



Environmental Scientists and Engineers, LLC

an ecology and environment company

November 12, 2012

Mr. Curt Stovall, P.E.
Mr. Roger Doak
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

**RE: Revised Request to Stockpile Soil on OU2 Landfill Cap, Lowry Vista Project,
Denver, Colorado**

Dear Roger and Curt:

Walsh Environmental Scientists and Engineers, LLC (Walsh) is transmitting on behalf of IRG Redevelopment I, LLC (IRG) this revised request for approval to stockpile soil on top of the Operable Unit 2 (OU2) landfill cover. This letter has been revised in response to your October 19, 2012 comments on our original request, dated September 28, 2012. IRG will respond under separate cover to Comments 1 and 4 of your October 19, 2012 comment letter.

The existing landfill cover at OU2 consists of an 18-inch thick low permeability layer (LPL) with a maximum hydraulic conductivity (permeability) of 1×10^{-5} centimeters per second (cm/s) overlain by a 6-inch thick vegetative layer (VL). The remedy also includes surface water structures to control run-on and run-off from the 100-year, 24-hour storm event. Lowry Assumption, LLC (LAC) is currently executing the Post-Closure Operation, Monitoring and Maintenance of the closed landfill in accordance with -approved *Phase 2 Corrective Action Plan for the Operable Unit 2 Landfill Closure at Lowry* (Phase 2 CAP) approved by Colorado Department of Public Health and Environment (CDPHE) in 2003. The remedy is currently operating properly and successfully.

A soil stockpile has been staged just off of the landfill cover on the western portion of the Lowry Vista site and is near capacity. This area is called Stockpile Area A. To support continued soil staging operations for future redevelopment activities, an additional stockpile area (Stockpile Area B) is required on top of a portion of the OU2 landfill cover. Stockpile Area B construction will begin as soon as CDPHE approval to begin stockpiling is obtained. It is anticipated that the stockpile will be removed or graded into the redevelopment under a Revised Closure Plan by January 1, 2015. Currently, there is an approved active Colorado Discharge Permit System (CDPS) stormwater discharge permit for construction activities (Permit #COR03699). There is also a detailed Stormwater Management Plan approved by the City and County of Denver (Permit No. EC-2010-062). The Stormwater Management Plan (SWMP) is included as Attachment A. It shows the location and design details for Stockpile Area B. We have revised Sections 3.0 and 5.0 of the SWMP in response to your October 19 comments. The narrative form included as Attachment A to the SWMP will now be updated to reflect the new schedule and

resubmitted to the City and County of Denver. A copy of this revised form will be provided to you on request.

As shown in Figure 5 of Attachment A, Stockpile Area B will be located on a portion of the site that is capped. The area is approximately 8 acres and contains a fair to dense stand of grasses and will be surveyed prior to beginning of stockpile construction. This base survey will then be used as control during stockpile removal to ensure that there is no excavation below the pre-stockpile as-built survey surface. The existing vegetation below the stockpile will also remain in place to act as a marker layer to delineate the top of the VL at the time of stockpile removal. The survey control and the marker layer will minimize any chance for subsurface disturbance of the landfill cover. The soil stockpiling activity should not in any way increase the threat to human health and the environment or harm the VL or the LPL. As shown on Figure 5, Stockpile Area B will be bounded by an earthen berm on the south, east, and west sides. These berms will collect and divert stormwater runoff to a gravel filter outlet located at the downgradient end of the berm.

An imported soil contamination screening process has been implemented for Stockpile A and will be continued for Stockpile B. This screening process consists of:

- Full-time observation at the stockpile area by staff with Colorado Certified Asbestos Building Inspector (CABI) Certification, 40-hour HAZWOPER training and experience in dealing with environmentally impacted soils;
- Periodic visual inspection at the source of the stockpile soils for signs of contamination;
- Observation for signs of contamination, including odorous soil, stained soil, debris, and ash;
- Delineation of any potentially contaminated soils by cones or other markers; and,
- Removal of any potentially contaminated soil either back to the source site or to a properly authorized disposal facility.

Fugitive dust will be controlled at the site by:

- Watering unpaved roads and other disturbed locations as necessary to prevent off-property transport of visible fugitive particulate emissions;
- Controlling speeds on unpaved roads and disturbed areas to less than 30 mph by posting signs;
- Not performing earthwork activities when the wind speed is greater than 30 mph;
- Revegetating inactive disturbed areas;
- Utilizing gravel entryways to prevent mud and dirt carryout onto paved surfaces and cleaning up any mud and dirt carryout onto paved surfaces daily;
- Installing silt fencing prior to earthwork along property boundaries; and,
- Minimizing surface area disturbances.



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Roger Doak
Curt Stovall, P.E.
CDPHE
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Additionally, as per a conversation with Chuck Pray at CDPHE's Air Pollution Control Division (APCD), a General Permit, CDPHE Land Development, Air Pollutant Emission Notice (APEN) and Application for Construction Permit will be completed and submitted to CDPHE's APCD by IRG. This is necessary because the stockpile will be present for more than six months. A copy of the completed application form will be provided upon request.

All of the monitoring, maintenance, documentation and reporting requirements for the stockpiling activities included the SWMP will be included in the reports required by the Phase 2 CAP Post-closure Operations and Maintenance Plan. As Owner, IRG will be responsible for all additional Operation and Maintenance activities associated with its redevelopment of the site.

The remaining landfill cap will remain undisturbed, with the stockpiled material and best management practices placed directly on the existing vegetation, i.e. no clearing and grubbing will be performed. The stockpile will be placed outside of the maximum flood limit and away from existing site controls, such as drainage structures and gas vents. The existing vegetation layer will serve as a cap demarcation layer as stockpiled materials are removed. The cap will be re-vegetated upon removal of stockpiled materials as needed.

Once the stockpile is removed, the surface will be regraded within +/- 0.1 foot vertically of the pre-stockpile as-built survey. All gravel surfaces and berms will be removed and all disturbed areas will be revegetated in accordance with the specifications in the Phase 2 CAP. A post construction survey will be performed by a Colorado registered professional land surveyor, photographs taken, and a summary letter report documenting the stockpile closure will be prepared and submitted to CDPHE within 90 days following stockpile removal. A financial assurance mechanism is currently being developed to cover the cost of removing the stockpile and restoring the area to its current condition. IRG will provide this cost estimate and financial assurance instrument under separate cover.

We respectfully request your approval as early as possible to stockpile soil on the landfill cover as described in the attached Stormwater Management Plan. We would like to begin active soil stockpiling as soon as possible. Please feel free to contact me at 303 573 5545 or bcoleman@walshenv.com if you have any questions.

Sincerely,
WALSH ENVIRONMENTAL SCIENTISTS AND ENGINEERS, LLC



Bradley A. Coleman, P.E.
Principal, Engineering Director

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Roger Doak
Curt Stovall, P.E.
CDPHE
November 12, 2012

Attachment:

A. CCOD Stormwater Management Plan (with Attachments)

cc: Joe Aiken, IRG - Assumptions, LLC
John Yerton, IRG - Assumptions, LLC
Brent Anderson, IRG
Ann Wei, IRG

ATTACHMENT A

CCOD Stormwater Management Plan

Stormwater Management Plan

**IRG Redevelopment I, LLC
Lowry Vista**

November 2012

Prepared by:



**Walsh Environmental Scientists and Engineers, LLC
16th Street, Suite 400
Denver, CO 80202**

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Attachment A	Narrative Report Information Worksheet
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1.0 Introduction

This Stormwater Management Plan (SWMP) has been prepared for the Lowry Vista redevelopment project located on 9000 E. Alameda Avenue, Denver, Colorado, at latitude 39°42'30"N, longitude 104°53'0"W, referred to as the site. This SWMP includes updates for project modifications to the original SWMP submitted in October 2010. This SWMP meets the requirements of the Colorado Discharge Permit System (CDPS), General Permit Application for Stormwater Discharges; and the City and County of Denver (CCoD), Construction and Demolition Activities Stormwater Management Plan. The Colorado Department of Public Health and Environment (CDPHE) General Permit Application and CCoD Narrative Report Information Worksheet have been submitted under separate cover. This SWMP heavily references the CCoD submittal, which is included as Attachment A. All the previously submitted documents and attachments have been revised to address the project modifications.

