SECTION 4 - MOBILIZATION AND DEMOBILIZATION (All Sites)

4.1 GENERAL

This contract item shall consist of expenditures for all preparatory work and operations, including but not limited to: bond and insurance costs; those costs necessary for the movement of personnel, equipment, supplies, and incidentals to the project sites; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project sites as well as the related demobilization costs at the completion of the project. Demobilization shall include but not be limited to cleaning installations and the removal of temporary structures as required by the County. Throughout all phases of construction, including suspension of work and until final acceptance of the project, the Contractor shall keep each work site clean and free of refuse generated as a result of the Contractor's operations. Any such refuse shall be disposed of at the Badlands Landfill.

Landfill site names and locations for this 2015 Site Maintenance and Improvements Construction Project:

1 .Badlands – 31125 Ironwood Avenue, Moreno Valley, CA.
2. Pedley Landfill (Closed), NW of Van Buren and Jurupa Avenue intersection, City of Riverside, CA; Latitude: 33.96090135 N, Longitude: -117.4648814 W.

4.2 MATERIALS

A. The Contractor shall provide fire extinguishers and first-aid kits at each of the project sites during construction to provide adequate protection to all personnel anticipated to be at the landfill sites.

B. All of the aforementioned materials shall be made available for use by employees associated with the construction project, including (but not limited to) the Contractor, the County, regulatory agency staff, and any other agencies involved with the construction project.

C. Temporary haul roads shall be constructed using source material from the Canyon 6 Stockpile.

4.3 EXECUTION

A. Upon receipt of the Notice to Proceed, the Contractor shall furnish, mobilize, and install such temporary works, materials, equipment, supplies, and personnel as necessary for the successful completion of the work. The Contractor shall also operate and maintain temporary works, and equipment throughout the duration of

construction. All temporary works, such as sanitation facilities and concrete washouts, shall fully comply with applicable rules and regulations of governing authorities.

B. The Contractor shall remove and properly dispose of all refuse from the construction site. The County shall have the right to determine what is refuse, and to determine the manner and placement of on-site disposal. Any hydrocarbon-impacted soils found at each site as a result of the construction operation, such as equipment maintenance, shall be removed and properly disposed of at the Contractor's expense.

C. The Contractor shall obtain all necessary permits, and permission to utilize public roads for mobilization, demobilization, and access to each site. Access to Badlands Landfill is available through existing public roads during the hours stated in Section 1.18 of these Special Provisions. Pedley Landfill is not directly accessible via a public road and is accessed by the County via the Santa Ana River Bike Trail. Contractor may need to obtain an encroachment permit with the City of Riverside. The cost for all necessary permits and permission to utilize public roads shall be included in the Contractor's bid price for Mobilization and Demobilzation.

D. The entrance to Pedley Landfill is restricted by a County pipe gate and may be too narrow for access by certain types of equipment. Contractor shall investigate the restrictions of the entrance gate and determine if a wider temporary entrance needs to be constructed. If a wider entrance is determined to be necessary, Contractor shall construct a temporary entrance with a secure gate that prevents access from on-road vehicles during non-construction working hours while allowing bike access. After completion of construction items, Contractor shall reinstall/restore the pre-construction entrance gate to the landfill. The asphalt concrete pavement for the Santa Ana Bike Trail is designed for a maximum load for residential road vehicles. Contractor shall protect in place the asphalt concrete pavement and striping for the bike trail or shall replace if damaged during mobilization and demobilization to the site or during construction. The cost for removal of the County entrance gate, installation of a temporary entrance gate, reinstallation of the County entrance gate, protection of the bike trail or repair of the bike trail shall be included by the Contractor in their bid price for mobilization and demobilization. No additional compensation shall be provided by the County.

E. Contractor shall notify the County at least 48 hours prior to mobilizing personnel and equipment to each site so that the County representative may discuss onsite haul routes and Do Not Enter zones, etc.

4.4 MEASUREMENT AND PAYMENT

a. The following schedule will be used to determine **measurement** of mobilization and demobilization and disbursement of the bid price for mobilization and demobilization:

Percent of Contract Work Completed ($ Expended/$ total bid price)	Percent of Mobilization and Demobilization Considered to be Complete
More Than 5%	40%
26%-50%	60%
51%-75%	80%
More Than 75%	90%
Upon County's acceptance of work including complete demobilization	100%

b. **Payment** of mobilization and demobilization shall be based upon the lump sum as stated in **Bid Item No. 3** – *"Mobilization and Demobilization"*. Payments shall constitute full compensation for all labor, material, equipment, and all other items necessary and incidental to completion of this item of work. The deletion of work or the addition of extra work, as provided for herein, shall not affect the price paid for mobilization and demobilization.

END OF SECTION

SECTION 5 - DEMOLITION (Badlands)

5.1 GENERAL

The work covered by this section shall include: salvage, remove, relocate, recycle, and stockpile material encountered during construction as described in the Contract Documents. The work in this section shall include furnishing all labor, supervision, tools, equipment, and materials necessary to complete and insure that all demolition activities conform to the requirements of the Contract Documents.

5.2 MATERIALS

A. In-place materials/structures requiring demolition include: soil cement hardscape sections, a 4" HDPE pipe covered by 1' of soil cement, three 8" HDPE pipe covered by approximately 3' of soil cover, a section of a reinforced shotcrete trap channel, light class and ½ ton size rock and 6" minus aggregate rock berms, and an asphalt concrete drainage swale located in the areas shown on the Project Drawings. The total in-place quantity is approximately 2,150 square feet of 12" thick soil cement hardscape, 97 linear feet of 4" HDPE pipe, 130 linear feet of 8" HDPE pipe, 9,140 square feet of asphalt concrete, 6 cubic yards of 4" thick reinforced shotcrete trap channel, 60 cubic yards of light class and ½ ton rock and 853.4 cubic yards of 6" minus aggregate rock berms, for a total volume of approximately 1106 cubic yards +/-.

B. Demolition material quantities are approximate. Contractor is responsible for calculating all material quantities for bidding purposes.

5.3 EXECUTION

The Contractor shall perform the aforementioned demolition activities as shown on the Project Drawings or as directed in the field by the County:

A. Sawcut, remove, recycle and stockpile asphalt concrete from the asphalt concrete drainage structure. Demo asphalt concrete material shall be hauled to the Western Stockpile and stockpiled in an area as designated by the County and Contractor for crushing and pulverizing.

B. Sawcut, remove, recycle and stockpile soil cement from soil cement hardscape area. Demo soil cement material shall be hauled to the Western Stockpile and stockpiled in an area as designated by the County and Contractor for crushing and pulverizing.

C. Sawcut, remove, recycle and stockpile concrete from the reinforced shotcrete trap channel. Demo concrete material shall be hauled to the Western Stockpile and stockpiled in an area as designated by the County and Contractor for crushing and pulverizing.

A. Remove, recycle and stockpile 6" minus aggregate rock from the two downstream

berms in the Southwest Sedimentation Basin. The aggregate shall be hauled to the wet weather pad stockpile area for reuse as designated by the County. If space adjacent to the wet weather pad is exhausted, aggregate base shall be stockpiled along the southern/eastern end of Bench P at the location shown on the Project Drawings. Contractor shall maintain a minimum 25-foot clearance along Bench P for Department equipment access.

D. Remove light class and ½ ton rock from the upstream rock berm in the Southwest Sedimentation Basin. The light class and ½ ton rock shall be hauled to the Western Stockpile and stockpiled in an area as designated by the County and Contractor for crushing and pulverizing.

E. Remove and salvage 4" HDPE pipe traversing underneath the Western Stockpile Sedimentation Basin Entrance Road. Salvaged HDPE pipe shall be hauled to the Operations material storage area located on Bench N on the northern section of the landfill.

5.4 MEASUREMENT AND PAYMENT

A. **Payment** for complying with this section shall be at the lump sum bid price as stated in **Bid Item No. 4** – "Demolition", and shall be prorated in each progress payment in accordance with the following schedule:

Item for Demolition	Percent Payment
Remove, recycle, and stockpile asphalt concrete	15%
Remove, recycle, and stockpile reinforced shotcrete trap channel material	10%
Sawcut, remove, recycle and stockpile soil cement hardscape material	10%
Remove, recycle and stockpile 6" minus aggregate base rock	50%
Remove, recycle and stockpile light class and ½ ton rock	10%
Remove and salvage pipes	5%

B. **Payment** of the lump sum contract price to demolish existing structures shall constitute full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved to salvage, remove, recycle, and stockpile material from existing structures and shall include all costs associated with the demolition operations, compliance with all applicable SCAQMD regulations and the Site Safety Plan.

END OF SECTION

SECTION 6 - CRUSH AND PULVERIZE DEMO MATERIAL (Badlands)

6.1 GENERAL

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision to: haul an existing stockpile of demolition material from Canyon 6 to the Western Stockpile, crush and pulverize demolition material and stockpile produced crushed miscellaneous base material for County's future use as indicated on the Project Drawings and as directed by the County. As an optional alternative bid item awarded at County discretion, work covered by this section may also consist of furnishing all necessary labor, materials, equipment, tools and supervision to haul the crushed miscellaneous base material to the Badland's Wet Weather Pad.

6.2 MATERIALS

Materials to be crushed and pulverized are asphalt concrete, soil cement hardscape material, concrete, , concrete cinder blocks. light class stone, 1/2-ton stone and concrete grout. Asphalt concrete, concrete, light class rock from the Southwest Sedimentation Basin, ½-ton stone from the Southwest Sedimentation Basin and soil cement hardscape material emanate from the demolition of existing structures on this Project. Refer to Demolition Section 5.2 of these Special Provisions for the approximate quantities and types of materials. The concrete cinder block, ¼-ton stone, ½-ton stone and concrete grout (concrete debris) were demolished as part of a previous project and are currently stockpiled together within the Canyon 6 Stockpile Area. The stockpile also contains dirt fines and #4 rebar. Contractor shall factor in removing rebar from stockpile and demolished 6" thick reinforced concrete if deemed necessary in order to crush and pulverize. The existing concrete debris stockpile consists of approximately 1,140 cubic yards of material.

6.3 EXECUTION

B. Contractor shall haul approximately 1,140 cubic yards of existing concrete debris stockpile material from the Canyon 6 Stockpile Area to a location within the Western Stockpile as directed by the County and agreed to by the Contractor.

C. The crusher shall be with feeder opening size able to fit the largest demo material listed in Section 5.2 and 6.2 in these Special Provisions. If other materials are larger than the feeder opening size, the Contractor shall pulverize these materials accordingly prior to placement in the crusher.

D. Crusher capacity and engine power shall be sized to crush the total amount of material in Section 5.2 and 6.2 in these Special Provisions.

E. The end product of the crushed miscellaneous base material shall consist of one-inch (1") to three-inch (3") in size with some fines.

F. The crushing operation and stockpile of the end product (crushed miscellaneous base) shall be located within the Western Stockpile or other County approved area and as directed by the County.

G. As an optional alternative bid item awarded at County discretion, the County may require the Contractor to haul the crushed miscellaneous base material to the Badlands Wet Weather Pad or stockpiled along Bench P, as labeled in the Project Drawings. Due to the alternative nature of the bid item, hauling of crushed miscellaneous base material to the Badlands Wet Weather Pad does not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event the County opts not to award the Bid Item. Contractor will not be compensated for expected profits for alternative bid items that are not used at the discretion of the County.

H. Crushed miscellaneous base shall be stockpiled adjacent to the Wet Weather Pad as shown on the Project Drawings. If space adjacent to the wet weather pad is exhausted, crushed miscellaneous base shall be stockpiled along the southern/eastern end of Bench P at the location shown on the Project Drawings. Contractor shall maintain a minimum 25-foot clearance along Bench P for Department equipment access.

6.4 MEASUREMENT AND PAYMENT

A. The **measurement** of the final quantity for **Bid Item No. 5** "Crush and Pulverize Demo Material" shall be based upon the final surveyed volume of stockpiled crushed miscellaneous base, in cubic yards (CY). **Payment** for the crushing and pulverizing of demo material shall be made based on the unit price per cubic yard as stated in the Contractor's Proposal, **Bid Item No. 5** – "Crush and Pulverize Demo Material" and shall constitute full compensation to the Contractor for furnishing all labor, materials, tools, equipment, and incidentals involved in hauling an existing stockpile of demo material from the Canyon 6 Stockpile Area to the Western Stockpile and crushing and pulverizing demo material.

B. The **measurement** of the final quantity for **Optional Alternative Bid Item No. 35** "Haul Crushed Miscellaneous Base Material to Wet Weather Pad" shall be based upon the final surveyed volume of stockpiled crushed miscellaneous base, in cubic yards (CY) hauled to the Badlands Wet Weather Pad. Payment for the hauling of crushed miscellaneous base material to the Wet Weather Pad shall be made based on the unit price per cubic yard as stated in the Contractor's Proposal, **Optional Alternative Bid Item No. 35** – "Haul Crushed Miscellaneous Base Material to Wet Weather Pad" and shall constitute full compensation to the Contractor for furnishing all labor, materials, tools, equipment, and incidentals involved in the hauling of crushed miscellaneous base material.

END OF SECTION

SECTION 7 - FIBER ROLLS (Badlands)

7.1 GENERAL

The work covered in this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision for the construction of fiber rolls at locations shown on the Project Drawings or as directed by the County.

7.2 SUBMITTALS

The Contractor shall submit product data sheet, and manufacturer's application instructions for all materials to the County for approval prior to installation.

7.3 MATERIALS

A. Fiber roll shall be a manufactured roll of rice or wheat straw, wood excelsior, or coconut fiber encapsulated within a photodegradable plastic or biodegradable jute, sisal, or coir fiber netting. The netting shall have a minimum durability of one year after installation. The netting shall be secured tightly at each end of the roll. Rolls shall be between 0.6 feet and 1 foot in diameter. Rolls between 0.6 feet and 0.8 feet in diameter shall have a minimum weight of 1.17lb/ft and a minimum length of 18 feet. Rolls between 0.8 feet and 1 foot in diameter shall have a minimum weight of 3.3lb/ft and a minimum length of 9 feet.

B. Wood stakes shall be a minimum of ¾" x ¾" x 24" in size and shall be untreated fir, redwood, cedar, or pine and cut from sound timber. They shall be straight and free of loose or unsound knots and other defects which would render them unfit for the purpose intended

7.4 EXECUTION

Fiber rolls shall be installed as follows:

A. Furrows shall be constructed to a depth between 2" and 4", and to a sufficient width to hold the fiber roll. Adjoining fiber rolls shall be overlapped between 6" to 12". Stakes shall be installed 2 feet apart along the length of the fiber rolls and stopped at 1 foot from each end of the rolls. Stakes shall be driven to a maximum of 2" above, or flush with the top of the rolls.

B. The bedding area for the fiber rolls shall be cleared of obstructions including rocks, clods and debris greater than 1" in diameter before installation.

C. Fiber rolls shall be placed along the edges of drainage structures, parallel to contours along decks and along the toe of slopes as shown on the Project Drawings.

D. Fiber rolls shall be installed before application of other erosion control or soil stabilization materials in the same area.

7.5 MEASUREMENT AND PAYMENT

The **measurements** of the final quantity for **Bid Item No. 6** "Fiber Rolls" shall be determined by the County based on field measurements of the axial length (linear feet) of fiber rolls installed at the locations and to the dimensions shown on the Project Drawings. Joining and overlapping of rolls will not be measured, and the roll will be measured as a single installed roll. **Payment** for the fiber rolls shall be at the contract unit price per linear foot as stated in the Contractor's Proposal, **Bid Item No. 6** and shall constitute full compensation to the Contractor for all work related to the supply and installation of fiber rolls in the project including but not limited to: furnishing all labor, supervision, materials, tools, and equipment; excavating, hauling, loading, stake anchors, and any other requirements by the Contract Documents for the supply and installation of fiber rolls.

END OF SECTION

SECTION 8 - ASPHALT CONCRETE STRUCTURES (Badlands)

8.1 GENERAL

The work covered in this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision for the construction of Asphalt Concrete (A.C.) Structures which shall include, but is not limited to: a drainage swale, a cross gutter, an access ramp and an access road. The work shall include subgrade preparation and installation of A.C. pavement to the specified lines and grades and at the locations shown on the Project Drawings and as required by the Contract Document and as directed by the County.

8.2 SUBMITTALS

A. The Contractor shall submit Certificates of Compliance for bituminous materials used in asphalt concrete pavement and asphaltic emulsion mixes proposed for this project at least 48 hours prior to placement. The certificates shall be signed by the manufacturer of the materials and shall state that materials involved shall comply in all respects with the requirements of these specifications.

B. The Contractor shall prepare and submit a mix design to the County for review and approval at least 48 hours prior to beginning placement of asphalt concrete pavement for each mix design incorporated for use in this project.

8.3 MATERIALS

A. Asphalt concrete pavement shall consist of hot mineral aggregate uniformly mixed with hot bituminous material.

B. Asphalt paving material for Asphalt Drainage Structures, consisting of the drainage swale and cross gutter, shall be D1-PG 70-10, and shall conform to Part 2, Sections 203-6 and 400-4 of the Standard Specifications.

C. Asphalt pavement materials for the access road and ramp shall be III-B3 PG 64-10 and shall conform to Part 2, Sections 203-6 and 400-4 of the Standard Specifications.

D. Tack Coat: Tack Coat shall conform to Section 302-5.4, "Tack Coat" of the Standard Specifications and shall be PG 70-10 paving asphalt, or SS-1h emulsified asphalt applied at the rates as specified.

8.4 EXECUTION

A. The Contractor shall arrange and conduct a pre-job paving meeting no later than 48 hours prior to the scheduled paving date. The General Contractor, the Paving Subcontractor and County personnel shall attend this meeting. Discussion topics shall include Contractor-proposed: paving machine and asphalt roller equipment spread, methodology for paving pass sequence, paving pass widths, longitudinal joint locations, and traffic control plan implementation and maintenance specific to each paving operation.

B. Contractor shall remove the existing hardscape sections where applicable, as shown on the Project Drawings, and salvage material as directed by the County. Refer to SECTION 5 - DEMOLITION .

C. The subgrade for all asphalt structures in this project, prepared either by excavation or engineered fill, shall conform to the locations and cross sections as shown on the Project Drawings or as directed by the County. Where the structures are in native cut, the upper six (6) inches of subgrade shall be compacted to a minimum of 90 percent (or as otherwise noted on the Project Drawings) of the maximum density as determined per ASTM D1557. This shall be achieved by scarifying the exposed surface to a depth of six (6) inches and re-compacting. For areas requiring engineered fill, the finished subgrade shall be firm and suitable for placement of asphalt pavement, and shall be compacted to a minimum of 90 percent (or as otherwise noted on the Project Drawings) of the maximum density within the upper one foot, as determined by ASTM D1557.

D. Prior to pavement application, surface preparation shall consist of cleaning the underlying course of foreign or objectionable matter with power blowers or brooms where necessary. A tack coat shall be applied to the areas receiving pavement in accordance with Section 302-5.4, "Tack Coat" of the Standard Specifications.

The Contractor shall be solely responsible for protection of completed areas against detrimental effects. Recondition, reshape, and re-compact areas damaged by rainfall, or other weather conditions.

E. Distribution and spreading shall conform to the requirements of Section 302-5.5, "Distribution and Spreading" of the Standard Specifications. All transitions and edges shall be feathered to conform to the existing surface and provide a smooth transition. The Contractor shall install 2"x4" wooden headers using 12"-2"x4" stakes set a maximum of 6-foot on center at all locations where the vertical edges of new asphalt pavement are not in contact with an existing pavement or permanent structures. Wooden headers shall remain in place upon completion of work.

F. Rolling shall conform to the requirements of Section 302-5.6, "Rolling" of the Standard Specifications. Hand and mechanical tampers will not be permitted for compaction of road way section.

8.5 MEASURMENT AND PAYMENT

A. The **measurement** of the final quantity for **Bid Item No. 7** "Construct A.C. Access Road" shall be based on the pertinent details required by the Contract Documents as verified by the County through field measurements of these structures. **Payment** for A.C. Access Road shall be at the contract unit price per square foot, as stated in the Contractor's Proposal, **Bid Item No. 7.** Each and every Asphalt Concrete load ticket shall be delivered to the County by truck drivers at the point of delivery.

The **measurement** of the final quantity for **Bid Item No. 8** "Construct A.C. Drainage Structures" shall be based on the pertinent details required by the Contract Documents as verified by the County through field measurements of these structures. **Payment** for the A.C. Drainage Structures shall be at the contract unit price per square foot, as stated in the Contractor's Proposal, **Bid Item No. 8.** Each and every Asphalt Concrete load ticket shall be delivered to the County by truck drivers at the point of delivery.

B. The measurement of the final quantity for **Bid Item No. 9** "Construct A.C. Access Ramp" shall be based on the pertinent details required by the Contract Documents as verified by the County through field measurements of these structures. Payment for the A.C. Drainage Structures and Access Ramp shall be at the contract unit price per square foot, as stated in the Contractor's Proposal, **Bid Item No. 9**. Each and every Asphalt Concrete load ticket shall be delivered to the County by truck drivers at the point of delivery.

C. Payment quantities for all Asphalt Concrete Structures shall be based upon the specified limits and dimensions on the Project Drawings, adjusted by the amount of any change ordered by the County. Payment for all Asphalt Concrete Structures shall include subgrade preparation and removing existing hardscape applicable as specified in the Contract Documents and indicated in the Project Drawings. No payment will be made for any asphalt placed outside the specified limits and dimensions unless otherwise ordered in writing by the County. Payment shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all the work related to and involved in constructing the Asphalt Structures completed in place.

END OF SECTION

SECTION 9 - EROSION CONTROL BLANKETS AND HYDROSEEDED SLOPES (Badlands and Pedley)

9.1 GENERAL

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools, and supervision to establish vegetation of slopes for slope stability including track walking, installation of erosion control blankets, application of hydraulic mulch, and hydroseeding at the locations indicated on the Project Drawings or as directed by the County.

9.2 SUBMITTALS

A. Prior to delivery of materials, the Contractor shall submit product data sheet, material specifications, and manufacturer's application instructions for erosion control blankets to the County for approval.

B. Prior to delivery of materials, the Contractor shall submit product data sheet, material specifications, manufacturer's application instructions, seed mix design, fertilizer type, and stabilizing agent for the hydroseeding application at Badlands to the County for approval.

C. Prior to delivery of materials, the Contractor shall submit product data sheet, material specifications, manufacturer's application instructions and seed mix design for the hydroseeding application at Pedley to the County for approval.

9.3 MATERIALS

A. Erosion control blankets must be a long-term, degradable, open-weave textile manufactured or fabricated into rolls designed to reduce soil erosion and assist in the growth, establishment, and protection of vegetation. Erosion control blankets must conform to the classification system established by the Erosion Control Technology Council.

B. Erosion Control Blankets must be made of processed natural fibers that are mechanically, structurally, or chemically bound together to form a continuous matrix that is surrounded by 2 natural nets. The erosion control blankets must comply with the requirements shown in the following table:

Property	Type	Requirements	Test Method
Classification	-	ECTC Type 2D	-
Net Type	B	Natural	-
Number of Nets	B	Double	-
Minimum Roll Width	B	6 feet	-
Matrix	B	100% woven coir (coconut fiber)	-

Universal Soil Loss Equation (USLE) C-Factor for a 1:1 (H:V) unvegetated slope	B	≤0.20	-
Maximum Shear Stress	B	1.75 psf	ASTM D 6460
Minimum Tensile Strength	B	75 psf	ASTM D 5035
Functional Longevity	B	12 months	-

C. Hydroseed shall comply with the following requirements:

I. Badlands Seed Mixture - The seed mixture furnished by the Contractor shall be drought tolerant, shallow rooted grasses and annual plant species native and adaptable to the climate conditions at the Badlands Sanitary Landfill. The seed shall be less than two years old. Germination test of the seed shall be made less than six months prior to the seeding operations and a certificate of such test shall be furnished to the Department. The germination tests, for an acceptable seed, shall indicate a minimum of 85 percent germination. When directed by the Department, the above mixture may be varied to suit any special condition of soil peculiar to the areas to be seeded. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable.

II. Pedley Seed Mixture - The seed mixture furnished by the Contractor shall be Riparian Rescue Mix for the lower half of the south channel and Desert Sage Scrub Mix for the upper half of the south channel as well as for the entirety of the north channel. The seed shall be installed between October 1 and April 30 to maximize the benefits of the winter rainy season. The seed shall be less than two years old. Germination test of the seed shall be made less than six months prior to the seeding operations and a certificate of such test shall be furnished to the Department. The germination tests, for an acceptable seed, shall indicate a minimum of 85 percent germination. When directed by the County, the above mixture may be varied to suit any special condition of soil peculiar to the areas to be seeded. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable.

