



ADDENDUM No. 1

**Project: 2018 Community Conservation Park
Chapel Lake Park**

Jeffersonville, Indiana

Proj. No: 1834.01

Date: November 1, 2018

This addendum is a part of the bid documents. Acknowledge receipt on the Proposal Form.

General

1. Notify Matt Gullo of any questions regarding bidding at phone (812-913-4616) or email (matt.gullo@koverthawkins.com).
2. Bids are due **November 28 @ 9:30am**. Bids should be delivered sealed to the City of Jeffersonville Clerk's Office, located in City Hall Suite 156.
3. Contractor may request CAD files for take-offs. Email Matt Gullo for CAD files.
4. No building permit fees will be required for this project, do not include any pricing for this in the bid.
5. Site is open to the contractors for investigation starting today. There will be a site visit with the architect on Thursday November 8th at 9:00am. We will be meeting at the bend in Salem Road, next to Crystal Springs neighborhood.
6. Pre-bid agenda has been added to this addendum.
7. Pre-bid sign-in sheet has been added to this addendum.

Specifications

Section 00 11 13 (Notice To Bidders)

- Bid Date has changed to Wednesday November 28, 2018 at 9:30am during Board of Public Works Meeting (Mayor's Conference Room).
- Deliver to City Clerk's Office – City Hall Rm 156

Section 01 11 00 (Summary of Work – Single Contract)

- Add the following Substantial Completion Date to 1.08
 - E. Contractor must achieve substantial completion of the Lentzier Creek Shelter and Chapel Lake Shelter by September 2, 2019.

Section 01 23 00 (Alternates)

- As a clarification to Alternate 1 (Chapel Lake Shelter House) and Alternate 2 (Lentzier Creek Shelter House):
 - sewer and water tap, lines, pumps as required, and connections into building should be included as part of the alternate price.
 - Basebid is no sewer and water connection to be installed for either alternate.
 - Electric runs, transformer and meter to be included as part of the alternate. Contact Duke for pricing on each shelter. Contact information can be found on the utility plans.
 - Basebid, a 4" conduit with pull string should be run from the road way at each shelter location to the shelter pad. Stub up conduit and cap flush with grade at the roadway and at the shelter pad.



- Separate water tap fees should be included as part of the alternate bid for each shelter alternate. Lentzier Creek Shelter is from River Ridge Water company. Chapel Lake Shelter is from Watson Water. Refer to the utility plans for contact information.
- There will not be a sewer tap fee needed for this project, do not include pricing for this bid.

Section 01 35 53 (Project Security)

- Delete specification section in full. No guard is required as part of this project.

Section 02 30 00 (Subsurface Exploration) – Clarification

- Information regarding the soil pond liner to be omitted in full. A rubberized pond liner will be needed for this project

Section 33 46 11.24 (Pond Liner)

- Section on pond liner to be added to the specifications in full. See attached specification section.

Drawings

C102-5 (Chapel Lake Detailed Lake Grading and Drainage Plan)

- Remove "Lake Bottom Line Requirements" notes in full.
- Add the following note
 - Lake to be fully lined with a RPE 30 mil. liner. Refer to specifications for details on liner. Refer to detail 6/C-405 for lake anchor trench construction detail. (See attached drawing to this addendum for details to be added)

C103-3 (Sediment Control Details)

- Replace existing sediment control sheet with revised sediment control sheet. (See attached sediment control details sheet C103-3)

C202-2 (Paved Ditch Pedestrian Crossing)

- Footbridge crossing information and detail shown on this sheet to be replaced with detail 7/C-405 (Paved Flat Bottom Ditch Pedestrian Crossing)

C-403 (Construction Details)

- Clarification on detail 3/C-403 (Typical Dirt Trail) – provide 6" minimum depth of clay soil as a base for the dirt trail. Additional soil can be added to waste lake excess soil material.
- Clarification on detail 4/C-403 (Typical Mowed Trail) – grass trails will only require soil scarification, weed eradication as required, smooth out soil (no grading), seed and straw per plans.

C-405 (Construction Details)

- Add Lake Anchor Trench detail 6/C-405. (See attached AD-1 sheet for new Anchor Trench Detail)
- Add Paved Flat Bottom Ditch Pedestrian Crossing detail 7/C-405. (See attached AD-1 sheet for new Pedestrian Crossing details)



Prepared by,

Matthew D. Gullo, RLA

Director of Landscape Architecture and Planning



enclosed: Pond Liner Specification 33 46 11.24
AD-1 (Detail 6/C-405 Pond Liner Detail & 7/C-405 Pedestrian Crossing Detail)
Revised C103-3 (Sediment Control Details)
Pre-bid Agenda
Pre-bid Sign-in sheet

file: 1727.01

End of Addendum No. 1



Project: *Chapel Lake Park*
City Of Jeffersonville

Jeffersonville, Indiana

Proj No.: **1834.01**

Location: Thursday, November 1, 2018 @ 2:00 PM (City Hall)

1. General and Clerical Issues

A. Introductions:

- 1) Design Team
- 2) Owner Team

B. Contract Organization:

- 1) Projects organized as a single general contract with no construction management
- 2) Division of work by trade; anticipated for bids to be inclusive of entire Specification Sections and Drawing Sheets
- 3) No prevailing wages in this contract.