In support of future redevelopment activities, a soil stockpile has been staged at the site, adjacent to the Lowry Operable Unit-2 (OU-2) Landfill as described in the October 2010 plan. There is an existing remedy in place for the OU-2 landfill which consists of an 18-inch-thick low permeability layer (LPL) with a maximum hydraulic conductivity (permeability) of 1×10^{-5} cm/s over the entire area and a 6-inch thick vegetative layer over the LPL. The remedy also includes surface water structures to control run-on and run-off from the 100-year, 24-hour storm event. The remedy is currently operating properly and successfully.

To support continued soil staging operations, additional stockpile areas are required, including expansion of the existing stockpile (hereafter referred to as "Stockpile Area A") and a separate stockpile area staged on the OU-2 Landfill (hereafter referred to as "Stockpile Area B"). The site location is shown on Figure 2. Stockpile layouts are shown on the site map included as Figure 3. The site is approximately 80 acres. Possible pollutants include sediment from the stockpiled materials and hauling operations. Appropriate Best Management Practices (BMPs) will be in place to reduce impacts to Colorado state waters, including vehicle tracking controls (VTC) and earthen berms.

2.0 Site Description

Site maps of the two soil stockpile areas are included as Figures 4 and 5, displaying the site boundary, area of disturbance, storm sewer and proposed BMPs. The Stockpile Area A site is a 4 acre undeveloped field with fair to dense stand of grasses and shrubs, and scattered trees. The existing soil stockpile has been placed at the north end of the site. Additional soil is proposed to be placed, extending the pile south toward the access road and vehicle tracking pad. Stockpile Area A is bounded on the east and north by an approximate 20-foot high earthen berm that forms the southernmost tail of the Westerly Creek Dam. The drainage bends eastward approximately 100 feet south of the toe of the Westerly Creek Dam berm, where it flows into a stormwater inlet at the extreme northwest corner of the site, which then flows into the Westerly Creek Reservoir. Stockpile Area B is 8 acres located on the OU-2 landfill portion of the site with fair to dense stand of grasses. The existing landfill vegetative layer will remain in place to delineate the landfill cover at the time of stockpile removal and therefore minimize potential disturbance of

the landfill cap. This action will insure that the soil stockpiling activity will not in any way increase the threat to human health and the environment or harm the vegetative layer or the LPL. Stockpile Area B is bounded by a swale to the east and north, and a berm to the northwest designed to divert surface flow from the landfill to the Westerly Creek Reservoir.

The Westerly Creek Reservoir located to the north of the site is the nearest surface water. Photographs of the existing site conditions and vegetation are included in Attachment B. The site slopes gradually from south to north. Additional site description including land use, topography, vegetation, and soils are included in Attachment A, Section G.

There is no need for onsite storage of equipment or waste. There are no asphalt or concrete operations and no earthwork excavation. Construction activities at the site will not require groundwater or stormwater dewatering.

3.0 Stormwater Management Controls

BMPs will be in place to protect state waters from sediment runoff from the site. Structural BMPs will include vehicle tracking control (VTC) at the points of ingress and egress, south of Stockpile Area A and B, and earthen berms around the stockpiles to protect from runoff toward the down gradient Westerly Creek Reservoir. Gravel filter outlets will be placed along earthen berms to filter surface flow as it leaves the stockpile areas. Secondary down gradient protection from Stockpile Area A includes a grass buffer of approximately 60 feet, an existing grass berm, silt fence, and existing rip rap inlet protection. Secondary down gradient protection from Stockpile Area B includes a grass buffer of approximately 1300 feet along existing grass berms and an existing rip rap dissipation pool at the Westerly Creek Reservoir. Soil stabilization including hydromulch and/or chemical tackifier will be used to reduce erosion of the stockpile if the site is to be dormant for more than 30 days. Additional details including construction phasing, corresponding BMPs and stabilization (including final vegetation), and maintenance requirements are included in Attachment A, Section H. BMP placement is shown in Figures 4 and 5, with construction details on Figure 6.

The existing soil stockpile within Stockpile Area A has been placed to a maximum height of approximately 35 feet on the north portion of the site. The stockpile will be stabilized with mulch and seed where no additional stockpiling will take place. Seed mix will comprise of annual and perennial grasses appropriate for the time of seeding and duration of stabilization. The approximate area of final vegetation is shown in Figure 4.

Any stormwater that collects within the earthen berm, down gradient of the stockpile areas, will be removed. The area around Stockpile Area B is designed so that stormwater that enters the bermed area travels to the berm outlet areas and over the existing cap. Any settlement related to the stockpiled materials that is identified will be repaired by regrading that area to be free draining to the outlet so as to minimize any infiltration through the cover. Stormwater will be pumped over the berm, as necessary to facilitate stockpiling operations. Pumped stormwater will be discharged through a filter, to a vegetated area, to reduce sediment content. If a sheen is

visible on the water leaving the pump, a separate permit is required for discharge. Contact Walsh Environmental for further information to acquire this permit, if required.

4.0 Landfill Cap Protection

Approximately 8 acres of the project site to undergo disturbance lies within the Lowry OU-2 Landfill boundary. The landfill cap will remain undisturbed, with the stockpiled material and best management practices placed directly on the existing vegetation, i.e. no clearing and grubbing will be performed. The stockpile will be placed outside of the maximum flood limit and away from existing site controls, such as drainage structures and gas vents. The existing vegetation layer will serve as a cap demarcation layer as stockpiled materials are removed. The cap will be revegetated upon removal of stockpiled materials as needed. Detailed as-built drawings are available to ensure that the cap is not disturbed and original grades are restored.

5.0 Inspection and Maintenance

A thorough inspection of the stormwater management system will be performed and documented at least every 7 days and after precipitation events that exceed 1 inch of rainfall. The inspection will include observation of the construction site perimeter and discharge points, all disturbed areas, and erosion and sediment control measures identified in this SWMP. The inspection must determine if there is evidence of, or the potential for, pollutants entering the drainage system. BMPs should be reviewed to determine if they still meet the design and operational criteria in the SWMP, and if they continue to adequately control pollutants at the site.

Erosion and sediment control practices and other protective measures identified in the SWMP will be maintained in effective operating condition and in accordance with good engineering, hydrologic, and pollution control practices. Site inspections will also address maintenance of BMPs that are found to no longer function as needed and designed, as well as preventative maintenance to proactively ensure continued operation. BMPs that have failed, or have the potential to fail without maintenance or modifications, will be addressed as soon as possible, immediately in most cases, to prevent the discharge of pollutants. Earthen berms shall be reconstructed, per the detail drawings on Figure 6 as erosion of the berms requires. The VTC shall have rock replaced or be cleaned of excess sediment as required to maintain its effectiveness.

6.0 Spill Management

There will be no storage of fuels or chemicals, and no concrete or asphalt construction at the site. Heavy equipment will be operating as hauling operations require and may be staged at the site. Any fuel leaks or spills from heavy equipment or hauling equipment will be managed by onsite personnel and the SWMP administrator shall be notified. Contaminated soils will be removed and disposed of appropriately. Depending on the quantity of the spill, CDPHE will be notified at the 24-hour spill reporting line – 877-518-5608, as well as downstream water users, or other agencies as needed.

7.0 Record Keeping

Inspection results will be documented and a record maintained for a period of 3 years following expiration or inactivation of permit coverage. These records will be made available to CDPHE or the Environmental Protection Agency upon request. The following items will be documented as part of the site inspections:

- i. The inspection date;
- ii. Name(s) and title(s) of personnel making the inspection;
- iii. Location(s) of discharges of sediment or other pollutants from the site;
- iv. Location(s) of BMPs that need to be maintained;
- v. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- vi. Location(s) where additional BMPs are needed that were not in place at the time of inspection;
- vii. Deviations from the inspection schedule;
- viii. Description of corrective action for items iii, iv, v, and vi, above, dates corrective action(s) taken, and measures taken to prevent future violations, including requisite changes to the SWMP, as necessary; and
- ix. After adequate corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

Records of spills, leaks, or overflows that result in the discharge of pollutants will be documented and maintained. The permittee is responsible for making sure that all Inspection Reports comply with the latest State of Colorado requirements.

