



11000 Lakeside Drive, Suite 1000
Ft. Worth, Texas 76150
Phone: 817.730.7000
www.aecom.com



CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
443 WEST WASHINGTON ST
SUFFOLK, VA 23444

LAKE I
CULVERT ABANDONMENT



NO.	REVISIONS	DATE

DESIGNED BY	
DRAWN BY	
CHECKED BY	
DATE CALLED	
DATE CALLED	
SCALE	
SCALE	
SCALE	
SCALE	

SHEET TITLE
COVER SHEET

G-001
SHEET 1 OF 11

CITY OF SUFFOLK, VIRGINIA LAKE I CULVERT ABANDONMENT IFB #18048-JS SUFFOLK, VIRGINIA



FLOODPLAIN:
PROJECT AREA IS PARTLY LOCATED WITHIN
ZONE A OF FIRM PANEL 5101560102E,
EFFECTIVE AUGUST 3, 2015

ZONING:
PROJECT PARCELS ARE ZONED EITHER
CONSERVATION DISTRICT (C) OR RURAL
ESTATE DISTRICT (RE).

MISS UTILITY OF VIRGINIA:
VIRGINIA 811 PHONE NUMBER IS
1-800-550-7001.

NOTE OF ADVERTISING:
THE CONTRACTOR SHALL PROVIDE WATCH NOTIFICATION TO ALL CENTERS AND
DEPARTMENTS CONCERNED WITH THE PROJECT. THE CONTRACTOR SHALL OBTAIN
APPROPRIATE APPROVALS 30 DAYS PRIOR TO COMMENCEMENT OF WORK UNLESS
OTHERWISE SPECIFIED BY THE CITY

APPROVED FOR CONSTRUCTION
CITY OF SUFFOLK, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
Albert S. Moor II
ALBERT S. MOOR II, P.E., DIRECTOR
DATE

SEE SHEET ES-002 FOR
PROJECT DESCRIPTION.

DRAWING NUMBER	SHEET TITLE	SHEET NUMBER
G-001	COVER SHEET	1
G-002	INDEX MAP	2
G-003	GENERAL NOTES, LEGEND & ABBREVIATIONS	3
ES-001	VIRGINIA BARHAM STANDARDS - 19 NOTES	4
ES-002	EROSION AND SEDIMENT CONTROL NOTES (1 OF 2)	5
ES-003	EROSION AND SEDIMENT CONTROL NOTES (2 OF 2)	6
ES-101	EROSION AND SEDIMENT CONTROL PLAN	7
ES-201	EROSION AND SEDIMENT CONTROL DETAILS	8
C-101	EXISTING CONTIGUOUS PLAN	9
S-101	CULVERT ABANDONMENT PLAN & PROFILE	10
S-102	CULVERT GRADING DETAILS	11

SITE STATISTICS

CATEGORY	ACRES
TOTAL AREA (2 PARCELS)	81.8
DISTURBED AREA	< 0.1
EX. IMP. AREA	< 0.1
PROP. IMP. AREA	< 0.1
NON-TIDAL WETLAND DISTURBED AREA	< 0.1



CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
412 WEST WASHINGTON ST
SUFFOLK, VA 23434

**LAKE 1
CULVERT ABANDONMENT**



PREPARED FOR: SUFFOLK COUNTY
DATE: 2/24/2011

NO.	REVISIONS	DATE

PROJECT NO.: 00000000
BY: W. MILLER
CHECKED BY: E. PERAZZINI
DATE COMPLETED: 02/24/2011
DATE COMPLETED: 02/24/2011
SCALE: AS SHOWN
SHEET TITLE: INDEX MAP

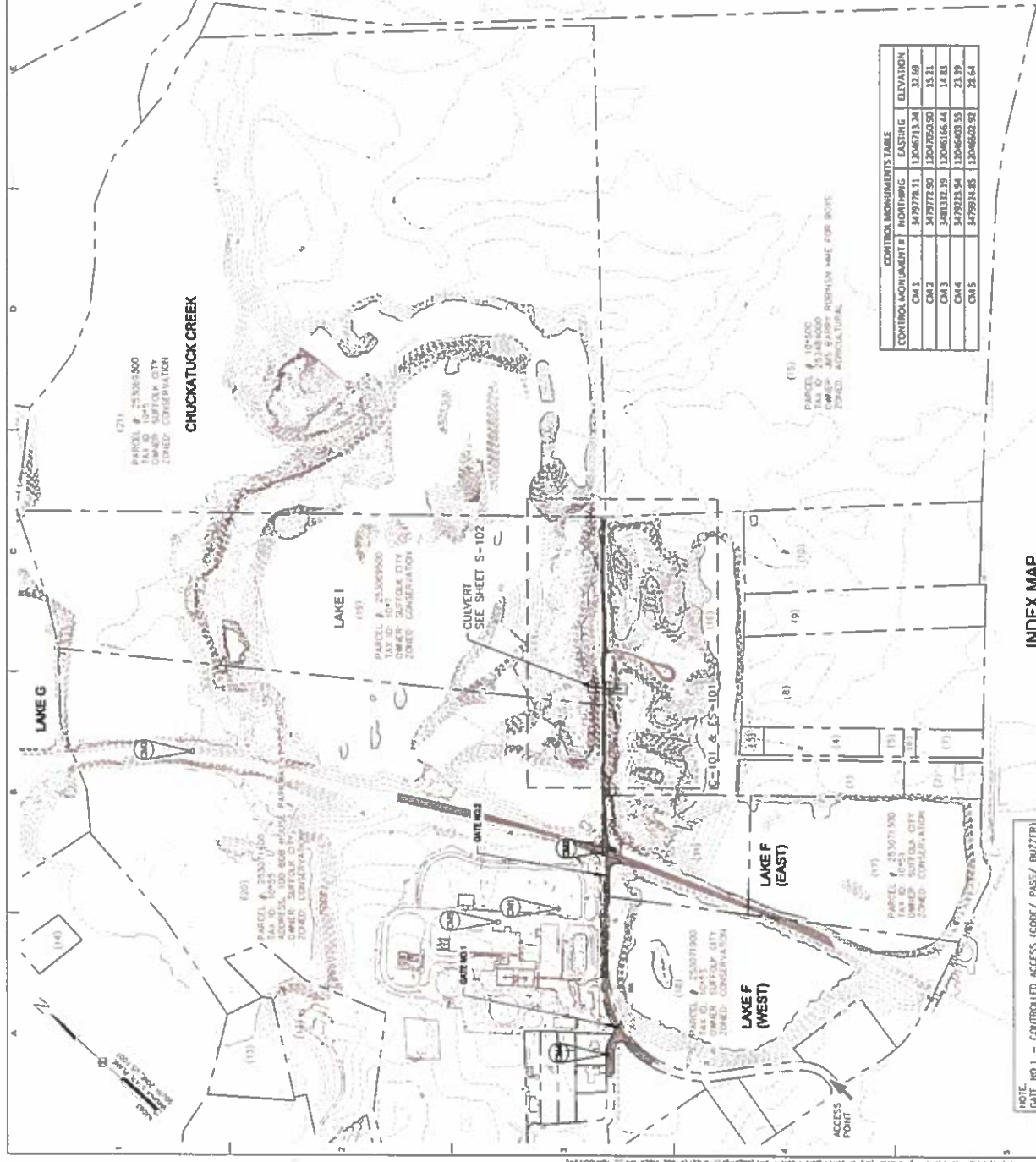
INDEX MAP

G-002

SHEET 2 OF 11

NUMBER	PROPERTY INFORMATION	ZONING DISTRICT
(1)	PARCEL # 251232000 TAX ID: 108(01)318R023 OWNER: SUFFOLK CITY DEED BOOK: 696 PAGE # 0710	RE
(13)	PARCEL # 252052000 TAX ID: 108(01)114 OWNER: PORTER ARNE CLOVER	RE
(8)	PARCEL # 252060000 TAX ID: 108(01)318R023 ADDRESS: 6005 CRITCHEDEN RD OWNER: HEK'S GEORGE E DOCUMENT # 050007250	RE
(9)	PARCEL # 253378000 ADDRESS: 6073 CRITCHEDEN RD OWNER: ELLIS WARREN V & EMK TRACY L DOCUMENT # 000213100	RE
(10)	PARCEL # 253378000 ADDRESS: 6081 CRITCHEDEN RD OWNER: NETTS ELIZABETH M DOCUMENT # 013197	RE
(11)	PARCEL # 253071200 TAX ID: 10-52 OWNER: SUFFOLK CITY	C
(15)	PARCEL # 253481000 ADDRESS: 445 BARRY ROBUSH HME FOR BOYS DOCUMENT # 030014473 PAGE # 0750	A
(16)	PARCEL # 253071800 TAX ID: 10-56 OWNER: SUFFOLK CITY	RE
(17)	PARCEL # 253071300 OWNER: SUFFOLK CITY	C
(18)	PARCEL # 253071900 TAX ID: 10-53 OWNER: SUFFOLK CITY	C
(19)	PARCEL # 253069500 TAX ID: 10-7 OWNER: SUFFOLK CITY	C
(20)	PARCEL # 253071400 TAX ID: 10-55 ADDRESS: 608 HOUSE PARKWAY OWNER: SUFFOLK CITY	C
(21)	PARCEL # 253069800 TAX ID: 10-5 OWNER: SUFFOLK CITY	C

* NO CONVEYANCE INSTRUMENT LISTED UNDER CITY OF SUFFOLK REAL ESTATE ASSESSMENTS
** IMPACTED BY PROJECT (100)



INDEX MAP
SCALE: 1" = 250'