C. Project Description:

- 1) New conservation park (three sections: Chapel Lake, Nature's View, Lentzier Creek)
- 2) New 5 acre lake
- 3) Two new shelters and shelter area
- 4) Two new playgrounds
- 5) Parking at shelter areas
- 6) Trails (hard and soft) – Unit Pricing
- 7) Restoration of Lentzier Creek
- 8) Landscape (seed and planting areas)

D. Bid Date and Bid Procedures:

- 1) Bid Date: Wednesday, November 14, 2018 @ 9:30 AM at Board of Public Works Meeting (Mayor's Conference Room)
- 2) Deliver bids to the Jeffersonville City Clerk's Office – City Hall, Suite 300
- 3) Contractor's Bid Submittal Checklist (Section 00 41 00):
 - a) Bids Submittal; Contractors must include at time of bids
 - Proposal Form I and II
 - Bid Security
 - Financial Information
 - b) Sealed, complete, on time to the Jeffersonville City Clerk's Office
 - c) Submit all bid information in duplicate; 1 original and 1 copy
 - d) Post-Bid Submittals; by apparent successful contractor(s) (within 24 hours following bid)
 - e) Post-Bid Submittals; by awarded contractor prior to Contract execution

E. Proposal Form (Section 00 42 01 and 00 42 02):

- 1) Fill out entire Proposal Form and all information complete
- 2) Complete pricing for Base Bid
- 3) Acknowledge all Addenda
- 4) Complete pricing for all Alternates (Section 01 23 00)
- 5) Acknowledge Cash Allowance (Section 01 21 13)
- 6) Acknowledge Contingency Allowance (Section 01 21 16)
- 7) Completion of Work (Section 01 11 00)
- 8) Complete General Contractor Certification, Oath and Affirmation, Acknowledgement



F. Legal Requirements:

- 1) Bid Security (Section 00 43 13)
- 2) Performance Bond / Labor and Material Payment Bond (Section 00 61 13)
- 3) Insurance (Section 00 72 00-Article 11)
- 4) Employee Background Check (Section 00 72 00-Article 13)
- 5) Employee Drug and Alcohol Testing (Section 00 72 00-Article 13)
- 6) Employee Eligibility Verification (Section 00 72 00-Article 13)

G. Explanation of Alternate Bids (Section 01 23 00):

- 1) G100s, 200s, 300s (Location of Basebid and Alternate items)
- 2) Alternate No. 1: Chapel Lake Shelter House
- 3) Alternate No. 2: Lentzier Creek Shelter House
- 4) Alternate No 3: Site Lighting
- 5) Alternate No 4: Landscape at Chapel Lake
- 6) Alternate No 5: Bridge at Chapel Lake Section
- 7) Alternate No 6: Prairie/Meadow at Lentzier Creek Section
- 8) Alternate No 7: Site Furnihings Phase 2
- 9) Alternate No 8: Parking Lot Asphalt Surface Course
- 10) Alternate No 9: Playground Rubber Surface: Chapel Lake Section
- 11) Alternate No 10: Playground Rubber Surface: Lentzier Creek Section
- 12) Alternate No 11: Lentzier Creek Restoration: North
- 13) Alternate No 12: Lentzier Creek Restoration: South
- 14) Alternate No 13: Prairie/Meadow at Nature's View Section
- 15) Alternate No 14: Limestone Stairs at Lentzier Creek Shelter

2. Phasing, Scheduling, and Coordination

A. Construction Scheduling and Phasing Requirements (Section 01 11 00):

- 1) Award, Notice To Proceed, Pre-Construction Meeting, Mobilization and Startup, Immediate Needs
- 2) Begin work November 2018
- 3) Substantial Completion Entire Project March 2, 2020
- 4) Final Completion March 30, 2020

B. Working Conditions and Special Issues:

- 1) Land Disturbance – Conservation Park
- 2) Visit the site
- 3) Land disturbance – keep to a minimal
- 3) Working with the architect during construction – placement and intent of design

3. Administrative Issues

A. Project Bidding Website:

- 1) Kovert Hawkins Architects website at www.koverthawkins.com/bid-information
- 2) Become a Registered Planholder
- 3) All documents available for free download; Drawings, Specifications, Plan Holders List
- 4) All documents also sent to Don Meredith Reprographics for purchase and printing
- 5) All Addenda issued to Registered Planholders

B. Addenda:

- 1) Addendum No. 1 – issued after meeting.

C. Participants need to document their attendance on the Sign-In Sheet

4. Technical Issues

A. Questions

B. Tour of project site, directly following meeting



SIGN-IN SHEET

Project: *Chapel Lake Park*
City of Jeffersonville, Indiana

Subject: Pre-Bid Meeting

Date: Thursday, November 1, 2018 @ 2:00 PM

Name	Company	Email	Phone
Bryan Stumler	Bryan Stumler Excavating	bstumler@stumlerwin.net	812.923.9772
Scotty Striegel	Bryan Stumler Excavating	scotty@stumlerwin.net	502.759.8559
Kenny Taylor	DeBra-Kuempel	ktaylor@debra-kuempel.com	502.475.1418
Jim Horton	E & B Paving, Inc.	jim.horton@ebpaving.com	812.596.0275
Ben Davis	E-Z Construction	bendaris@ezconst.com	502.937.6855
Dennis Dixon	Flynn Brothers	ddixon@flynnbrothers.com	502.364.9100
Matt Gullo	Kovert Hawkins Architects	matt.gullo@koverthawkins.com	812-913-4616
Robert Norrington	Laborers Local 795	rnorrington@sbcglobal.net	502.648.4762
James Crosier	Mac Construction	jcrosier@macconstruction.com	812.941.7895
Mark Byas	Martin Construction	markb@martinconc.com	502.375.3701
Todd Waldrip	Prodigy Construction	twaldrip@prodigy-construction.com	502.376.4600
Brad Anderson	Redwing Ecological	banderson@redwingeco.com	502.625.3009
Jason Miller	Temple and Temple	jasonm@templeandtemple.com	812.883.6644

SECTION 33 46 11.24 – POND LINER

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Furnish and install a flexible membrane lining as shown on engineering or contractor supplied drawings. All work shall be done in strict accordance with the drawings and related specifications and the membrane lining manufacturer's recommendations.
- B. It is the intent of these specifications to insure a quality finished product as described on the plans and specifications and shall be the responsibility of the contractor to take whatever measures shall be deemed necessary to insure that this requirement shall have been met.

1.02 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's product data sheets, cutsheets, specifications and materials description.
 - 2. Manufacturer's installation and maintenance instructions.
 - 3. Warranty documentation
 - a. 20 year warranty if fully covered above water.