8.0 Plan Contacts

Contact information for the site contact and the plan engineer, responsible for developing, implementing, maintaining, and revising this SWMP are included in Attachment A, Sections D and E, respectively. The site contact is designated as the SWMP administrator.

9.0 Plan Revisions

This SWMP shall be revised as changing site conditions require. Modifications may include, but are not limited to, removal of BMPs, identification of new potential pollutant sources, addition of BMPs, modification of BMP installation and implementation criteria or maintenance procedures, and changes in items included in the site map and/or description. SWMP revisions must be made prior to changes in site conditions, except for Responsive SWMP Changes, as follows:

- SWMP revisions must be made immediately after changes are made in the field to address BMP installation and/or implementation issues; or

- SWMP revisions must be made as soon as practicable, but in no case more than 72 hours, after changes in BMP installation and/or implementation occur at the site that require development of materials to modify the SWMP

Coverage under the Stormwater Construction Permit may be inactivated by the permittee when the site has attained final stabilization, all temporary erosion and sediment control measures have been removed, and all components of the SWMP are complete.

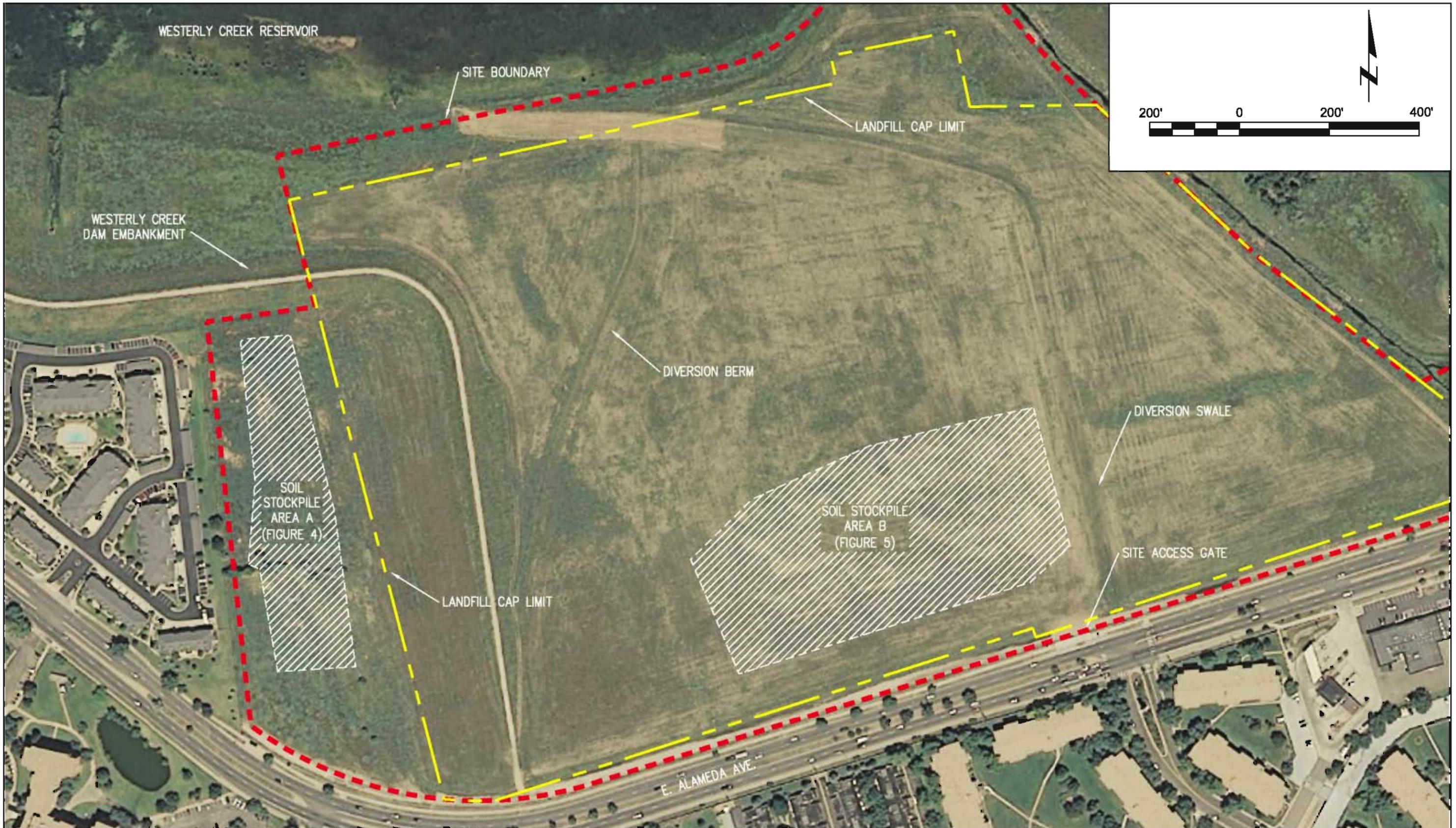
FIGURES

NOTES

1. THE STORM INLET AT THE NORTH END OF THE SITE IS PROTECTED BY AN EXISTING 18" HIGH GRASS BERM AND RIP RAP. NO ADDITIONAL BMPs ARE REQUIRED.
2. THE 100-YEAR FLOOD LIMIT IS APPROXIMATELY 400' NORTH OF THE SITE WITHIN THE WESTERLY CREEK RESERVOIR.
3. NO FUEL STORAGE WILL BE STAGED ON SITE.
4. HEAVY EQUIPMENT WILL BE STAGED ON SITE ONLY WHILE STOCKPILE OPERATIONS ARE ONGOING.
5. THE PERMITTEE AND/OR CONTRACTOR SHALL REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO OR ACCUMULATE IN THE FLOWLINES, STORM DRAINAGE APPURTENANCES, AND PUBLIC RIGHTS OF WAYS OF THE CITY AND COUNTY OF DENVER AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SAID REMOVAL SHALL BE CONDUCTED IN A TIMELY MANNER.
6. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS, AND ALL OTHER POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING, OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO THE MUNICIPAL SEPARATE STORM SEWER SYSTEM, RECEIVING WATERS, WATERWAYS, WETLANDS, AND OR OTHER PUBLIC OR PRIVATE PROPERTIES, RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
7. SOIL STABILIZATION MEASURES SHALL BE IMPLEMENTED WITHIN FOURTEEN (14) DAYS FOLLOWING COMPLETION OF GRADING ACTIVITIES. STABILIZATION OF DISTURBED AREAS ADJACENT TO RECEIVING WATERS OR WITH SLOPES 3 TO 1 OR GREATER, SHALL BE COMPLETED WITHIN SEVEN (7) DAYS FOLLOWING COMPLETION OF GRADING ACTIVITIES. NOTE: FEDERAL AND STATE REGULATIONS MAY SOON REQUIRE STABILIZATION WITHIN SEVEN (7) DAYS OF COMPLETION OF GRADING ACTIVITIES. IN SUCH CASES, THE SHORTER TIMEFRAME SHALL APPLY TO PROJECTS WITHIN DENVER AS WELL.
8. THE DEVELOPER, GENERAL CONTRACTOR, GRADING CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC RIGHTS OF WAY.
9. THE USE OF REBAR TO ANCHOR BEST MANAGEMENT PRACTICES IS PROHIBITED. STEEL FENCE POSTS MAY BE USED ON A CASE BY CASE BASIS AND REQUIRES APPROVAL FROM THE CITY AND COUNTY OF DENVER SWMP REVIEWER OR THE STORMWATER ENFORCEMENT INVESTIGATOR PRIOR TO INSTALLATION.
10. BERM SOIL AND SOIL THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE PROTECTED FROM WIND AND WATER EROSION WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. STABILIZATION OF STOCKPILES LOCATED WITHIN 100 FEET OF RECEIVING WATERS, OR WITH SLOPES 3 TO 1 OR GREATER, SHALL BE COMPLETED WITHIN SEVEN (7) DAYS FOLLOWING STOCKPILE CONSTRUCTION. STABILIZATION AND PROTECTION OF THE STOCKPILE MAY BE ACCOMPLISHED BY ANY OF THE FOLLOWING: MULCHING, TEMPORARY/PERMANENT REVEGETATION OPERATIONS, CHEMICAL SOIL STABILIZER APPLICATION (REQUIRES DENVER PUBLIC WORKS APPROVAL), OR EROSION CONTROL MATTING/GEOTEXTILES. IF STOCKPILES ARE LOCATED WITHIN 100 FEET OF RECEIVING WATERS, A DRAINAGEWAY, OR THE SITE PERIMETER, ADDITIONAL SEDIMENT CONTROLS SHALL BE REQUIRED.
11. APPROVED EROSION AND SEDIMENT CONTROL BMPs SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE PERMITTEE OR CONTRACTOR SHALL PRODUCE AND RETAIN WEEKLY WRITTEN INSPECTION RECORDS FOR ALL BMPs AND AFTER SIGNIFICANT PRECIPITATION EVENTS. ALL NECESSARY MAINTENANCE AND REPAIR SHALL BE COMPLETED IMMEDIATELY.
12. PAVED AND IMPERVIOUS SURFACES WHICH ARE ADJACENT TO CONSTRUCTION SITES MUST BE SWEEPED ON A DAILY BASIS AND AS NEEDED DURING THE DAY WHEN SEDIMENT AND OTHER MATERIALS ARE TRACKED OR DISCHARGED ONTO THEM. EITHER SWEEPING BY HAND OR USE OF STREET SWEEPERS IS ACCEPTABLE. STREET SWEEPERS USING WATER WHILE SWEEPING IS PREFERRED IN ORDER TO MINIMIZE DUST. FLUSHING OFF PAVED SURFACES WITH WATER IS PROHIBITED.
13. VEHICLE INGRESS AND EGRESS WILL BE THROUGH THE MAIN GATE LOCATED NEAR ALAMEDA AND CLINTON STREET. ENTRANCE AND EXIT WILL BE BY RIGHT HAND TURNS ONLY.
14. THE FRONTAGE ROAD ALONG THE SOUTH BOUNDARY OF THE SITE IS PAVED WITH SOME GRAVEL SURFACING. ADDITIONAL 3/4" BASE COURSE GRAVEL SHALL BE APPLIED AS NECESSARY TO MAINTAIN THE SURFACING.
15. EXISTING STOCKPILED MATERIAL THAT HAS BEEN PLACED TO AN APPROXIMATE MAXIMUM HEIGHT OF 35 FEET WILL BE STABILIZED BY SEEDING AND MULCHING. SEED MIX WILL INCLUDE ANNUAL AND PERENNIAL GRASSES APPROPRIATE FOR THE TIME OF SEEDING AND DURATION OF STABILIZATION. MULCHING WILL BE PERFORMED TO PROVIDE ADEQUATE SOIL STABILIZATION DURING THE GROWTH PERIOD.