NOTE:
GATE NO. 1 = CONTROLLED ACCESS (G006/ PAST/ BUZZER)
GATE NO. 2 = MANUAL GATE (CHAIN WITH LOCK)



CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
443 WEST WASHINGTON ST
SUFFOLK, VA 23444

LAKE
CULVERT ABANDONMENT



GENERAL NOTES

- 1 THE LOCATION OF UTILITIES SHOWN ON THE PLANS IS BASED ON RECORD DRAWINGS DATED SEPTEMBER 2008 OF THE ORIGINAL LOCATIONS PREPARED BY WHITMAN, REARDANT AND ASSOCIATES, LLP. THE INFORMATION SHOWN IS NOT NECESSARILY COMPLETE, AND THE LOCATION OF UTILITIES SHOWN IS APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT A FIELD SURVEY TO VERIFY THE LOCATION OF UTILITIES SHOWN ON THESE PLANS. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UTILITIES. IF AN UNDERGROUND UTILITY IS DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE OWNER OF SAID UTILITY. ANY DAMAGE CAUSED TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BACKFILL AN EXCAVATION AFFECTING SAID UTILITY WITHOUT FIRST RECEIVING PERMISSION FROM THE UTILITY OWNER.
- 2 NOTIFY USS UTILITY OF VIRGINIA (ALSO KNOWN AS VIRGINIA 011), 1-800-552-7091, 3 BUSINESS DAYS BEFORE START OF CONSTRUCTION.
- 3 A DISTINCTION BETWEEN NEW AND EXISTING MATERIALS, EQUIPMENT, AND STRUCTURES HAS BEEN MADE ON THE DRAWINGS BY LINE WEIGHT: HEAVY — REPRESENTS PROPOSED FEATURES GERMANE TO A GIVEN PLAN; LIGHT — REPRESENTS EXISTING OR PROPOSED FEATURES NOT GERMANE TO A GIVEN PLAN.
- 4 THE CONTRACTOR SHALL VERIFY, BY FIELD MEASUREMENT, THE REQUIRED DIMENSIONS OF ALL PIPES, FITTINGS, EQUIPMENT AND STRUCTURES TO ASSURE PROPER CLEARANCE AND SPACING PRIOR TO FABRICATION OR INSTALLATION.
- 5 THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS SO AS NOT TO DAMAGE EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.
- 6 NO CLEARING OR GRUBBING MAY COMEFORE FOR THE PROJECT UNTIL THE LIMITS ARE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. NO CLEARING WILL BE ALLOWED BEYOND THE PROJECT LIMITS, AND ANY ITEMS DISTURBED BEYOND THE PROJECT LIMITS WILL BE REPLACED AT THE CONTRACTOR'S OWN EXPENSE.
- 7 STREETS SHALL BE MAINTAINED IN A CLEAN CONDITION, AND AND DUST FREE, AT ALL TIMES, AND ADEQUATE MEANS SHALL BE PROVIDED TO AT LEAST TRUCKS AND OTHER EQUIPMENT OFF SITE. ALL WASTE AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED DUMP SITE.
- 8 ALL DISTURBED AREAS SHALL BE GRADED AND SEEDED UNLESS OTHERWISE NOTED.
- 9 ALL UNSATURABLE MATERIALS SHALL BE DISPOSED OF PER THE SPECIFICATIONS.
- 10 NO TREES OUTSIDE THE LIMIT OF DISTURBANCE SHALL BE DISTURBED OR REMOVED.
- 11 CONTRACTOR SHALL BEAR ALL COST OF PREPARING AND SUBMITTING APPLICATION FOR GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES TO DISTURBED AREAS. THE CONTRACTOR SHALL BEAR ALL COST OF MAINTAINING SAID PERMIT DURING CONSTRUCTION ACTIVITIES AND CONCLUDED LAND-DISTURBING ACTIVITY AND SHALL BEAR ALL COST OF MAINTAINING SAID PERMIT UNTIL CONSTRUCTION ACTIVITIES ARE CONCLUDED.
- 12 CONTRACTOR SHALL BEAR ALL COST OF PREPARING AND SUBMITTING LAND DISTURBANCE PERMIT APPLICATION TO DEPARTMENT OF PUBLIC WORKS.
- 13 ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH LOCAL CODES AND REGULATIONS, EXCEPT WHERE NOTED IN THE PLANS OR SPECIFICATIONS.
- 14 CONTRACTOR SHALL USE ONLY THE DESIGNATED Haul/ACCESS ROADS/RIGHTS FOR TRANSPORTING LABOR, MATERIALS AND/OR EQUIPMENT FOR THE PROJECT.
- 15 CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING STREETS AND ADJACENT PROPERTY CAUSED BY HIS OPERATIONS.
- 16 CONTRACTOR SHALL DISPOSE OF WASTE MATERIAL OFF SITE.
- 17 SOURCE OF SURVEY DATA — DESCRIPTION OF BATHYMETRY SURVEY AND FIELD SURVEY BASED ON VA STATE PLANE COORDINATES SOUTH ZONE HAD 1983 AND VERTICAL DATUM HAD 88 PROVIDED BY PRECISION MEASUREMENTS, INC. ADDITIONAL AERIAL SURVEY INFORMATION FOR AREAS OUTSIDE OF THE LIMIT OF DISTURBANCE WAS PROVIDED BY THE CITY OF SUFFOLK USING VA STATE PLANE COORDINATES SOUTH ZONE HAD 1983 AND VERTICAL DATUM HAD 88. BLANK AREAS ARE TOTALLY OCCUPIED BY VEGETATION.
- 18 EXISTING ROAD, VEGETATION, AND WATER'S EDGE DISPLAYED ARE AERIAL SURVEY COMPILED BY AERO-METRIC PROVIDED BY PRECISION MEASUREMENTS, INC. AERIAL SURVEY IS COMPILED BY PHOTOGRAMMETRIC METHODS DATED 3-17-2010 GRID BASED ON VIRGINIA STATE PLANE COORDINATES SOUTH ZONE HAD 1983 VERTICAL DATUM BASED ON MGS MEAN SEA LEVEL.
- 19 THE EXISTING 24" WELL TRANSMISSION WASH PUMP AND PROFILE AS SHOWN ON EXISTING CONDITIONS PLAN SHEET C-101 IS FROM CRITTENDEN WELL TRANSMISSION WASH RECORD DRAWINGS DATED SEPTEMBER 2008 PREPARED BY WHITMAN, REARDANT AND ASSOCIATES, LLP. CONTRACTOR TO VERIFY THE EXACT LOCATION AND DEPTH OF EXISTING 24" WELL TRANSMISSION LINE THROUGH TEST PIT LOCATED WITHIN LIMITS OF DISTURBANCE.
- 20 THE EXISTING 48" RIGATED CUP CONDUIT IS FROM A SURVEY PREPARED BY PRECISION MEASUREMENTS, INC. DATED AUGUST 27, 2012. THE SURVEY WAS PREPARED TO SHOW CULVERT LOCATION AS OF AUGUST 27, 2012 AND DOES NOT CERTIFY TO CHANGES TO SITE CONDITIONS WHICH OCCUR SUBSEQUENT TO THIS DATE AND/OR TO PROPOSED IMPROVEMENTS.
- 21 CONTRACTOR ACCESS TO THE SITE SHALL BE FROM BOB HOUSE PARKWAY.
- 22 TOTAL DISTURBED AREA IS < 0.1 ACRES.
- 23 WETLANDS DESIGNATION AS SHOWN ON EXISTING CONDITIONS PLAN SHEET C-101 IS PROVIDED BY KERR ENVIRONMENTAL DATED JANUARY 2013.
- 24 ALL LAND DISTURBANCE, USES, DEVELOPMENT, AND REDEVELOPMENT IN THE OVERLAY BAY PRESERVATION AREA (OBPA) OVERLAY DISTRICT SUCH AS WETLANDS, SHORELINES, AND ALONG WATER BODIES WITH PERMANENT FLOW SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
- 25 ONLY CERTAIN SPECIFIED ACTIVITIES MAY BE PERMITTED IN THE OBPA RESOURCE PROTECTION AREA, SUCH AS APPROVED WATER REDEVELOPMENT ACTIVITIES; REDEVELOPMENT; ROADS AND DRIVEWAYS; FLOOD CONTROL; AND BISHA TREE AGRO-CULTURAL ACTIVITIES AND WETLANDS RESTORATION MANAGEMENT AREA (BMA).
- 26 THE SUBJECT PROPERTY IS LOCATED WITHIN THE CITY'S OBPA OVERLAY DISTRICT AND IS DESIGNATED AS AN OBPA AND A RESOURCE MANAGEMENT AREA (RMA).
- 27 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL EQUIPMENT, MATERIAL, AND GENERAL CONSTRUCTION DEBRIS FROM THE PROJECT AREA AND FROM ANY LOT, STREET, PUBLIC WAY, OR PROPERTY THEREON OR ADJACENT THERETO DURING OR AFTER CONSTRUCTION OF SUCH DEBRIS INTO SCENIC, OPEN ADJACENT PROPERTY, OR ONTO OTHER LAND BY THE CITY IS PROHIBITED.
- 28 CONTRACTOR SHALL HAVE A COMPLETE SET OF APPROVED CONTRACT SPECIFICATIONS, CONTRACT DOCUMENTS, CONTRACT DRAWINGS AND PERMITS ON SITE AT ALL TIMES.
- 29 USACE PERMIT HAD-2012-1593/PAWRC/14-V1468 WAS RE-AUTHORIZED ON JUNE 2, 2017 AND IS VALID UNTIL MARCH 18, 2022.