III. Mineral Binders – Mineral Binding agent for Badlands Hydroseed shall be Posi-Cube Seed & Soil Guard or approved equal.

9.4 EXECUTION

A. Track walking at Badlands, with Dozer-type equipment or approved equal by the County Representative in the field, shall leave a uniformly graded condition with positive drainage.

B. Hydroseeding at Badlands shall consist of mixing and applying seed, commercial fertilizer and stabilizing agent with water. Mixing of materials for application with hydro-seeding equipment shall be performed in a tank with a built-in continuous agitation system of sufficient operating capacity to produce a homogeneous mixture and a discharge system which will apply the mixture at a continuous and uniform rate.

C. Hydroseeding of cover soil at Pedley shall consist of applying seed by hand and watering the applied area immediately following installation.

D. The contractor shall furnish and install erosion control blankets in accordance with the manufacture's recommendations, Caltrans Standard Plans for Landscape and Erosion Control - Section 21, Caltrans Standard Plan Sheet H52, and Project Drawings.

E. The application of track walking and hydroseed slopes and furnish and install hydroseed, hydraulic mulch and erosion control blankets at the Badlands Landfill are optional alternative bid items. As this is subject to circumstances encountered in the field, the County may not require the Contractor to apply hydroseed or install erosion control blankets. Due to the alternative nature of the bid items, these bid items do not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event a percentage greater than 25% or none of the work is required on the Project. Contractor will not be compensated for expected profits for optional alternative bid items that are not used on the Project.

9.5 MEASUREMENT AND PAYMENT

The **measurements** of the final quantity for **Bid Item No. 27 "Hydroseeding of Cover Soil (Pedley)", Optional Alternative Bid Item No. 29** "Track Walk and Hydroseed Slopes", **and Optional Alternative Bid Item No. 30** "Furnish and Install Hydroseed, Hydraulic Mulch and Erosion Control Blankets" shall be determined by the County based on field measurements of the total acreage of erosion control blankets with hydroseed and track walking with hydroseed installed at the locations and to the dimensions shown on the Project Drawings. Payment for the Bid Items shall be at the contract unit price per acre as stated in the Contractor's Proposal, **Bid Item No. 27, Optional Alternative Bid Item No. 29** and **Optional Alternative Bid Item No. 30** and shall constitute full compensation to the Contractor for all work related to the supply and installation of erosion control measures to promote vegetation growth in the project including but not limited to: furnishing all labor, supervision, materials, tools, developing water and equipment for slope preparation, hydroseeding, applying hydraulic mulch, furnishing and installing erosion control blankets and any other requirements by the Contract Documents.

END OF SECTION

SOIL CEMENT ROADWAY (Badlands)

10.1 GENERAL

The work covered by this Section shall consist of furnishing all necessary labor, materials, equipment, tools, and supervision for the construction and installation of twelve-inch (12") thick Soil Cement Roadway. The work shall include subgrade preparation and construction of the Soil Cement Roadway at the locations shown on the Project Drawings or as directed by the County.

10.2 SUBMITALS

Prior to delivery of materials, the Contractor shall submit product data sheet, material specifications, and manufacturer's application instructions for Portland Cement to the County for approval.

10.3 MATERIALS

A. Portland cement shall be Type II or V conforming to the requirements of Section 201-1.2.1 "Portland Cement" of the Standard Specifications for Public Works Construction. Pozzalonic material shall not be substituted for Portland cement.

B. Water used for mixing or curing shall be reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product. Water shall be tested in accordance with and shall conform to the requirements as described in the Standard Specifications 201-1.2.3. Water known to be of potable quality may be used without testing.

C. The soil for this work shall consist of materials on the site or imported and shall be free of roots, sod, weeds, wood, construction debris, and stones larger than 2-1/2 inches (60 mm).

10.4 EXECUTION

A. The subgrade for all soil-cement structures in this project shall conform to the locations and cross sections as shown on the Project Drawings or as directed by the County. The finished subgrade shall be firm, stable and suitable for placement of soil cement pavement, and shall be compacted to a minimum of 95 percent of the maximum density within the upper one foot, as determined by ASTM D1557.

B. Prior to beginning any cement treatment, the existing road grade shall be shaped to conform to the typical sections, lines, and grades as shown on the plans. Bulking of the road grade resulting from the stabilization process should be considered.

C. Cement shall be applied at a rate of not less than 8% percent based on the in-place dry unit weight of soil and for the depth of road grade treatment shown on the plans. On a recent project containing the construction of soil cement roads

(September 2014), the County had modified proctor compaction tests performed in accordance with ASTM D 1557, Method B, using onsite soil material and cement mixed in accordance with the project as well as these Special Provisions. The resultant modified proctor compaction test yielded a maximum dry unit weight of 134.4 pcf and an optimum moisture content of 7.9%. For estimating purposes,, Contractor shall use the aforementioned values for maximum dry unit weight and optimum moisture content.

D. The cement content shall vary no more than 0.5 percent under and not more than 1.0 percent over the specified cement content (tolerance on spread rate of 8.0% is 7.5% to 9.0%).

E. Cement shall be distributed with a non-pressurized mechanical vane-feed spreader capable of spreading the cement at not less than 5.6 lbs per square yard per inch. The County reserves the right to modify the distribution rate. Cement shall not be spread upon prepared grade more than 2 hours prior to the mixing operation. No traffic other than the mixing equipment shall be allowed to pass over the spread cement until the mixing operation is completed.

F. Mixing of the soil, cement, and water shall be done with a four-wheel drive rotary mixer (CMI RS-650B, CAT 500 or equivalent). The mixing machine shall have equipment provisions for introducing water at the time of mixing through a metering device.

G. The full depth of the cement treated road grade shall be mixed a minimum of two times with the approved mixing machine. If necessary, one of the two mixes shall be done while introducing water into the soil through the metering device on the mixer. Water shall be added during mixing to provide a moisture content not less than 1 percentage point below nor more than three percentage points above (-1 to +3 of OMC) the optimum moisture of the cement treated soil to ensure chemical action of the cement and soil.

H. Soil-cement structures shall be uniform in color and texture. The County will direct the Contractor to remove and replace soil cement structures bearing a streaked appearance.

I. To ensure a uniformly treated section, any material/soil around environmental monitoring appurtenances, manholes, utility risers, valves, adjacent to curbs/gutters, or in corners, must have that material/soil pulled out at the depth of treatment where it is accessible to be mixed with the reagent. After that material is mixed with the reagent, it will be placed back and compacted.

J. The Contractor shall regulate the sequencing of the cement treatment such that final compaction of the cement treated soil to the specified density shall be completed within 2 1/2 hours after the initial application of water during the mixing operation.

K. Compaction shall commence within 30 minutes after the mixture has been completed and placed on grade.

L. Compaction shall proceed continuously until completed.

M. Initial compaction shall be by means of steel padfoot rollers. Final compaction shall be by means of steel drum rollers. Areas inaccessible to rollers shall be compacted to the required compaction by other means satisfactory to the Engineer.

N. The mixture shall be spread and compacted in two (2) six-inch (6") lifts.

O. The field dry density of the compacted cement treated soil shall be at least 95 percent of the maximum dry density of the in-place material as determined in accordance with ASTM D 1557.

P. Should the cement treated road grade yield under the weight of the compaction equipment, compaction effort will cease in an effort not to compromise the section; in this case, the maximum achievable field density will be accepted or an alternate remedial plan will be proposed by the Engineer.

Q. After the final layer of cement treated road grade has been compacted, it shall be brought to the required lines and grades in accordance with the typical section. The completed section shall then be finished by rolling with a pneumatic or other suitable roller approved by the Engineer.

R. The completed cement treated grade shall be cured by use of a bituminous, asphaltic emulsion curing seal per 301-3.1.9. The seal rate application shall be maintained between 0.1 to 0.15 gallons per square yard. The curing seal shall be of a slow setting and will be applied the day when finish rolling has been completed.

S. If a soil-cement structure requires repair, it shall be repaired by removing and replacing the entire depth of the affected layers in the damaged area. Feathering will not be permitted for repair of low areas.

T. No cement or soil-cement mixture shall be spread when the aggregate or grade is frozen or when the air temperature is less than 40°F in the shade. The finished soil-cement shall be protected against freezing.

U. Contractor shall protect in place existing drainage structures and traffic rated vaults.

10.5 MEASUREMENT AND PAYMENT

The **measurement** of the final quantity for **Bid Item No. 10** "Soil-Cement Roadway" shall be determined by the County based on field measurements of the installed surface area of soil-cement as shown on the Project Drawings. Payment for the construction of soil cement shall be at the unit price per square foot, as stated in the Contractor's **Bid Item No. 10**. Payment for soil-cement shall be based on the pertinent details required by the Contract Documents as verified by the County through field measurements of completed in-place soil-cement roads, and shall include all the supply and installation of the soil-cement material as specified and required by the Contract Documents.

END OF SECTION

SECTION 11 - CONCRETE DRAINAGE STRUCTURES AND SLOPE LINING (Badlands)

11.1 GENERAL

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision for the construction of Portland Cement Concrete (PCC) structures which includes: bench crossings and downdrains, a drainage swale, headwalls, transition channels, warped wingwalls and the lining of a sideslope with shotcrete. The work shall include but not be limited to grading, excavation, subgrade preparation, and construction of the PCC structures to the elevations, lines and grades and at the locations shown on the Project Drawings or as directed by the County. This work shall also include any cut or backfill necessary to achieve finished elevations adjacent to the structures once construction of PCC structures is complete.

11.2 SUBMITTALS

11.2.1 CONCRETE AND SHOTCRETE

A. Mix design and certifications:

The Contractor shall submit a mix design and certifications to the County for review and acceptance at least two (2) weeks prior to beginning placement of concrete for each mix design incorporated for use in this project.

B. Concrete delivery load tickets

Each and every concrete load ticket shall be delivered to the County by truck drivers at the point of delivery. The mix plant shall supply delivery ticket for each batch of concrete. The Contractor shall submit delivery tickets to the County. Delivery tickets shall show following:

i. Name of ready-mix batch plant
ii. Serial number
iii. Date and truck number
iv. Name of Contractor
v. Name and location of job
vi. Specific classes or designation of concrete in conformance with that required in job specification
vii. Amount of concrete
viii. Time loaded
ix. Type, name, and amount of admixtures used
x. Amount and type of cement
xi. Total water content
xii. Water added by receiver of concrete with his or her signature initials

11.2.2 CONCRETE REINFORCING STEEL

A. Mill Certificate

The Contractor shall provide mill certificates to the County for approval prior to delivery of material to the job site.

11.2.3 CONCRETE CURING COMPOUNDS

The Contractor shall submit the manufacturer's product data and installation instructions to the County for review and acceptance at least two (2) weeks prior to application.

11.3 MATERIALS

A. The Contractor shall adhere to Stormwater Best Management Practice (BMP) WM-8 – Concrete Waste Management as published by the California Stormwater Quality Association and implement in their project-specific SWPPP. This will include but not limited to the installation and removal of onsite temporary concrete washout facilities. Contractor shall provide application of this BMP at the direction of, and location(s) directed by, the County. Contractor shall not begin pouring concrete for the construction of any drainage structure until an onsite temporary concrete washout facility is verified by the County. Any cost associated with the canceling of a concrete order due to the lack of an onsite temporary concrete washout facility shall be at the expense of the Contractor.

B. Portland Cement Concrete for bench crossings shall be Class 520-C-2500 in conformance with Section 201-1 of the Standard Specifications.

C. Portland Cement Concrete for headwalls, transition channel and warped wingwalls shall be Class 560-C-3250 in conformance with Section 201-1 of the Standard Specifications.

D. Portland Cement Concrete material for downdrains and drainage swales shall be Class 650-D-3250P (Shotcrete) in conformance with Section 201-1 of the Standard Specifications and shall be air-placed in conformance with sub-section 303-2.1.3 Method B (Shotcrete) of the Standard Specifications.

E. Portland Cement Concrete material for shotcrete lining of sideslope shall be Class 650-E-3250P (Shotcrete) in conformance with Section 201-1 of the Standard Specifications and shall be air-placed in conformance with sub-section 303-2.1.3 Method B (Shotcrete) of the Standard Specifications.

F. Reinforcing steel (rebar) for bench crossings, headwalls and concrete drainage structure shall be grade 60 and shall conform to Part 2, sub-section 201-2.2.1 of the Standard Specifications.

G. Welded Wire Reinforcement (WWR) for downdrains and drainage swales shall conform to sub-section 201-2.2.3 of the Standard Specifications. The gage of the wire and dimensions of the mesh are specified in the Project Drawings. If

deemed to be more efficient, Contractor may use the reinforcing steel (rebar) equivalent in lieu of WWR for the reinforcement of concrete downdrains.

H. Fiber Reinforcement for Class 650-D-3250P and Class 650-E-3250P concrete items shall conform to sub-section 201-2.3 Type III of the Standard Specifications.

I. Type II white-pigmented curing compound for PCC structures shall conform to sub-section 201-4.1.1 of the Standard Specifications.

11.4 EXECUTION

A. The subgrade for PCC structures shall be prepared either by excavating or filling, and shall conform to lines, grades, and cross sections and be located as shown on the Project Drawings. Where the structures are in native cut, the upper six (6) inches of subgrade shall be compacted to a minimum of 90% of the maximum density as determined per ASTM D1557. This shall be achieved by scarifying the exposed surface to a depth of six (6) inches and re-compacting this earthen section as required by the Specifications. For areas requiring engineered fill, the finished subgrade shall be firm and suitable for placement of PCC structures, and shall be compacted to a minimum of ninety-percent (90%) of the maximum density as determined per ASTM D1557. Clearing, grubbing and excavation for the PCC structures shall comply with the provisions of Section 300-7 of the Standard Specifications. Any excess soil material resulting from excavation shall be hauled to and stockpiled adjacent to the landfill working face as directed by the County. No additional compensation will be providing for hauling of excess soil material.

B. Contractor shall notify County site personnel at least one day prior to delivery of PCC materials to the Badlands Landfill for each day of delivery. Delivery trucks shall access work areas by use access routes approved in advance by the County.

C. Contractor shall saw-cut existing soil cement pavement where shown on the Project Drawings or as directed by the County so as to provide a competent edged surface for placement of adjacent Concrete/Shotcrete Drainage Structures.

D. Mortar blocks with wire ties, or other means acceptable to the County shall be used to secure welded wire mesh reinforcement firmly in place.

E. Concrete mixing shall comply with Section 201-1.4 of the Standard Specifications.

F. Concrete for the bench crossings and concrete drainage structures shall be placed in accordance with Sections 303-5.2 and sub-sections 303-5.1.1, 303- 5.3, 303-5.4.1, 303-5.4.2, 303-5.5.4, 303-5.5.5, 303-5.6, 303-5.7 and 303-5.8 of the

Standard Specifications. Concrete shall be installed and finished to provide positive drainage towards downstream drainage structures..

G. Concrete for the headwalls shall be placed in accordance with Sections 303-1.1, 303-1.3, 303-1.4, 303-1.5, 303-1.6, 303-1.10 and sub-sections 303-1.8.1, 303-1.8.3, 303-1.8.6 and 303-1.9.2 of the Standard Specifications. Concrete shall be installed and finished to provide positive drainage towards downstream drainage structures.

H. Shotcrete lining along sideslopes shall be applied at a minimum thickness of 2 inches along the required sideslopes from the toe to the hinge of slope.

I. Type II white-pigmented curing compound shall be applied to all concrete structures in accordance with the requirements of sub-sections 201-4.1.2 and 303-1.10 of the Standard Specifications.

J. Weakened plane joints for PCC structures shall be installed perpendicular to the water flow direction at ten (10) foot intervals along the water flow direction as directed by the County. Depth of joint shall be one (1) inch.

K. Open joints shall be constructed using a suitable material that is subsequently removed. PCC corners shall not be chipped or broken when removing material. Reinforcement shall not be extended through an open joint. Joint filler shall be placed in position before PCC is placed. Joints shall be filled with mastic to prevent the passage of concrete. PCC edges at joints shall be finished using an edger.

L. When drainage structures and adjoining drainage structures are constructed on multiple pours, Contractor shall utilize a construction joint with adjoining steel dowel between the construction joint. Steel dowel shall adhere to Section 201-2.2.1 of the Standard Specifications.

M. Reinforcing steel shall be placed in accordance with Section 303-1.7 of the Standard Specifications.

N. As deemed necessary by the County, sets of three (3) test cylinders of PCC being placed will be cast and tested by the County. One (1) of the test cylinders shall be tested at 7 days for 70 percent of project-specified design strength. The remaining two cylinders shall be tested at 14 days and 28 days (for full design strength) respectively. PCC compressive strength testing shall be per ASTM C39 and ASTM C31. The cylinders shall be paid for by the County.

O. Contractor shall collect and retain possession of each and every PCC load ticket at the time of material delivery to the project site. Contractor shall present a complete set of daily load tickets to the County on the day PCC material(s) is placed.

11.5 MEASUREMENT AND PAYMENT

A. **Payment** for **Bid Item No. 11** "Construct Concrete Bench Crossing" shall be based on the final in-place square footage of ground covered with bench crossing within the limits specified in the Project Drawings and as directed by the County. The area of the final surface shall be verified by the County based on conventional ground surveying. Quantity shall be calculated based on the "true" area and to the nearest square foot utilizing digital terrain modeling method. **Payment** shall be made, after acceptance, at the contract unit price per square foot as stated in the Contractor's Proposal, **Bid Item No. 11**. **Payment** shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install Bench Crossings in accordance with the Contract Documents. No additional compensation shall be given for Concrete Bench Crossings placed outside the specified limits and dimensions unless otherwise ordered in writing by the County. No additional compensation will be given for hauling of excess soil material leftover during subgrade preparation.

B. **Payment** for **Bid Item No. 12** "Construct Shotcrete Drainage Structures" shall be based on the final in-place square footage of ground covered with Shotcrete Drainage Structures within the limits specified in the Project Drawings and as directed by the County. The area of the final surface shall be verified by the County based on conventional ground surveying. Quantity shall be calculated based on the "true" area and to the nearest square foot utilizing digital terrain modeling method. **Payment** shall be made, after acceptance, at the contract unit price per square foot as stated in the Contractor's Proposal, **Bid Item No. 12** Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install shotcrete downdrains and drainage swales in accordance with the Contract Documents. No additional compensation shall be given for shotcrete drainage structures placed outside the specified limits and dimensions unless otherwise ordered in writing by the County. No additional compensation will be given for hauling of excess soil material leftover during subgrade preparation.

C. **Payment** for **Bid Item No. 13** "Construct Concrete Headwall" shall be based on the County verified installation in accordance with the project drawings and special provisions of the Contract Documents. **Payment** shall be made, after acceptance, at the unit price for each headwall as stated in the Contractor's Proposal, **Bid Item No. 13**. **Payment** shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install each headwall in accordance with the Contract Documents. No additional compensation shall be given for headwalls constructed beyond the limits and dimensions specified by the contract documents unless otherwise ordered in writing by the County. No additional compensation will be given for hauling of excess soil material leftover during subgrade preparation.

D. **Payment** for **Bid Item No. 14** "Construct Concrete Drainage Structures" shall be

based on the final in-place square footage of ground covered with Concrete Drainage Structures within the limits specified in the Project Drawings and as directed by the County. The area of the final surface shall be verified by the County based on conventional ground surveying. Quantity shall be calculated based on the "true" area and to the nearest square foot utilizing digital terrain modeling method. Payment shall be made, after acceptance, at the contract unit price per square foot as stated in the Contractor's Proposal, **Bid Item No. 14**. Payment shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install concrete wingwalls and concrete transition channel sections in accordance with the Contract Documents. No additional compensation shall be given for concrete drainage structures placed outside the specified limits and dimensions unless otherwise ordered in writing by the County. No additional compensation will be given for hauling of excess soil material leftover during subgrade preparation.

E. **Payment** for **Bid Item No. 15** "Shotcrete line sideslope" shall be based on the final in-place square footage of ground covered with shotcrete along a sideslope within the limits specified in the Project Drawings and as directed by the County. The area of the final surface shall be verified by the County based on conventional ground surveying. Quantity shall be calculated based on the "true" area and to the nearest square foot utilizing digital terrain modeling method. **Payment** shall be made, after acceptance, at the contract unit price per square foot as stated in the Contractor's Proposal, **Bid Item No. 15**. **Payment** shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to apply shotcrete along a sideslope in accordance with the Contract Documents. No additional compensation shall be given for shotcrete applied outside the specified limits and dimensions unless otherwise ordered in writing by the County.

F. There shall be no additional payment to the Contractor for the installation of keyways adjacent to existing PCC structures. Compensation for the installation of keyways for Concrete Drainage Structures shall be considered as included in the various other contract bid items of work.

END OF SECTION

SECTION 12 - – DRAINAGE PIPES (Badlands)

12.1 GENERAL

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision for the fabrication and installation of a galvanized steel Corrugated Metal Pipe (CMP) Overslope Downdrain, including galvanized steel entrance tapers, galvanized steel pipe end treatment and the installation of High Density Polyethylene (HDPE) culverts,. The work shall include but not be limited to grading, excavation, subgrade preparation, coupling, anchoring, backfilling, testing and installation of CMP Overslope Downdrain and HDPE culverts to the elevations, lines and grades and at the locations shown on the Project Drawings or as directed by the County.

12.2 SUBMITTALS

A. The Contractor shall submit in advance complete material specifications and descriptive literature for approval by the County prior to delivery of material to the Site.

B. Prior to delivery to the Site, the Contractor shall submit written certification by the pipe manufacturer that the pipe materials conform to the requirements of the Contract Documents; are similar and of same formulation as that for which certification is submitted; and have been demonstrated by actual usage to be satisfactory for the intended application.

C. Prior to delivery to the Site, the Contractor shall submit for approval by the County a method of handling and storing pipe material(s). The pipeline (sub)contractor shall install the pipe only on surface(s) that it has formally accepted from the Contractor by submitting a written "release" form. This form shall be furnished to and is subject to approval by the County to ensure that the surfaces meet all the requirements for installation as detailed in these specifications.

D. Prior to commencing trenching operations, the Contractor shall submit either an exemption letter or trenching permit from the California Division of Industrial Safety, State of California (CAL-OSHA).

E. The Contractor shall furnish a written guarantee, within one month of receiving a notice of completion, that the pipe system work constructed by him is free of defects in material and workmanship. The guarantee for the pipe system installed pursuant to these Contract Documents shall extend for a period of one (1) year following the recording of the Notice of Acceptance for the entire project. The Contractor shall agree to make any repairs or replacements found to be necessary

by defects in material or workmanship, which become evident within this guarantee period. The Contractor shall make repairs and/or replacements promptly upon receipt of written order from the County. If the Contractor fails to make repairs and/or replacements promptly, the County may do so, and the Contractor shall be liable to the County for the cost of such repairs and/or replacements.

F. Mix design and certifications:

The Contractor shall submit a mix design and certifications to the County for review and acceptance at least two (2) weeks prior to beginning placement of concrete for each mix design incorporated for use in this project.

G. Concrete delivery load tickets

Each and every concrete load ticket shall be delivered to the County by truck drivers at the point of delivery. The mix plant shall supply delivery ticket for each batch of concrete. The Contractor shall submit delivery tickets to the County. Delivery tickets shall show following:

xiii. Name of ready-mix batch plant
xiv. Serial number
xv. Date and truck number
xvi. Name of Contractor
xvii. Name and location of job
xviii. Specific classes or designation of concrete in conformance with that required in job specification
xix. Amount of concrete
xx. Time loaded
xxi. Type, name, and amount of admixtures used
xxii. Amount and type of cement
xxiii. Total water content
xxiv. Water added by receiver of concrete with his or her signature initials

12.3 MATERIALS

A. The CMP shall be galvanized 16-gauge as manufactured by Pacific Corrugated Pipe Co. or approved equal and shall conform to sub-section 207-11.1 and Section 207-11.2 of the Standard Specifications. The pipe shall be completely enclosed (full pipe) and the diameter and length shall correspond to dimensions shown on the Project Drawings.

B. Coupling bands used to join sections of CMP shall be galvanized annular corrugated as manufactured by Pacific Corrugated Pipe Co. or approved equal shall and provide watertight joints in accordance with sub-section 207-11.2.2 of the Standard Specifications.

C. The HDPE pipe culvert and HDPE fittings shall be Driscoplex 4000/4100 Pipe as manufactured by Performance Pipe or approved equal and shall conform to

Section 207-19 of the Standard Specifications. The pipe shall be completely enclosed (full pipe) and the diameter and length shall correspond to dimensions shown on the Project Drawings.