1.03 QUALITY CONTROL

- A. Manufacturers Roll Sampling:
 - 1. Each roll upon delivery from the manufacturer to the fabricator shall be visually inspected. Each roll shall be wrapped individually and each roll shall be clearly labeled with a roll number and lot number.
 - 2. Prior to placing the roll into production, the roll number and lot number will be recorded on the shop drawing and production order. A 6" wide sample taken from the entire width of the roll will be removed and cut into 2 pieces 6"x 6' long and welded together for sampling and material integrity testing. Peel testing of the sample shall be done to insure weldability and careful inspection at weld separation shall be checked for delamination. If delamination failure is present, retest as described above, after removing 15 feet from the roll. If failure is still apparent the roll shall be labeled as rejected and removed from the production area. These procedures apply to all new rolls and roll splice joints. All roll tests are to be recorded in the test log.
- B. Factory Fabrication
 - 1. The individual widths of the rpe fabric shall be assembled into large sheets custom-designed for the specific project so as to minimize field seaming. All factory seams shall provide a bond between the sheet goods sufficiently strong to meet the test requirements of these specifications.
 - 2. All machines used in the seaming process shall be tested daily, prior to any fabrication, by welding a 6' long test sample of the material and manually peel testing along the entire length. Each test must show film tear bonding along the length of the seam to be considered a "pass". All results shall be recorded in the test report log and must include Date, time, machine #, operator, temp and speed as well as pass/fail indication. If the sample fails the testing, make appropriate corrections to the equipment and retest as stated above.
 - 3. Machines will be further requalified after the following: change of material, unexpected power loss, change of operator, or shutdowns of 45 minutes or longer.
 - 4. The factory seaming shall be performed on thermal welding equipment with pressure wheels and shall consist of seams of 2" minimum width in the case of wedge welding, 1.5" width in the case of hot air welding, which will provide a film-tearing bond of 80% of the fabric tensile strength. All seams shall be visually inspected along their entire length, and destructive tested at an interval not to exceed 500 lineal

feet of factory seam per machine.

C. Installer Qualifications

The installer of the lining fabric shall be experienced in the installation of flexible membrane linings and shall be approved by the supplier of the material.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Factory fabricated panels shall be accordion folded during production to width of approximately 6' wide. Upon completion each bundle shall be folded or rolled by hand or machine based on the total square footage of the panel. Finished panel weighing 1300 lbs. (600 kg) or more are rolled by machine and include a core and continuous unroll strap.
- B. When appropriate to shipping method, each roll shall be secured to a pallet or export container designed to be moved by a forklift or similar piece of equipment. Each factory-fabricated panel shall be prominently marked with the panel size and unrolling directions.
- C. When appropriate each panel will then be wrapped with its own protective wrap and marked again as to size and installation direction.
- D. Packaged factory liner sections, which are delivered to a project site, shall be stored in their original shipping wrappers and stored in a dry area and protected from harsh weather elements when at all possible. When palletized, liner panels shall not be stacked in order to avoid damage.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Everything-Ponds

2.02 MATERIAL

- A. The installed **BASE REQUIREMENTS** for the pond liner shall have the following properties:
 1. Premium Grade RPE 30 mil (Single Scrim RPE (polyethylene – low temperature hydrocarbons stable).
 2. The pond liner to have the following Standards Base Requirements:

<u>Specification</u>	<u>Property</u>	<u>Standard</u>
Description	Black 12x12 count/inch	
Weight	15.6 OZ./SQ.YD. (+/-5%)	ASTM D751
Thickness	30 MIL (+/-10%)	ASTM D1777
Coating Thickness	5.5 MIL Each (+/-5%)	
Tensile Strength	MD 345 LBS.	ASTM D7004
(Grab Method)	TD 420 LBS.	
(Strip Method)	MD 235 LBS.	ASTM D7003
	TD 300 LBS.	
Tear Strength	MD 50 LBS.	ASTM D5884
(Tongue Method)	TD 55 LBS.	
Bursting Strength	700 PSI	ASTM D751
Hydrostatic Resistance	610 PSI	ASTM D751
Puncture Resistance	202 LBS.	ASTM D4833
Low Temperature Cold Crack	-85 ° F	ASTM D2136

Permeability	<1.07 x10 ⁻¹² CM/SEC	
Seam Strength (Shear)	Seams shear should be >80% of the stip tensile of the base fabric.	
Seam Strength (Peel)	4 LBS. Inch	ASTM D413
Carbon Black Content	7.5%	ASTM D4218
Carbon Black Dispersion	Category 1	ASTM D5596
UV Resistance	>90% Strength Retained After 2000 Hrs.	ASTM G-151

PART 3 - EXECUTION

3.01 LINING BASE STRUCTURE PREPARATION:

- A. A base shall be prepared on the bottom, slopes and sidewalls of any area to be lined. This base shall be free of all sharp objects, roots, grass and vegetation. Unsuitable material found during the pre-installation inspection by the installer shall be removed and/or appropriately covered with adequate protective materials prior to the installation of the liner.
- B. Any structure or containment area built from man-made materials (metal, concrete, etc.) shall not allow protrusions, pinch points or movement of the supporting structure which might damage the liner material and adversely affect the ability of the membrane to perform its waterproofing function.
- C. The base (subgrade) material shall be native materials or materials obtained from a borrow source compacted to a minimum 95% compaction.
- D. Foreign materials, vegetation, protrusions, voids, cracks and other penetrating or raised sources shall be removed from the base, slopes and sidewalls of the containment area or structure. Loose rocks, rubble and other foreign matter shall be collected and deposited in an appropriate site out of the area to be lined. The excavated and filled areas shall be trimmed to elevations and contours shown on the drawings and shall be smooth, uniform and free of all foreign matter, vegetation and sudden changes in grade.
- E. A pre-installation inspection shall be called for and ALL interested parties. Any parties not participating in this inspection shall be construed as accepting the site preparation and will acknowledge this defacto acceptance in writing at the appropriate time.

3.02 FINAL SUBGRADE PREPARATION:

- A. The subgrade shall be prepared or be confirmed ready immediately prior to the placing of the liner. The surface on which the liner is to be placed is to be firm, clean, dry and smooth. Anchor trench excavation and any structure sealing or preparation should be completed before the lining installation begins.

3.03 LINING INSTALLATION:

- A. A continuous sheet of liner shall be installed throughout the installation site as according to the drawings. The lining shall be placed over the prepared surfaces to be lined in such a manner as to assure a minimum of handling. The sheets shall be of prescribed lengths and widths and shall be placed in such a manner as to minimize field seams. Only those pieces of fabric that can be installed and anchored in place during the

workday shall be unpacked and placed in position.