- LEGEND**
- - - - - MAJOR EXISTING CONTOURS
 - - - - - MINOR EXISTING CONTOURS
 - - - - - EDGE OF WATER
 - - - - - EXISTING GRAVEL ROAD
 - - - - - EXISTING 24" WELL TRANSMISSION WASH
 - - - - - EXISTING VEGETATION
 - - - - - WOODEN CULVERT RWA
 - - - - - WETLANDS DESIGNATION
 - - - - - LIMITS OF DISTURBANCE

ABBREVIATIONS

- CUP CORROGATED METAL PIPE
- ELEV ELEVATION
- EX EXISTING
- FT FEET
- INT INTENSIFY
- INVERT INVERT ELEVATION
- LIMITS LIMITS OF DISTURBANCE
- MAD NORTH AMERICAN DATUM
- MEAS MEASUREMENTS, INC.
- MGS NATIONAL GEODETIC SOCIETY

ISSUED FOR RECORD	
ISSUED FOR CONSTRUCTION	
REVISIONS	
NO	DESCRIPTION
DATE	
DESIGNED BY: _____	
CHECKED BY: _____	
DATE DESIGNED: _____	
DATE CHECKED: _____	
SCALE	AS SHOWN
ACROSSER	EDWARDS
SHEET TITLE	
GENERAL NOTES LEGEND & ABBREVIATIONS	
G-003	
SHEET 3 OF 11	



CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
412 WEST WA SHINGTON ST
SUFFOLK, VA 23444

**LAKE 1
CULVERT ABANDONMENT**



**VIRGINIA
MINIMUM
STANDARDS-
19 NOTES**

ES-001

NOTE: ALL CONSTRUCTION ON SITE SHALL BE IN CONFORMANCE WITH THE FOLLOWING 19 MINIMUM STANDARDS AND SEDIMENT CONTROL REGULATIONS.

- 1 PERMANENT OR TEMPORARY SOIL STABILIZATION 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 AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
- 2 DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCK PILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
 - a. 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 RESIST EROSION.
 - b. SEDIMENT BARRIERS, AND TRAPS, PERIMETER DICES, SEDIMENT BARRIERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UP-SLOPE LAND DISTURBANCE TAKES PLACE.
 - c. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DICES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
 - d. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
 - a. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA, AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
 - b. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPOSED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASH. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASH SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASH DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASH IS UTILIZED.
 - e. CUT AND FILL SLOPES SHALL BE DESCRIBED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
 - f. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME, OR SLOPE DRAIN STRUCTURE.
 - g. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
 - h. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LOADED WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
 - i. BEFORE NEWLY CONSTRUCTED STORMWATER 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.
 - j. WHEN WORK IN A LANE 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, NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
 - k. WHEN A LANE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
 - l. ALL APPLICABLE FEDERAL, STATE, AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LANE WATERCOURSES SHALL BE MET.
 - m. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
 - n. 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. FLEIGHT 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.
 - o. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.
 - p. APPLICABLE SAFETY CHAPTERS SHALL BE COMPLIED WITH.
- 3 17 WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROMSIONS 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 SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS 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. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
- 4 18 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 AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DEPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- 5 19 PROPERTIES AND MATERIALS DOWNSTREAM FROM DEVELOPMENT SITES SHALL 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 FOLLOWING STANDARDS AND CRITERIA.
 - a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE, OR STORM SEWER SYSTEM FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM. DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
 - b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
 - (1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION, OR
 - (2) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.
 - (3) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS, AND
 - (4) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
 - c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
 - (1) IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS, OR
 - (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES.
 - d. DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL, OR
 - e. PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION, OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
 - f. ALL APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
 - g. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.
 - h. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE 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.
 - i. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
 - j. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
 - a. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR DETENTION FACILITY.
 - b. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, REMOVAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL HYDROLOGIC CALCULATIONS.
 - c. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL, AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS, AND OTHER WATERS OF THE STATE.

A B C D E F

A B C D E F



CITY OF SUFFOLK
 DEPARTMENT OF PUBLIC UTILITIES
 441 WEST WASHINGTON ST
 SUFFOLK, VA 23434

**LAKE 1
 CULVERT ABANDONMENT**



DESIGNED BY	WILLIAM WALKER
CHECKED BY	WILLIAM WALKER
DATE CREATED	11/04/2011
PLANT DATE	
SCALE	AS SHOWN
ADVISOR	
SHEET NO.	02
SHEET TITLE	EROSION AND SEDIMENT CONTROL NOTES (1 OF 2)

ES-002
 SHEET 5 OF 11

VEGETATION PRACTICES

1. TOPSOIL TO BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE IN THE EXISTING TOPSOIL STOCKPILE. THE STOCKPILE WILL BE STABILIZED WITH TEMPORARY VEGETATION.
 2. TEMPORARY SEEDING - 3:1 SLOPES WHICH WILL BE LEFT DOWNHILL FOR EXTENDED PERIODS OF TIME SHALL BE SEEDED WITH A FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING. SELECTION OF THE SEED MIXTURE WILL DEPEND ON THE TIME OF YEAR IT IS APPLIED.
- MANAGEMENT STRATEGIES**
1. SEEDING CONTROL MEASURES WILL BE INSTALLED AS A FIRST STEP AND WILL BE SEEDED AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.
 2. TEMPORARY SEEDING ON OTHER STABILIZATION WILL FOLLOW IMMEDIATELY AFTER LAND DISTURBANCE ACTIVITIES.
 3. AREAS WHICH ARE NOT TO BE DISTURBED WILL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC.
 4. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

PERMANENT STABILIZATION

ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING SITE RESTORATION. SEEDING SHALL BE DONE WITH METHOD 3) FULL RESUME ACCORDING TO SPEC. 5.01. AREAS WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDING TO PROTECT THE SLOPES FROM WIND AND GULLY EROSION AND TO ALLOW SEED TO GERMINATE PROPERLY WALKER (STRAW OR FIBER) WILL BE USED ON RELATIVELY FLAT AREAS. IN ALL SEEDING OPERATIONS, SEED, FERTILIZER, AND LIME WILL BE APPLIED PRIOR TO MULCHING.

STORM WATER MANAGEMENT

PER THE PERFORMANCE BASED WATER QUALITY CRITERIA FROM CHAPTER 5 SECTION 10 OF THE VIRGINIA STORM WATER MANAGEMENT HANDBOOK, THE EXISTING PERCENT IMPERVIOUS COVER EQUALS POST DEVELOPMENT TOTAL PERCENT IMPERVIOUS COVER. THEREFORE NO POLLUTANT REMOVAL IS REQUIRED.

MAINTENANCE

IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

1. THE SET FLOWING BARRIERS WILL BE CHECKED REGULARLY FOR WORKINGNESS OR DETRIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT EXCEEDS RECOMMENDED MAXIMUM HEIGHT OF THE BARRIER.
2. THE SEEDING AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS ESTABLISHED. AREAS SHOULD BE REVEGETATED AND RE-SEED AS NEEDED.

SEDED REQUIREMENTS

VEGETATION SHOULD NOT BE ESTABLISHED ON SLOPES THAT ARE UNSTABLE DUE TO INAPPROPRIATE SOIL FEATURE, POOR INTERNAL STRUCTURE OR INTERNAL DRAINAGE. VOLUME OF OVERLAND FLOW OR EXCESSIVE STEEPNESS, UNTIL MEASURES HAVE BEEN TAKEN TO CORRECT THESE PROBLEMS. THE SOIL MUST MEET CERTAIN MINIMUM REQUIREMENTS AS A GROWN VEGETATION.

THE EXISTING SOIL MUST HAVE THESE CHARACTERISTICS:

1. ENOUGH THE OPENED MATERIAL TO MAINTAIN ADEQUATE MOISTURE AND WITHOUT SURFACE CRACKING.
2. SUFFICIENT PORE SPACE TO PRESENT A THE GRAINULAR OR COMB-LIKE STRUCTURE IS ALSO FAVORABLE.
3. SUFFICIENT DEPTH OF SOIL TO PROVIDE AN ADEQUATE ROOT ZONE. THE DEPTH TO ROCK OR IMPERMEABLE LAYERS SUCH AS HORIZONS SHALL BE 12 INCHES OR MORE EXCEPT ON SLOPES STEEPER THAN 2:1 WHERE CANNOT BE ATTAINED BY ADDITION OF PH-HOODING MATERIALS. THEN THE SOIL IS CONSIDERED AN UNSUITABLE ENVIRONMENT FOR PLANT ROOTS AND FURTHER SOIL MODIFICATION WOULD BE REQUIRED.
4. FREEDOM FROM TOXIC AMOUNTS OF MATERIALS HARMFUL TO PLANT GROWTH.
5. FREEDOM FROM EXCESSIVE DIAMETERS OF ROOTS, BRANCHES, LARGE STUMPS, LARGE CLOTS OF LIGNIN, OR SHORTLY AFTER WOODS GOOD SEED SOIL CONTACT.
6. IF ANY OF THE ABOVE CRITERIA CANNOT BE MET, I.E., IF THE EXISTING SOIL IS TOO COARSE, DENSE, SHALLOW, ADDIC, OR CONTAMINATED TO FOSTER VEGETATION, THEN TOPSOIL SHALL BE APPLIED IN ACCORDANCE WITH TOPSOILING, STD # SPEC. 3.30

TOPSOILING

ALL TOPSOIL SHALL BE TESTED BY A RECORDED LABORATORY FOR THE FOLLOWING CRITERIA:

ORGANIC MATTER CONTENT SHALL BE NOT LESS THAN 1.5% BY WEIGHT

PERCENT SAND SHALL BE FROM 6.0-7.5% IF PH IS LESS THAN 6.0. LIME SHALL BE ACCORDANCE WITH SOIL TEST RESULTS OR IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE VEGETATIVE ESTABLISHMENT PRACTICE BEING USED

SOLUBLE SALTS SHALL NOT EXCEED 500 PPM

IF ADDITIONAL OFF-SITE TOPSOIL IS NEEDED, IT MUST MEET THE STANDARDS STATED ABOVE.