D. Concrete slurry for trench backfill shall be Class 100-E-100 and shall conform to Standard Specifications Section 201-1.

12.4 EXECUTION

12.4.1 Storage and Handling

A. During storage and installation caution shall be exercised to avoid compression, damage, or deformation to the pipe. If pipe is to be exposed to direct sunlight for more than 14 days, pipe must be covered with an opaque material while permitting adequate air circulation above and around the pipe to prevent excessive heat accumulation.

B. If pipe is strung along the trench prior to installation, string only pipe to be used within a 24-hour period; all pipe is to be laid on a flat surface. The interior, as well as all seating surfaces of pipe, fittings, and other accessories shall be kept free from dirt and foreign matter. Gaskets shall be protected excessive exposure to heat, direct sunlight, oil, and grease. Contractor shall not drag or strike pipe while transporting.

C. Pipe, fittings, and accessories shall be carefully inspected before and after installation and those determined to be defective shall be rejected. Pipe and fittings shall be free from fins and burrs. Before being placed in position, pipe, fittings, and accessories shall be cleaned and shall be maintained in a clean condition. Proper equipment shall be provided for lowering sections of pipe into trenches. Under no circumstances shall pipe, fittings, or any other material be dropped or dumped into trenches.

12.4.2 Installation

A. Constractor shall place a minimum 4" thick layer of bedding below the pipe barrel and 1 inch (1") minimum clearance below the projected bell at hinge and toe of slopes underneath the CMP down drain. Bedding material shall first be placed on a firm and unyielding subgrade so the pipe is supported in the sections specified.

B. Bedding for the installation of HDPE pipe shall conform to Section 306-1.2.1 of the Standard Specifications.

C. Place the pipes to lines and grades as shown on the Drawings and join the pipe sections in accordance with the manufacturer recommendations.

D. Prior to installing CMP pipe, the center three inches (3") of the subgrade along the hinge and toe of slopes shall be softened by scarifying or other means to a depth of three inches (3").

E. CMP installation shall be performed in accordance with Standard Specification sub-section 306-1.2.2 and standard drawings. Installation, field jointing and inspection of CMP shall be in accordance with Standard Specification sub-section 306-1.2.7.

F. CMP Pipe and aboveground HDPE pipe shall be anchored using pipe stakes at 10' intervals as shown on standard drawings.

G. Trench Excavation for the installation of HDPE pipe shall conform to Section 306-1 of the Standard Specifications.

H. Excavation for the installation of the HDPE pipe culvert shall be carefully made using both mechanical means and shovels in order that the structure may be positioned in-place on a firm, stable and unyielding surface with minimal resultant voids under the structure.

I. HDPE pipe installation shall be performed in accordance with Standard Specification sub-sections 306-1.2.2 and 306-1.2.13 and standard drawings.

J. The installation of slurry backfill for HDPE pipe as required by the Project Drawings shall be performed in accordance with Standard Specification Section 306-1.3., and slurry shall be installed from bottom of trench to one foot cover above the top of pipe. Slurry backfill shall be placed within one (1) hour of mixing. Slurry backfill shall be placed without voids or segregation and in a manner that does not float or shift the HDPE pipes. Foreign materials that fall into trench shall be removed. The slurry shall cure in-place for a minimum of four (4) hours before earthen trench backfill operations may commence unless otherwise directed in writing by the County.

12.4.3 Inspection and Testing

A. The Contractor shall perform video camera (CCTV) inspection, mandrel/deflection testing, and air pressure testing for 100% of the pipelines installed. CCTV inspection and mandrel testing shall be performed a minimum of thirty (30) days after backfill compaction has been completed.

B. Contractor shall submit CCTV inspection color videos on Compact Disc (CD) or Digital Video Disc (DVD) of high quality and clarity. Videos shall be clearly labeled with project name and reference station locations of inspection. The Contractor's camera operator shall provide an audio description to clearly identify the segment being televised. Beginning and ending structures shall be called out

using the stationing and lateral references as shown on the Project Drawings. Televising will begin at the center of the upstream manhole and will run continuously to the center of the downstream manhole. The center of the upstream manhole shall be set at 0 feet and the video shall show the complete footage of each segment, manhole to manhole. Any breaks or discontinuities in the video recording will result in the video being rejected and a new and complete video will need to be submitted. The Contractor shall identify on video and on a written log, each feature observed. Any special features shall be identified by station, left or right. The Contractor's camera operator shall pause the camera at each feature such that it will be clearly visible on the screen for review, and pan/tilt/rotate the camera head to obtain a clear view of the entire circumference of the pipe. Each pipe joint shall be scanned 360 degrees. Contractor's camera shall be specifically designed and constructed for pipeline inspection. Lighting and camera quality shall be suitable to provide clear, in focus picture of the entire periphery of the pipeline and have an adjustable focal distance range from 6" to infinity. The County shall be notified in one (1) week in advance when the video inspection is to take place, and the video and written logs shall be submitted to the County within one (1) week of completion. At the Contractor's expense, reinstallation or replacement of the pipe will be required if video inspection reveals:

- Sags/ standing water of one (1) inch or greater exist.
- Any penetration of pipe or displaced joint is discovered during video inspection

C. Contractor shall use a rigid mandrel, approved by the County, with a circular cross-section having a diameter of at least 95% of the nominal inside pipe diameter. Mandrel shall be non-adjustable, odd-number legs (9 minimum), fabricated of steel, fitted with pull rings on the ends, stamped or engraved with mandrel diameter, nominal size, and pipe material specification. Contractor shall pull mandrel through the pipe by hand from end to end using 3/8" minimum pull ropes. At the Contractor's expense, reinstallation or replacement of the pipe will be required if pipe deflection is greater than 5%.

Pipes shall be tested by air pressure in accordance with ASTM F1417 for air as follows:

Low Pressure Air Test – After backfilling has been completed, the air test shall be conducted by the Contractor between two consecutive pipe ends with suitable test plugs. Air shall be supplied slowly to the test section until the internal pressure reaches four (4) pounds per square inch (psi). At least two (2) minutes shall be allowed for the air pressure to stabilize. When the pressure has stabilized and is at or above 3.5 psi, the air supply shall be disconnected and timing shall begin. Timing shall continue until the air pressure has dropped 1.0 psi. If the time elapsed before the pressure drops 1.0

psi is greater than the specified minimum holding time, the section shall be considered to have passed the test. The minimum holding time is calculated as follows:

Holding Time (minutes) = 0.00037 x D2 x L/Q

Where D = Pipe Diameter (inches)
L = Length of Pipe Tested (feet)
Q = Allowable Air Loss (ft^3/min.) from the following table:

Nominal Pipe Size, in.	Q Allowable Air Loss (ft^3/min.)	Minimum Holding Time per 100 ft.
6	2	40 seconds
8	2	1 minute and 12 seconds
10	2.5	1 minute and 29 seconds
12	3	1 minute and 47 seconds
15	4	2 minutes and 6 seconds
18	5	2 minutes and 24 seconds
21	5.5	3 minutes
24	6	3 minutes and 33 seconds
27	6.5	4 minutes and 9 seconds
30	7	4 minutes and 45 seconds
33	7.5	5 minutes and 22 seconds
36	8	6 minutes
42	9	7 minutes and 15 seconds

If the time is less than the specified minimum holding time, the section shall be considered to have failed and must be repaired or replaced by the Contractor.

D. Isolation of defects by air pressure shall be determined by the Contractor and reinstallation or replacement of pipe shall be at the Contractor's expense. Pipe shall be retested by the Contractor after reinstallation or replacement until a satisfactory result is obtained.

The County, at its discretion and Contractor's expense, will in the 11th month of the warranty period have the pipe deflections monitored and any deflections greater than 7.5% of the nominal inside diameter will require the Contractor to make any necessary repairs or replacements to adjust the deflection to less than 7.5%.

12.5 MEASUREMENT AND PAYMENT

The **measurement** of the final quantity for **Bid Item No. 16** "Furnish and Install 15" CMP Overslope Downdrain" shall be determined by the County based on field measurements of the axial length (linear feet) of the CMP pipe within the limits specified in the Contract Documents. Measurement shall be determined after the CMP Overslope Downdrain has been installed, tested and verified to the satisfaction of the County. **Payment** for the installation of the CMP Overslope Downdrain shall be based on the unit price per lineal foot stated on the Project Drawings and as stated in the Contractors Proposal for **Bid Item No. 16. Payment** shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install the CMP Overslope Downdrains including water tight coupling bands, anchors, galvanized steel entrance tapers, and tee end section in accordance with the Contract Documents. No additional compensation shall be given for pipe, entrance taper and tee section placed outside the specified limits and dimensions unless otherwise ordered in writing by the County.

The **measurement** of the final quantity for **Bid Item No. 17** "Furnish and Install 20" HDPE Pipe Culvert" and **Bid Item No. 18** "Furnish and Install 28" HDPE Pipe Culvert" shall be determined by the County based on field measurements of the axial length (linear feet) of the HDPE pipe within the limits specified in the Contract Documents. Measurement shall be determined after the HDPE has been installed, tested and verified to the satisfaction of the County. **Payment** for the installation of the HDPE Pipe shall be based on the unit price per lineal foot measured axially as stated in the Contractors Proposal for **Bid Items No. 17 and No 18. Payment** shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install and test the HDPE Pipe including fittings in accordance with the Contract Documents. No additional compensation shall be given for pipe placed outside the specified limits and dimensions unless otherwise ordered in writing by the County.

END OF SECTION

SECTION 13 - EARTHWORK (Badlands and Pedley)

13.1 GENERAL

This work shall include furnishing all labor, supervision, tools, equipment, and materials necessary to: achieve design grades and elevations along benches requiring regrading, excavate loose soil from sedimentation basins, place additional cover along the top deck, construct earthen berms, excavate refuse, dispose and replace with 1-foot (1') of cover material, and backfill ACB at Pedley. This work shall include, but is not limited to: clearing, grubbing, excavation, refuse removal, refuse disposal, placing interim cover over exposed refuse, hauling of cover material and placement, subgrade preparation, compaction of engineered fill, construction of earthen berms and placement of backfill within voids of ACB to the elevations, lines and grades at the locations shown on the Project Drawings and as required by the Contract Documents or as directed by the County.

13.2 MATERIALS

13.2.1 Engineered Fill

Source material for engineered fill shall come from suitable soil excavated during bench regrading or trenching operations, or the Canyon 6 Stockpile area. Not until source material from excavation operations on this project is exhausted shall the Contractor utilize source material from the Canyon 6 Stockpile area for the placement of engineered fill. The suitability of all earthen materials shall be subject to the acceptance of the County. Fill materials shall not contain brush, roots, sod, or other deleterious or unsuitable materials. Organic material and earthen material particles greater than the specified size shall be deposited in a separate stockpile, as directed by the County. Particles greater than the specified size shall be deposited in the Canyon 6 Stockpile, used as source material for uncontrolled fill, hauled as daily cover or as otherwise directed by the County. Organic material shall be deposited at the landfill working face as directed by the County.

13.2.2 Uncontrolled Fill

Source material for uncontrolled fill shall come from loose soil unsuitable for engineered fill excavated during bench regrading or trenching operations, or the Canyon 6 Stockpile area. Not until source material from excavation operations is exhausted shall the Contractor utilize source material from the Canyon 6 Stockpile area for the placement of uncontrolled fill. The suitability of all earthen materials shall be subject to the acceptance of the County.

13.2.3 Earthen Berms

Earthen materials for the construction of the earthen diversion berms shall be obtained from suitable soil excavated during bench regrading or trenching operations, or the Canyon 6 Stockpile area. Not until source material from excavation operations on this project is exhausted shall the Contractor utilize source material from the Canyon 6 Stockpile area for the construction of Earthen Berms. Earthen materials used to construct Earthen Berm shall not contain brush, roots, sod, or other deleterious or unsuitable materials; and particle size shall not exceed three (3)

inches. Organic material and earthen material particles greater than the specified size shall be deposited in a separate stockpile, as directed by the County. Particles greater than the specified size shall be deposited in the Canyon 6 Stockpile, used for daily cover or as otherwise directed by the County. Organic material shall be deposited at the landfill working face as directed by the County.

13.2.4 Daily Cover

Source material for Daily Cover shall come from soil excavated from the existing sedimentation basins.

13.2.5 Interim Cover Soil

Source material for interim cover soil over exposed refuse shall be obtained from soil excavated d during bench regrading or trenching operations, or the Canyon 6 Stockpile area. Not until source material from excavation operations on this project is exhausted shall the Contractor utilize source material from the Canyon 6 Stockpile area for interim cover soil over exposed refuse.

13.2.6 Backfill of ACB (Pedley)

Source material for backfill of articulated concrete blocks (ACB) shall be imported to the Pedley Landfill and shall be loose and suitable for vegetation. Existing stockpiled material at the Pedley landfill shall not be used as source material. The Contractor may choose to obtain source material from the Badlands Canyon 6 Stockpile.

13.3 EXECUTION

13.3.1 General Subgrade and Finished Grade Preparation

All work areas within the Project Limits shown on the Project Drawings shall be evaluated and accepted by the County to verify satisfactory completion of clear and grub work (including removal of Demolition items as shown on the Project Drawings), penetration of the excavation into firm natural soils, and removal of all unsuitable materials.

Unless otherwise noted or required, areas where engineered fill is to be placed, or in other areas where unsuitable materials have been removed and where the surface is judged to be loose or otherwise unsuitable, the subgrade or finished grade shall be prepared as follows:

A. The upper six (6) inches of in-situ material shall be ripped, moisture-conditioned, and re-compacted to a minimum of 90 percent relative compaction, at a moisture content range between 2% below optimum moisture content (OMC) and 2% above OMC in accordance with ASTM D1557 or as determined by the County.

B. The compacted surface shall be scarified to provide a good bond between the foundation material and the subsequent fill material, as appropriate.

C. Areas of hard or dense, natural soil identified by the County shall be left undisturbed.

13.3.2 Excavation

A. This work may include ripping, breaking, and dozing of materials using standard earthmoving equipment up to and including CAT D-9 with single ripper type equipment. Based on a previous subsurface soil investigation, the material within limits of excavation has been determined to be rippable. In the event non-rippable material is encountered, the Contractor shall immediately notify the County. Prior to the removal of non-rippable material, Contractor and County shall mutually decide upon the most acceptable method of removal for this material. This work shall be considered as extra work and therefore will be paid for in accordance with Section 2.7 of the General Provisions entitled "Extra Work". This item shall also include keeping excavation areas neat and orderly, and completing the excavation to the satisfaction of the County.

B. Areas of excavation shall be graded to drain at all times, and necessary precautions shall be taken to control dust and erosion. The Contractor's access roads shall be maintained as necessary for Contractor and County personnel, including landfill operation, access. Unless specifically required by the Contract Documents, excavations shall not be carried below the design lines and grades shown on the plans or as otherwise accepted by the County in writing. Unauthorized over-excavation shall be immediately corrected by backfilling to grade with engineered fill in accordance with Section 13.3.3 of the Special Provisions at the Contractor's expense.

C. Excavated material from within the Project Limits shall be used by the Contractor as a source of material for executing the following work items and miscellaneous tasks: engineered fill, supplying interim cover material over exposed refuse, supplying daily cover material for landfill operations, and any other miscellaneous tasks required by the Contract Documents or as directed by the County.

D. Unsuitable excavated material, as identified by the County, shall be placed in the Canyon 6 Stockpile Area or an area designated by the County as uncontrolled fill, and shall not be used as engineered fill. No additional compensation will be provided by the County for the hauling of unsuitable material to the Canyon 6 Stockpile Area.

E. Surface drainage shall be maintained at all times in the Project Limits and these completed areas shall be graded as shown on the Project Drawings and as directed by the County. Final surfaces within the Project Limits shall be finished by track walking and left in a uniformly graded condition. Surfaces of flat areas shall be finish-graded with a motor grader or approved equal. The Contractor shall construct drainage and erosion control facilities in accordance with the Project

Drawings within the completed portions of the Project Limits and as required by the Contract Documents, or as directed by the County. All material required for the surface drainage and erosion control facilities shall be supplied and installed by the Contractor.

F. The Contractor shall not be compensated for any unauthorized earthwork activities which deviate from what is required by the Contract Documents. The Contractor shall remove or correct any unauthorized road alterations at the Contractors expense.

G. Side slopes shall be cut to an inclination not steeper than 1.5:1 (H:V) unless otherwise shown on the Project Drawings. The Contractor shall observe temporary and permanent excavations on a regular basis for signs of instability. Should signs of instability be noted, the Contractor shall notify the County immediately, and shall undertake remedial measures as soon as practicable, subject to the direction and acceptance of the County. It shall be the Contractor's responsibility to remove all loose materials from the excavated slopes, and to maintain the slopes in a safe and stable condition at all times during the progress of the work and during any temporary closure of the work. Permanent cut slopes shall be left in a clean, safe, and stable condition upon completion of the work.

H. Where necessary, trenches, pits, and other excavations shall be properly sheathed and braced to furnish safe and acceptable working conditions. Any damage occurring from excessive earth pressures, slides, cave-ins, or other causes due to failure to provide proper sheathing or bracing, or through other negligence or fault of the Contractor, shall be repaired by the Contractor at its expense. The manner of bracing for excavations shall be as set forth in the rules, orders, and regulations of the Division of Industrial Safety of the State of California or OSHA California Code of Regulations Subchapter 4, Article 6, Section 1540 "Excavations"; whichever is more restrictive.

I. Contractor shall protect in place existing gas collection pipes. Contractor shall immediately notify the County if a gas collection pipe is damaged before attempting any repairs. Upon authorization from the County, a gas collection pipe damaged by the Contractor shall be immediately repaired by the Contractor and the cost associated with the repair shall be borne to the Contractor. Any ramps installed over gas collection lines shall first be proposed to and accepted by the County in writing.

13.3.3 Engineered Fill

A. Only suitable material encountered within the excavation areas shall be utilized in the engineered fill areas, and all unsuitable material shall be removed and hauled to the Canyon 6 Stockpile area designated on the Project Drawings, or as otherwise directed by the County.

B. The Contractor shall restrict earthwork movement and haul routes to the areas within the Project Limits as shown on the Project Drawings. Any earthwork operations requiring activity outside of the Project Limits shall require a written request and written acceptance to and from the County.

C. Compacted engineered fill is required within the Project Limits, as shown on the Project Drawings or as directed by the County. On-site soil shall be placed and compacted in layers as specified herein. The Contractor shall spread soil evenly by mechanical equipment over the prepared subgrade. The Contractor shall place engineered fill material in thickness of loose lifts no greater than eight inches (8") and compacted lifts no greater than six inches (6"). Each lift shall be spread evenly and compacted to obtain a near uniform condition in each layer. In areas of lift thickness greater than specified herein, the Contractor, prior to construction of additional lifts, must complete re-grading and compacting of the surface to the maximum specified lift thickness. The top of each previously compacted layer shall be scarified so that there is no lamination between layers.

D. Engineered fill material shall be compacted to a minimum of 90% relative compaction, based on the laboratory maximum dry density, determined by ASTM D1557. Engineered fill over cut slopes, or scarified natural steep slopes shall be properly keyed into undisturbed bedrock or firm material in accordance with the Contract Documents and as accepted by the County.

E. All general on-site soil material used for engineered fill shall have a moisture content between 2% below and 2% above OMC in accordance with ASTM D1557 or as determined by the County. Additional water may need to be added at any time during construction. The moisture content of the engineered fill materials prior to and during compaction shall be uniform throughout each layer of the material.

F. When the moisture content of the fill material is below optimum, water shall be added until the moisture content is within the limits required to assure an adequate bonding and compaction of all fill material. When the moisture content of the fill material is above the specified limits, the fill material shall be aerated by plowing, disking, blading, or other satisfactory methods until the moisture content is acceptable. All plowing, tamping, blending, disking, or air drying of material is considered incidental to the work and no additional compensation will be allowed. Wetting of materials by rain or artificial means to acceptable moisture content will require mixing or air drying to return this material to the required moisture content. Complying with this requirement is considered incidental to the work and no additional compensation will be allowed.

G. Surfaces of all slopes shall be finished by track walking with Dozer-type equipment or approved equal by the County Representative in the field and left in a uniformly graded condition. Surfaces of flat areas shall be finish graded with a motor grader or approved equal.

13.3.4 Refuse Removal & Disposal and Interim Cover

A. Refuse or soil co-mingled with refuse may be encountered during excavation within the limits of the landfill footprint; however, it is possible that refuse may also be encountered in any excavation area within the Project Limits shown on the Project Drawings.

B. The Contractor shall remove interim cover soil, refuse, or soil co-mingled with refuse encountered during excavation from within the Project Limits shown on the Project Drawings.

C. Excavated interim cover soil that does not contain co-mingled refuse or has been deemed suitable by the County may be used as source material for engineered fill and other miscellaneous sources as listed in Section 13.3.2.

D. Contractor shall haul excavated refuse and soil co-mingled with refuse to the landfill working face and cover exposed refuse with one-foot (1') of clean earthen cover material as directed by the County.

E. If the cover material placed over refuse is to act as subgrade for engineered fill, a drainage structure, etc. Contractor shall prepare the cover soil as described in Section 13.3.1.

F. At the end of the workday, Contractor shall cover all refuse surfaces and may not allow refuse surfaces to be exposed overnight. If refuse excavation to design grade has not been completed by the end of the workday, Contractor may cover the refuse surface with: six-inches (6") of cover soil or alternate daily cover including but not limited to: six-inches (6") of process greenwaste material, tarps or approved equal.

G. Recognizing the primary importance of public and landfill worker safety in and adjacent to this area, Contractor shall coordinate proposed haul routes, timing, duration, and other related factors with the County prior to each planned haul sequence to the landfill working face.

H. In the event the County or Contractor suspects any excavation material from the landfill is hazardous (as defined by CalRecycle or the Local Enforcement Agency), the Contractor shall stockpile the suspect material in a location separate from the rest of the excavated material. The Contractor shall immediately notify the County if excavation material is suspected to be hazardous. The County will make the appropriate analyses to determine if the suspected hazardous material is hazardous by CalRecycle or LEA definition. The Contractor shall dispose of determined hazardous material in the hazardous waste disposal site designated by the County. The Contractor shall be compensated for disposal of such hazardous waste. This work shall be considered as extra work and therefore; will be paid for

in accordance with Section 2.7 of the General Provisions entitled "Extra Work". (Any hazardous material generated by the Contractor, including but not limited to spills or leaks during routine equipment maintenance or any spills caused by any of the Contractor's subcontractors or suppliers, shall be properly disposed of at the Contractor's expense as stated in the Contract Documents.)

I. The County is in process of obtaining a South Coast Air Quality Management District (SCAQMD) Rule 1150 Permit for refuse excavation. The Contractor must place refuse within the limits of the landfill footprint as shown on the Project Drawings; and the Contractor shall also comply with all requirements of the SCAQMD permit conditions (i.e., daily cover, transportation, dust suppression, etc.) at any time refuse is encountered. A sample SCAQMD permit and associated conditions are included in Appendix A. The Contractor shall address this work in the Site Safety Plan submittal Section 1.3.2. The County will provide required personnel to monitor the activities in accordance with the SCAQMD 1150 permit.

J. As an optional alternative bid item subject to circumstances encountered in the field, the County may not require the Contractor to excavate refuse, dispose and replace with clean cover soil. Due to the alternative nature of the bid item, refuse excavation and disposal does not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event a percentage greater than 25% of the work is not required on the Project. Contractor will not be compensated for expected profits for alternative bid items that are not used on the Project.

13.3.5 Earthen Berms

A. The subgrade for Earthen Berm shall be firm, stable and unyielding, and contain no loose material as determined by the County. The subgrade shall adhere to the elevations and cross sections shown on the Project Drawings or as directed by the County.

B. The Earthen Berm shall be compacted to a minimum of 90% relative compaction.

C. Contractor shall provide moisture conditioning to earthen materials used for berm construction, and shall maintain adequate moisture throughout berm construction as deemed acceptable to the County.

13.3.6 Landfill bench regrading

A. This work shall optimize longitudinal and transverse fall with these bench areas for drainage purposes as provided in the Project Drawings and as directed by the onsite County representative.

B. Areas only requiring regrading shall be prepared and finished as specified in Section 13.3.1.

C. Areas requiring engineered fill shall be finished as specified in Section 13.3.3.

D. The Contractor shall protect in place gas collection pipes that cross the benches. Contractor shall immediately notify the County if a gas collection pipe is damaged before attempting any repairs. Upon authorization from the County, gas collection pipe damaged by the Contractor shall be immediately repaired by the Contractor and the cost associated with the repair shall be borne to the Contractor.