						DRAWN: KJL PROJECT NO: 900920-0002-010 ENGINEER: KJL SCALE: NO SCALE CHECKED: BAC APPROVED: BAC DATE: 4-12-10 DATE: 4-12-10	  IRG Redevelopment I, LLC	LOWRY VISTA REDEVELOPMENT SWMP	FIGURE 1. NOTES	<table border="1"> <tr> <td>1</td> </tr> <tr> <td>6</td> </tr> </table>	1	6
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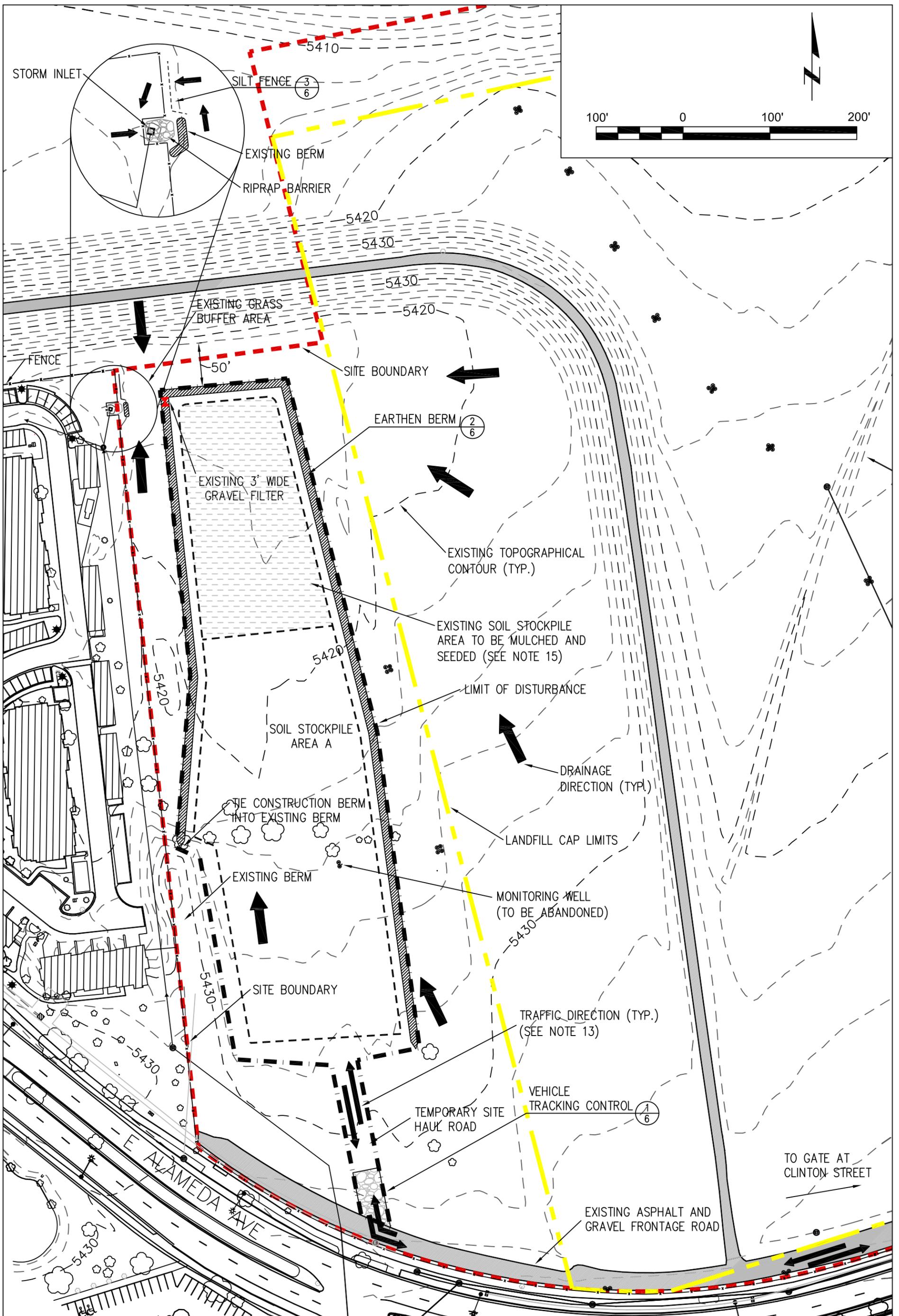
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ENGINEER:	K.J.L.	SCALE:	AS NOTED
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DATE:	4-12-11	DATE:	4-12-11