SOILS

MAP AND TABLE PROVIDED BELOW WERE ACQUIRED FROM UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE.

Map Unit Symbol	Map Unit Name	Area in Acres	Percent of Acre
1	Unconsolidated clay, clay loam	31.4	31.8%
1B	Clayey fine sandy loam, wet subtropical, 2 to 8 percent slopes	27.1	14.0%
1C	Unconsolidated heavy clay loam, 0 to 14.9 percent slopes	0.4	0.2%
1D	Unconsolidated heavy clay loam, 0 to 14.9 percent slopes	0.4	0.2%
1E	Unconsolidated heavy clay loam, 15 to 20 percent slopes	4.1	1.7%
1F	Unconsolidated fine sandy loam, 2 to 6 percent slopes	3.1	1.1%
2	Clayey fine sandy loam, 0 to 2 percent slopes	60.1	27.8%
2A	Fine sandy loam, 0 to 2 percent slopes	14.6	5.0%
2B	Fine sandy loam, 2 to 6 percent slopes	50.8	19.7%
2C	Clayey loam, heavy	50.8	22.1%
2D	Clayey loam, heavy	265.4	100.0%



CRITICAL EROSION AREAS

ALL PORTIONS OF THE SITE PROPOSED TO BE DISTURBED WILL BE PROVIDED WITH APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE VDOT.

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 VDOT SHALL BE ADHERED TO UNLESS OTHERWISE INDICATED BY A VARIANCE.

STRUCTURAL PRACTICES

1. SILL FENCES
 SET FORCE SEDIMENT BARRIERS SHALL BE INSTALLED DOWNHILL OF AREAS WITH IMPROVISED TO FILTER SEDIMENT-LADEN FLOW FROM SHEET FROM AS INDICATED ON THE DRAWINGS.
2. TURBOCUT CURB
 TURBOCUT CURB IS TO BE INSTALLED TO PROVIDE SEDIMENTATION PROTECTION FOR LAKE FROM UP-SLOPE LAND DISTURBANCE OR FROM BREACHING OR FILLING WITHIN THE LAKE.

PROJECT DESCRIPTION

THIS PROJECT INCLUDES THE ABANDONMENT OF THE CULVERT BETWEEN SUFFOLK LAKE 1 AND SUFFOLK LAKE 1 (EAST). THE PROPOSED SUFFOLK LAKE 1 CULVERT ABANDONMENT PROJECT PRESERVES WATER STORAGE CAPACITY IN THE EVENT OF LAKE 1 DAM EMERGENT FAILURE. WORK FOR THE CULVERT ABANDONMENT CONSISTS OF PILING THE ENDS OF THE EXISTING 48-INCH DIAMETER CULVERT AND GRADING THE CURB SPACE BETWEEN THE PILES.

EXISTING SITE CONDITIONS

THE LAKE 1 (EAST) EMBANKMENT IS LOCATED IN THE CONTIGUOUS REMAINS OF THE CRISTOFER COLUMBUS NATIONAL MONUMENT. THE EMBANKMENT SUPPORTS BOB HOUSE PARKWAY AND THE CITY OF SUFFOLK'S 24-INCH DIAMETER RAW WATER LINE FROM THE CRISTOFER COLUMBUS WELL FIELD. EMBANKMENT SEPARATES LAKE 1 FROM LAKE 1 (EAST). BUT THE LAKE 1 WATER SUPPLY RECEPTION SYSTEM CONNECTED AND COMPOSED PART OF THE CITY'S LAKE 1 WATER SUPPLY RECEPTION SYSTEM WHICH SUPPLIES WATER TO THE ADJACENT WATER TREATMENT PLANT SITUATED JUST WEST OF THE BOB HOUSE PARKWAY. EMBANKMENT LAKE 1 IS ALSO PART OF A CITY PARK AND ARE FURTHERMORE USED FOR RECREATIONAL PURPOSES. THE EMBANKMENT IS ACCESSIBLE FROM THE WEST VIA BOB HOUSE PARKWAY WHICH EXTENDS TO JAMES HIGHWAY (ROUTE 112) SOUTHWEST OF THE SITE AND LAKE 1 RECEPTION SYSTEM.

THE EMBANKMENT SLOPES GENERALLY AVERAGE 1:4 HORIZONTAL TO 1 VERTICAL. THE TWO LAKE 1 ARE CONNECTED BY A SUBMERGED 48-INCH DIAMETER CORRUGATED METAL PIPE (CMP) LOCATED APPROXIMATELY 15 FEET BELOW THE NORMAL SOIL ELEVATION OF THE LAKE 1. THE CMP IS LOCATED APPROXIMATELY 15 FEET BELOW THE NORMAL SOIL ELEVATION OF THE TWO LAKE 1 TO REMAIN LOCALIZED AT THE NORMAL POOL ELEVATION. THE LAKE 1 (EAST) SOIL IS REFERRED TO AS UPSTREAM, AND THE LAKE 1 SOIL IS REFERRED TO AS DOWNSTREAM.

THE UPSTREAM SLOPE (LAKE 1 (EAST) SOIL) IS COVERED BY MOSSY VEGETATION, CONSPICUOUSLY WITH VEGEATION SIMILAR TO THE UPSTREAM SLOPE. SEVERAL DRAINAGE SWALES ARE EVIDENT ALONG BOTH SLOPES. THE EMBANKMENT CREST IS APPROXIMATELY 24 FEET WIDE AT THE PROJECT LOCATION AND COVERED BY A IMPERVIOUS ROUGHLY PLUMBED BY GRASS. THE SIZE ROAD TO SUGGESTIVE POND. THE EMBANKMENT ACTIVITY AND TRAILS ACTIVELY USED BY WALKERS ARE PRESENT IN THE EMBANKMENT. THE EXISTING 48-INCH DIAMETER CMP IS GENERALLY IN POOR CONDITION.

ADJACENT PROPERTY

THE CITY OF SUFFOLK OWNS THE LAND IMMEDIATELY ADJACENT TO THE BOB HOUSE PARKWAY EMBANKMENT. THIS LAND IS ZONED FOR CONSERVATION LAND USE. IMMEDIATELY SOUTHEAST OF THE EMBANKMENT THERE ARE SEVERAL ADJACENT RESIDENTIAL LOTS DEVELOPED WITH DWELLINGS ACCESSIBLE FROM CRISTOFER ROAD. A PORTION OF THESE LOTS IS ACCESSIBLE FROM THE SITE AND ZONED FOR AGRICULTURAL USES. THE LOTS TO THE WEST AND NORTH OF THE BOB HOUSE PARKWAY EMBANKMENT ARE ALSO ZONED WITHIN THE CONSERVATION DISTRICT BEHIND THE CONSERVATION-TONED LAND SURROUNDING THE EMBANKMENT TO THE EAST AND WEST. THE PARCELS INCLUDE BOTH RESIDENTIAL ZONING AND VILLAGE CENTER ZONING.

OFF-SITE AREAS

OWNERSHIP INFORMATION AND PROPERTY BOUNDARIES OF OFFSITE AREAS ARE PROVIDED ON INDEX MAP C-002. OFF-SITE AREAS ARE OWNED BY THE CITY OF SUFFOLK.



CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
417 WEST WASHINGTON ST
SUFFOLK, VA 23444

**LAKE I
CULVERT ABANDONMENT**



DESIGNED FOR CONSTRUCTION	DATE
CHECKED BY	DATE
NO.	DATE
REVISIONS	DATE
DESCRIPTION	DATE
PROJECT NO.	DATE
PROJECT NAME	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
DATE DRAWN	DATE
SCALE	DATE
AUTHOR	DATE
SHEET TITLE	DATE

**EROSION AND
SEDIMENT
CONTROL NOTES
(2 OF 2)**

ES-003

SHEET 6 OF 11

SEDIMENT CONTROL LEGEND

- MAJOR EXISTING CONTOURS
- MINOR EXISTING CONTOURS
- EDGE OF WATER
- EXISTING GRAVEL ROAD
- EXISTING VEGETATION
- WOODEN GUARD RAIL
- WETLANDS DELINEATION
- LIMIT OF DISTURBANCE
- SALT FENCE (VA ESC 3 05)
- TURBIDITY CURTAIN (VA ESC 3 27)

GENERAL SEQUENCE OF CONSTRUCTION

1. A PERMIT FOR WETLANDS DISTURBANCE IS REQUIRED BY THE NORFOLK DISTRICT OF THE CORPS OF ENGINEERS PRIOR TO CONSTRUCTION ACTIVITIES.
2. SURVEY AND STAKE OUT THE LOG AND OBTAIN CITY OF SUFFOLK APPROVAL PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.
3. PRE-CONSTRUCTION MEETINGS THE PLAN APPROVING AUTHORITY MUST BE HELD ONE (1) WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE. ONE MEETING MUST BE HELD WITH THE LOCAL DISTURBING ACTIVITIES, AND ONE (1) WEEK PRIOR TO THE FINAL INSPECTION.
4. ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES, INCLUDING THE SALT FENCE AND TURBIDITY "CURTAINS", MUST BE INSTALLED BY THE CONTRACTOR PRIOR TO ANY LAND DISTURBING ACTIVITIES. ALL ESC MEASURES MUST BE INSPECTED AND APPROVED BY THE LOCAL DISTURBING ACTIVITIES. INSPECTIONS MUST BE PROVIDED AFTER EVERY RAINFALL EVENT, AND ONCE PER WEEK WHETHER THERE HAS BEEN RAIN OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL ESC MEASURES. PLAN SHEETS ES-001 THROUGH ES-201. RAIN IS TO BE DIVERTED AWAY FROM CONSTRUCTION OPERATIONS.
5. CUT AND REMOVE EXPOSED PORTION OF THE EXISTING CUP CULVERT AT EACH END.
6. INSTALL PIPE PLUGS.
7. GROUT SHUT THE EXISTING CULVERT.
8. PERMANENTLY STABILIZE ALL DISTURBED SLOPES ACCORDING TO VIRGINIA'S STABILIZATION GUIDELINES.