E. In areas of cut and subgrade preparation, the County may require the Contractor to pothole for gas collection pipes starting at the daylight location of the pipe on the toe side of the bench. If it is determined the work cannot be completed without leaving a 12" buffer for the gas collection pipe, the Contractor shall inform the County immediately and install a deeper trench across the bench at a minimum 8% slope to accommodate the gas collection pipe.

13.3.7 Excavate Loose Soil from Sedimentation Basins

A. This work shall include the excavation of soil and greenwaste to the design elevations, lines and grades of the existing Canyon 6, Southwest and Western Stockpile Sedimentation Basins as provided in the Project Drawings and as directed by the onsite County representative.

B. Soil excavated from the sedimentation basins shall be hauled:

i. hauled to a stockpile area adjacent to the active pad for County's use as daily cover or
ii. to the Canyon 4 Phase 3 refuse cell for placement as uncontrolled fill or
iii. as directed by the County.

C. Final grade shall be finished as specified in Section 13.3.1.

D. Contractor shall remove rock berms per Section 5.3 of these Special Provisions prior to commencing earthwork operations within the Southwest Sedimentation Basin.

E. Contractor shall protect in place the sugar bushes and irrigation system located along the sideslopes of the Southwest Sedimentation Basin. Damage to the sugar bushes and irrigation system by the Contractor shall be replaced or repaired by and at the cost of the Contractor.

F. As an optional alternative bid item subject to circumstances encountered in the field, the County may not require the Contractor to excavate and haul loose soil from existing sedimentation basins to the active pad as daily cover. Due to the

alternative nature of the bid item, daily cover using source material from existing sedimentation basins does not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event a percentage greater than 25% of the work is not required on the Project. Contractor will not be compensated for expected profits for alternative bid items that are not used on the Project.

13.3.8 Placement of additional cover along the top deck

A. This work shall include the placement of an additional six-inches (6") of cover along the top deck as directed by the onsite County representative. County may limit the placement of uncontrolled fill to only areas of exposed refuse. Contractor shall tie-in daylight grading from the placement of additional cover to provide positive drainage. When tie-in daylight grading approaches existing gas collection pipes, Contractor shall place uncontrolled fill beneath the existing gas collection pipes and maintain the existing grade for the gas collection lines.

B. Source material for the cover soil shall be as described in Section 13.2.2.

C. The Contractor shall restrict earthwork movement and haul routes to the areas within the Project Limits as shown on the Project Drawings. Any earthwork operations requiring activity outside of the Project Limits shall require a written request and written acceptance to and from the County.

D. Uncontrolled fill material shall be compacted to a minimum of 85% relative compaction, based on the laboratory maximum dry density, determined by ASTM D1557.

E. Surfaces of all slopes shall be finished by track walking with Dozer-type equipment or approved equal by the County Representative in the field and left in a uniformly graded condition. Surfaces of flat areas shall be finish graded with a motor grader or approved equal.

F. Prior to the Contractor commencing excavation in the Canyon 6 Stockpile for source material for uncontrolled fill, the County shall perform a pre-excavation survey of the area and delineate the limits for the area of excavation. Contractor shall immediately contact the County once excavation for uncontrolled fill has been completed so the County may conduct a post-excavation survey. Soil excavated outside the delineated limits designated by the County will not be paid for and the expense due to the work shall be borne by the Contractor.

G. As an optional alternative bid item subject to circumstances encountered in the field, the County may not require the Contractor to place additional cover along the top deck or active pad. Due to the alternative nature of the bid item, Placement of uncontrolled fill using source material from the Canyon 6 Stockpile does not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event a percentage greater than 25% of the work is not required on the Project. Contractor will not be compensated for expected profits

for alternative bid items that are not used on the Project.

H. Contractor shall protect in place existing gas collection pipes. Contractor shall immediately notify the County if a gas collection pipe is damaged before attempting any repairs. Upon authorization from the County, gas collection pipe damaged by the Contractor shall be immediately repaired by the Contractor and the cost associated with the repair shall be borne to the Contractor. Any ramps installed over gas collection lines shall first be proposed to and accepted by the County in writing.

13.3.9 Backfill of ACB (Pedley)

A. This work shall include the backfill of ACB slopes to cover all exposed geotextile at the Pedley Landfill as indicated in the project drawings. Heavy equipment shall not be permitted to drive over the ACB slopes. Backfill material shall be placed on the ACB in rows perpendicular to the embankment using an excavator or equivalent type equipment and shall be moved into final position by hand-directed methods to a minimum of 85 % compaction. Backfill may be mechanically compacted by means of hand-directed equipment. Permission to use specific compaction equipment shall not relieve the Contractor from responsibility to ensure that the use of such equipment will not result in damage of adjacent ACB and underlying geosythetic liner. Mechanically compacted backfill may be placed in one lift to achieve a finished minimum thickness of 4.75 inches.

B. Damage to adjacent ACB or underlying geosynthetic liner shall be repaired as recommended by the manufacturer and cost for repair shall be borne to the Contractor. County will not provide additional compensation for repair to existing infrastructure.

13.4 MEASURMENT AND PAYMENT

A. The last available ground topography for the site was generated from a combination of an aerial flight survey completed in July 2013 and a conventional ground survey method completed in July 2015. Due to the ongoing landfill operations, this composite ground topography will not reflect the actual field conditions at the time of award of this contract. Because of this, and since the ongoing landfill activities within the project limits will continue up to the award of this contract and issuance of the Notice to Proceed, all earthwork quantities in the "Contractor's Proposal" are only estimates which have been primarily determined by using the aforementioned composite ground topography. However, in order to generate an updated ground topography contour map which will be used as the base map (or pre-construction ground) for this project, the County plans to perform an updated ground survey within any disturbed areas immediately before the issuance of the Notice to Proceed and the commencement of this project. This survey (updated ground survey and the July 2013 aerial

flight) will be used to generate an updated ground topography contour map (pre-construction ground contours) that will be used to determine the final pay quantities for all applicable bid items.

B. Unless otherwise stated, the final measurement of all earthwork quantities for the various layers shall be calculated to the nearest cubic yard or the nearest square foot based only upon comparison of pre-construction and post-construction surfaces of the project work. These surfaces shall be established by a combination of conventional ground surveying done by the County and aerial flight surveys of the project work area. Unless otherwise stated, the surface for any layer which will be covered by subsequent layers shall be established by ground surveying. The surface for any layer which will not be covered shall be established by aerial flight survey. The Riverside County Flood Control and Water Conservation District shall conduct the aerial flight surveys at the County's request immediately following the completion of work. Final volumetric calculation of earthwork quantities for payment purposes shall then be performed by the County based upon the resulting Digital Terrain Models (DTM) using the grid volume method with a grid interval of five (5) feet by five (5) feet. It should be noted that different methods may be used by the County for determining quantities for progress payments. However, the earthwork quantities used for progress payments will be adjusted at the completion of the project based upon the final measurement method stated in this paragraph.

C. Allowable deviation from design grades shown on the Project Drawings shall be ± 0.10 feet on all benches, access roads and sedimentation basins within the project limits at Badlands; +0.10 feet for additional cover along the top deck at Badlands and for backfill placed at Pedley and ± 0.25 feet for all remaining areas within the project limits. Limits for measurement of the excavations and fills shall be to the lines and grades as shown on the Project Drawings or as directed by the County. No additional compensation will be given for deviations above the lines and grades shown on the Project Drawings or as directed by the County, even if within the allowable tolerance. No additional compensation will be given for removal and re-compaction of material that does not meet the specifications described in this section.

D. The **measurement** of the final quantity for **Bid Item No. 19** "Earthwork (Placement of Engineered Fill)" shall be based on the total quantity of engineered fill placed only within the Project limits, as shown on the Project Drawings. Construction Activities qualifying for payment under **Bid Item No. 19** include, but are not limited to the regrading of benches. The total quantity of engineered fill placed to construct the finished grade surface shall be determined by comparing the pre-construction ground surface and the finished grade surface. The pre-construction ground surface shall be established by a combination of conventional ground survey and aerial flight survey, and the post-construction ground surface for this work shall be established by ground surveying at completion of the finished grade surface. **Payment** for the placement of engineered fill shall be made based on the unit price per in-place cubic yard for

engineered fill, as stated in the Contractor's Proposal, **Bid Item No. 19** - "Earthwork (Placement of Engineered Fill)" and shall constitute full compensation to the Contractor for all work related to the placement of engineered fill within the Project Limits including but not limited to: clearing, grubbing, excavation of source material used for engineered fill and compaction. **Payment** shall also constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to place engineered fill in accordance with the Contract Documents. No additional compensation shall be given for engineered fill placed outside the specified limits and dimensions unless otherwise ordered in writing by the County.

E. **Payment** for **Bid Item No. 20** "Construct Earthen Berm" shall be based on the final in-place linear feet of Earthen Berm constructed within the limits specified in the Project Drawings and as directed by the County. The final length of Earthen Berm shall be verified by the County based on conventional ground measurement, and shall be measured to the nearest linear foot. **Payment** shall be made, after acceptance, at the contract unit price per linear foot as stated in the Contractor's Proposal, **Bid Item No. 20**. **Payment** shall constitute full compensation to the Contractor for all work related to the furnishing and installation of Earthen Berm including but not limited to all labor, material, tools, equipment, and incidentals, and any other material or other work required by the Contract Documents. **Payment** shall also constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install Earthen Berm in accordance with the Contract Documents. No additional compensation shall be given for Earthen Berms placed outside the specified limits and dimensions unless otherwise ordered in writing by the County.

F. The **measurement** of the final quantity for **Bid Item No. 26** "Earthwork (Backfill of ACB, Peldey)" shall be based on the final in-place area of backfill total quantity of backfill placed as shown on the Project Drawings and as directed by the County. The final area shall be verified by the County based on conventional ground measurement, and shall be measured to the nearest square foot. **Payment** for the backfilling of ACB slopes at Pedley shall be made based on the unit price per in-place square foot, as stated in the Contractor's Proposal, **Bid Item No. 26** - "Earthwork (Backfill of ACB, Pedley)" and shall constitute full compensation to the Contractor for all work related to the backfilling of ACB slopes within the Project Limits including but not limited to: clearing, grubbing, excavation of source material used for backill and compaction. **Payment** shall also constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to backfill ACB slopes in accordance with the Contract Documents. No additional compensation shall be given for backfill placed outside the specified limits and dimensions unless otherwise ordered in writing by the County.

G. The **measurement** of the final quantity for **Optional Alternative Bid Item No. 31** "Earthwork (Refuse Excavation & Disposal)" shall be determined in the refuse

excavation area by comparing the County-surveyed initial encountered refuse surface and the County-surveyed refuse excavation final surface within the approximate limits as shown on the Project Drawings. The Contractor, therefore, shall notify the County as soon as refuse is encountered during excavation and in writing a minimum of two (2) days prior to excavation within the known landfill footprint limits as shown on the Project Drawings. Contractor shall allow two (2) working days for the County to complete necessary survey work. Establishing these surfaces and measuring the final quantity shall be performed by the County pursuant to the aforementioned method of calculation. **Payment** for refuse excavation and disposal shall be at the contract unit price per cubic yard as stated in **Optional Alternative Bid Item No. 31** – "Earthwork (Refuse Excavation & Disposal)" and shall constitute full compensation to the Contractor for all work related to refuse excavation and disposal (within the designated areas) including but not limited to: furnishing all labor, supervision, materials, tools, and equipment; performing pioneering, clearing, grubbing; grading, re-grading, excavating, over-excavating, placing a minimum of one-foot (1') of clean interim cover over the exposed refuse surfaces, shaping, preparing, compacting, hauling, loading, Contractor surveying, compliance with all regulatory permits and conditions (including the SCAQMD 1150 permit), construction of temporary haul roads for refuse excavation and disposal in accordance with the Contract Documents.

H. The **measurement** of the final quantity for **Optional Alternative Bid Item No. 32** - "Placement of uncontrolled fill using source material from the Canyon 6 Stockpile" shall be based only on the total excavation quantity as determined by comparing the pre and post construction ground surfaces within the borrow area of the Canyon 6 Stockpile limits. The pre-construction ground surface shall be established by a combination of conventional ground survey and aerial flight survey, and the post-construction ground surface for this work shall be established by a combination of conventional ground surveying and/or aerial flight survey. **Payment** for excavation of material, transportation of material to the top deck or Canyon 4 Phase 3 refuse cell or to an area within the landfill as directed by the County and placement as uncontrolled fill shall be made based on the unit price per cubic yard for excavation, as stated in the Contractor's Proposal, **Optional Alternative Bid Item No. 32** and shall constitute full compensation to the Contractor for all work related to excavation, transportation and placement of uncontrolled fill including, but not limited to: furnishing all labor, supervision, materials, tools, and equipment; excavating, hauling, loading, placement of uncontrolled fill and any other requirements by the Contract Documents for the Bid Item as directed by the County.

I. The **measurement** of the final quantity for **Optional Alternative Bid Item No. 33** "Daily Cover using source material from existing sedimentation basins" shall be based only on the total excavation quantity as determined by comparing the pre and post construction ground surfaces within the limits of the Canyon 6, Southwest and Western Stockpile Sedimentation Basins, and other areas of

excavation within the project limits as shown on the Project Drawings. The total quantity of soil excavated to design grade shall be determined by comparing the pre-construction ground surface and the finished grade surface. The pre-construction ground surface shall be established by a combination of conventional ground survey and aerial flight survey, and the post-construction ground surface for this work shall be established by ground surveying at completion of the finished grade surface. **Payment** for excavation and transport of material to a location adjacent to the active pad shall be made based on the unit price per cubic yard for excavation, as stated in the Contractor's Proposal, **Optional Alternative Bid Item No. 33** and shall constitute full compensation to the Contractor for all work related to excavation and transportation of daily cover including but not limited to: furnishing all labor, supervision, materials, tools, and equipment; excavating, hauling, loading, and any other requirements by the Contract Documents for the transportation of daily cover from the existing sedimentation basins to an area adjacent to the landfill working face as directed by the County.

END OF SECTION

SECTION 14 - TEMPORARY PROTECTIVE MEMBRANE (Badlands)

14.1 GENERAL

This section covers the work necessary to furnish and install protective membrane to protect portions of decks and side slope areas from erosion.

The temporary protective membrane work includes the supply and installation of reinforcing scrim over existing side slopes and decks and sewing new temporary protective membrane to existing surrounding scrim as shown on the Project Drawings. The Contractor shall provide all labor, supervision, tools, equipment, and materials and anchorage necessary to install the temporary protective membrane.

14.1.1 REFERENCES

Reference Standards and Specifications: The following standards and specifications, including documents referenced herein, form part of these Special Provisions and are incorporated herein by reference.

American Society for Testing Materials (ASTM)

D751-06 Test Methods for Coated Fabrics

E96/E96M-05 Test Methods for Water Vapor Transmission of Materials

14.1.2 SUBMITTALS

Prior to delivery of materials, the Contractor shall submit product data sheet, material specifications, and manufacturer's application instructions for temporary protective membrane to the County for approval.

14.1.3 SAFETY

The Contractor shall instruct workmen of the hazards of installation such as handling the sheets of protective membrane in winds and on the slopes, and use of equipment.. The Contractor shall ensure that workers have and use proper safety gear and equipment. Approved personal fall arrest, personal fall restraint or positioning systems shall be worn by those employees whose work exposes them to falling in excess of 7 1/2 feet from the perimeter of a structure, unprotected sides and edges, leading edges, through shaft ways and openings, sloped roof surfaces steeper than 7:12 (Horizontal: Vertical), or other sloped surfaces steeper than 40 degrees. Particular attention shall be given to relevant Division of Industrial Safety Construction. Said Orders are contained in Title 8 of the California Code of Regulations, Chapter 4, and Subchapter 4. Specific reference is made to Article 24 of said Construction Safety Orders.

14.1.4 DELIVERY, STORAGE AND HANDLING

Protective membrane shall be shipped, stored and handled in accordance with the manufacturer's recommendations and as specified herein and as directed by the County. The material shall be delivered to the site only after the County receives and approves the required submittals. Material shall be protected from damage or degradation.

14.2 MATERIALS

A. The protective membrane material shall consist of an UV-stabilized, 8-mil, 3-ply, linear low-density polyethylene copolymer, with a nonwoven nylon yarn scrim. Material shall be Duraskrim 8BV or equivalent, as manufactured by Raven Industries, Inc. The manufacturer's certification shall demonstrate the cover material meets the following MARV:

Properties	**Test Method**	**Specified Value**
Thickness, Nominal	ASTM D2103	8 mil
Weight	ASTM D5261	40 lbs/1,000 sq ft
Grab Tensile	ASTM D751	70 lbf
Elongation at Break	ASTM D751	600%
Trapezoid Tear	ASTM D4533	55 lbf
Hydrostatic Resistance	ASTM D751	70 psi
Maximum Use Temperature	-	180°F
Minimum Use Temperature	-	-70°F
WVTR	ASTM E96	0.030
Perm Rating	ASTM E96	0.066

B. Prior to use of an alternative material, the Contractor shall submit for the County's acceptance the material specifications.

C. Manufacturer's Warranty: The Contractor shall deliver to the County the Manufacturer's Warranty for the material supplied.

D. Sandbags shall be Duraskrim 8BBR ultra violet resistance or approved equal. Ropes used to secure the sandbags shall be rated at 700 lb (ultra violet resistance twisted polypropylene rope or approved equal). Placement and type of anchor for the rope shall be accepted by the County and the QA/QC Consultant prior to use.

E. If sandbags are to filled onsite, County can provide 1-inch minus screened material. Material will be screen in the Canyon 6 Stockpile Area.

14.3 EXECUTION

A. The Contractor shall take steps to prevent damage to the existing slopes during the installation of the protective membrane.

B. All panels should be placed as straight as possible and all seams shall be tightly sewn on completion of work. Before the sewing process begins, sandbags shall be ready for placement on the liner edges in the event of wind. Seams shall be overlapped and sewn a minimum of three (3) inches, and a maximum of six (6) inches, from the edges of seamed panels. A two-thread, double-locked stitch shall be used. All seams shall be continuously sewn. Spot sewing will not be allowed. No horizontal seams, pre-manufactured or field sewn seams will be allowed on sideslopes.

C. The protective membrane shall be cut only with an approved cutter, and not torn or ripped to size. The material shall not be pulled tight. Sufficient slack shall exist throughout the scrim. A 5% allowance of excess material in both directions shall be incorporated into the scrim for seasonal expansion/contraction. If possible, edge anchorage shall be delayed overnight to allow for preliminary shrinkage.

D. To avoid wind or other weather related damage, the membrane shall be properly secured to the surrounding scrim as shown on the Project Drawings. The membrane shall be secured to the slope with sandbags and rope placed ten-foot (10-ft.) on center along the entire length of slopes and anchored at the top of slope as shown on the Project Drawings. The sandbags shall be installed at 10-foot (10-ft.) intervals along each rope, and shall be filled with 1- in maximum particle size screened material. In addition, these vertical ropes with sand bags shall be connected together with horizontal ropes at ten-foot (10 ft.) vertical interval as shown on the Project Drawings and as directed by the County.

E. No foot traffic shall be allowed on the membrane except with approved smooth-sole shoes. No vehicular traffic shall be allowed on the membrane. The completed membrane shall be free of holes, tears, and punctures. Repair, if necessary, shall require a patch extending 18 inches in all directions beyond the damaged area, secured with tape and anchored as necessary.

F. The installation of Protective Membrane takes place in the area of active landfilling. Due to the dynamic nature of landfilling in the area, the installation of protective membrane is an optional alternative bid item. As an optional alternative bid item subject to circumstances encountered in the field, the County may not require the Contractor to install protective membrane. Due to the alternative nature of the bid item, this bid item does not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event a percentage greater than 25% or none of the work is required on the Project. Contractor will not be compensated for expected profits for optional alternative bid items that are not used on the Project.

14.4 MEASUREMENT AND PAYMENT

The **measurement** of the final quantity for **Optional Alternative Bid Item No. 34** "Protective Membrane" shall be based on the final in-place square footage of ground covered with protective membrane material placed within the limits specified in the Project Drawings and after it has been installed to the satisfaction of the County . The area of the final surface shall be verified by the County based on conventional ground surveying. Quantity shall be calculated to the nearest square foot utilizing digital terrain modeling method. **Payment** shall be made, after acceptance, at the contract unit price per square foot as stated in the Contractor's Proposal, **Optional Alternative Bid Item No. 34**. **Payment** shall constitute full compensation to the Contractor for all work related to the furnishing and installation of the protective membrane material including but not limited to all sewing to surrounding protective membrane, ropes, sand bags, and any other material or other work required by the Contract Documents. Payment shall also constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install this protective membrane layer in accordance with the Contract Documents. No additional compensation shall be given for waste material from trimming of rolls, seam overlaps, or related items.

END OF SECTION

SECTION 15 - MASONRY SPLASH WALL (Badlands)

15.1 GENERAL

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision for the construction of a masonry splash wall as shown on the Project Drawings. The work shall include trench excavation, subgrade preparation and construction of the masonry splash wall with reinforced footing to the elevations, lines and grades and at the locations shown on the Project Drawings or as directed by the County. This work shall also include any cut or backfill necessary to achieve finished elevations adjacent to the wall once construction of the masonry splash wall is complete or to provide adequate cover to the adjacent liner system.

15.1.1 SUBMITTALS

A. Prior to delivery of materials, the Contractor shall submit a certificate of compliance for concrete block masonry units to the County for approval.

B. Submittals for concrete, mortar, reinforcing steel and curing compound shall be in accordance with Section 11.2 of these Special Provisions.

15.2 MATERIALS

A. Concrete block masonry units (CMU) for wall structure shall be six-inch by eight-inch by eighteen inch (6" x 8" x 18") CMU and shall conform to sub-section 202-2.2 of the Standard Specifications.

B. Reinforced concrete for wall footing shall be Class 560-C-3250 in conformance Section 201-1 of the Standard Specifications.

C. Reinforcing steel (rebar) for wall footing shall be grade 60 and shall conform to sub-section 201- 2.2.1 of the Standard Specifications.

D. Mortar, grout, and water used in construction of CMU shall conform to sub-section 202-2.1 and Section 202-3 of the Standard Specifications. Mortar shall attain a minimum compressive strength of 1,800 psi and grout shall attain a minimum compressive strength of 2,000 psi in 28 days when tested in accordance with ASTM C109

15.3 EXECUTION

A. Concrete block masonry wall structure shall be constructed in accordance with Section 303-4 of the Standard Specifications.

B. The subgrade for the concrete block masonry wall shall be prepared to the specified elevations, compacted to 90% relative compaction, contain no loose material, and subject to the approval of the County.

15.4 MEASUREMENT AND PAYMENT

The **measurement** of the final quantity for **Bid Item No. 21** "Construct Masonry Splash Wal" shall be determined by the County based on the field measurements of the axial length (linear feet) along the centerline of the completed masonry splash wall. **Payment** for the masonry splash wall shall be based upon the unit price per linear foot as stated in the Contractor's Proposal, **Bid Item No. 21**. **Payment** for the masonry splash wall shall include subgrade preparation and construction of reinforced concrete footing and masonry wall including reinforcing steel and grout material as specified in the Contract Documents and indicated in the Project Drawings. **Payments** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the masonry splash wall completed in place.

END OF SECTION

SECTION 16 - BASIN DRAINAGE IMPROVEMENTS (Badlands)

16.1 GENERAL

The work covered in this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision to: install skimmers in the Canyon 6 and Western Stockpile sedimentation basins, install flexible hose and reconstruct the coupling system to the existing skimmer in the Southwest Sedimentation Basin, furnish and install gabion baskets within the Canyon 6, Southwest and Western Stockpile Sedimentation Basins and to construct a new concrete lined sedimentation basin downstream of the Metals Recycling Yard as defined below, shown on the Project Drawings, and as directed by the County.

16.2 SUBMITTALS

Prior to delivery of materials, the Contractor shall submit product data sheets, engineered drawings, material specifications and manufacturer's application instructions for all materials to the County for approval. Contractor shall submit certified results of sieve analysis for the proposed rock material for gabion baskets.

16.3 MATERIALS

16.3.1 Skimmer Drainage System

A. County possesses the materials required for the installation of two 4" Faircloth Skimmers as manufactured by J.W. Faircloth & Son, Inc. for installation in the Canyon 6 and Western Stockpile Sedimentation Basins.