- B. Sandbags and/or other suitable ballast may be used as required to hold the lining in position during the installation. The weights shall not have any sharp edges, which may snag or otherwise penetrate the liner fabric. Care should be taken to keep the seam areas as clean as possible. It may be necessary to wipe down the edges prior to heat-sealing the panels together.
- C. No materials or equipment shall be dragged across the face of the liner nor shall the workmen while installing the liner subject the liner to abuse. All installation party members shall wear soft-soled shoes or boots while working on the surface of the liner.
- D. Lining sheets shall be closely fitted around all penetrations through the liner. Lining to concrete seals shall be accomplished with mechanical anchors as shown on drawings. All piping, structures and irregular projections shall be sealed and flashed with pre-fabricated pipe boots or other approved sealing methods.
- E. A meeting of all interested parties shall proscribe the method of backfilling of the site with the appropriate materials. The lining installation manager prior to commencement of the backfilling program shall approve all actions undertaken to place the top cover material.

3.04 FIELD SEAMS:

- A. All seaming shall be done with thermal heat-sealing equipment or with the adhesives of the lining fabric manufacturer's brand. Heat-sealing with automatic wedge welding is the preferred method of field seaming whenever possible.
- B. Wedge welders for field seams shall be qualified prior to beginning field seaming. A 6' section of material, at current ambient temperature, shall be welded and manually torn apart to insure proper welding adhesion.
- C. Lap joints require a minimum of 2.5" overlap of the factory fabricated panels. The contact surfaces of the panels must be cleaned and all moisture and other foreign material must be removed prior to heat sealing.
- D. If the sub-surface area is not capable of 95% compaction it may require the placement of a back board or rub sheet under the liner to give a firm, dry and clean welding surface.
- E. Extreme caution should be taken throughout the installation to avoid wrinkling the edge of the liner. These "fish mouths" must be slit back sufficiently to remove them and the liner sealed to assure total integrity.
- F. Any portion of the liner damaged or hurt for any reason shall be repaired or replaced by the installation crew before it departs. Normally the ends of the panels can be used for a patching source.

3.05 PATCHING:

- A. Any repairs resulting from damage during installation shall be repaired with like fabric and heat sealing to ensure a secure lining. At least 2"-4" of overlap to be used on any penetrations. Any major scuffing to be replaced with undamaged liner.

3.06 INSPECTION:

- A. A thorough inspection of the completed liner installation shall be undertaken by a representative of the installer and a representative of the owner or the engineer in charge of the project.

3.07 FIELD TESTING:

- A. All field seams shall be visually inspected along their entire length for integrity. If required by contract seams and repairs may additionally require non destructive testing using the Air Lance method (ASTM D4437) as outlined:
 - 1. Installer will supply a compressor and air wand with a fixed nozzle tip with an opening approx. 3/16”.
 - 2. Compressor shall be equipped with an output gauge and the ability to continuously supply 50 psi of air pressure.
 - 3. The non destructive test involves running the nozzle of air 2” away from the outside edge of the field seam for its entire length. If air penetrates the seam area the audible noise or visual puffing of the seam indicates an area of concern and should be marked and repaired accordingly.

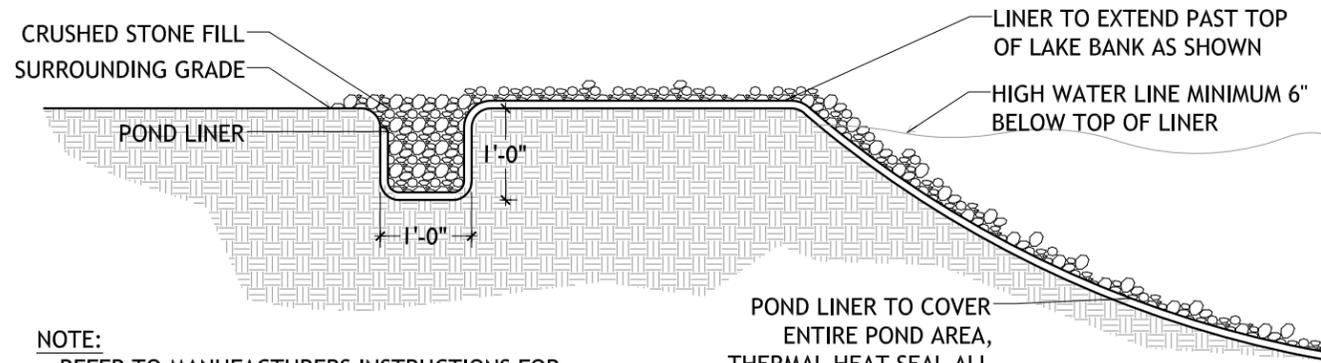
3.08 SOIL COVER:

- A. RPE geomembranes may be covered by soil as needed. In areas of high traffic or areas with a high water table covering the entire liner is often recommended.
- B. Care should be taken when covering the liner to prevent any damage to the geomembrane or geosynthetics. At no time will construction equipment be allowed to drive directly on the liner. Access roads for clean soil cover should be maintained to provide 6” minimum, 12” preferable, between the excavation equipment and liner at all times. Damage to the liner shall be repaired prior to proceeding with cover. Costs associated with repairs are the contractor’s responsibility.
- C. Cover material shall be 1/2” minus particles, clean rounded soils or gravels free of sharp edges, sticks, rubbish and debris or foreign materials. The cover material shall be placed as soon as practical, in conjunction with or upon completion of the liner installation, or as the installation progresses in order to minimize traffic. Site specific materials or sizes may be acceptable. It is recommended that the contractor receive prior written approval for acceptance of the cover materials, from the manufacturer representative, before covering the liner.
- D. Cover soils should be dumped and leveled over the liner and not pushed from one end to the other to minimize rolling of the geomembrane beneath the soils. Cover soil should always be placed from the base up on slopes never pushed from the top of the slope downwards. Equipment should be turned in long sweeping turns and not spun quickly to eliminate the chance of tires digging down to the liner thru the cover soil.
- E. When covering or initially filling a liner it is important not to lock the liner into the perimeter anchor trench prior to covering. This can cause undue stress and tension on the liner slopes during the covering process. The anchor trench or perimeter shelf area should be the last area covered to complete the cover process.