NOTE

LAKE I AND LAKE F WILL REMAIN IN SERVICE AT APPROXIMATELY THE NORMAL POOL ELEVATION AT ALL TIMES DURING THE CONSTRUCTION WORK. LAKE I AND LAKE F WATER SURFACE ELEVATION WILL NOT BE LOWERED FOR THE WORK TO OCCUR.

STRIPPING
TOPSOIL OPERATIONS SHOULD NOT BE PERFORMED WHEN THE SOIL IS WET OR FROZEN. STRIPPING SHALL BE PERFORMED WITH AN APPROPRIATE STRIPPER. STRIPPED SOIL SHALL BE STORED IN A MANNER THAT WILL PREVENT WIND EROSION AND WATER POLLUTION. ALL PRODUCE DUES, BASKETS, AND OTHER SEDIMENT CONTROLS SHALL BE IN PLACE PRIOR TO STRIPPING.

ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES
THE FOLLOWING ADDITIONAL ESC MEASURES WILL BE USED WHERE APPLICABLE (IN ACCORDANCE WITH THE VESCH, AND AT THE DISCRETION OF THE INSPECTOR) IN ALL PORTIONS OF THE SITE:

TEMPORARY SEEDING
TEMPORARY SEEDING WILL BE USED IN ACCORDANCE WITH STD 3.31 OF THE VESCH WHERE EXPOSED SOIL SURFACES ARE NOT TO BE FINE-GRADED FOR PERIODS LONGER THAN 14 DAYS. SUCH AREAS INCLUDE DOUNDED AREAS, DUES, DUES, SLOES, OF SEDIMENT BASINS, TOPSOIL STORAGE AREAS, AND AREAS WHERE THE PERIOD OF WORK EXCEEDS ONE YEAR.

PERMANENT SEEDING
PERMANENT SEEDING WILL BE USED IN ACCORDANCE WITH STD 3.32 OF THE VESCH IN THE FOLLOWING AREAS:
1. DISTURBED AREAS WHERE THE PERIOD OF WORK IS EXPECTED TO EXCEED 1 YEAR.
2. ROAD-GRADED AREAS WHICH WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE.

TOPSOILING
TOPSOILING WILL BE USED IN ACCORDANCE WITH STD 3.30 OF THE VESCH IN THE FOLLOWING AREAS:
1. WHERE THE PRESERVATION OR IMPORTATION OF TOPSOIL IS DETERMINED TO BE THE MOST EFFECTIVE METHOD OF PROVIDING A SUITABLE GROWTH MEDIUM. PROVIDE FOUR-INCH (4") THICK TOP SOIL PER FOOT SPEC GOZ (CLASS 9).

2. WHERE THE SUBSOIL OR EXISTING SOIL PRESENTS THE FOLLOWING PROBLEMS:
A. WHERE HIGH QUALITY TURF IS DESIRABLE TO WITHSTAND INTENSE USE OR MEET AESTHETIC REQUIREMENTS.
B. WHERE ORNAMENTAL PLANTS WILL BE ESTABLISHED.
C. ONLY ON SLOPES THAT ARE 2:1 OR FLATTER UNLESS OTHER MEASURES ARE TAKEN TO PREVENT EROSION AND SEEDLING.

DUST CONTROL
DUST CONTROL WILL BE USED IN ACCORDANCE WITH STD 3.29 OF THE VESCH IN AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON-SITE AND OFF-SITE DAMAGE IS LIKELY TO OCCUR IF PREVENTIVE MEASURES ARE NOT TAKEN.

CITY OF SUFFOLK EROSION AND SEDIMENT CONTROL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE AUTHORIZED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (3RD EDITION, 1992) AND THE CITY OF SUFFOLK EROSION AND SEDIMENT CONTROL ORDINANCE.
2. THE CONTRACTOR SHALL APPLY PERMANENT OR TEMPORARY SOIL STABILIZATION TO ALL UNEXPOSED OR DISTURBED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WHICH WILL REMAIN UNDISTURBED FOR LONGER THAN 14 DAYS. SOIL STABILIZATION SHALL BE APPLIED TO ALL EXPOSED AREAS, INCLUDING, BUT NOT LIMITED TO, THE EARLY APPLICATION OF GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN LAND DISTURBANCE.
4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RAINFALL EVENT. ANY NECESSARY REPAIRS TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND CLEANUP OF SEDIMENTATION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE IMMEDIATELY.
5. THE CONTRACTOR SHALL LIMIT SITE ACCESS BY CONSTRUCTION VEHICLES TO ENTRANCES PROTECTED BY A STONE CONSTRUCTION ENTRANCE (VESCH, STD. AND SPEC 3.02) OR AN APPROVED COMPARABLE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED FROM PAVED AREAS ON A DAILY BASIS.
6. STOCK PILES OF SOIL AND OTHER ERODIBLE MATERIALS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION FOR STOCK PILES ON SITE AS WELL AS FOR MATERIALS TRANSPORTED FROM THE PROJECT SITE.
7. THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST INCLUDING (BUT NOT LIMITED TO) USE OF WATER, MUCK, OR CHEMICAL DUST ARRESTERS AND CONTROL OF CONSTRUCTION SITE TRAFFIC.
8. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN EFFLUENT SCREENING TRAPPING DEVICE OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT ADJACENT PROPERTIES, WETLANDS, WATERWAYS, OR THE STORM DRAINAGE SYSTEM.
9. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ANY ADDITIONAL CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED NECESSARY BY THE PLAN APPROVING AUTHORITY.
10. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS HAVE BEEN RESTORED TO ORIGINAL OR BETTER CONDITION. MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEED.



CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
441 WEST WASHINGTON ST
SUFFOLK, VA 23444