Materials provided by the County for installation of the skimmer system in the Canyon 6 and Western Stockpile Sedimentation Basins include: Two (2) 4" Faircloth Skimmers with inlet extension, 4" schedule 40 solid PVC pipe, 4" flexible PVC hose, 4" schedule 80 PVC 90 degree FPT elbow, 4" x 3" schedule 80 PVC Red Bushing MPT x FPT, 3" schedule 80 PVC Male adapter MPT x SOC, 3" Schedule 80 PVC, Female Adapter SOC x FPT, Aluminum 3" Male Boss Lock x 3" Male NPT, Aluminum 3" Female Boss Lock x 3" Male NPT, Aluminum 3" Male Boss Lock x 3" Female NPT, Aluminum 3" Female Boss Lock x 3" Female NPT and Aluminum 4" Male NPT x 4" Male NPT.

B. Any additional pipe, glue, hoses, couplings required to complete installation of the 4" skimmer shall be per manufacturer's recommendations.

16.3.2 Reconstruction of Skimmer Coupling System

A. Couplings for shortening of pipe barrel to the Skimmer located in the Southwest

Sedimentation Basin shall be 4" Schedule 80 PVC. PVC Couplings shall conform to Section 207-17 of the Standard Specifications.

B. Coupling between 4" PVC flex hose and 4" Schedule 80 PVC NPT shall be a 4" Camlock.

C. Coupling between camlock and bulkhead shall be 4" Schedule 80 PVC NPT and shall conform to Section 207-17 of the Standard Specifications.

D. 4" Ball Valve shall be inline FNPT 4" Apollo Brass Ball Valve as supplied by Granger, Inc. or approved equal.

E. 4" PVC flex hose shall be per manufacturer's recommendations.

F. Glue required to couple pipe barrel and install ball valve shall be per manufacturer's recommendations.

16.3.3 Gabion Baskets

A. Gabion baskets shall be a minimum of 11 gauge (0.118 in.) galvanized steel wire, fabricated into hexagonal triple-twist mesh openings no larger than 3" x 3".

B. Baskets shall be standard sizes in accordance with State Standard Specifications Section 72-16.02A and shall be either of the following:

i. Mattress style that are 1' x 1.5' x 3'.
ii. Cubical style that are 3' x 3' x 3'.
iii. The width, height, or length of a standard basket must not vary more than 5 percent from the standard size shown.

C. Selvedge/spiral binder wire running through all edges shall be a minimum of 9 gauge (0.148 in.) galvanized steel wire.

D. Lacing, tie, and connecting wire shall be a minimum 13 ½ gauge (0.087 in.) galvanized steel wire.

E. All gabion basket wire shall conform to ASTM A510, grade number 1006 through 1020. Wire shall have a minimum tensile strength of 60,000 psi and a class 3 coating conforming to ASTM A641. Galvanized coating shall be applied by the hot-dip process in accordance with ASTM A385 and A386.

F. Gabion baskets shall be manufactured with all components mechanically connected at the production facility

G. Rock material to fill gabion baskets shall be Crushed Aggregate Base consisting entirely of crushed rock. Rocks for gabion baskets equal or greater than 1.5' in

height must be greater than 4 inches in size, but smaller than 12 inches. Rockss for gabion baskets that are 1' in height must be greater than 4 inches in size, but smaller than 8 inches. The unit weight of a rock-filled gabion must be at least 110 lb/cf. County may require Contractor to verify the unit weight. Verification must be performed using the smalles gabion basket, filing method, and rock that will be used on the project. Contractor must use certified scales for weighing and can use the theoretical volume of the basket. Contractor may use County scale to determine weight of gabion basket, but must coordinate weighing as not to hinder landfill operations.

16.4 EXECUTION

16.4.1 Skimmer Drainage System

Contractor shall assemble skimmer in strict conformance with manufacturer's instructions.

16.4.2 Reconstruction of skimmer coupling system

A. Contractor shall protect in place, or remove and reinstall all other appurtenances currently installed around the Southwest Sedimentation Basin skimmer system.

B. Contractor shall reconstruct the skimmer coupling system as shown on the Project Drawings and in strict conformance with manufacturer's installation manual.

C. Pipe barrel to Southwest Sedimentation Basin Skimmer System shall be cut down to a length of 5.5 feet.

D. Existing CMP bulkhead shall be welded to top of CMP culvert pipe around entire perimeter. Welding shall conform to Section 304-1.9 of the Standard Specifications.

16.4.3 Gabion Baskets

A. Gabion baskets shall be placed on concrete strip footings as shown on the Project Drawings. Gabions shall be securely tied to each adjoining basket with lacing wire along the vertical reinforced edges and the top selvedges/spiral binder. Gabion baskets shall be installed in accordance with the California Department of Transportation (Caltrans) Standard Drawings D100A and D100B.

B. The gabion baskets shall be carefully filled with rock, by either hand or machine placement to ensure alignment, avoid bulges, and provide a compact mass with a minimum of voids. Machine placement may have to be supplemented with hand work to ensure a neat, compact, square appearance. Whenever filling 3' high gabions, place rock in 12-inch-deep layers. Whenever filling 1.5' high gabions, place rock in 9-inch-deep layers. Install internal connecting wires or preformed stiffeners before adding additional layers. The last layer of rock must slightly overfill the gabion basket so that the lid will rest on rock when the lid is closed.

Lids must be tied along the front, end, and diaphragms with 13.5-gage tie wire or 9-gage standard spiral binder. In one pass, the tie wire or spiral binder must secure all selvage or end wires of the panels along the lid. If securing the lid with alternative fasteners, use one alternative fastener at each mesh opening. The alternative fastener must contain and secure all wires along the lid.

C. Contractor shall place 5-6 inch diameter size rock in open spaces between the end gabion baskets and the adjacent slope.

16.5 MEASUREMENT AND PAYMENT

A. **Measurement and Payment** to install basin skimmers including, but not limited to: 8" skimmer, pipe, fittings, couplings, hose, connections, and incidentals shall be made after County acceptance, included in the Lump Sum price stated in the Contractor's proposal **Bid Item No. 22** – "Install Skimmers in the Canyon 6 and Western Stockpile Sedimentation Basins". **Payment** shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to install the skimmer systems in accordance with the Contract Documents.

B. **Measurement and Payment** to reconstruct the skimmer coupling system for the Southwest Sedimentation Basin skimmer including, but not limited to: fittings, couplings, hose, connections, and incidentals shall be made after County acceptance, included in the Lump Sum price stated in the Contractor's proposal **Bid Item No. 23** – "Reconstruct Skimmer Coupling System for Southwest Sedimentation Basin Skimmer". **Payment** shall constitute full compensation for furnishing all labor, supervision, materials, tools, and equipment necessary to reconstruct skimmer coupling system in accordance with the Contract Documents.

C. The **measurement** of the final quantity for **Bid Item No. 24** - "Furnish and Install Gabion Baskets" shall be determined by the County based upon the volume in cubic yards installed at the locations and in conformance with the details shown on the Project Drawings and as required by the Contract Documents. **Payment** for all gabion baskets and related work shall be at the contract unit price per cubic yard installed per plan as stated in the Contractor's Proposal, **Bid Item No. 24** and no additional compensation will be allowed. Payments shall constitute full compensation to the Contractor for all work related to the construction of gabion baskets in the project including but not limited to: furnishing all labor, materials, tools, equipment, galvanized wire baskets, lacing wire, rock, fasteners, hardware, connections and incidentals as specified in the Contract Documents and indicated in the Project Drawings.

END OF SECTION

SECTION 17 - AGGREGATE BASE (Badlands)

17.1 GENERAL

The work covered by this section shall consist of furnishing all necessary labor, materials, equipment, tools, and supervision for furnishing,and construction and installation of 12-inch thick 3-inch minus aggregate base roads. The work shall include, but is not limited to aggregate base,road subgrade preparation and construction of the aggregate base roads at the locations shown on the Project Drawings or as directed by the County.

17.1.1 SUBMITTALS

The Contractor shall submit Certificates of Compliance for aggregate base materials used in this project. The certificates shall be signed by the manufacturer of the materials and shall state that materials involved shall comply in all respects with the requirements of these specifications.

17.2 MATERIALS

A. Material for the 12-inch thick crushed aggregate base road shall consist entirely of crushed rock smaller than 3 inches in diameter.

A. All aggregate must be clean and consist of materials as described in the State Standard Specifications Section 26-1.02A.

B. Aggregate base with a maximum aggregate size of 3" shall be uniformly graded..

C. Aggregate base shall be mixed in a stationary or traveling plant. Proportion aggregates by weight or volume in quantities to meet the project-specified requirements for the aggregate base material. Incorporate, during the mixing operation, water in quantities sufficient to provide the necessary moisture content for the specified compaction. Mixing operations shall produce satisfactory uniform blending and the method of discharging into trucks shall not produce segregation. Placing aggregate base shall be in accordance with Section 301-2.2, "Spreading" of the Standard Specifications. The Contractor shall not process or drag base material to which may cause the segregation or loss of gradation of the base material.

D. The Contractor shall submit Certificates of Compliance for aggregate base materials imported for use in this project. The certificates shall be signed by the manufacturer of the materials and shall state that materials involved shall comply in all respects with the requirements of these specifications.

E. The Contractor shall submit to the County gradation test reports before delivery of aggregate base materials to the project site. The Contractor shall obtain the County's approval of the aggregate base material and material source in advance of the use of such materials in the work.

17.3 EXECUTION

A. Subgrade preparation and aggregate base placement operations (adding water, spreading and compacting) shall be performed in accordance to Section 26 of the State Standard Specifications.

B. Subgrade for the aggregate base road shall be compacted to a minimum of 90 percent relative compaction (or as otherwise noted on the Project Drawings) as determined by ASTM D1557.

C. Subgrade and finished road surface within the grading limits shall be graded to ensure positive drainage towards drainage structures as shown on the Project Drawings.

D. The Contractor shall construct the 12-inch thick 3" minus Aggregate Base Road on a prepared and approved subgrade, as required by the Contract Documents. The Contractor shall provide construction stakes to control line and grade. Placement of grade stakes shall be parallel to the construction aggregated base placement lifts and spaced for string lining or other control methods. The base material shall consist of aggregate processed, deposited, spread, and compacted on a prepared and accepted surface. The Contractor shall be solely responsible for protection of completed areas against detrimental effects. Reconditioning, reshaping, and re-compacting of areas damaged by rainfall, or other weather conditions shall be the Contractor's responsibility.

E. Place earth or other accepted materials along the edges of the aggregate base material in such a quantity that it will compact to the thickness of the course being constructed. When the aggregate base is being constructed in two or more layers, place material to the width of the shoulder to be rolled and compacted simultaneously with the rolling and compacting of each base layer.

F. After placement is completed, the Contractor shall maintain the aggregate base course throughout, except where portion of the succeeding course is under construction thereon. Maintenance includes drainage, rolling, shaping, and watering, as necessary, to maintain the course in proper condition. Correct deficiencies in thickness, composition, construction, smoothness, and density, which develop during the maintenance, to conform to the requirements specified herein. Maintain sufficient moisture by light sprinkling with water at the surface to prevent a dusty condition.

G. If optioned by the County, stockpiled crushed and pulverized material shall have priority placement over import material for construction of the access road,

17.4 MEASUREMENT AND PAYMENT

A. The measurement of the final quantity for **Bid Item No. 25** "Construct 12" Thick 3" Minus Aggregate Base Road" shall be at the contract unit price per square foot

as stated in **Bid Item No. 25** "Construct 12-Inch Thick 3-Inch Minus Aggregate Base Road" and shall constitute full compensation to the Contractor for all work related to the construction of 12" thick 3" minus aggregate base road including but not limited to: subgrade preparation, compaction, and furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the aggregate base road, complete in place, as shown on the Project Drawings or as directed by the County.

END OF SECTION

SECTION 18 - GREENWASTE APPLICATION OVER SLOPES (Badlands)

18.1 GENERAL

The work covered in this section shall consist of furnishing all necessary labor, materials, equipment, tools and supervision for the spreading of Processed Green Waste materials within designated areas at the Badlands landfill as shown on the Project Drawings or as directed by the County.

18.2 MATERIALS

A. Processed Green Waste is defined as green waste material which has been ground so that the maximum dimension in any direction is six (6) inches or less. Processed Green Waste shall be composed of green waste material only, free of refuse, and contaminants as solely determined by the Department. Processed Green Waste shall be procured only from in-County sources.

18.3 EXECUTION

A. The County shall have clean Processed Green Waste materials delivered to the site, up to 500' from the slopes in which Contractor spreading work shall occur. Due to the dynamic nature of landfill operations, Contractor may be required to place Processed Green Waste at any location within the landfill footprint. The Contractor shall provide the equipment and manpower to evenly spread Processed Green Waste materials in a safe and efficient manner as determined by the County.

B. The County shall have Processed Green Waste delivered to areas adjacent to, but up to 500' from access benches, decks and to bottoms of slope in quantity, location and frequency agreed upon by County and Contractor. Contractor shall be responsible for pushing or transporting Processed Green Waste from the delivered location to the hinge and toes of slopes to received application.

C. Processed Green Waste material shall not be placed or spread over gravel roads or benches, or on hardscape (concrete or asphalt) structures. Any material placed within these areas shall be removed by the Contractor.

D. Contractor shall ensure that three (3) to six (6) inches of Green Waste material covers designated areas shown on the Project Drawings for each landfill.

E. Green Waste material shall be spread by use of a manure spreader or similar type of equipment as approved in advance by the County. In no case shall the depth of spread Green Waste material be less than three (3) inches or greater than six (6) inches in final placed form.

F. Contractor shall apply adequate compaction to the spread green waste product as determined by the County, and shall apply adequate water for dust control purposes.

G. Contractor heavy equipment and vehicles shall travel no closer than ten (10) feet to any environmental structure. Green Waste material shall be hand-placed within ten (10) feet of environmental structures including but not limited to, above-ground pipe system, wells, bollards, etc. Any material placed on these structures shall be removed by the Contractor. Green Waste material shall be placed no closer than five (5) feet from vault boxes.

H. The Department may halt and suspend the work of the Provider at any time without notice in order to complete Department business, such as performing landfill operations, site maintenance, or groundwater/gas monitoring work.

I. Provider may stockpile a combined maximum of one hundred (100) tons of Green Waste materials at any time during spreading operations.

J. As an optional alternative bid item subject to circumstances encountered in the field, the County may not require the Contractor to provide greenwaste application to slopes. Due to the alternative nature of the bid item, this bid item does not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event a percentage greater than 25% or none of the work is required on the Project. Contractor will not be compensated for expected profits for alternative bid items that are not used on the Project.

18.4 MEASUREMENT AND PAYMENT

A. County topographical mapping for each designated area that may receive Processed Green Waste shown in the Project Drawings shall be used for determining payment area (in square feet) once Processed Green Waste for each site has been installed to the satisfaction of the County.

B. **Payment** for Processed Green Waste shall be at the contract unit price per square foot as stated in **Optional Alternative Bid Item No. 37** and shall constitute full compensation to the Contractor for all work related to the spreading of Processed Green Waste on slopes including but not limited to: furnishing all labor, supervision, materials, tools, and equipment; providing dust control, pushing or hauling processed green waste up to 500' from stockpile to toe and hinges of slopes receiving application, spreading, shaping, and compacting. All other work required by the Contract Documents to complete the spreading Processed Green Waste material shall be considered incidental to the work and will not be paid for separately.

END OF SECTION

AUTHORIZED TIME & MATERIALS WORK

GENERAL

The County shall have the right to add work of a different character or function, and have the Contractor perform such added work when such work is considered by the County to be appurtenant to the satisfactory completion of the project. "Authorized Time and Materials" shall be made when prior authorization and approval has been provided to the Contractor by the County for work of a different character or function and for which no basis for payment is prescribed in the Contract Documents.

The Contractor shall provide a rate schedule for all labor and equipment that may reasonably be anticipated for use during the project. Labor rates shall be consistent with those required by the prevailing wage rate requirements of the Contract and shall reflect all benefits and employer costs. Once the labor and equipment rates have been approved by the Project Manager, they will become the basis for compensation for any Time and Material work requested by the County. The Contractor is advised, however, that there will be no compensation from the Time and Material Allocation unless the work has been authorized in writing by the Landfill Principal Engineer.

Additionally, use of the Time and Material Allocation will be at the sole discretion of the County. All or any portion of the allocation amount may be deleted from the Contract. Due to the optional nature of the bid item, it does not qualify for compensation under Section 3-2.2.3 of the Standard Specifications in the event a percentage greater than 25% or none of the work is required on the Project. Contractor will not be compensated for expected profits for optional bid items that are not required on the Project.

The signing of the contract by the Contractor will be deemed to be an agreement on his part to perform the added work, as and when ordered by the County. If the required added work results in delay to the project, the Contractor will be given an appropriate extension of time.

The cost of all work performed by the Contractor on an "Authorized Time and Material" basis will be computed in the manner described in Section 7.3. of the General Provisions in the Contract Documents, and the compensation thus provided shall be full payment to the Contractor related to the authorized time and material work.

END OF SECTION

BADLANDS AND PEDLEY LANDFILLS

CONSTRUCTION PLANS
FOR
SITE MAINTENANCE AND IMPROVEMENTS

SEPTEMBER 2015

PREPARED BY
DEPARTMENT OF WASTE RESOURCES
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RIVERSIDE COUNTY
DEPARTMENT OF
WASTE RESOURCES

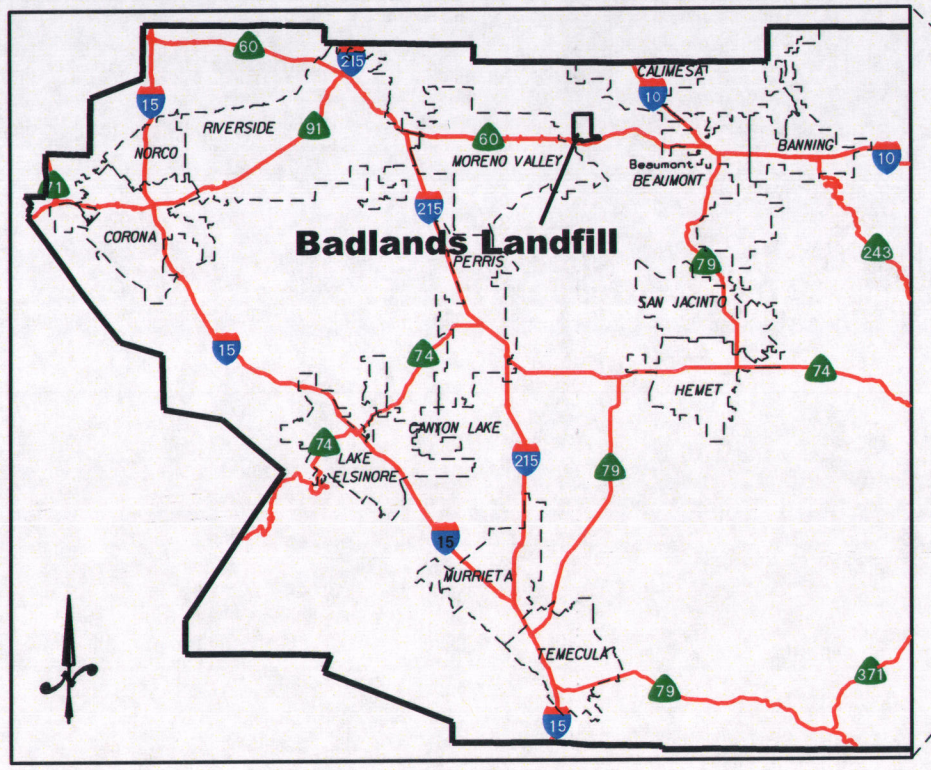
DEPARTMENT OF WASTE RESOURCES

APPROVED: _____
Hans Kernkamp, General Manager - Chief Engineer, R.C.E. 45868 Exp. 12/31/2016

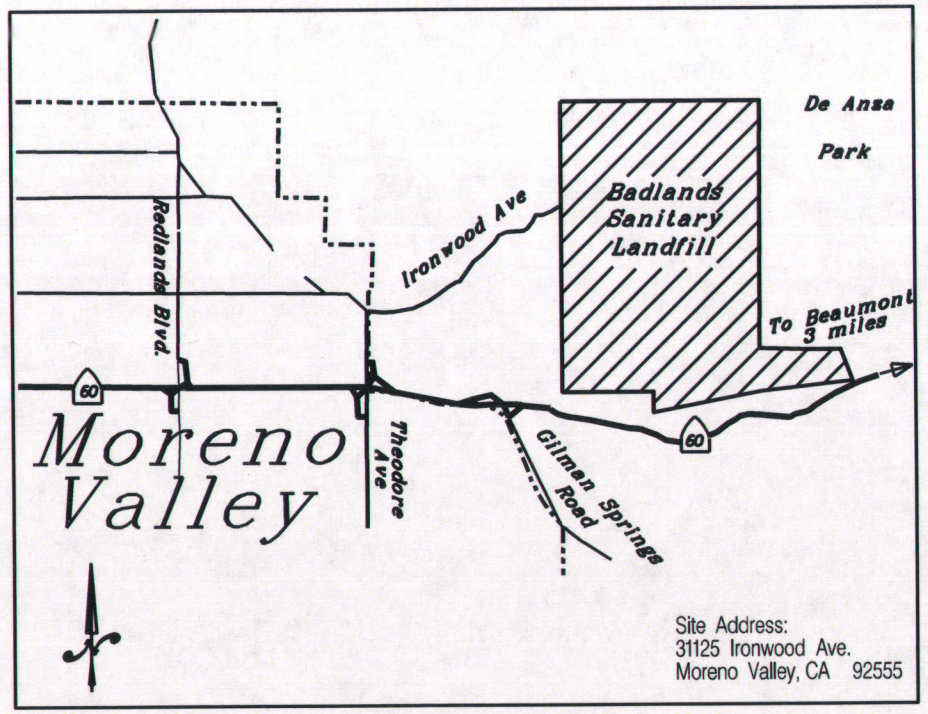
RECOMMENDED: _____
Joseph R. McCann, Assistant Chief Engineer, R.C.E. 51694 Exp. 6/30/2016

RECOMMENDED: _____
Andrew Cortez, Principal Engineer, R.C.E. 62528 Exp. 12/31/2015

SUBMITTED: _____
Manuel Ruiz, Associate Civil Engineer, R.C.E. 79726 Exp. 9/30/2016



LOCATION MAP
N.T.S.



VICINITY MAP
N.T.S.