SUBMITTAL CHECKLIST

- 1. Product Data.

END OF SECTION 33 46 11.24

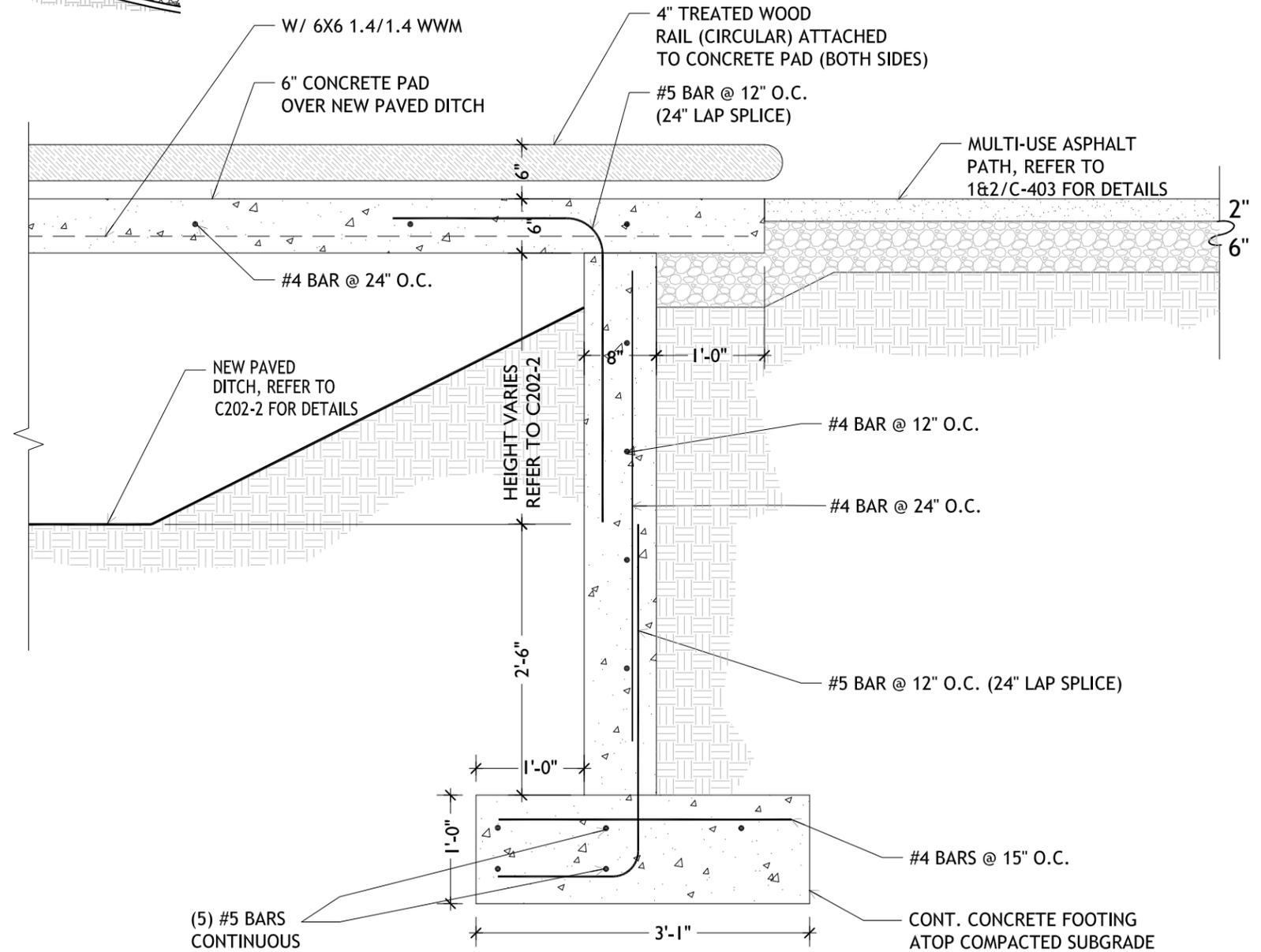


POND LINER TO COVER ENTIRE POND AREA, THERMAL HEAT SEAL ALL SEAMS AS REQUIRED BY SPECIFICATIONS.

NOTE:

- REFER TO MANUFACTURERS INSTRUCTIONS FOR INSTALLATION GUIDELINES.
- LINER MAY NEED CLAY SOIL OVER TOP TO KEEP LINER IN PLACE. REFER TO MANUFACTURERS SPECIFICATIONS FOR PLACING SOIL OVER NEW LINER.
- REFER TO SPECIFICATIONS FOR LINER DETAILS.

6 Lake Edge Anchor Trench
C-405 NOT TO SCALE



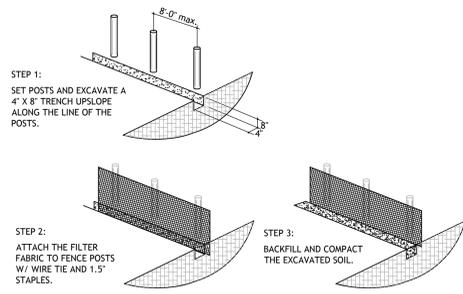
7 Paved Flat Bottom Ditch Pedestrian Crossing
C-405 full size plot scale: 3/4"=1'-0"



Drawn	MG
Checked By	MG
Project No.	183A.01
Date	10/29/2018

Revisions	1	2	3	4	5	6
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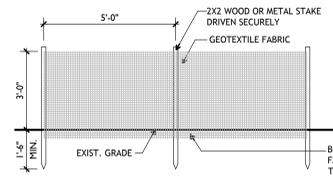




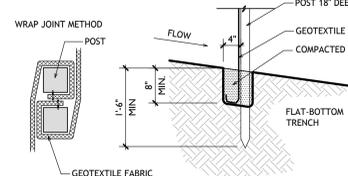
MAINTENANCE

- * INSPECT THE SILT FENCE WEEKLY AND AFTER EACH STORM EVENT.
- * IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
- * REMOVE DEPOSITED SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT OR IS CAUSING THE FABRIC TO BULGE.
- * TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEAN-OUT.
- * AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA OR GRADE AND STABILIZE.