**LAKE 1
CULVERT ABANDONMENT**

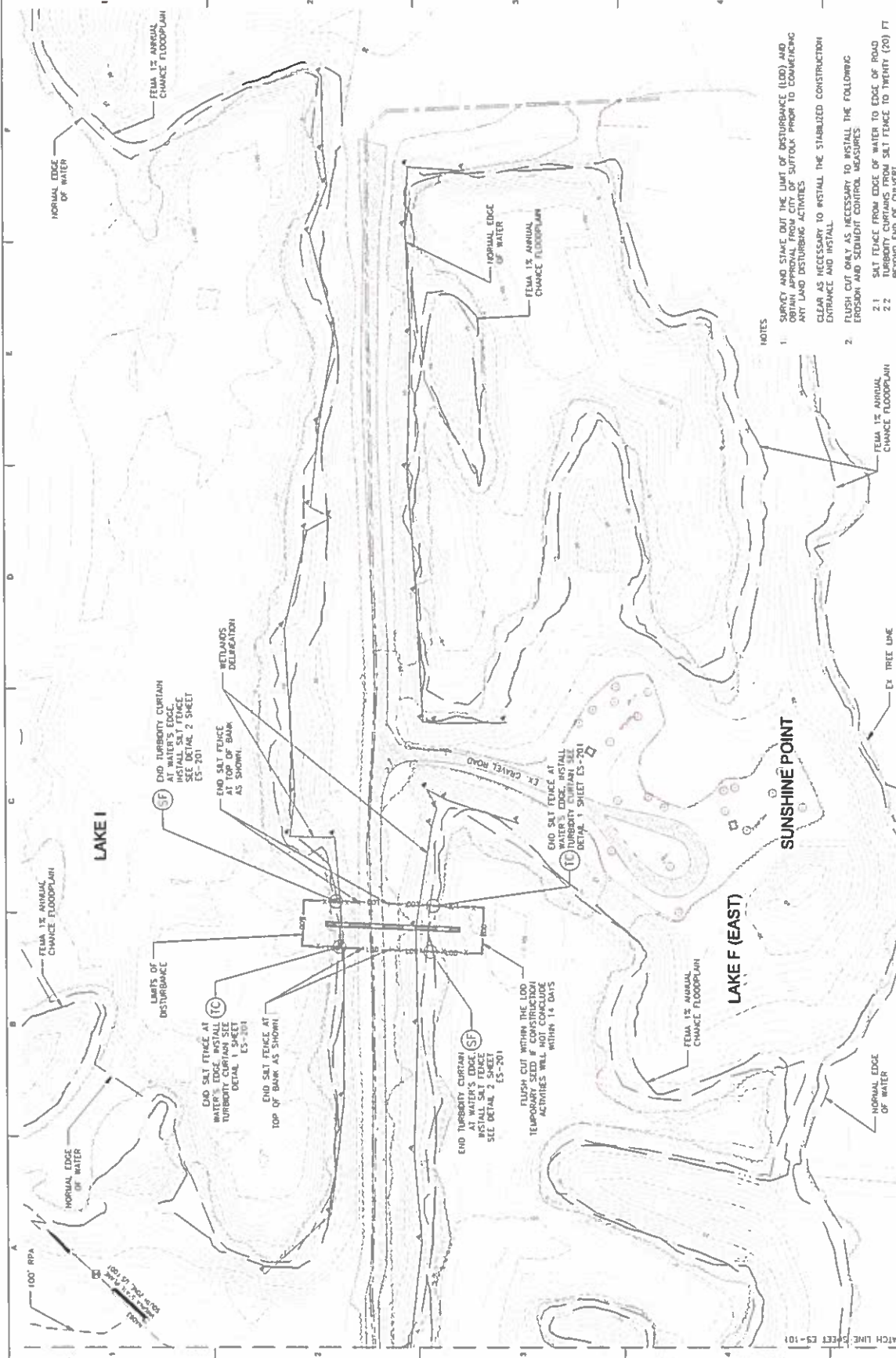


DESIGNED FOR RECORDS	DATE
DESIGNED FOR CONSTRUCTION	DATE
NO.	REVISIONS
DESCRIPTION	DATE
PROJECT NO.	0604001
DRAWN BY	EP1/WJL/AM
CHECKED BY	E. PERDUE/AM/LLB/MLL
DATE CREATED	WILLIAM WALKER
PROJECT DATE	10/20/11
SCALE	AS SHOWN
DESIGNER	AECOM
PROJECT TITLE	ES-101

EROSION AND SEDIMENT CONTROL PLAN

ES-101

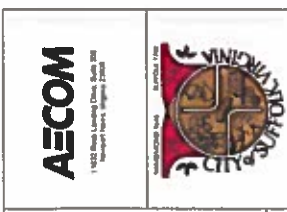
SHEET 7 OF 11



NOTES

1. SURVEY AND STAKE OUT THE LIMIT OF DISTURBANCE (LOD) AND OBTAIN APPROVAL FROM CITY OF SUFFOLK PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.
CLEAR AS NECESSARY TO INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND INSTALL.
2. FLUSH CUT ONLY AS NECESSARY TO INSTALL THE FOLLOWING EROSION AND SEDIMENT CONTROL MEASURES:
 - 2.1 Silt Fence from Edge of Water to Edge of Road
 - 2.2 Turbidity Curtains from Silt Fence to Twenty (20) FT Beyond End of Culvert
3. TEMPORARY SEED ALL DISTURBED AREAS THAT WILL NOT BE PERMANENTLY SEED WITHIN 14 DAYS.
4. AREAS TO BE PERMANENTLY SEED SHALL BE HYDROSEED.
5. SUNSHINE POINT IS THE PREFERRED STAGING AND STOCKPILE AREA IF AT ANY POINT PARK APPURTENANCES (PCHIC TABLES, GRILLS, TRASH CANS, ETC.) ARE DAMAGED, THEY SHALL BE REPLACED IN KIND POST CONSTRUCTION AT CONTRACTOR'S EXPENSE.

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 40'



CITY OF SUFFOLK
 DEPARTMENT OF PUBLIC UTILITIES
 443 WEST WASHINGTON ST
 SUFFOLK, VA 23134

LAKE I
 CULVERT ABANDONMENT

ISSUED FOR BIDDING: _____
 SCHEDULE FOR CONSTRUCTION: _____

REVISIONS: _____

NO. _____ DESCRIPTION _____ DATE _____

DESIGNED BY: E. FIDANZARIS/TELLER & GALASSI
 CHECKED BY: INALIANI/TELLER & GALASSI
 DATE DRAWN: _____
 SCALE: AS SHOWN
 ACQUAINT: _____
 SHEET TITLE: _____

EROSION AND SEDIMENT CONTROL DETAILS

ES-201

SHEET # OF 11

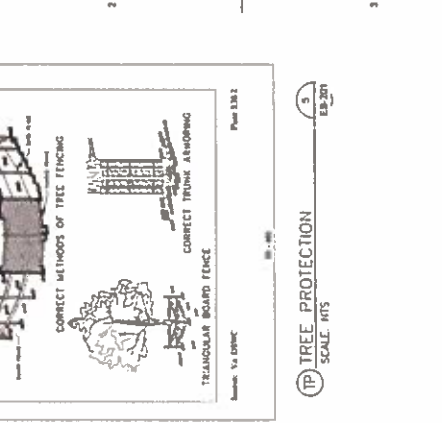
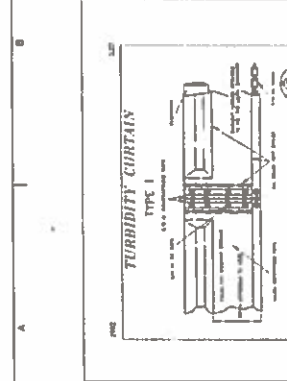
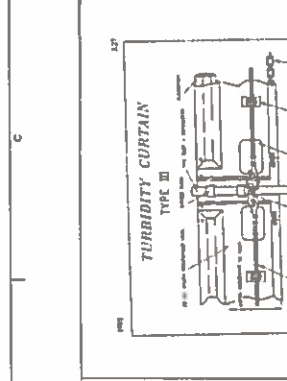
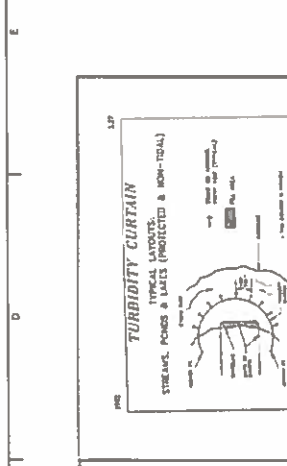
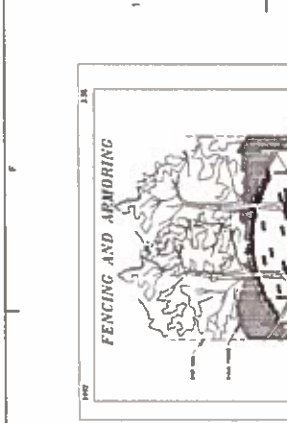


TABLE 1304a
 EROSION CONTROL MATERIALS AND APPLICATION RATES

INCLUDED	QUANTITY	APPLY TO	APPLY TO	APPLY TO	APPLY TO	APPLY TO	APPLY TO	APPLY TO	APPLY TO
Pre-Seed	15.0 tons (15,000 lbs.)	100% of area	100% of area	100% of area	100% of area	100% of area	100% of area	100% of area	100% of area
Post-Seed	1.0 ton (1,000 lbs.)	100% of area	100% of area	100% of area	100% of area	100% of area	100% of area	100% of area	100% of area

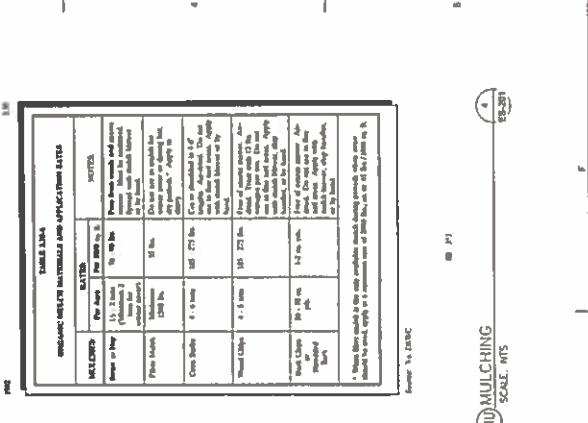
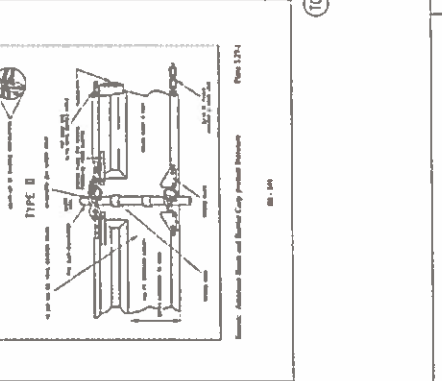
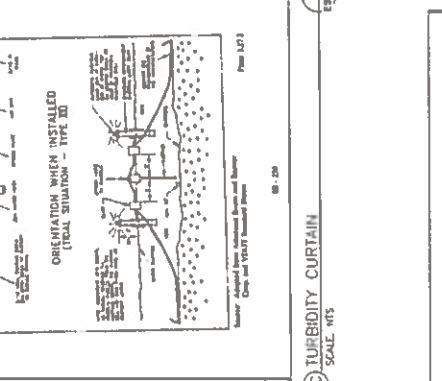
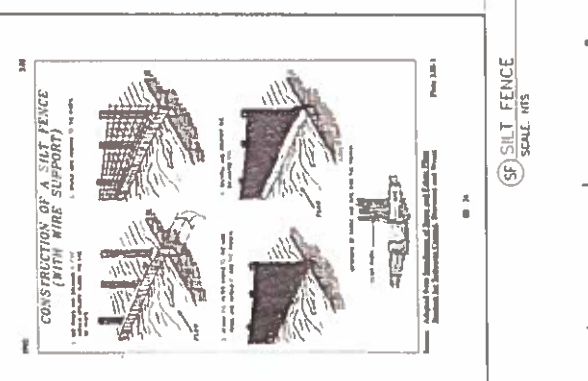
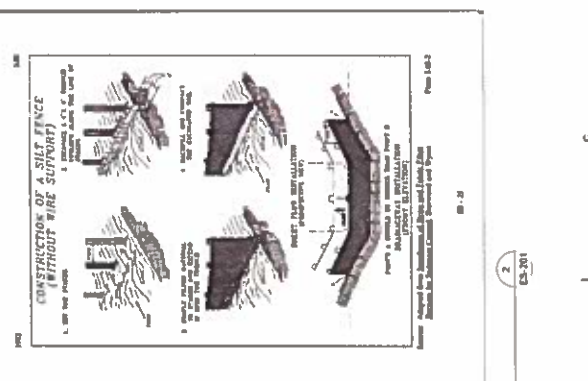


