02

ESBX



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MARK D. USERATI
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PROFESSIONAL ENGINEER

SITE PLAN

FORT BELVOIR ELEMENTARY SCHOOL II

FORT BELVOIR U.S. ARMY BASE
MOUNT VERNON DISTRICT – FAIRFAX COUNTY, VIRGINIA

BC REVISIONS	
12/19/14:	REV. PER 1st SUBM. COMMETS.

OWNER
FAIRFAX COUNTY PUBLIC SCHOOLS
8115 GATEHOUSE RD.
FALLS CHURCH, VA 22042

DESIGNED BY:	BWB
DRAFTED BY:	CAD
CHECKED BY:	MDL
DATE:	MAY, 2014
SCALE:	HOR. 1"= 30' VERT.
SHEET 8 OF 46	
CO. NO.	
CAD NAME:	14515-SP
LAYOUT:	SP-1
FILE NO.	14515 – 36

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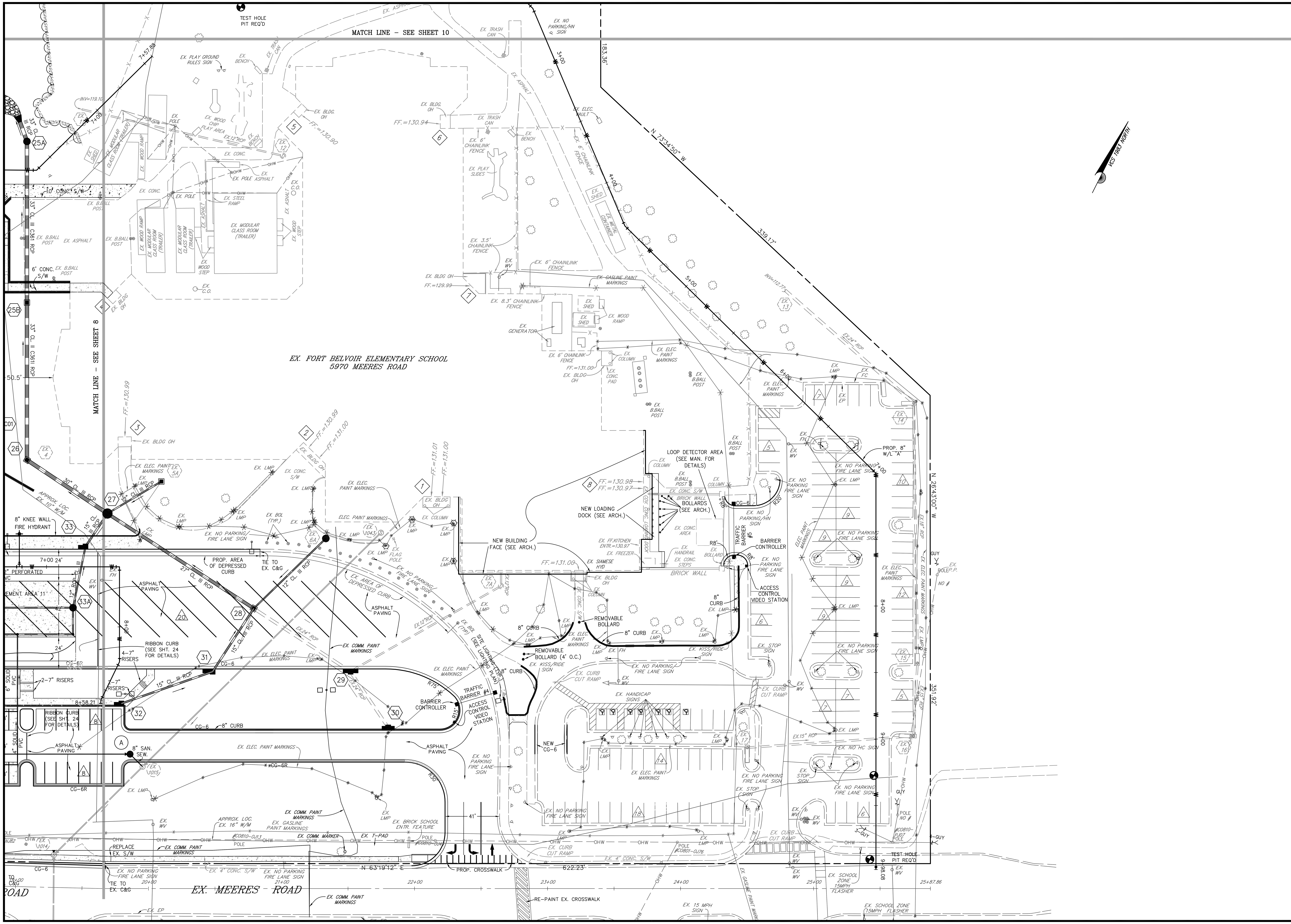

SITE PLAN

FORT BELVOIR ELEMENTARY SCHOOL II

FORT BELVOIR U.S ARMY BASE
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DESIGNED BY: BWB	
DRAFTED BY: CAD	
CHECKED BY: MDL	
DATE: MAY, 2014	
SCALE:	HOR. 1"= 30' VERT.
SHEET 9 OF 46	
CO. NO.	
CAD NAME: 14515–SP	
LAYOUT: SP–2	
FILE NO. 14515 – 36	

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