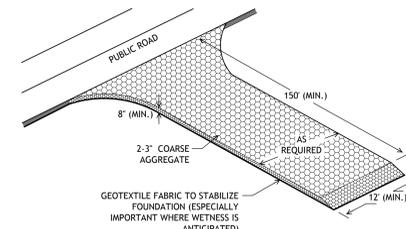
NOTE: SEE ALSO 2/C-302 AND 3/C-302



2 Silt Fence Elevation
C103-3 NOT TO SCALE



3 Silt Fence Trench Details
C103-3 NOT TO SCALE



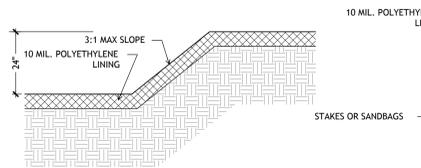
4 Temporary Construction Entrance
C103-3 NOT TO SCALE

MAINTENANCE

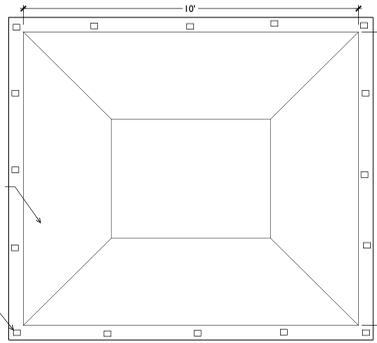
- * INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
- * RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- * TOPDRESS WITH CLEAN STONE AS NEEDED.
- * IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROAD BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
- * REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

MAINTENANCE

- * INSPECT DAILY AFTER USE OR FOLLOWING A RAINFALL EVENT
- * CHECK FOR HOLES IN THE PLASTIC LINER OR WHERE LIQUID MAY BE LEAKING OUT
- * REMOVE CONCRETE DEBRIS AFTER IT HARDENS AND REPLACE LINER AS NEEDED
- * INSPECT INGRESS/EGRESS TO WASHOUT AREA TO ENSURE IT IS STABLE AND THERE IS NO TRACKING OF SOIL ONTO ROADWAY
- * REMOVE EXCESS MATERIAL WHEN WASHOUT AREA REACHES 50% OF CAPACITY
- * UPON TERMINATION OF CONSTRUCTION ACTIVITY THE WASHOUT AREA SHOULD BE TOTALLY CLEANED OF DEBRIS, THE LINER PROPERLY DISPOSED OF AND THE PIT FILLED TO FINISH GRADE AND STABILIZED.



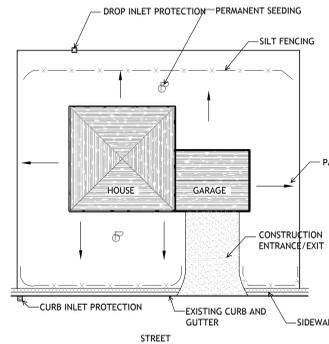
DETAIL VIEW



PLAN VIEW

CONCRETE WASHOUT BASIN NOTES

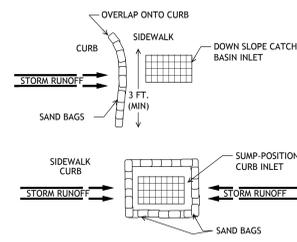
- 1) CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
- 2) SIGN SHALL BE CONSTRUCTED AND BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- 3) THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
- 4) AT THE END OF CONSTRUCTION ALL WASTE CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN ACCEPTED WASTE SITE.
- 5) WHEN THE CONCRETE WASHOUT AREA IS REMOVED THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE CITY.



6 Typical Building Site Erosion Control
C103-3 NOT TO SCALE

MAINTENANCE

- 1) DURING BUILDING CONSTRUCTION/EXCAVATION, KEEP AREA OF DISTURBANCE TO A MINIMUM.
- 2) ALL AREAS THAT ARE DISTURBED FOR CONSTRUCTION OR EXCAVATION THAT ARE NOT COVERED SHALL IMMEDIATELY BE STABILIZED BY SEEDING AND OR COVERING.
- 3) ON-SITE TOP SOIL STOCKPILING SHALL BE POSITIONED SUCH THAT IT WILL NOT INTERFERE WITH OTHER CONSTRUCTION ACTIVITIES NOT BLOCK NATURAL DRAINAGE. (SEE CONSTRUCTION/EROSION CONTROL PLAN FOR DETAIL.)
- * INSTALLATION OF SILT FENCES ALONG PERIMETER OF THE STOCKPILE WILL BE PROPERLY ERECTED IMMEDIATELY.
- * IF SOIL IS STOCKPILED FOR MORE THAN 15 DAYS, THE STOCKPILE SHALL BE TEMPORARILY SEEDED AND OR COVERED WITH A TARP.
- 4) INSTALLATION OF SILT FENCES ALONG THE PERIMETER OF THE LOT THAT IS DIRECTLY DOWNSTREAM FROM THE DISTURBED AREA, SHALL BE PROPERLY ERECTED JUST BEFORE LAND DISTURBING ACTIVITIES BEGIN. (SEE CONSTRUCTION/EROSION CONTROL PLAN FOR DETAIL.)
- 5) FOR LOTS THAT HAVE STORM INLETS ON THE DOWN SLOPE SIDE OF THE DISTURBED AREA, STORM WATER INLET PROTECTION SHALL BE IMPLEMENTED PRIOR TO DISTURBANCE, AS OUTLINED IN THE MAINTENANCE SCHEDULE AND DETAILED IN THE CONSTRUCTION/EROSION CONTROL PLAN.
- 6) ALL OF THE ABOVE DEVICES OR TREATMENTS SHALL FOLLOW THE MAINTENANCE SCHEDULE AS OUTLINED.



* FILL GEOTEXTILE BAGS APPROXIMATELY HALF FULL WITH SAND OR 2 TO 3 INCH STONE OR GRAVEL.