TABLE 1306
 QUALITY OF SEED

Location	Material	Quantity	Quality
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure
Channel	100% Pure	100% Pure	100% Pure
Embankment	100% Pure	100% Pure	100% Pure





CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
422 WEST WASHINGTON ST
SUFFOLK, VA 23434

**LAKE I
CULVERT ABANDONMENT**

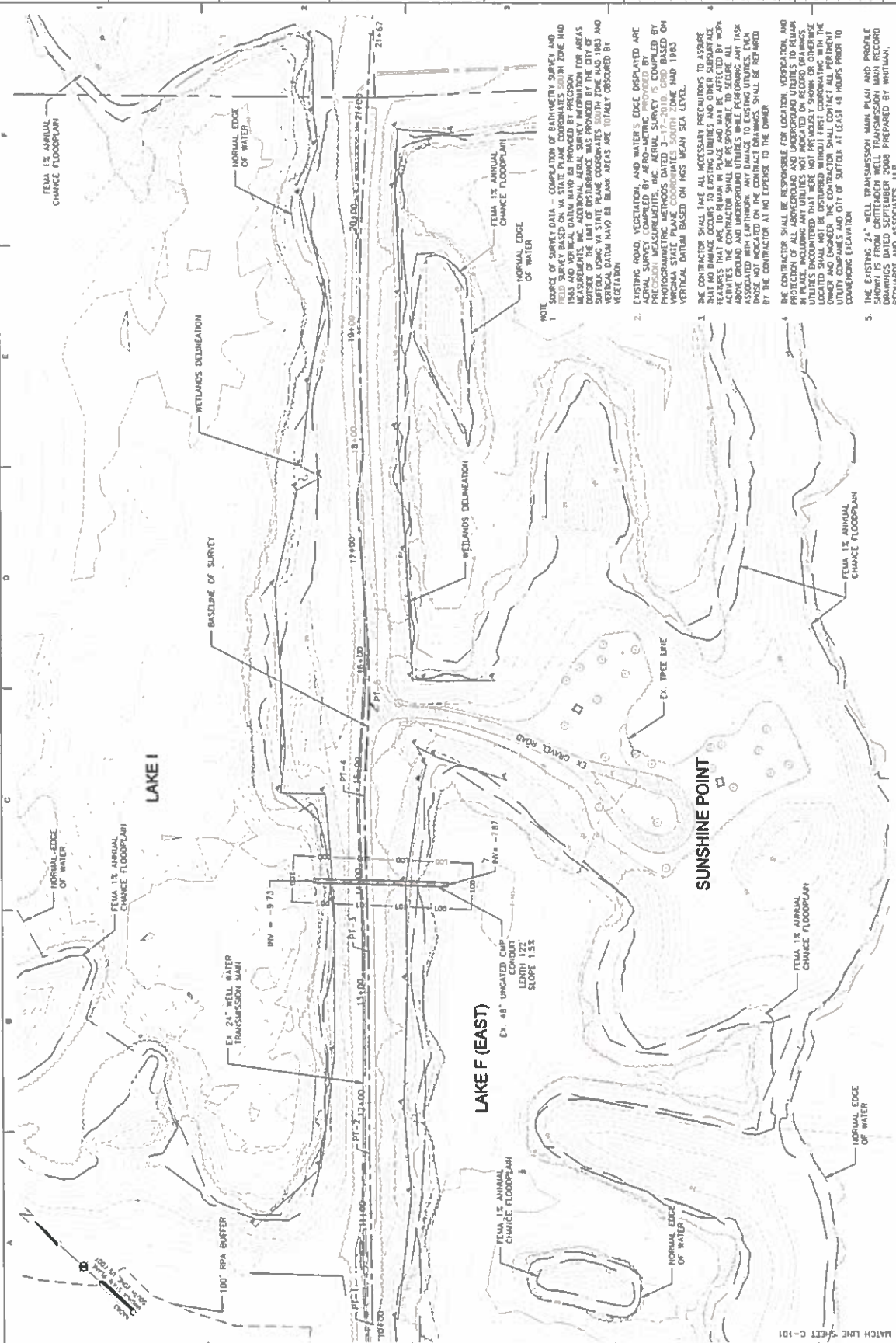


REVISIONS

NO	DESCRIPTION	DATE

PROJECT NO.	1115052.00
OWNER	CITY OF SUFFOLK
DESIGNED BY	W. WALTERS
CHECKED BY	K. HARRISON
DATE CHECKED	08/27/2012
DATE DESIGNED	08/27/2012
SCALE	AS SHOWN
DRAWN BY	
CHECKED BY	
DATE CHECKED	
DATE DESIGNED	
SCALE	
DRAWN BY	
CHECKED BY	
DATE CHECKED	
DATE DESIGNED	
SCALE	
DRAWN BY	
CHECKED BY	
DATE CHECKED	
DATE DESIGNED	
SCALE	
DRAWN BY	
CHECKED BY	
DATE CHECKED	
DATE DESIGNED	
SCALE	
DRAWN BY	
CHECKED BY	
DATE CHECKED	
DATE DESIGNED	
SCALE	

SHEET TITLE	
EXISTING CONDITIONS PLAN	
C-101	
SHEET 9 OF 11	



EXISTING CONDITIONS PLAN
SCALE: 1" = 40'

NOTE: PROJECT IS LOCATED WITHIN RPA BUFFER ZONE.

NOTE: PROJECT IS LOCATED WITHIN RPA BUFFER ZONE.

1. THE EXISTING 24" WELL TRANSMISSION MAIN PLAN AND PROFILE DRAWINGS DATED SEPTEMBER 2008 PREPARED BY WHITMAN, RECHARDT AND ASSOCIATES, LLP.

2. THERE IS AN EXISTING 48" UNGRADED CUP CONDUIT LOCATED WITHIN THE BUFFER ZONE. THE CUP CONDUIT IS LOCATED WITHIN THE BUFFER ZONE. THE CUP CONDUIT IS LOCATED WITHIN THE BUFFER ZONE. THE CUP CONDUIT IS LOCATED WITHIN THE BUFFER ZONE. THE CUP CONDUIT IS LOCATED WITHIN THE BUFFER ZONE.

3. THE SURVEY WAS CONDUCTED ON AUGUST 27, 2012. THE SURVEY WAS CONDUCTED ON AUGUST 27, 2012. THE SURVEY WAS CONDUCTED ON AUGUST 27, 2012. THE SURVEY WAS CONDUCTED ON AUGUST 27, 2012. THE SURVEY WAS CONDUCTED ON AUGUST 27, 2012. THE SURVEY WAS CONDUCTED ON AUGUST 27, 2012.

AECOM
1432 Ross Landing Drive, Suite 300
Reston, Virginia 20192



CITY OF SUFFOLK
DEPARTMENT OF PUBLIC UTILITIES
442 WEST WASHINGTON ST
SUFFOLK, VA 23434

LAKE 1
CULVERT ABANDONMENT



PREPARED FOR: ...

DESIGNED BY: J. LUNDQVIST/ALP

CHECKED BY: A. LONGE/JFW/WALKER

DATE CHECKED: ...

DATE DATE: ...