**LOWRY VISTA
REDEVELOPMENT SWMP**

FIGURE 3. SITE LAYOUT



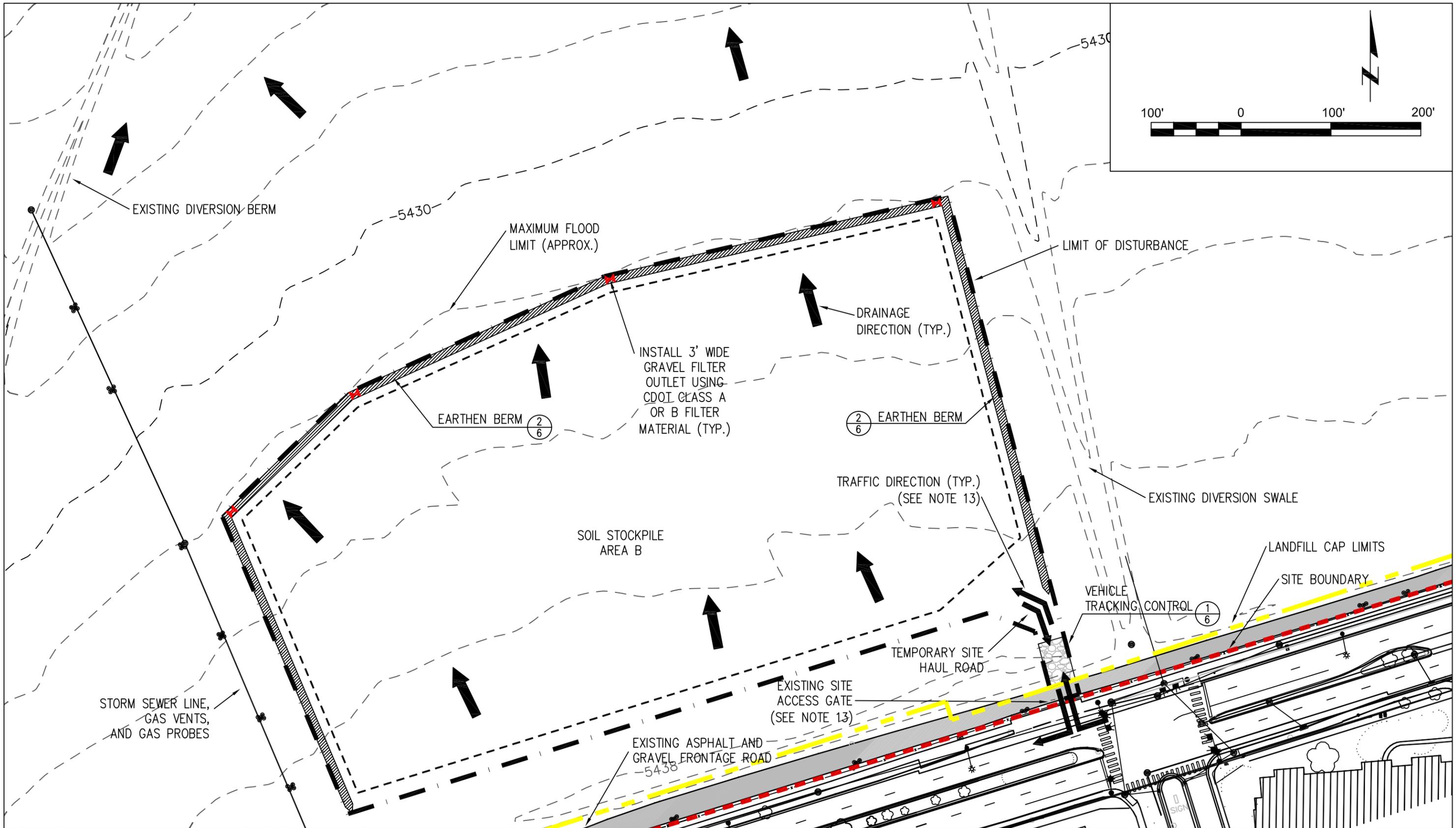
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 DATE: 4-12-10 DATE: 4-12-10

IRG Redevelopment I, LLC

**LOWRY VISTA
 REDEVELOPMENT
 SWMP**

**FIGURE 4. SITE PLAN
 STOCKPILE AREA A**



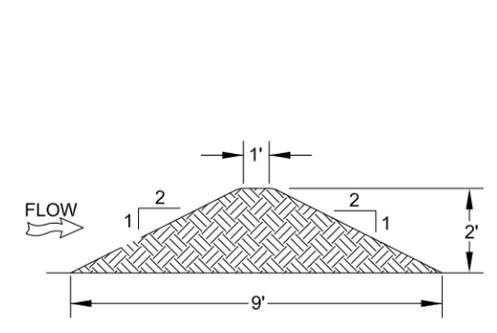
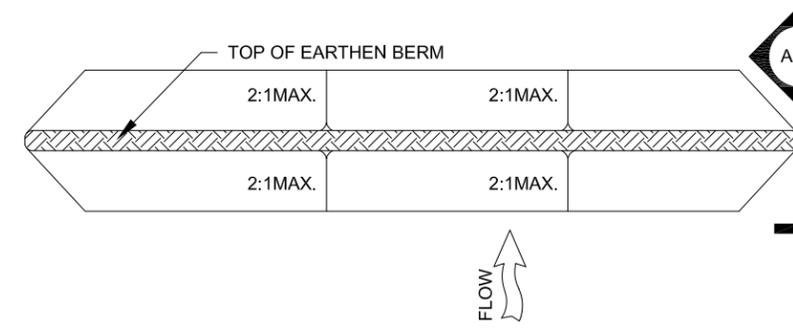
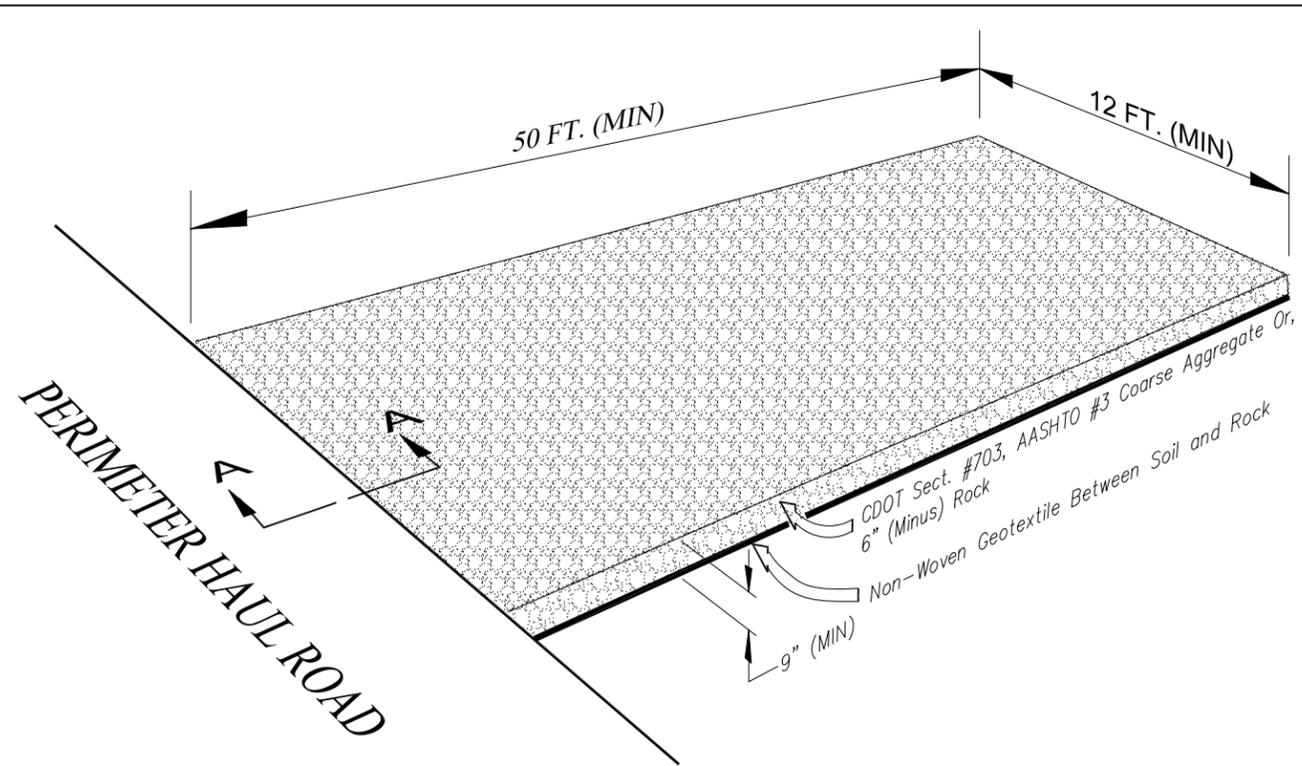
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DRAWN:	KJL	PROJECT NO.:	900920-0002-010
ENGINEER:	KJL	SCALE:	AS NOTED
CHECKED:	BAC	APPROVED:	BAC
DATE:	4-12-11	DATE:	4-12-11