* AT A POSITION DOWNSLOPE OF THE LOT AND UPSLOPE OF THE INLET, LAY BAGS TIGHTLY IN A ROW CURVING UPSLOPE FROM CURB AND AWAY FROM INLET.

* OVERLAP BAGS ONTO THE CURB AND EXTEND A MINIMUM OF 3 FEET INTO THE STREET.

* FOR ADDITIONAL LAYERS, OVERLAP BAGS WITH THE ROW BENEATH, AND LEAVE A ONE-BAG GAP IN THE MIDDLE OF THE TOP ROW TO SERVE AS A SPILLWAY.

* PLACE BAGS IN AN ARC AROUND CURB INLETS THAT ARE IN A SLUMP POSITION.

* SET UP SAFETY/TRAFFIC BARRIERS TO KEEP VEHICLES FROM HITTING BAGS, CAUSING POSSIBLE INJURY.

* INSPECT AND REPAIR AS NEEDED, AND REMOVE ANY ACCUMULATED SEDIMENTS AFTER EVERY STORM.

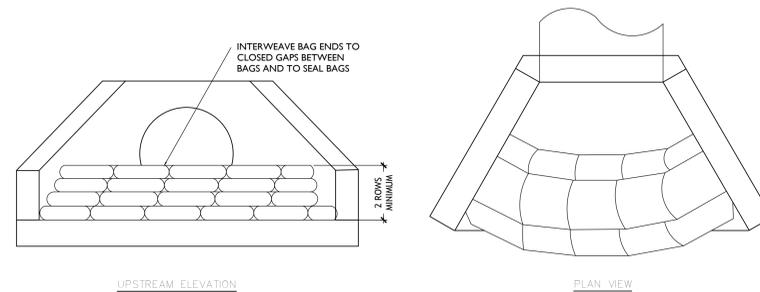
7 Sandbag Curb Inlet Protection Detail
C103-3 NOT TO SCALE

DITCHES OR PERMANENT DIVERSION

- * INSPECT WEEKLY AND FOLLOWING EACH STORM EVENT UNTIL THE DIVERSION IS VEGETATED, THEN PERIODICALLY AND AFTER MAJOR STORMS.
- * REMOVE DEBRIS AND SEDIMENT FROM CHANNEL AND REBUILD
- * CHECK OUTLETS AND KEEP IN REPAIR TO PREVENT EROSION.
- * REMOVE SEDIMENT WHEN SEDIMENT TRAPS ARE 50% FULL
- * MAINTAIN VEGETATION IN A VIGOROUS, HEALTHY CONDITION.
- * WHEN THE WATERSHED AREA HAS BEEN STABILIZED, REMOVE SEDIMENT TRAPS AND REPAIR BARE OR DAMAGED AREAS IN THE VEGETATION.
- * STABILIZE ALL DISTURBED AREAS.

LENTZIER CREEK NOTES:

- * REFER TO THE LENTZIER CREEK RESTORATION PLANS AND DETAILS FOR ALL SEDIMENT CONTROL.
- * MAKE SURE ALL MEASURES ARE IN PLACE DURING THE FULL RESTORATION PROCESS.
- * REFER TO THE LENTZIER CREEK RESTORATION PLANS FOR THE NEW CRYSTAL SPRINGS SUBDIVISION OUTFALL SWALE SYSTEM.



UPSTREAM ELEVATION

PLAN VIEW



PLACED BEFORE WEIR

INSPECTION AND MAINTENANCE

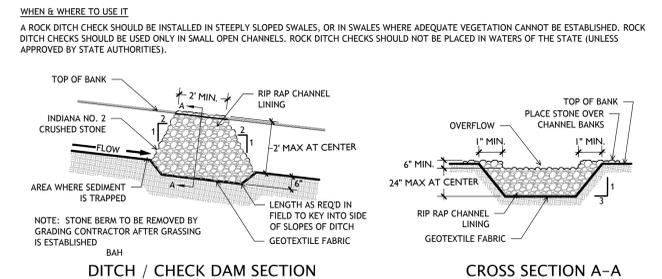
1. Inspections should be made every seven calendar days and within 24-hours after each rainfall event that produces 5 inch or more precipitation. Any needed repairs should be made immediately.
2. If sediment accumulates remove it from the face of the bags before it accumulates to a height equal to 1/2 the structure height. Any needed repairs should be handled immediately, take care not to damage or undercut the bags when removing sediment.
3. remove and replace any damaged bags and dispose of the property.
4. Storm drain inlets protection structures should be removed only after the disturbed area are permanently stabilized. Remove all construction material and sediment and disposed of them properly. grad the disturbed area to the elevation of the drop inlet structure crest. Use appropriate permanent stabilization methods to stabilize bare areas around the inlet.

PURPOSE
Install stone bag protection at straight headwall inlets to pool water, providing opportunity for settling sediments before it enters headwall.

Design Criteria

1. Bag specifications: Approximately 18.5 inch x 28 inch woven polypropylene bags
2. Stone: Use KTC No 57 stone or equivalent.
3. Height of stone bags above culvert inverts: Construct a minimum of two courses of bags. The stone-filled bags shall be stacked to a height equal to 1/2 the diameter of the culvert being protected.

8 Headwall Inlet Protection
C103-3 NOT TO SCALE



DITCH / CHECK DAM SECTION

CROSS SECTION A-A

WHEN & WHERE TO USE IT

A ROCK DITCH CHECK SHOULD BE INSTALLED IN STEEPLY SLOPED SWALES, OR IN SWALES WHERE ADEQUATE VEGETATION CANNOT BE ESTABLISHED. ROCK DITCH CHECKS SHOULD NOT BE PLACED IN WATERS OF THE STATE (UNLESS APPROVED BY STATE AUTHORITIES).