FILL PATTERNS

- Asphalt
- Concrete
- Refuse
- Competent Subgrade
- Rip Rap
- Class II Base
- 1"-Minus Protective Cover Soil (PCS)
- Soil Cement

DETAIL CALLOUTS

A / 4 — Detail Number / Sheet Number

CONSTRUCTION NOTE CALLOUTS

4

LEGEND

- Landfill footprint (unlined)
- Landfill footprint (lined)
- 200 — Topo Contours (Jan 2014 & July 2014)
- PL — Property line
- Grade break
- 1.5:1 — Gradient & Direction
- Flow Line / Flow Direction
- MLP-18 — Gas probe (protect in place)
- LC-9 — Ground water well (protect in place)
- GW-11 — Existing landfill gas collection system (protect in place)
- Paved Surface
- Top / Toe — Slope
- 3590 — Existing surveying control points (protect in place)
- Fiber Roll
- Existing access road
- Gas line (above ground)
- Gas line (buried)
- Refuse Fill Limits
- K-Rail
- Gabion Basket
- Welded Wire Fabric

ABBREVIATIONS

AB	Aggregate Base
AC	Asphalt Concrete
APPROX.	Approximate
BC	Begin Curve
C	Cut
℄ or CL	Center Line
CMP	Corrugated Metal Pipe
CO	Clean out
DIA	Diameter
E	Easting
EC	End Curve
EL	Elevation
EOP	Edge of Pavement
Exist.	Existing
F	Fill
℄ or FL	Flow Line
GB	Grade Break
Hor.	Horizontal
HP	High Point
ID	Inside Diameter
INV	Invert
LF	Linear Feet
L	Length
N	Northing
NAD	North American Datum
NTS	Not To Scale
PI	Point of Intersection
POC	Point on Curve
ℙ or PL	Property Line
PVI	Point of Vertical Intersection
R	Radius
RC	Reinforced Concrete
RCE	Registered Civil Engineer
RCFC	Riverside County Flood Control
STA	Station
TOE	Toe of Slope
TS	Top of Slope
TYP	Typical
Vert.	Vertical

INDEX OF DRAWINGS

SHEET	FILE NAME	TITLE	SCALE
1	Maintenence Improvement Details.dgn	Title Sheet	NTS
2	Maintenence Improvement Details.dgn	Index, Legend, & Vicnity Map	NTS
3	Maintenence Improvement Map.dgn	General Site Map	1"=450'
4	Maintenence Improvement Details.dgn	Construction Details	NTS
5	Maintenence Improvement Details.dgn	Construction Details	NTS
6	Maintenence Improvement Details.dgn	Construction Details	NTS
7	Maintenence Improvement Details.dgn	Construction Details	NTS
8	Maintenence Improvement Details.dgn	Construction Details - Skimmer Coupling	NTS
9	Maintenence Improvement Details.dgn	Western Stockpile Basin Road	1"=60'
10	Grading Plans.dgn	Western Sedimentation Basin Grading Plans	1"=20'
11	Grading Plans.dgn	Canyon 6 Sedimentation Basin Grading Plans	1"=20'
12	Grading Plans.dgn	Southwest Sedimentation Basin Grading Plans	1"=50'
13	Grading Plans.dgn	Top Deck Grading Plans	1"=150'
14	Grading Plans.dgn	South C4P3 Grading Plans	1"=100'
15	Grading Plans.dgn	Bench 9, 10, and 11 Grading Plans	1"=100'
16	Grading Plans.dgn	Bench 12 and 14 Grading Plans	1"=200'
17	Grading Plans.dgn	Bench 13 Grading Plans for Soil Cement	1"=200'
18	Pedley_Exhibits.dgn	Pedley Vicinity Map	NTS
19	Pedley_Exhibits.dgn	Pedley Site Map	1"=90'

NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

NTS

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	-
SCALE:	NTS
PATH:	engineering\sites\Badlands\ 15 bd\projects\
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Maintenance Improvement Details.dgn

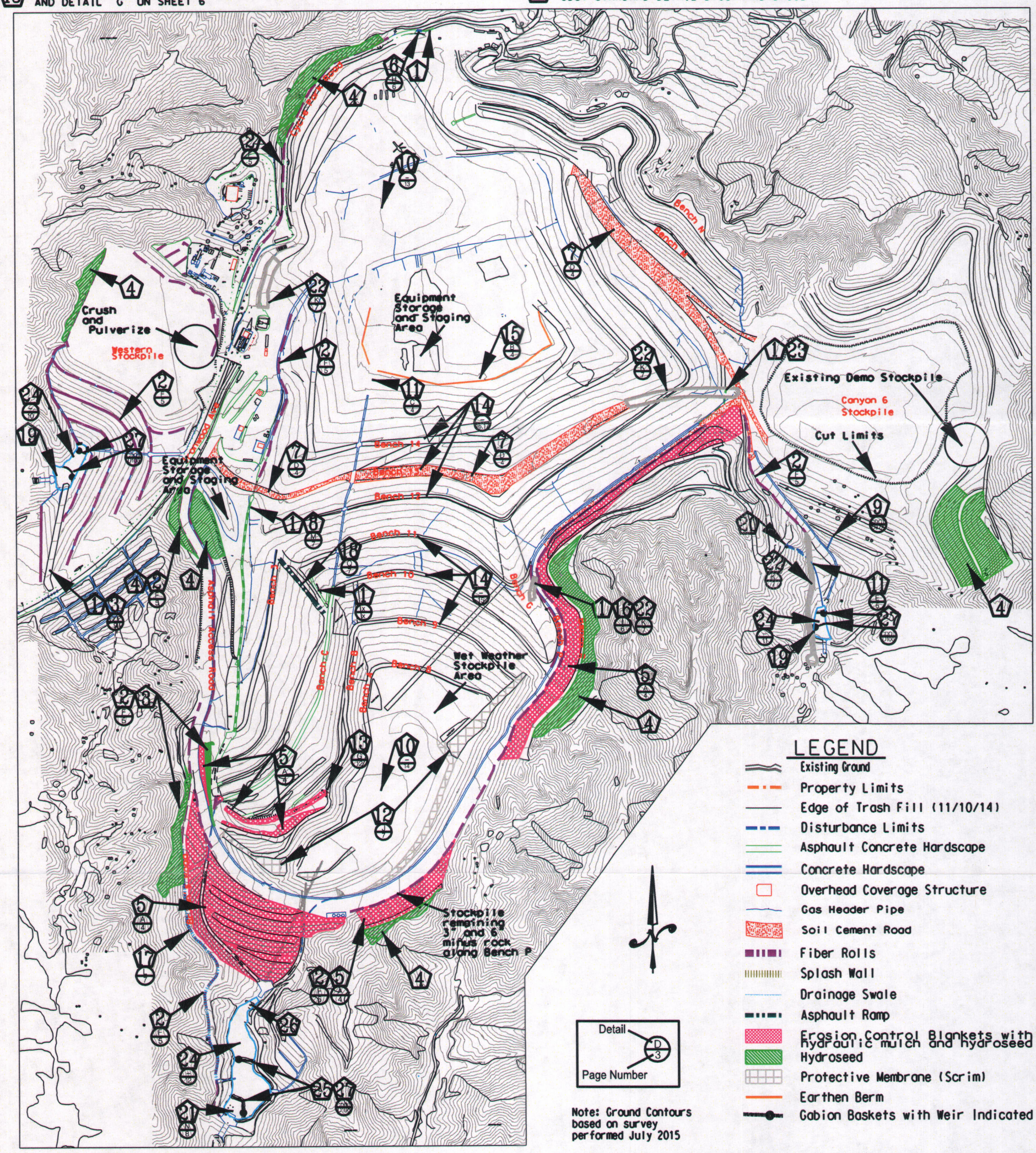
Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Index, Legend and Vicinity Map

SHEET 2 OF 19

CONSTRUCTION NOTES

1. DEMOLISH, CRUSH, AND PULVERIZE EXISTING HARDSCAPE IN ACCORDANCE WITH PROJECT SPECIFICATIONS
2. INSTALL FIBER ROLLS AT THE TOE OF SLOPES IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'F' ON SHEET 5
3. REPLACE WITH ASPHALT CONCRETE IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'O' AND 'P' ON SHEET 9
4. TRACK WALK AND HYDROSEED IN ACCORDANCE WITH PROJECT SPECIFICATIONS
5. INSTALL EROSION CONTROL BLANKETS, HYDRAULIC MULCH, AND HYDROSEED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'A' ON SHEET 4
6. INSTALL ASPHALT CROSS GUTTER IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'H' ON SHEET 6
7. INSTALL SOIL CEMENT PAVEMENT IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'D' ON SHEET 4 AND SHEET 17
8. CONSTRUCT A.C. SWALE IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'M' ON SHEET 7
9. INSTALL 15" CMP OVERSLOPE DOWNDRAIN IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND CDOT STANDARD PLAN D87A
10. ADD ADDITIONAL COVER TO TOP DECK AND SOUTH C4P3 IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND SHEETS 13 AND 14
11. INSTALL BENCH CROSSING AND DOWNDRAIN IN ACCORDANCE WITH PROJECT SPECIFICATIONS, DETAIL 'C' & 'E' ON SHEET 4 & 5, AND RCFC STANDARD DETAIL CH333
12. INSTALL TEMPORARY PROTECTIVE MEMBRANE OVER EXPOSED SLOPES IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'J' ON SHEET 7
13. INSTALL SPLASH WALL IN ACCORDANCE WITH PROJEC SPECIFICATIONS AND DETAIL 'G' ON SHEET 6
14. REGRADE BENCHES FOR POSITIVE DRAINAGE IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND SHEETS 15, 16, AND 17
15. INSTALL EARTHEN BERM ALONG TOP DECK IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'B' ON SHEET 4
16. INSTALL 20" HDPE CULVERT AND HEADWALLS WITH WARPED WINGWALLS IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'I' ON SHEET 6 AND CDOT STANDARD DETAIL D86A
17. CONSTRUCT SHOTCRETE DRAINAGE SWALE ALONG BRIAN'S ROAD IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'L' ON SHEET 7
18. INSTALL A.C. DRAINAGE AND ACCESS RAMP IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'O' ON SHEET 7
19. INSTALL BASIN SKIMMERS IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND FAIRCLOTH SKIMMER DETAIL SHEET
20. CONSTRUCT SHOTCRETE LINING OF SIDESLOPES IN ACCORDANCE WITH PROJECT SPECIFICATIONS
21. REPAIR SKIMMER COUPLING IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'N' ON SHEET 8
22. INSTALL 12" THICK 3" MINUS AGGREGATE BASE ROAD IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DETAIL 'K' ON SHEET 7
23. INSTALL 28" HDPE CULVERT AND DOWNDRAIN IN ACCORDANCE WITH PROJECT SPECIFICATIONS
24. EXCAVATE LOOSE SOIL IN SEDIMENTATION BASINS ACCORDANCE WITH PROJECT SPECIFICATIONS AND SHEETS 10, 11, AND 12
25. REMOVE AND HAUL 6" MINUS ROCK TO WET WEATHER PAD IN ACCORDANCE WITH PROJECT SPECIFICATIONS
26. REMOVE LIGHT CLASS AND ½ TON ROCK AND CRUSH AND PULVERIZE IN ACCORDANCE WITH PROJECT SPECIFICATIONS
27. INSTALL GABION BASKETS IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND CDOT STANDARD DETAIL D100A AND D100B



LEGEND

- Existing Ground
- Property Limits
- Edge of Trash Fill (11/10/14)
- Disturbance Limits
- Asphault Concrete Hardscape
- Concrete Hardscape
- Overhead Coverage Structure
- Gas Header Pipe
- Soil Cement Road
- Fiber Rolls
- Splash Wall
- Drainage Swale
- Asphault Ramp
- Erosion Control Blankets with hydraulic mulch and hydroseed
- Hydroseed
- Protective Membrane (Scrim)
- Earthen Berm
- Gabion Baskets with Weir Indicated

REVISIONS	BY	APPRVD	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1"=225' (full), 1"=450' (11"x17")

0 225 450 675 900 1125

Datum is mean sea level. Contours are 10 feet.

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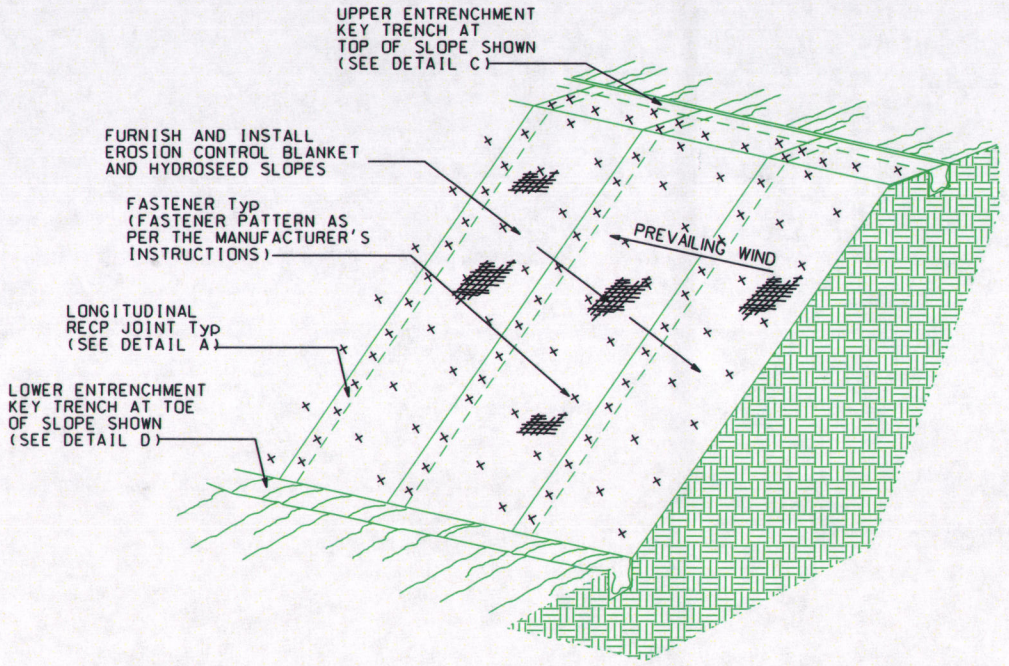
DRAWN BY:	MN/MR
CHECKED BY:	MR/AC
DRAWING DATE:	September 2015
PHOTO DATE:	December 2013
PATH:	waste-r2-s04/sites/Badlands/15ba
PATH:	/Projects/Site Maintenance and Improvements
PATH:	/Maintenance Improvement Map.dgn
Model:	Site Maintenance and Improvement Map

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

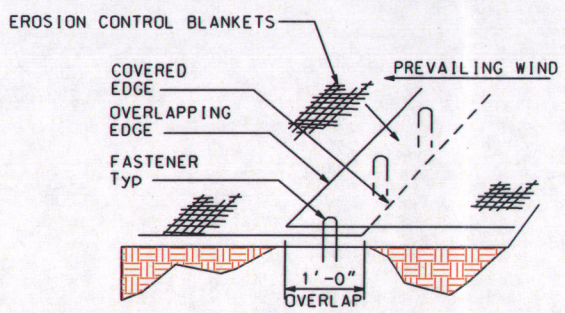
Site Plan

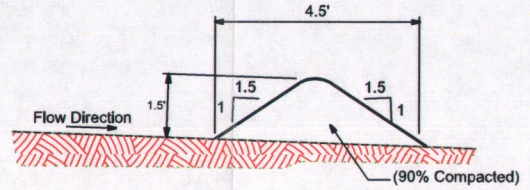


PERSPECTIVE

DETAIL A

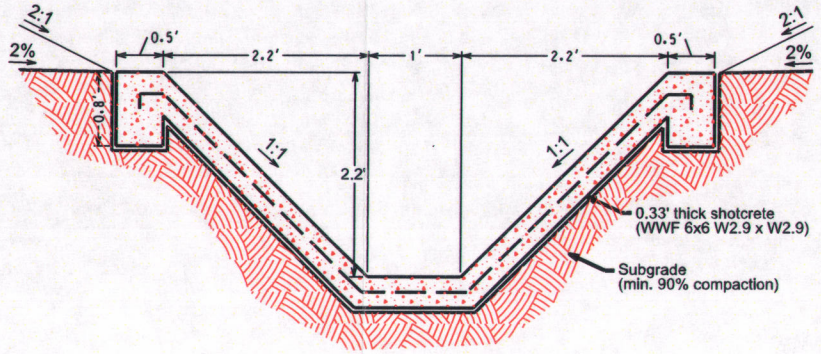
LONGITUDINAL ROLLED EROSION CONTROL PRODUCT JOINT





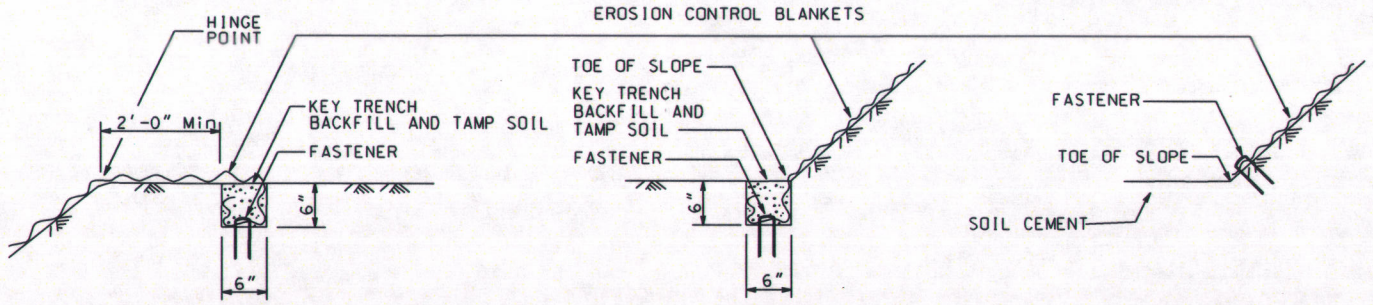
B Diversion Berm Typical Section

Not To Scale



C Concrete Downdrain

Not To Scale



SECTION

DETAIL C

KEY TRENCH AT TOP OF SLOPE

SECTION

DETAIL D

KEY TRENCH AT TOE OF SLOPE

SECTION

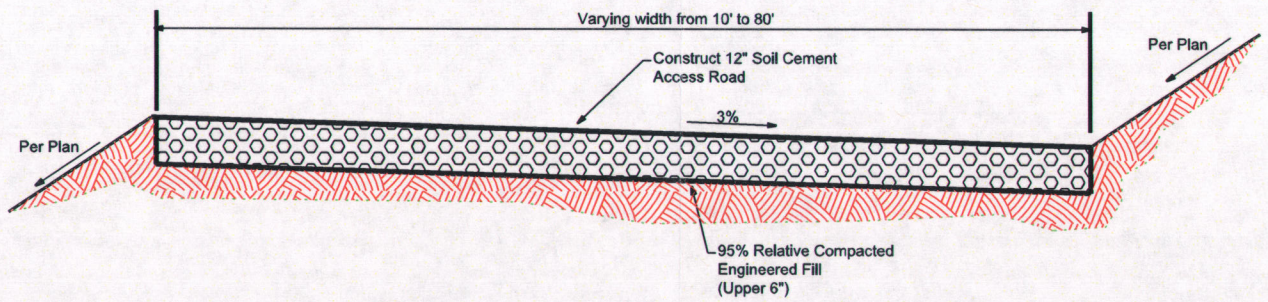
DETAIL E

TERMINATION AT SOIL CEMENT

A Rolled Erosion Control Blankets

Per Caltrans Standard Plans H52

Not To Scale



D Soil Cement Road Section Detail

Not To Scale

NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

NTS

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DRAWING DATE:	Sept 2015
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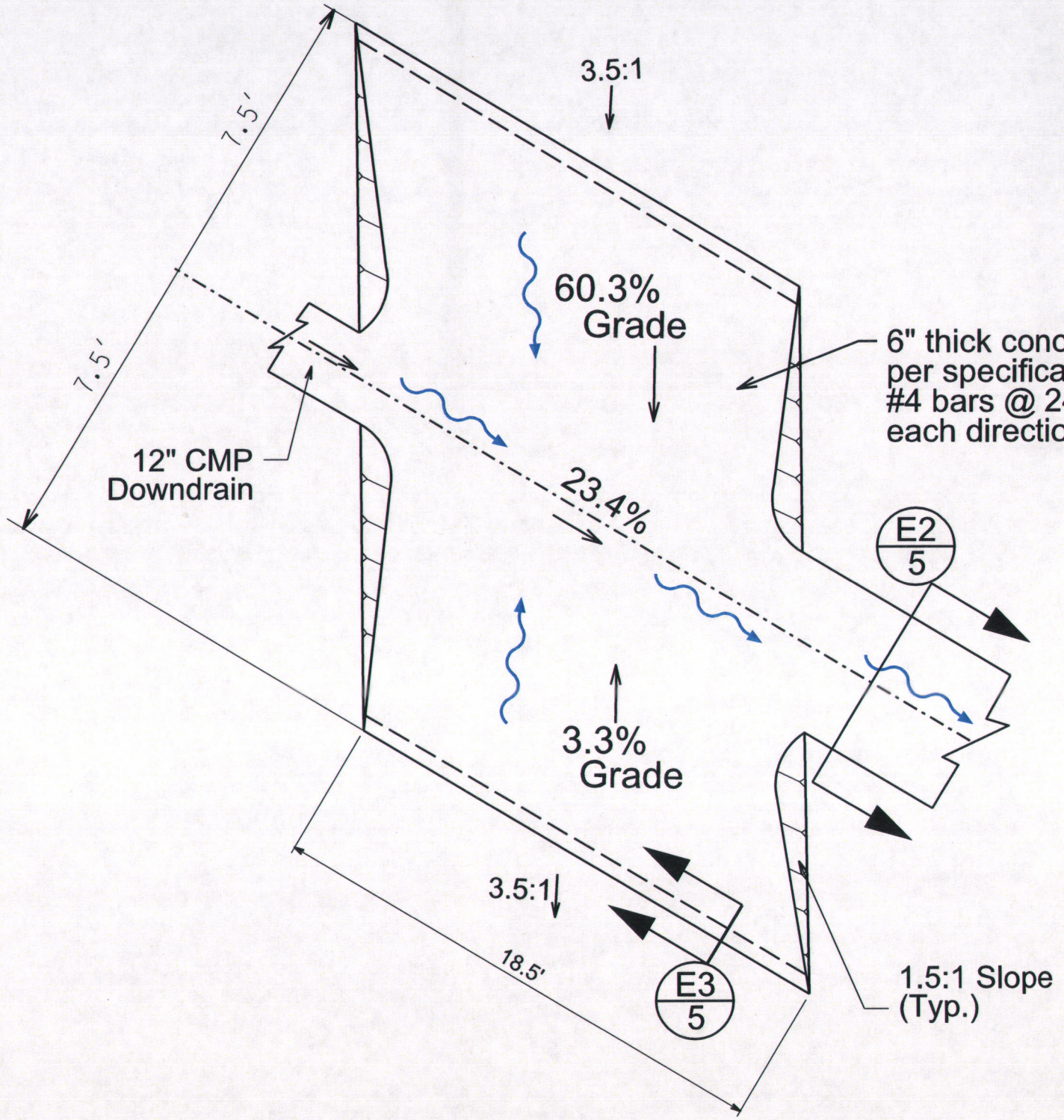
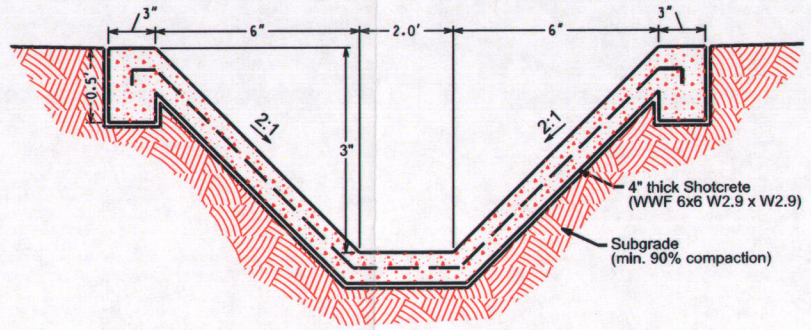
SCALE:	NTS
PATH:	engineering\sites\Badlands\15 ba\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Maintenance Improvement Details.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

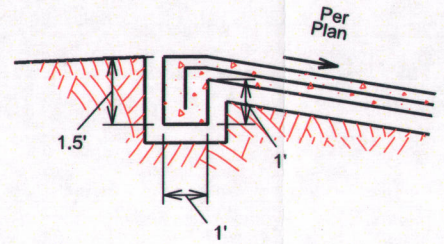
Construction Details



E1 Canyon 6 Bench Crossing
Not To Scale



E2 Canyon 6 Shotcrete Downdrain
Not To Scale



E3 Bench Crossing Footing
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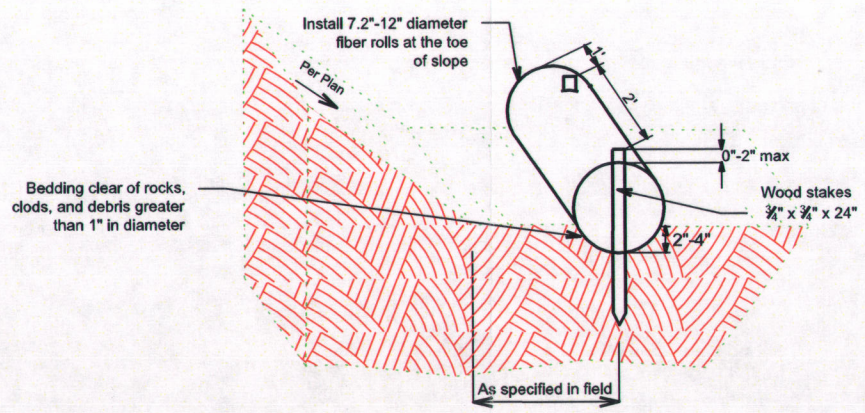

F Install Fiber Rolls
Not To Scale

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RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager/Chief Engineer
NTS