**LOWRY VISTA
REDEVELOPMENT SWMP**

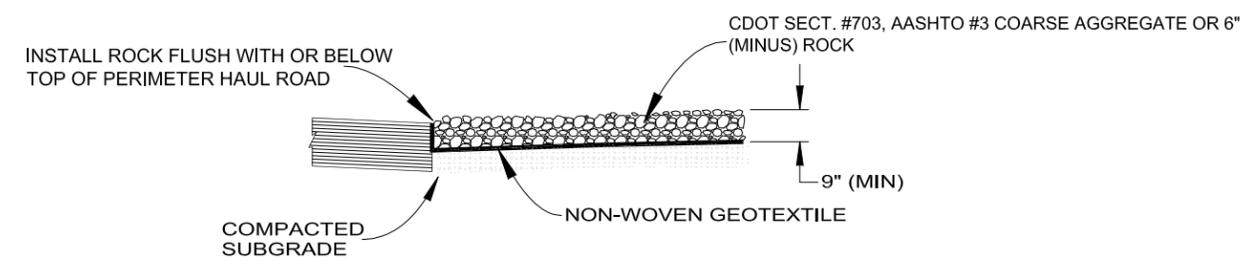
**FIGURE 5. SITE PLAN
STOCKPILE AREA B**



PLAN VIEW

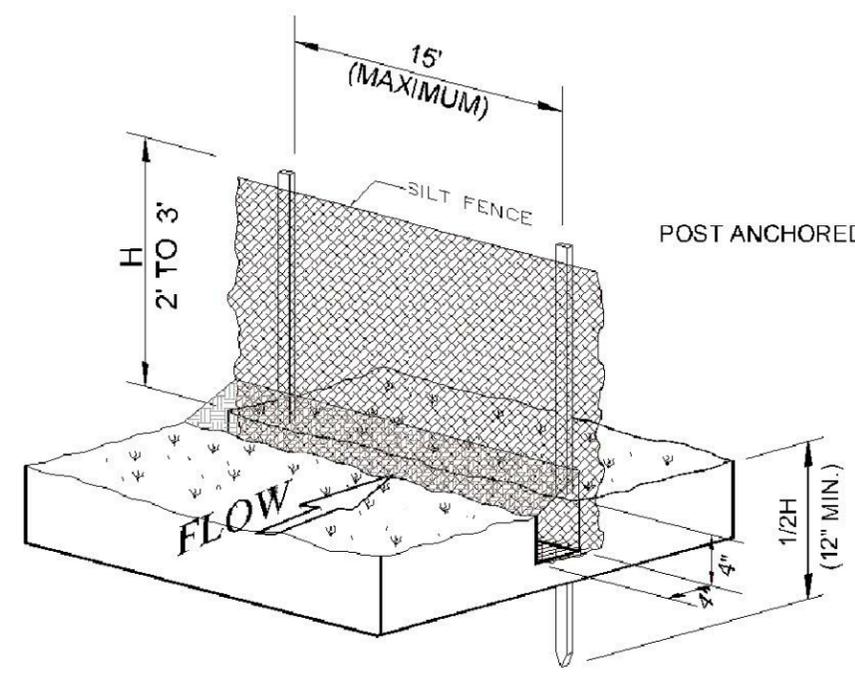
SECTION A

2 2
4 5 EARTHEN BERM
NOT TO SCALE

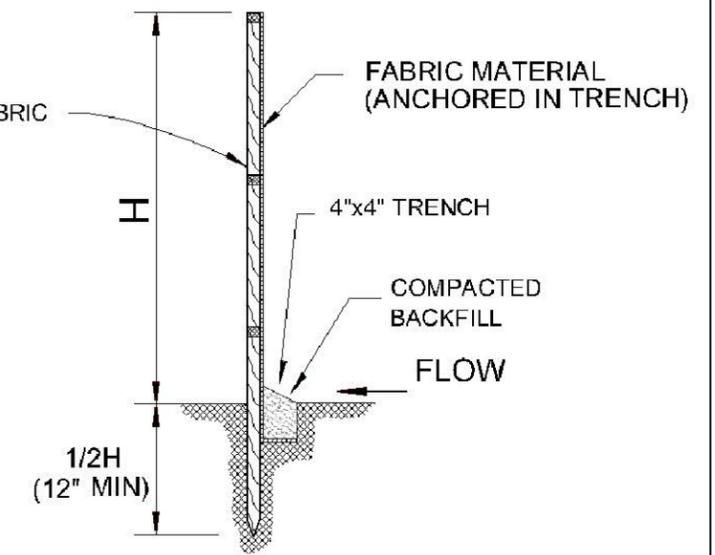


SECTION A-A

1 1
4 5 VEHICLE TRACKING CONTROL (VTC)
NOT TO SCALE



SILT FENCE INSTALLATION



SECTION

3 3
4 4 SILT FENCE
NOT TO SCALE

NOTES

1. DETAILS BASED ON THOSE PROVIDED BY URBAN DRAINAGE AND FLOOD CONTROL DISTRICT, DRAINAGE CRITERIA MANUAL, VOLUME 3.
2. EARTHEN BERM SHALL BE CONSTRUCTED FROM ONSITE MATERIAL AND SHALL BE COMPACTED WITH HEAVY EQUIPMENT. ALL DIMENSIONS ARE A MINIMUM. IT SHALL BE INITIALLY STABILIZED BY A SPRAY ON TACKIFIER AND SEEDING IN THE SPRING VIA HYDROMULCHING.
3. ALL VTC ROCK TO BE REPLACED AS NECESSARY DURING CONSTRUCTION AND REMOVED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
4. EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL LANDSCAPING IS COMPLETED, OR AS DIRECTED BY LOCAL JURISDICTION.
5. SEE FIGURE 1. NOTES, PAGE 1 OF 6, FOR INSPECTION AND MAINTENANCE REQUIREMENTS.
6. ALL EROSION AND SEDIMENT CONTROL PRACTICES AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THE SWMP MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION. PROPER SELECTION AND INSTALLATION OF BMPs AND IMPLEMENTATION OF COMPREHENSIVE INSPECTION AND MAINTENANCE PROCEDURES, IN ACCORDANCE WITH THE SWMP, SHOULD BE ADEQUATE TO MEET THIS CONDITION. BMPs THAT ARE NOT ADEQUATELY MAINTAINED IN ACCORDANCE WITH GOOD ENGINEERING, HYDROLOGIC AND POLLUTION CONTROL PRACTICES, INCLUDING REMOVAL OF COLLECTED SEDIMENT OUTSIDE THE ACCEPTABLE TOLERANCES OF THE BMPs, ARE CONSIDERED TO BE NO LONGER OPERATING EFFECTIVELY AND MUST BE ADDRESSED.

					DRAWN: KJL	PROJECT NO: 900920-0002-010
					ENGINEER: KJL	SCALE: NOT TO SCALE
					CHECKED: BAC	APPROVED: BAC
					DATE: 6-2-11	DATE: 6-2-11
NO.	DATE	REVISIONS	BY	CHK		



**LOWRY VISTA
REDEVELOPMENT
SWMP**

FIGURE 6. DETAILS

ATTACHMENT A

NARRATIVE REPORT INFORMATION
WORKSHEET

Narrative Report Information Worksheet
City and County of Denver, Demolition and Construction Activities
Stormwater Management Plan (SWMP)
Revised 5/21/10

A. PROJECT LOCATION

Name of Project or Development: Lowry Vista

CCD Master No. (if known): _____ CCD EC No. (If known): 2010-062

Street Address*: Unavailable

**Township: T4S Range: R67W Section: S16 Quarter Section: NE

**Latitude (+/- 15"): 39d 42' 30", Longitude (+/- 15"): 104d 53' 0"

Metropolitan District: Lowry Vista

*Submission of an Address Assignment Slip issued by the City Engineer's Office is required.