INSTALLATION

- 1) A GEOTEXTILE FABRIC SHALL BE INSTALLED OVER THE SOIL SURFACE WHERE THE ROCK DITCH CHECK IS TO BE PLACED.
- 2) THE BODY OF THE ROCK DITCH CHECK SHALL BE COMPOSED OF RIP RAP CHANNEL LINING.
- 3) THE UPSTREAM FACE OF THE ROCK DITCH CHECK SHALL BE COMPOSED OF INDIANA NO. 2 CRUSHED STONE.
- 4) ROCK DITCH CHECKS SHOULD HAVE A MINIMUM TOP FLOW LENGTH OF TWO FEET.
- 5) STONE SHOULD BE PLACED OVER THE CHANNEL BANKS TO PREVENT WATER FROM CUTTING AROUND THE DITCH CHECK.
- 6) THE ROCK MUST BE PLACED BY HAND OR MECHANICAL PLACEMENT (NO DUMPING OF ROCK TO FORM DAM) TO ACHIEVE COMPLETE COVERAGE OF THE DITCH OR SWALE AND TO ENSURE THAT THE CENTER OF THE CHECK IS LOWER THAN THE EDGES.

INSPECTION & MAINTENANCE

- * INSPECT ROCK DITCH CHECKS EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2 INCH OR MORE OF PRECIPITATION.
- * INSPECT FOR SEDIMENT AND DEBRIS ACCUMULATION. INSPECT DITCH CHECK EDGES FOR EROSION AND REPAIR PROMPTLY AS REQUIRED.
- * SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 1/3 THE ORIGINAL CHECK HEIGHT.
- * IN THE CASE OF GRASS-LINES DITCHES AND SWALES, ROCK DITCH CHECKS SHOULD BE REMOVED WHEN THE GRASS HAS MATURED SUFFICIENTLY TO PROTECT THE DITCH OR SWALE UNLESS THE SLOPE OF THE SWALE IS GREATER THAN 4%.
- * AFTER CONSTRUCTION IS COMPLETE, ALL STONE SHOULD BE REMOVED IF VEGETATION WILL BE USED FOR PERMANENT EROSION CONTROL MEASURES.
- * THE AREA BENEATH THE ROCK DITCH CHECKS SHOULD BE SEEDED AND MULCHED IMMEDIATELY AFTER ROCK CHECK DAM REMOVAL.

9 Rock Check Dam
C103-3 NOT TO SCALE

MAINTENANCE & QUALITY ASSURANCE PROCEDURES

1. THE CONTRACTOR RESPONSIBLE FOR INSTALLING THE EROSION AND SEDIMENT CONTROL MEASURES SHALL ALSO BE RESPONSIBLE FOR INSPECTING, MAINTAINING, AND CORRECTING THE MEASURES AND COORDINATING WITH THE OWNER AND/OR PROJECT ENGINEER TO ENSURE THAT ALL OF THE MEASURES ARE FUNCTIONING APPROPRIATELY.
2. PRIOR TO LAND DISTURBANCE, AN INITIAL INSPECTION SHOULD BE MADE TO ENSURE THAT ALL MEASURES HAVE BEEN INSTALLED ACCORDING TO THE PLANS.
3. A COPY OF THE NOI AND INFORMATION ABOUT THE LOCATION OF THE RULE 5 PLANS SHOULD BE POSTED AT THE ENTRANCE TO THE CONSTRUCTION SITE.
4. DURING CONSTRUCTION, AN ONSITE INSPECTION OF ALL MEASURES SHALL BE MADE WITHIN 24 HOURS OF EVERY 1/2" RAINFALL EVENT AND AT LEAST ONCE PER WEEK.
5. WHEN CONDUCTING ONSITE INSPECTIONS, EVERY MEASURE SHOULD BE EVALUATED TO ENSURE THE FOLLOWING:
 - A. EACH MEASURE IS INSTALLED ACCORDING TO THE PLAN
 - B. EACH MEASURE IS FUNCTIONING PROPERLY
 - C. MEASURES HAVE NOT BEEN DAMAGED
 - D. EACH MEASURE IS CURRENT WITH REQUIRED MAINTENANCE
 - E. DEFICIENCIES NOTED ON PRIOR INSPECTIONS HAVE BEEN CORRECTED
 - F. ANY OFF-SITE POLLUTANT DISCHARGES ARE IDENTIFIED AND CORRECTED
6. AN INSPECTION REPORT SHOULD BE PRODUCED FOLLOWING EACH INSPECTION TO DOCUMENT FINDINGS. ITEMS TO INCLUDE IN THE REPORT ARE:
 - A. NAME OF THE INSPECTOR
 - B. DATE AND TIME OF THE INSPECTION
 - C. WEATHER CONDITIONS
 - D. RAINFALL OCCURRENCES SINCE LAST INSPECTION
 - E. CONDITION OF EACH MEASURE OR DRAINAGE AREA OUTLET AT THE SITE
 - F. IDENTIFY ANY AREAS THAT MAY REQUIRE ADDITIONAL ATTENTION OR CORRECTION
 - G. RECOMMENDATIONS FOR EACH CORRECTIVE MEASURE
 - H. DOCUMENT WHO RECEIVED COPIES OF THE REPORT
 - I. SIGNATURE OF THE INSPECTOR STATING THE REPORT IS TRUE AND ACCURATE
7. ALL OF THE INSPECTION REPORTS SHOULD BE STORED IN A LOG BOOK THROUGHOUT THE CONSTRUCTION PROCESS AND AT LEAST 3 YEARS FOLLOWING COMPLETION OF THE PROJECT SO THAT ALL OBSERVATIONS, COMMUNICATION, AND ACTIONS ARE WELL DOCUMENTED AND CAN BE RETRIEVED QUICKLY IF NEEDED.
8. IT IS IMPORTANT THAT THE CONTRACTOR BE AWARE OF OTHER POLLUTANTS BESIDES SEDIMENT THAT MAY BE PRESENT AT THE SITE SUCH AS CHEMICALS, SOLID WASTE, CONCRETE WASHOUT, FUEL, ETC. THE POLLUTION THREAT OF THESE OTHER MATERIALS SHOULD BE EVALUATED ON A REGULAR BASIS IN ORDER TO PREVENT POLLUTANTS FROM LEAVING THE SITE.
9. IF CORRECTIVE MEASURES ARE NECESSARY TO REMEDY AN EXISTING PROBLEM OR PREVENT A FUTURE ONE, THE OWNER AND PROJECT ENGINEER SHOULD BE NOTIFIED SO THAT PROPER STEPS CAN BE TAKEN TO BEST CORRECT THE SITUATION.