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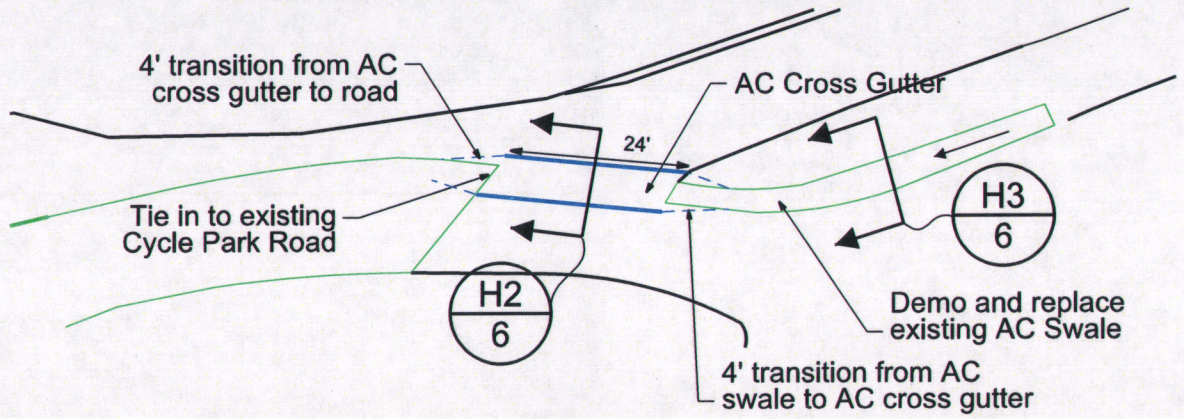
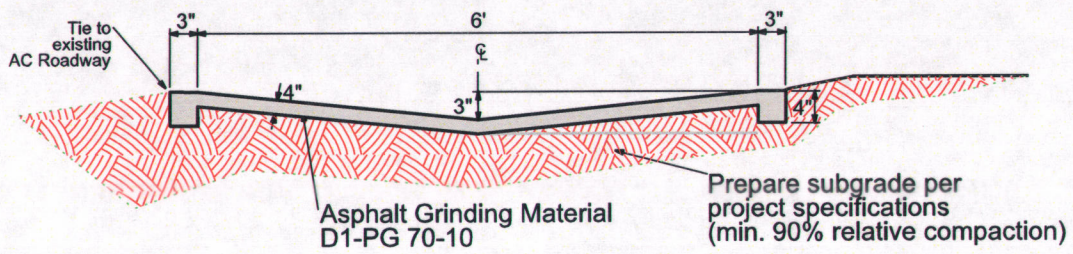
Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

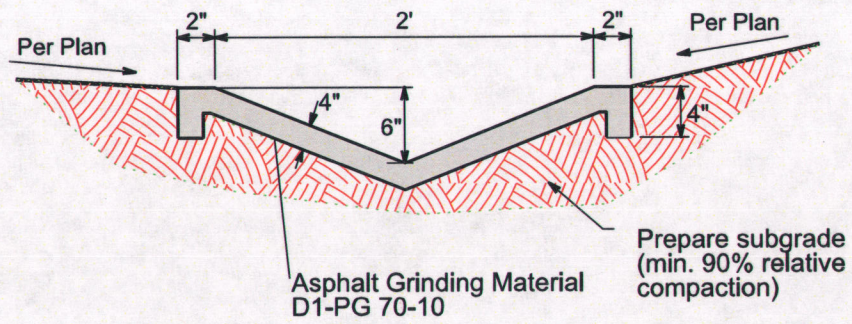
Construction Details



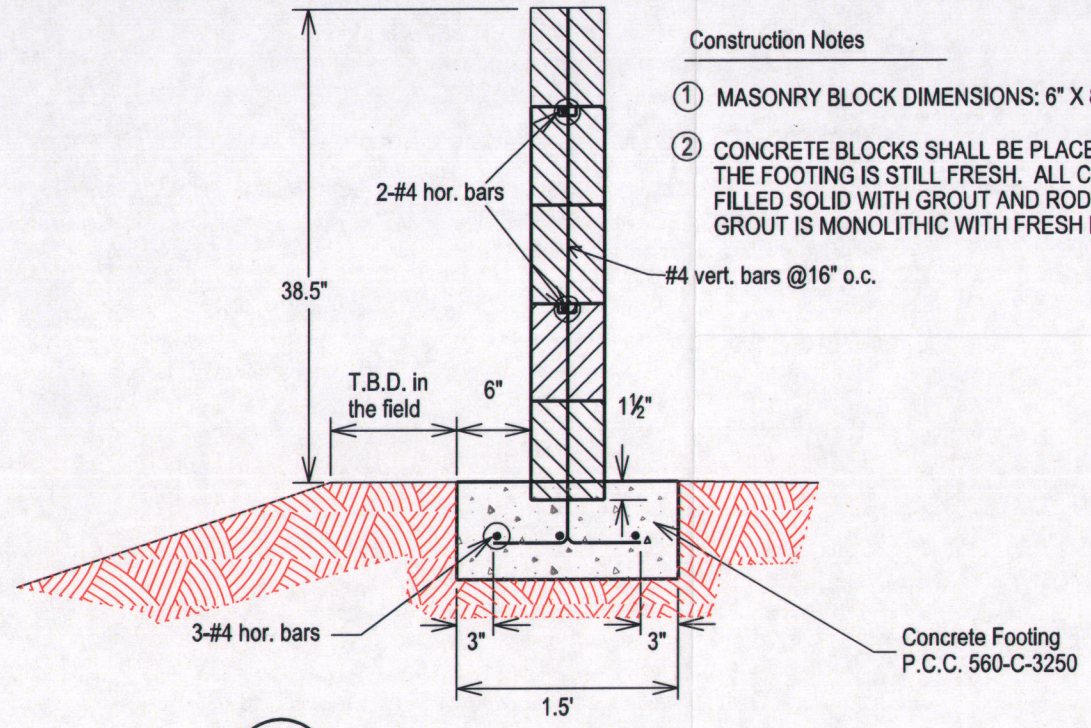
H1 Asphalt Swale/Cross Gutter
Not To Scale



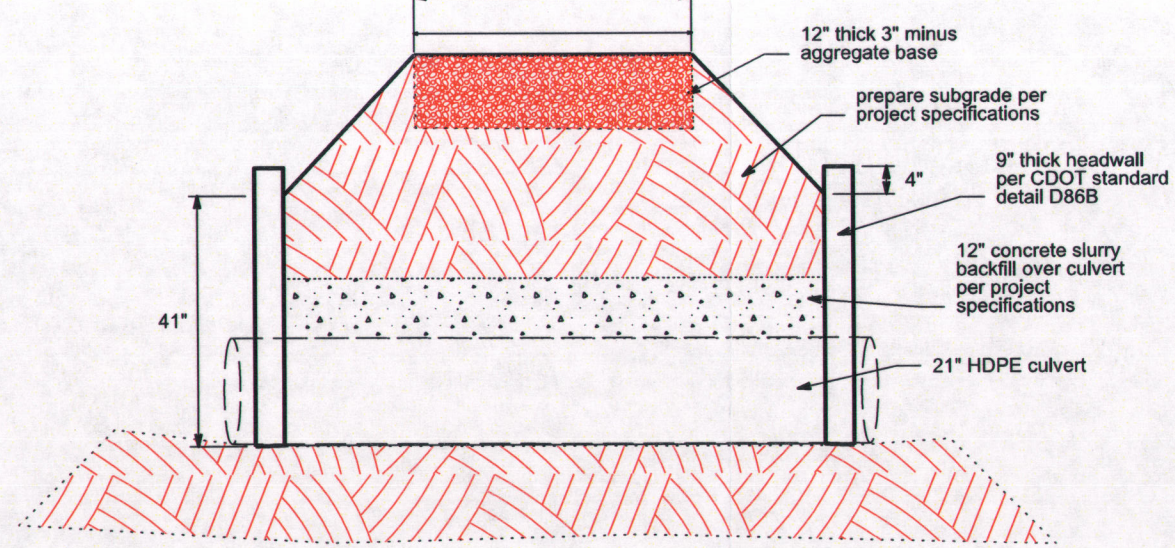
H2 Asphalt Cross Gutter Cross Section
Not To Scale



H3 Asphalt Swale Cross Section
Not To Scale



G Masonry Block Splash Wall
Not To Scale



I Culvert with Headwalls Typical Section
Not To Scale

NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager/Chief Engineer
MTS

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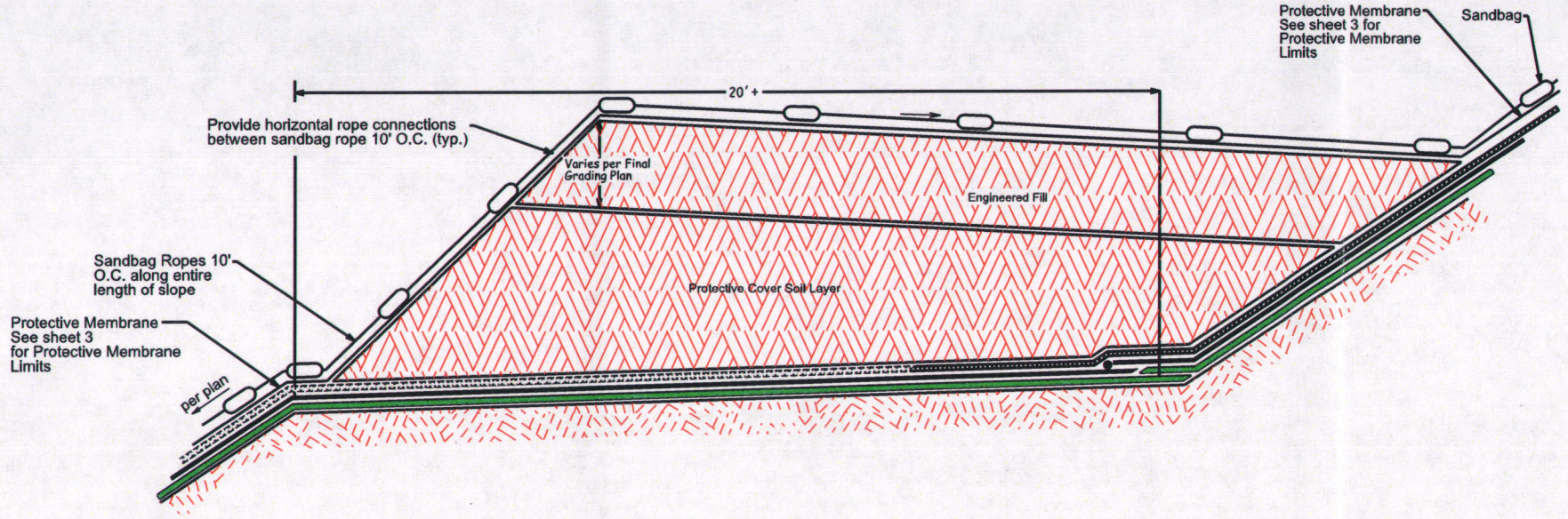
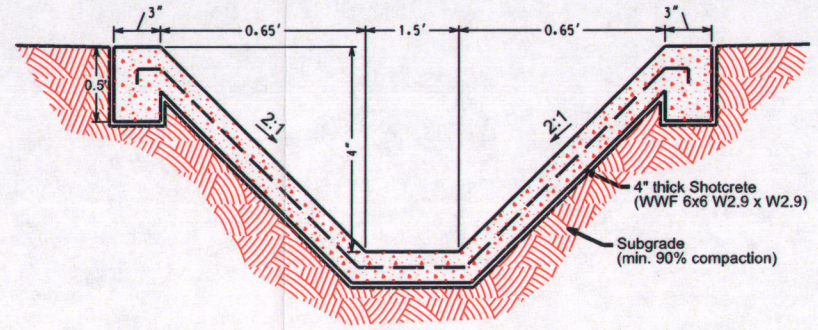
Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Construction Details



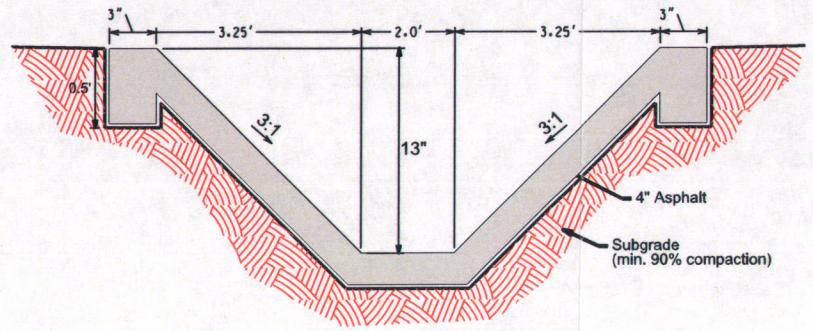
J Protective Membrane Along Benches

Not To Scale



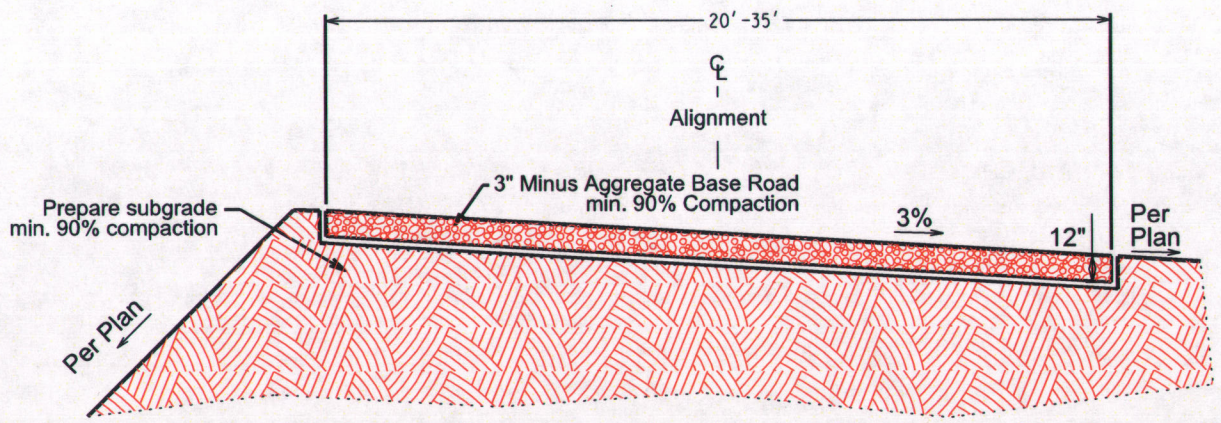
L Brian's Road Shotcrete Drainage Swale

Not To Scale



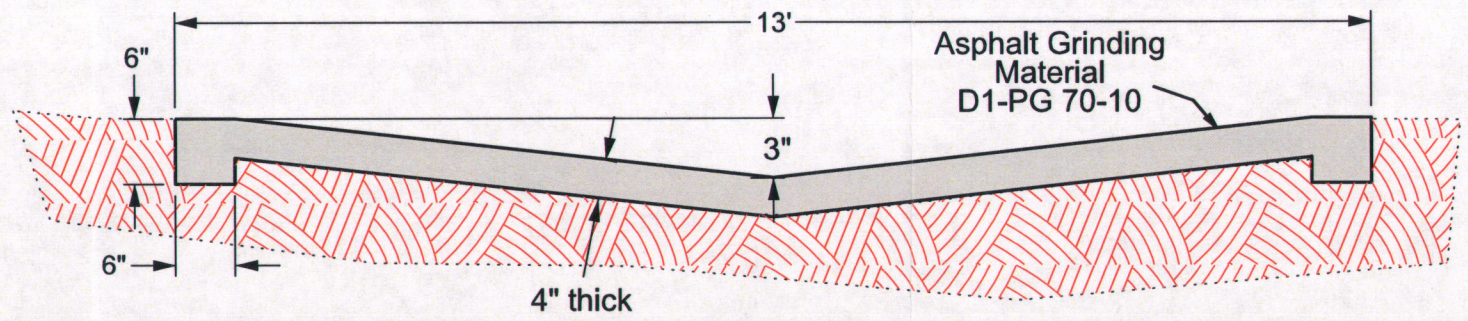
M Asphalt Drainage Swale South of Metal's Area

Not To Scale



K 3" Aggregate Base Typical Section

Not To Scale



Q Asphalt Ramp Crossing Cross Section

Not To Scale

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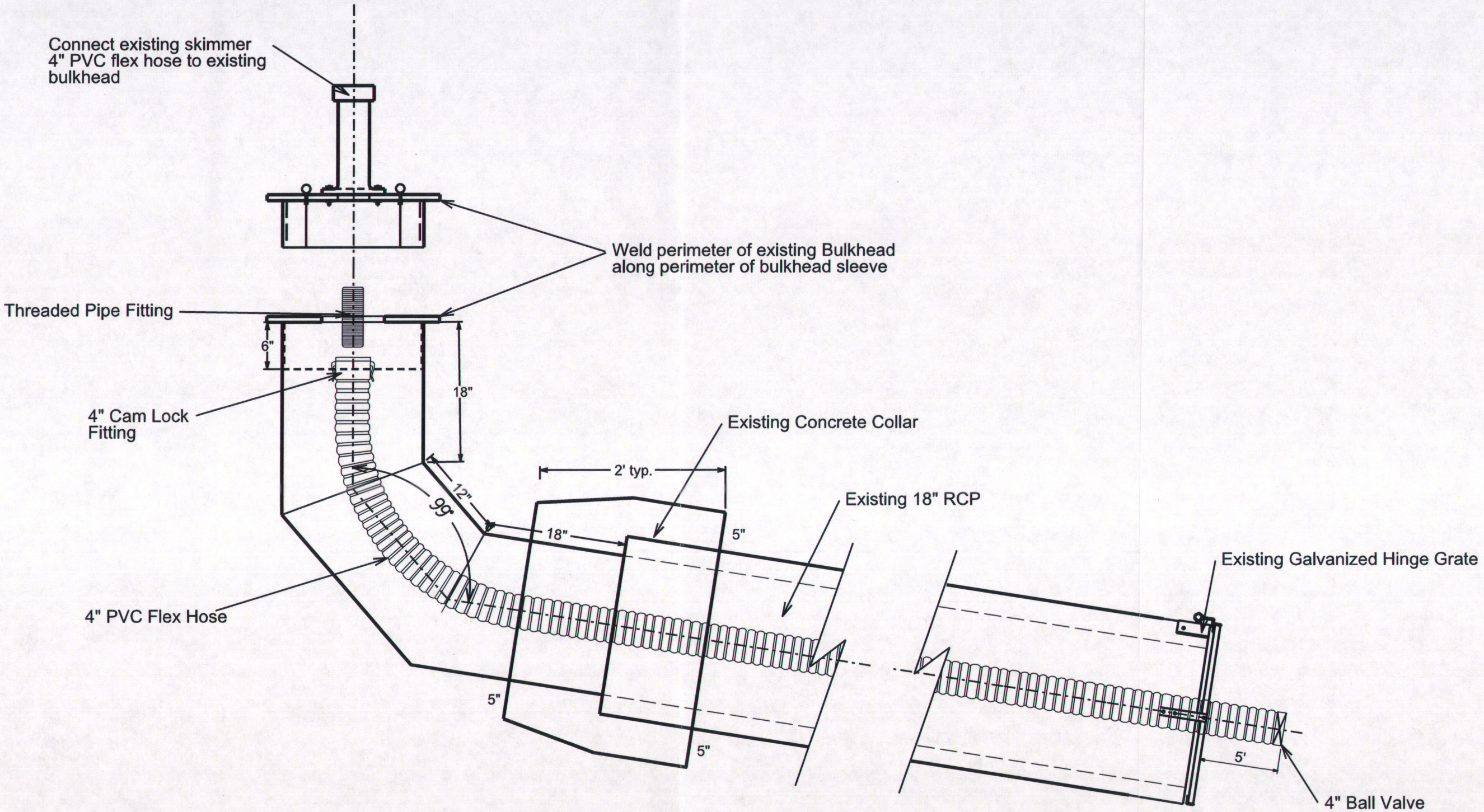
Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Construction Details



N Skimmer to Bulkhead Coupling
Not To Scale

NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager/Chief Engineer
NTS

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PATH:	Site Maintenance and Improvement Project\
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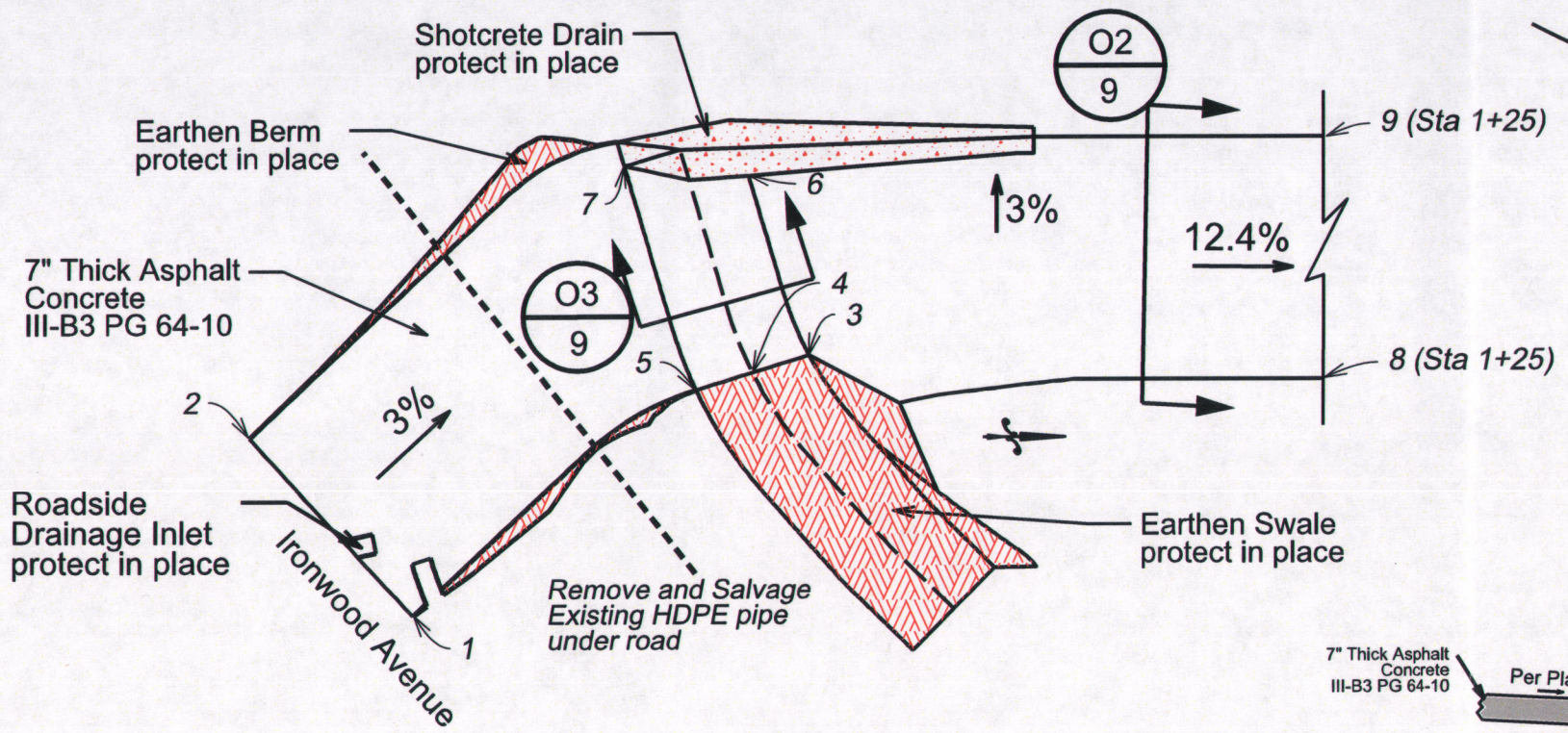
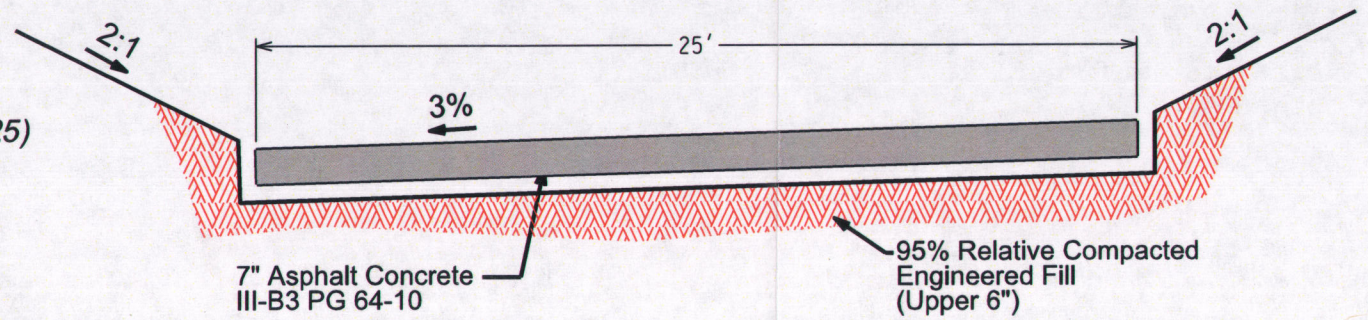
Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015
Construction Details
Skimmer Coupling