** Required if Street Address is unavailable.

B. PERMITTEE (Responsible party for day to day supervision and control of the MANAGEMENT PLAN)

Company Name: IRG Redevelopment I, LLC

Mailing Address: 7991 Shaffer Parkway, Suite 300

City, State, Zip Code: Littleton, CO 80127

Phone Number: (303) 972-6633 FAX Number (303) 948-4155

Name of Contact: John Yerton

Email: jyerton@irgco.com

C. OWNER

Company Name: IRG Redevelopment I, LLC

Mailing Address: 7991 Shaffer Parkway, Suite 300

City, State, Zip Code: Littleton, CO 80127

Phone Number: (303) 972-6633 FAX Number (303) 948-4155

Name of Contact: John Yerton

Email: jyerton@irgco.com

D. PLAN ENGINEER (prepared MANAGEMENT PLAN)

Company Name: Walsh Environmental Scientists and Engineers, LLC

Mailing Address: 820 16th Street, Suite 400

City, State, Zip Code: Denver, CO 80202

Phone Number: (303) 573-5545 FAX Number (303) 573-5525

Name of Engineer: Brad Coleman
Email: bcoleman@walshenv.com

E. SITE SUPERVISOR (If known)

Company Name: IRG Redevelopment I, LLC

Mailing Address: 7991 Shaffer Parkway, Suite 300

City, State, Zip Code: Littleton, CO 80127

Phone Number: (303) 972-6633 FAX Number (303) 948-4155

Name of Contact: John Yerton

Email: jyerton@irgco.com

F. TYPE OF CONSTRUCTION

Check the appropriate description(s) or provide a brief description that indicates the general nature of the proposed construction. A full description of activities must be included in the Stormwater Management Plan. (see Section G below)

- Single Family Residential Development
- Multi-Family Residential Development
- Commercial Development
- Oil and Gas Production and/or Exploration (including pad sites and associated infrastructure)
- Highway/Road Development (not including roadways associated with commercial or residential Development)
- Other, Describe: Stockpiling soil for future redevelopment work

G. SITE DESCRIPTION

1. Acreage

- a. Total Site Acreage: 80 acres
- b. Acreage Subject to Disturbance: 12 acres
- c. Acreage Determination (Public Utility Projects): NA

Area bounded by predefined construction limits: 12 acres

Calculations shall include all areas proposed for contractor laydown, materials storage, equipment storage, areas where equipment repair and fueling will occur, ingress, and egress (include haul roads and borrow pits.)

2. Site Conditions:

a. Historical Land Use: (may be for partial site)

- Known Landfill site: YES X NO
- Has any of the following activities occurred on-site:
- Metal Refining YES NO X
- Petroleum Refining YES NO X
- Petroleum Storage YES NO X
- Chemical Manufacturing YES NO X
- Pesticide/Fertilizer Manufacture/Storage YES NO X
- Rail Yard YES NO X

If the response to any of the above is YES, Please describe:

A portion of the disturbed area, Stockpile Area B, is on the Lowry Operable Unit-2

(OU-2) Landfill. See Figure 3.

b. Possible Site Contamination: Is the site part of any of the following:

Known Denver Radium Site	YES	_____	NO	_____X_____
Known Denver LUST Site	YES	_____	NO	_____X_____
Known Superfund Site	YES	_____	NO	_____X_____
Known CERCLA Site	YES	_____	NO	_____X_____
Known RCRA Site	YES	_____X_____	NO	_____

If the response to any of the preceding is YES, Please describe:

The site is part of an area subject to a RCRA compliance order. All known contamination has been cleaned up and CDPHE has approved the cleanup. It is also part of a closed landfill as shown on the attached Figure 3. The stockpiling activities will all be performed either on top of or adjacent to the landfill cover system. No excavation or other disturbance of the cover system will occur.

Describe any other known site contamination:

c. Current Land Use:

Describe existing use: Undeveloped Field

Are there any building/structures on-site? YES _____ NO _____X_____

d. Existing and Proposed Topography (minimum 2 foot contours)

Description: Gradual slope (+/- 2%) throughout the site with a berm dam to the east and north of Stockpile Area A. Hills are located along the west boundary of the site. A diversion berm is located to the northwest and diversion swale to the east and north of Stockpile Area B.

Highest Elevation: 5437 ft Lowest Elevation: 5418 ft

Steepest Slope: 33% Average Slope: 2%

Direction: North to Northwest

e. Vegetation

Identify the types of vegetation found on-site:

Fair to dense stand of field grasses and shrubs

Estimate the existing density of vegetation:

95% coverage

Submittal of Photographs is not required but highly recommended (See SWMP, Attachment B)

f. Drainage:

Identify all adjacent surface water flows (run-on) that may impact and/or runoff from the subject site:

Surface run-on from the south, east, and north of the site may impact the site. Runoff will be to the west-northwest towards an existing stormwater inlet northwest of Stockpile Area A, and north of Stockpile Area B toward diversion structures to Westerly Creek Reservoir.

Identify the State Receiving Waters: Westerly Creek

Describe the flow routing from the site to the Receiving Waters:

Surface flow is directed from Stockpile Area A to a stormwater inlet northwest of the site and conveyed to the reservoir north of the site. Surface flow is directed from Stockpile Area B to the reservoir via a diversion berm northwest and a diversion swale east and north of the site. Westerly Creek leaves from the north end of the reservoir.

Are there any springs or seeps located on-site? YES _____ NO X
Are there any defined drainage channels on-site? YES _____ NO X
Does the site fall within a Regulatory Floodplain? YES _____ NO X

If the answer is YES, a Floodplain Development Permit issued by the Public Works Department may be required.

g. Wetlands: Define the dimensions/surface areas for each identified wetland and its location relative to the site.

Identify all on-site wetlands/wetlands channels:

1. NA – the nearest wetland is within Westerly Creek dam north of the site
2. _____
3. _____

Tributary or adjacent Wetlands Areas

Upstream of the site? YES _____ NO X
Downstream of the site? YES X NO _____
Will the proposed construction work impact any of the on-site wetland areas?
YES _____ NO X

If the answer is YES, attach copies of correspondence with the State of Colorado and U.S. Army Corps of Engineers concerning permits and approvals for the work.

h. Soils:

Identify the predominant Hydrologic Soil Group found on-site.

A _____ B _____ C X D _____

What is the runoff coefficient for the undeveloped site?

C = 0.08 (Table RO-5 Urban Drainage Criteria Manual Vol. I; 2-yr frequency)

Describe the soil texture found on-site

Silty clay

Is there any outcropping of bedrock on-site? YES _____ NO X

Will grading or excavation on-site reach bedrock? YES _____ NO X

If YES, what is the depth of the bedrock? NA

Will grading or excavation penetrate the Water Table? YES _____ NO X

If YES, what is the depth of the Water Table? NA

i. Erosion Potential:

Provide estimates of the potential annual soil loss from the site for the following conditions: Erosion by water from an unprotected site 0.11 tons per acre per year.

Erosion by water from a protected * site 0.066 tons per acre per year

Identify the procedures/formulas used to produce these estimates. If the Universal Soil Loss Equation (USLE) has been used, provide the values used for the following:

R (Annual Erosion Index) 38.7

K (Soil Erodibility Factor) 0.15
LS (Length/percent Slope Factor) 0.38/0.25
C (Soil Cover Factor) 0.03

Provide estimates of the potential annual soil loss from the site for the following conditions:

Erosion by wind from an unprotected site 0 tons per acre per year.

Erosion by wind from a protected* site 0 tons per acre per year

Identify the procedures/formulas used to produce these estimates.