SCALE: AS SHOWN

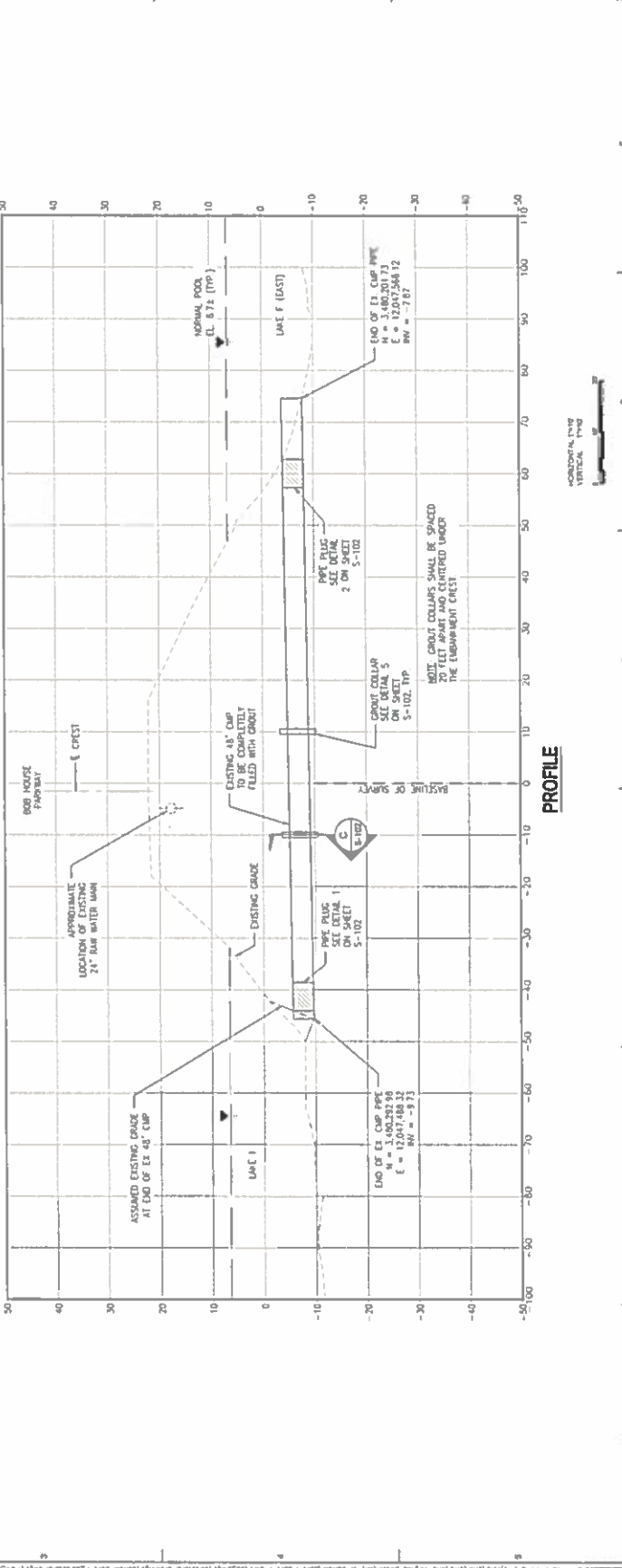
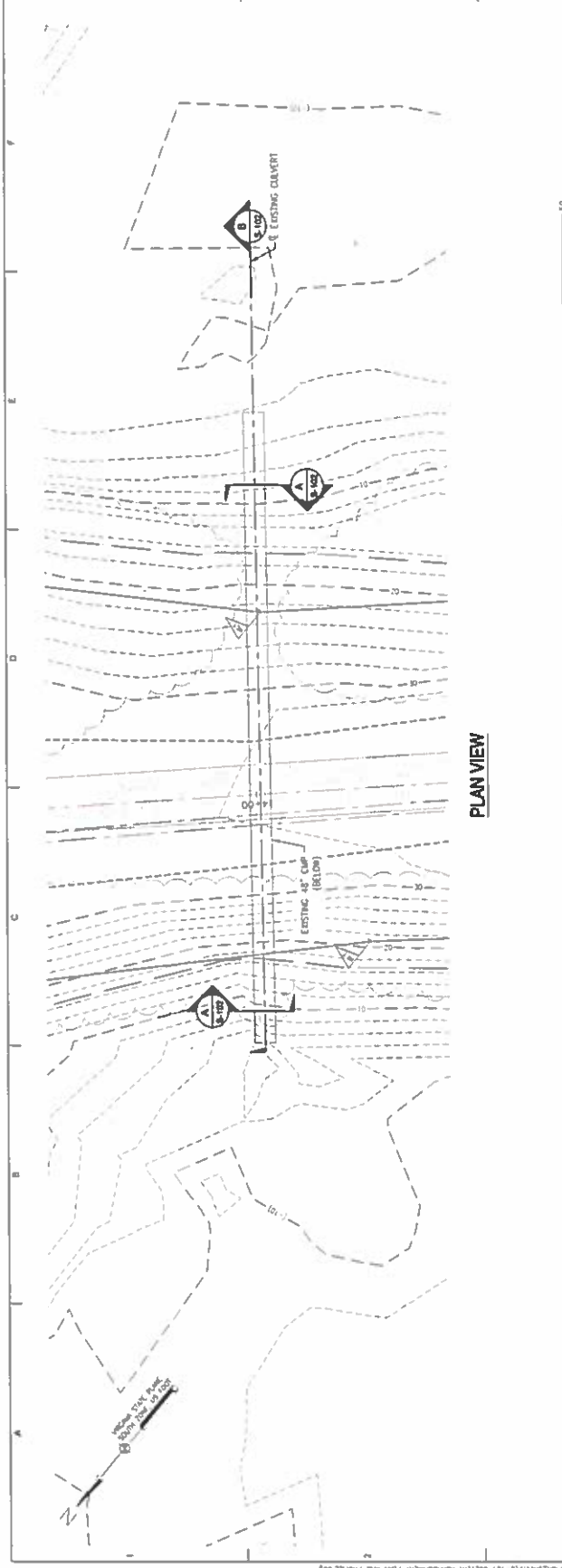
REVISIONS

NO	DESCRIPTION	DATE
1		
2		
3		
4		
5		
6		

CULVERT ABANDONMENT
PLAN AND PROFILE

S-101

SHEET 10 OF 11



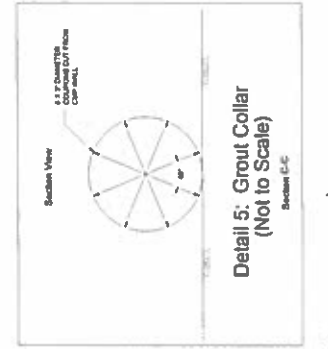
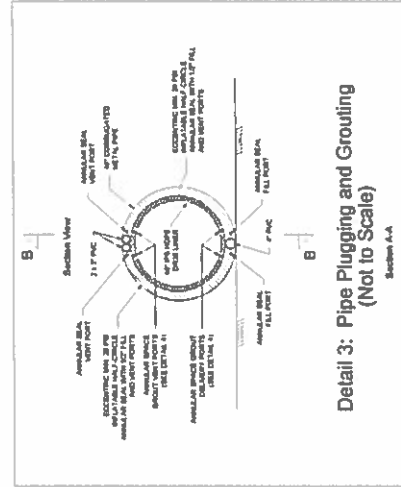
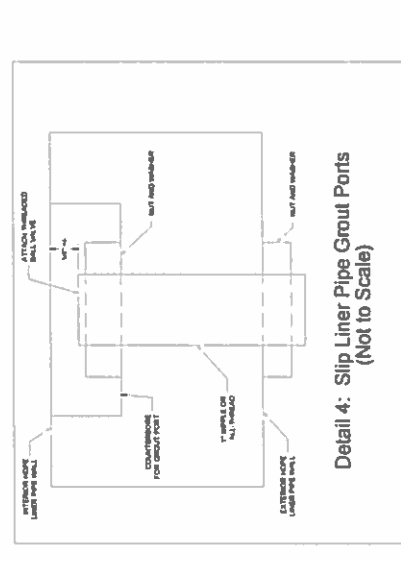
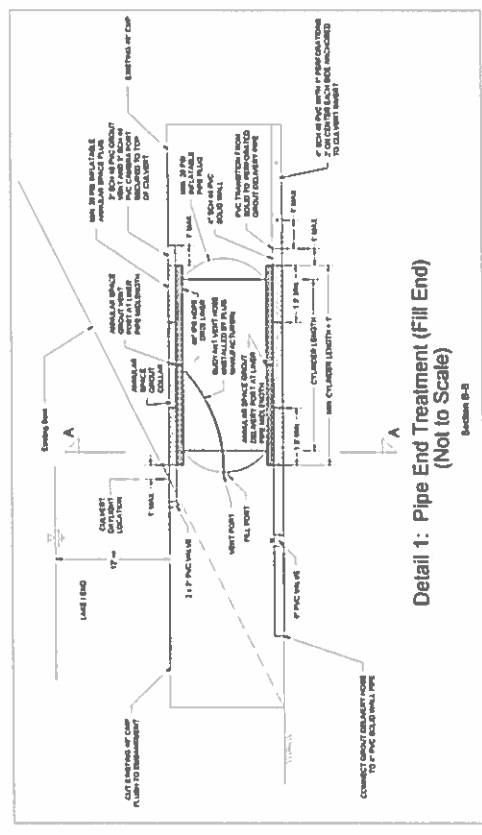
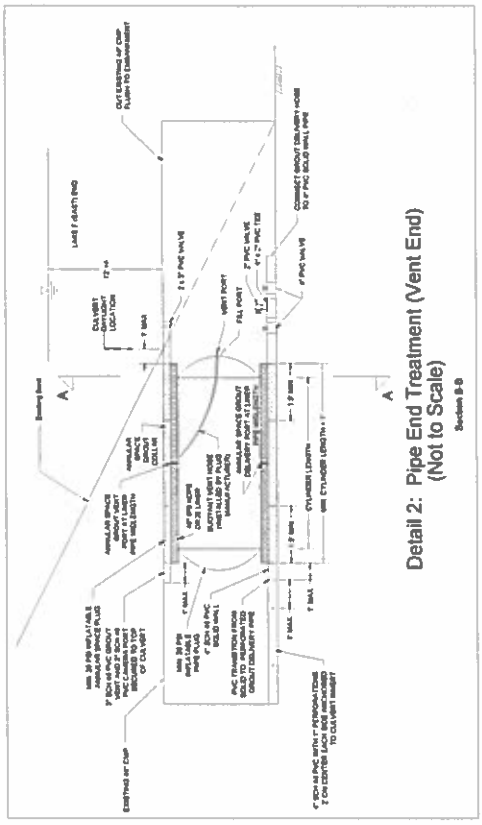


REVISIONS	
NO.	DESCRIPTION

PROJECT NO.	
DATE	
DRAWN BY	
CHECKED BY	
DATE DRAWN	
DATE CHECKED	
SCALE	

SHEET TITLE	
CULVERT GROUTING DETAILS	

S-102
SHEET 11 OF 11



- NOTES**
1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 2. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 4. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 5. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 6. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 7. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 8. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 9. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 10. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 11. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 12. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 13. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 14. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 15. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 16. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 17. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 18. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 19. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 20. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 21. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 22. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 23. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.
 24. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING GROUT FROM THE AREA OF THE ABANDONED CULVERT.
 25. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS. SIGNIFICANT SCALE OR REFLECTION OF PREPARED DRAWINGS.