*Protected site: calculations shall be based on the BMPs proposed for use on the site

H. PROJECT DESCRIPTION – CONSTRUCTION ACTIVITIES

1. Proposed Construction Activities

Identify which of the following activities will occur during development of the site:

a. Clearing and Grubbing YES X NO

b. Mass Overlot Grading YES NO X

c. Cut Operations YES NO X

If YES, estimate volume of cut (cubic yards) NA

d. Fill Operations YES X NO

If YES, estimate volume of fill (cubic yards) 300,000 cu. yd. of stockpiled soil

e. Building Demolition YES NO X

f. Foundation Excavation YES NO X

g. Utility Construction YES NO X

h. Street Construction and Paving YES NO X

i. Building Construction YES NO X

j. Parking Lot Construction/Paving YES NO X

k. Landscaping YES NO X

Will Private Storm and Sanitary Sewer systems be constructed? YES NO X

Will Private Storm and Sanitary Sewer systems be constructed? YES NO X

If YES, identify the SP or PR Project Numbers assigned* by WMD for each project

NA

If sewers are private or being constructed by a governmental agency other than Public Works, list the agency and associated Project number(s) NA

*if Public Works Project Numbers have not been assigned but will be in the future, please indicate as "Not Assigned."

2. Construction Scheduling (Corresponds with Construction Phasing below)

a. Site Preparation / Grading Operations

Proposed Start Date: April 22, 2011

Proposed Completion Date: December 31, 2011

b. Utility / Infrastructure / Building Construction

i. Utilities:

Proposed Start Date: NA

Proposed Completion Date: NA

ii. Building Construction:

Proposed Start Date: NA

Proposed Completion Date: NA

iii. Building Construction:

Proposed Start Date: NA

Proposed Completion Date: NA

c. Landscaping/Site Stabilization

Proposed Start Date: NA

Proposed Completion Date: NA

3. Construction Phasing - Denver recognizes 3 basic phases for all construction sites as outline below.

(Note: A map or drawing for each phase is required, showing required BMPs for that phase. Address the installation and maintenance of all proposed erosion control measures, sediment/pollutant control measures, and site stabilization measures for each phase. Add additional sheets to the worksheet if needed.)

a. Site Preparation/Grading

i. Describe the types and placements of proposed BMPs for use during clearing, grubbing, demolition, and grading operations.

VTC shall be placed at points of ingress/egress. Earthen berms shall be placed around the stockpile staging areas. Existing grass berm and riprap will protect the inlet down gradient from Stockpile Area A. A grass buffer will be maintained between the limit of disturbance and the site limit. The flow path across the grass buffer from the Stockpile Area A rock filter to the down gradient inlet is approximately 60'. The flow path across the grass buffer from the Stockpile Area B rock filters to the Westerly Creek Reservoir is approximately 1300' and includes a rip rap dissipation pool at the reservoir. No clearing or grubbing will be performed in the Stockpile B area. Vegetation will be left as a marker layer to denote the bottom of the stockpile and prevent excavation into the underlying landfill cover.

ii. Describe all measures proposed for interim site stabilization.

Tackifier or hydromulch will be applied to be stockpiles to be dormant for more than 30 days within 14 days of construction to protect from wind and water erosion.

iii. Describe the inspection and maintenance schedule proposed for BMPs on-site.

BMPs will be inspected at least every 7 days or after significant precipitation events. Necessary maintenance shall be completed immediately.

b. Utility/Infrastructure/Building Construction

i. Describe the types and placements of proposed BMPs for use during utility construction, roadway construction, building construction and paving operations.

NA

ii. Describe all measures proposed for interim site stabilization.

NA

iii. Describe the inspection and maintenance schedule proposed for BMPs on-site.

NA

c. Permanent Site Stabilization/Landscaping

i. Describe the types and placements of BMPs proposed for use during site stabilization and landscaping, as well as describing all permanent water quality enhancement facilities.

BMPs shall be removed and the site revegetated and stabilized using tackifier or hydromulch

ii. Describe all measures proposed for final site stabilization.

Seeding and stabilizing with a mulch, straw, or approved chemical tackifier

iii. Describe the inspection and maintenance schedule proposed for BMPs on-site.

BMPs shall be removed.

iv. Identify any annual grasses proposed for use in stabilizing the site.

NA

v. List the perennial grasses seed mix proposed for site stabilization

Kentucky Bluegrass, Creeping Red Fescue, Kentucky 31, Redtop, Perennial Ryegrass,
White Clover

vi. Identify the estimated date for seeding
October 2011

I. Required Best Management Practices (BMP)

As listed, under Section 4 of Information Guide document

1. Vehicle Tracking Control (See Erosion Control Detail)
2. Inlet Protection (See Erosion Control Detail)
3. Site Stabilization (Sediment Control Narrative)
4. Spill Prevention/Containment (Sediment Control Narrative) - (See Attached Narrative)
5. Chute Washout Containment (See Erosion Control Detail)
6. Street Sweeping (See Standard Note #13)
7. Perimeter Control (See Erosion Control Details)
8. Portable Toilets

J. Maintenance, Inspections & Record Keeping (See Standard Note #7)

Additional Maintenance, Inspection & Record Keeping Instructions: (If needed, See attached Narrative)

K. Post Construction Permanent Water Quality

Identify permanent water quality BMPs proposed for site sediment control:

- | | | | | |
|---|-----|----------|----|----------|
| 1. Grass Buffer | YES | <u>X</u> | NO | _____ |
| 2. Grass Swale | YES | _____ | NO | <u>X</u> |
| 3. Modular Block Porous Pavement | YES | _____ | NO | <u>X</u> |
| 4. Porous Pavement Detention | YES | _____ | NO | <u>X</u> |
| 5. Porous Landscape Detention | YES | _____ | NO | <u>X</u> |
| 6. Extended Detention Basin | YES | _____ | NO | <u>X</u> |
| 7. Sand Filter Extended Detention Basin | YES | _____ | NO | <u>X</u> |
| 8. Constructed Wetlands Basin | YES | _____ | NO | <u>X</u> |
| 9. Retention Pond | YES | _____ | NO | <u>X</u> |
| 10. Constructed Wetlands Channel | YES | _____ | NO | <u>X</u> |
| 11. Innovative/Proprietary Technology * | YES | _____ | NO | <u>X</u> |

*Use of Innovative/Proprietary Technology will require the submission of the technology developer's technical data, specifications, design criteria and installation requirements for review.

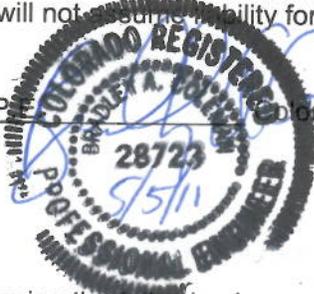
L. Certifications

- 1. Engineer's Certification - Plans submitted for review need to bear a P.E. Stamp, signature, and a P.E.'s Certification Note

Engineer's Certification:

"I hereby certify that this Construction Activities Stormwater Management Plan for Lowry Vista, Project # EC-2010-062 was prepared by me (or under my direct supervision) in accordance with the provisions of the Construction Activities Stormwater Discharge Permit for the City and County of Denver. I understand that the City and County of Denver does not and will not assume liability for drainage facilities design."

Bradley A. Coleman, P.E. Colorado Registered PE# 28723
Date 5/5/11
Principal Engineer



- 2. Owner's Certification Note using the following language and signed by owner or authorized agent.

Owner's Certification:

"This Construction Activities Stormwater Management Plan has been submitted as the application for a Construction Activities Stormwater Discharge Permit filed with the Wastewater Management Division of the City and County of Denver. I understand that additional erosion control, sediment control and water quality enhancing measures may be required of the owner and his or her agents due to unforeseen pollutant discharges or if the submitted plan does not function as intended. The requirements of this plan shall be the obligation of the land owner and/or his successors or heirs; until such time as the plan is properly completed, modified, or voided."

Date 5/6/11 JL Pytk
Owner or Authorized Agent Representing Owner

M. Required Drawing Plans for each phase

- a. Demolition (if applicable)
- b. Site Preparation/Grading
- c. Utility/Infrastructure/Building Construction
- d. Permanent Site Stabilization/Landscaping

ATTACHMENT B

PHOTOGRAPHS



Photograph #1 – Stockpile Area A – Existing BMPs at northwest corner, looking north from existing stockpile



Photograph #2 – Stockpile Area A – Area of proposed stockpile, expansion looking south from existing stockpile



Photograph #3 – Stockpile Area A – Site vegetation looking south



Photograph #4 – Stockpile Area B – Site vegetation looking northwest



Photograph #5 – Stockpile Area B – Site vegetation looking north, showing diversion swale east of the stockpile area