O1 Road Section to Western Sed Basin

Not to Scale — Plan View



O2 Typical Road Section to Western Sed Basin

Not to scale

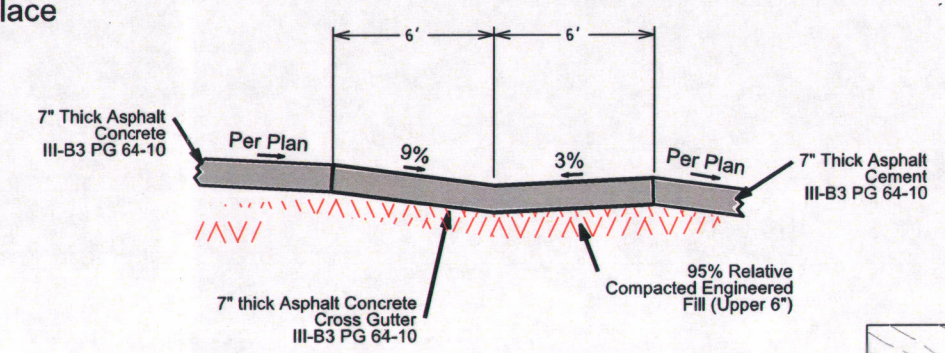
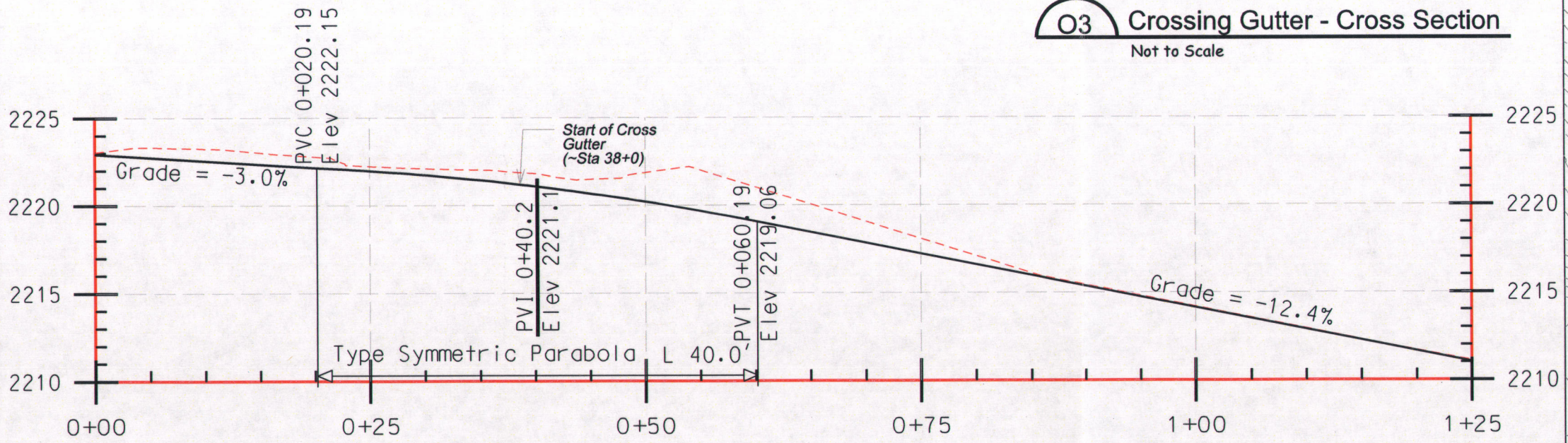


Table of Points

PT	Easting	Northing	Elevation
1	6,296,752.59	2,290,816.90	2222.99
2	6,296,730.35	2,290,803.44	2220.84
3	6,296,730.85	2,290,860.94	2220.79
4	6,296,731.44	2,290,854.88	2220.61
5	6,296,732.02	2,290,848.83	2221.15
6	6,296,711.47	2,290,858.59	2220.04
7	6,296,707.88	2,290,846.24	2220.40
8	6,296,749.02	2,290,936.61	2211.05
9	6,296,724.23	2,290,940.93	2210.30

O3 Crossing Gutter - Cross Section

Not to Scale



P Profile along Access Road to Western Sed Basin

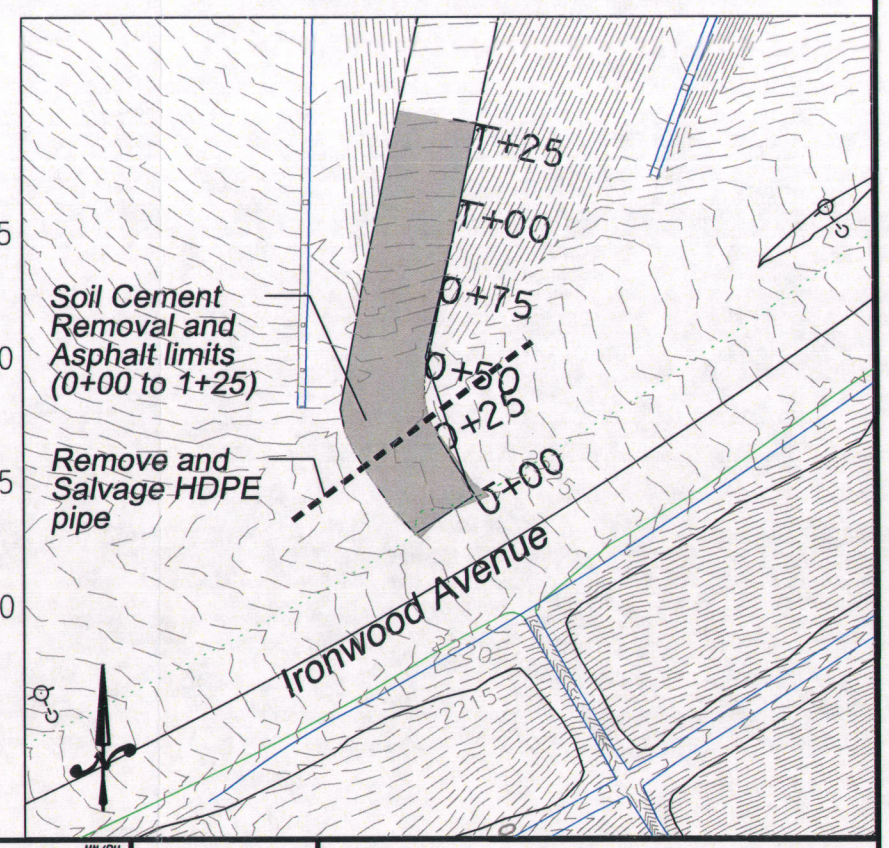
Not to Scale

Legend

- Existing Ground
- Final Road Surface/Grade

Abbreviations

Elev Elevation
PVC Point of Vertical Curvature
PVI Point of Vertical Intersection
PVT Point of Vertical Tangency



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 60

0 30 60 90 120 150

Datum is mean sea level Contour Interval is 1 foot

DESIGNED BY:	MW/BH
DRAWN BY:	MW/BH
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34;1"=30' 11x17;1"=60'
PATH:	engineering\sites\Badlands\ 15 bd\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Western Stockpile Basin Road

SHEET 9 OF 19

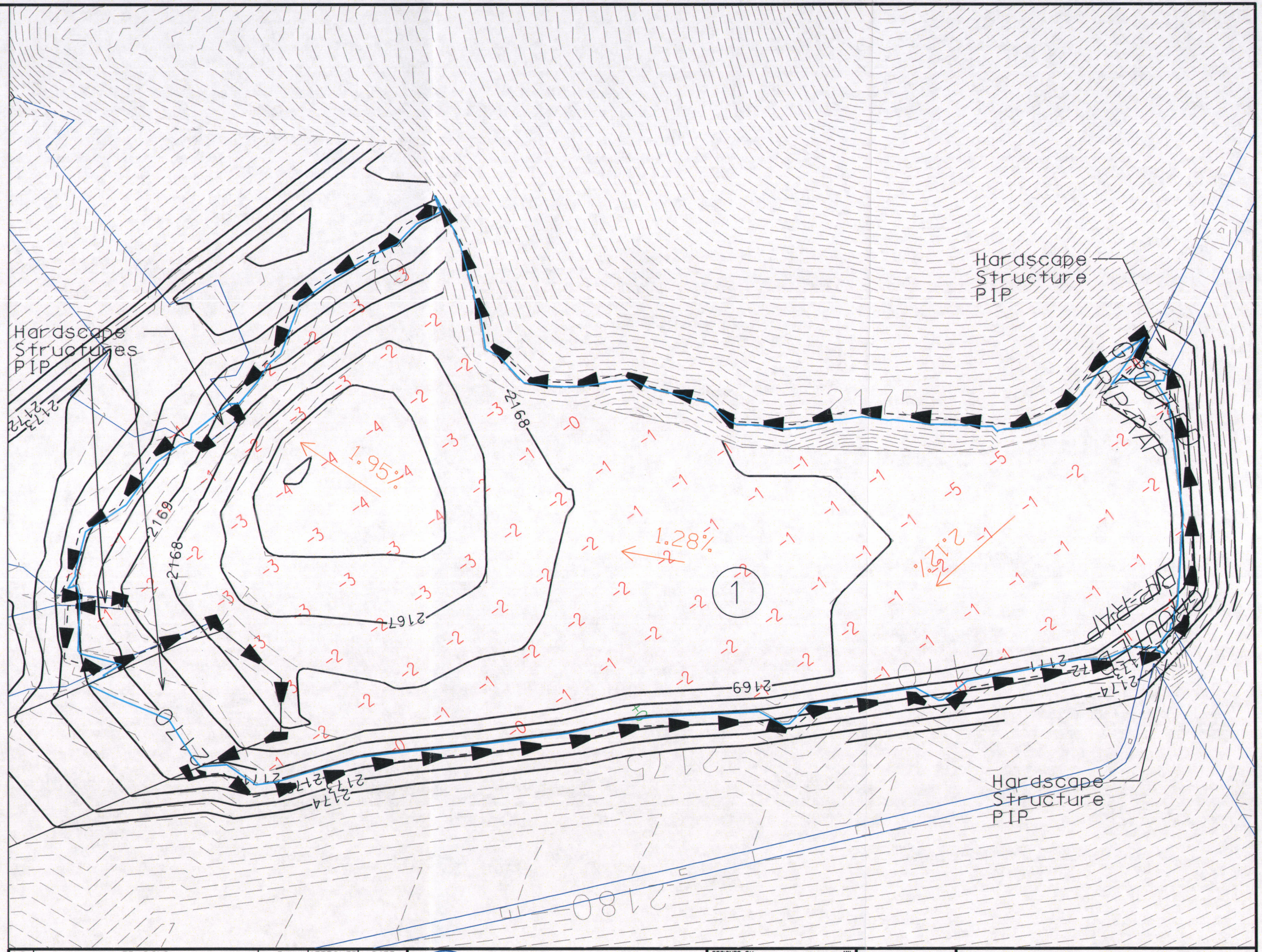
Construction Notes

(1) Excavate to finished design elevations

Cut Volume: 943.5 CY

Legend

- Sedimentation Basin Perimeter
- Grading Limits
- Ground Contours
- Design Contours
- Concrete Drainage Structure
- Access Roads
- PIP — Protect in Place



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 20'

0 10 20 30 40 50

Datum is mean sea level Contour interval is 1 feet

DESIGNED BY:	MN
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CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
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SCALE:	22x34 1"=10' 11x17 1"=20'
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PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Western Sedimentation Basin Grading Plans

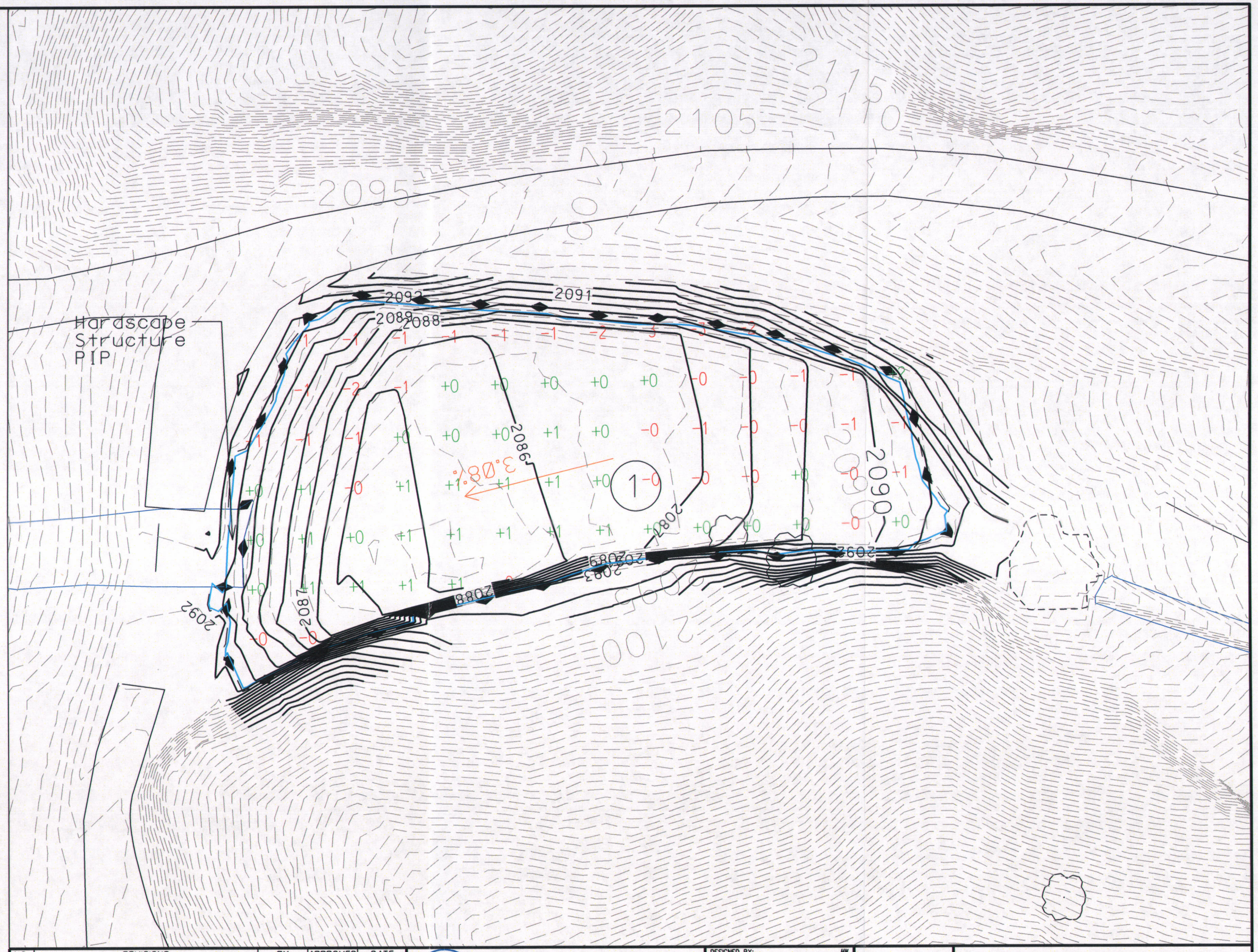
Construction Notes

(1) Excavate to finished design elevations

Cut Volume: 104.8 CY

Legend

- Sedimentation Basin Perimeter
- Grading Limits
- Ground Contours
- Design Contours
- Concrete Drainage Structure
- Access Roads
- PIP — Protect in Place



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 20'

0 10 20 30 40 50

Datum is mean sea level Contour interval is 1 foot

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34:1"=10' 11x17:1"=20'
PATH:	engineering\sites\Badlands\15 bd\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Canyon 6 Sedimentation Basin Grading Plans

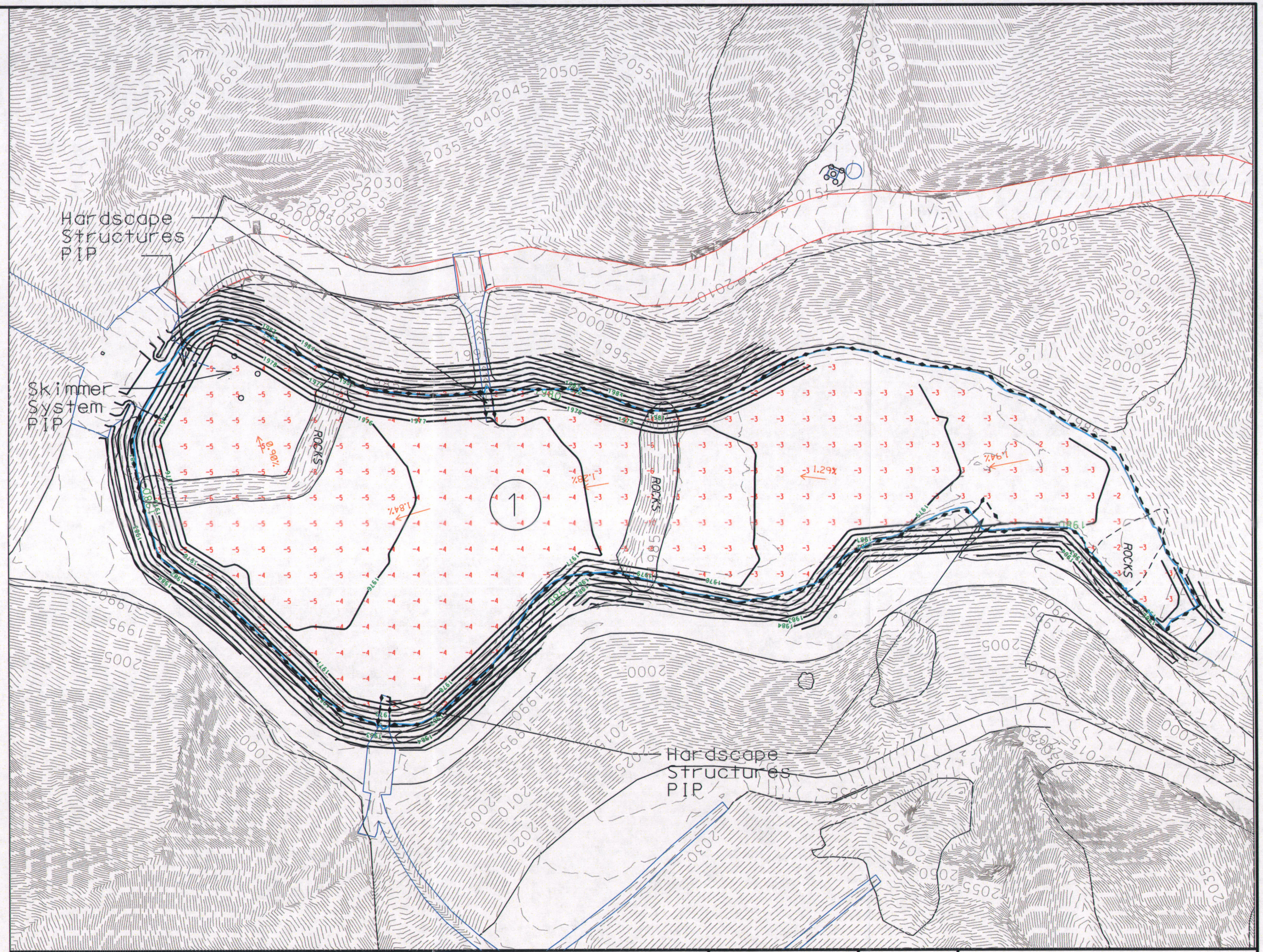
Construction Notes

(1) Excavate to finished design elevations

Cut Volume: 6,156.2 CY

Legend

- Sedimentation Basin Perimeter
- Grading Limits
- Ground Contours
- Design Contours
- Concrete Drainage Structure
- Soil Cement Access Road
- Access Road
- PIP — Protect in Place



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 50'

0 25 50 75 100 125

Datum is mean sea level Contour Interval is 1 foot

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34 1"=25' 11x17 1"=50'
PATH:	engineering\sites\Badlands\ 15 bd\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Southwest Sedimentation Basin Grading Plans

SHEET 12 OF 19

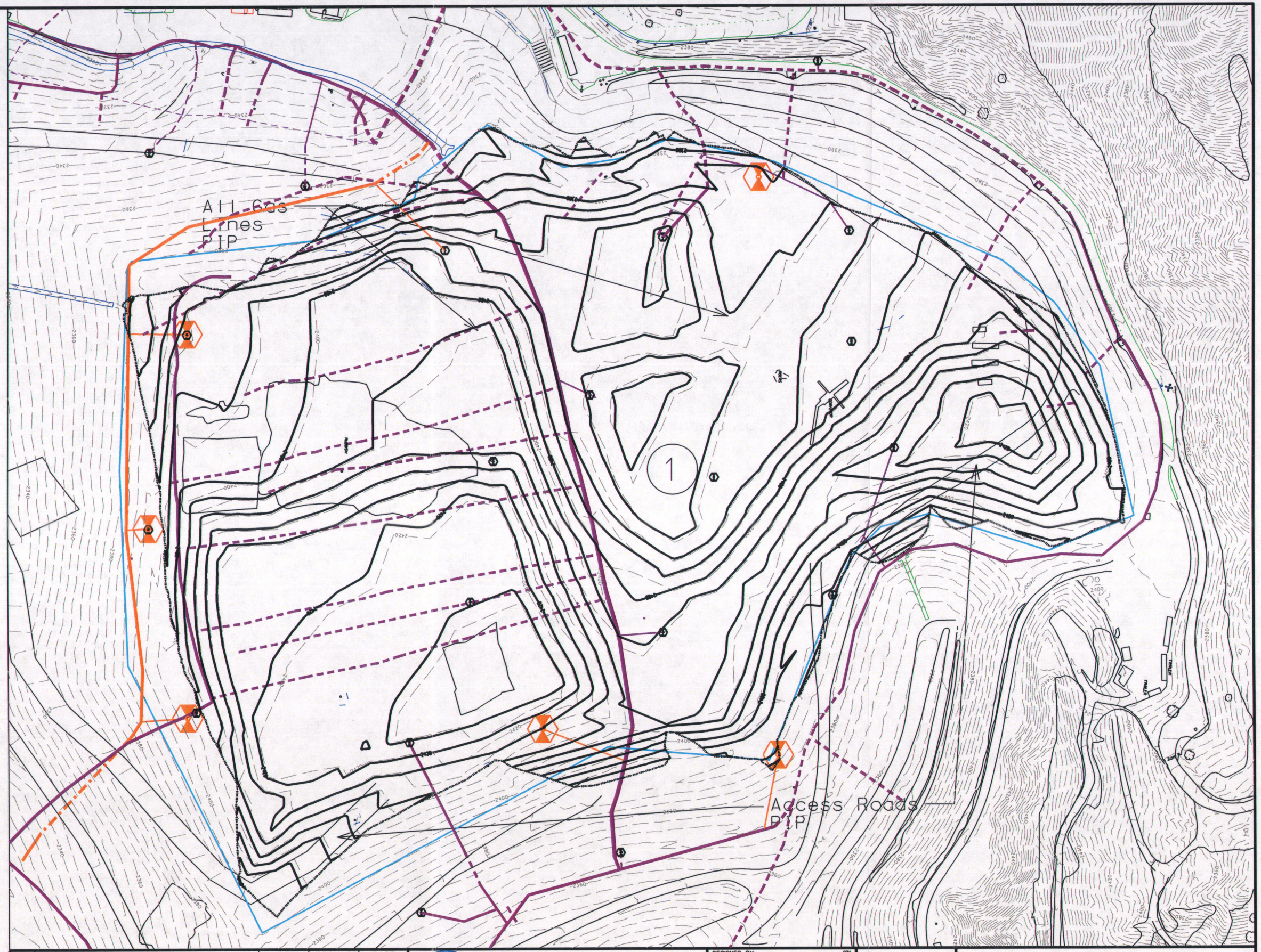
Construction Notes

(1) Place uncontrolled fill to design elevations

Fill Volume:
21,712 - 43,433 CY

Legend

- Top Deck Perimeter
- Top Deck Grading Limits
- Ground Contours
- Design Contours
- Concrete Drainage Structure
- Asphalt Drainage Structure
- Access Roads
- Surface and Burried Gas Lines (PIP)
- Proposed Gas Lines (PIP if built)
- PIP — Protect in Place



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 150'

0 75 150 225 300 375

Datum is mean sea level Contour Interval is 4 feet

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34:1"=75' 11x17:1"=150'
PATH:	engineering\sites\Badlands\ 15 bt\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Top Deck Grading Plans

SHEET 13 OF 19

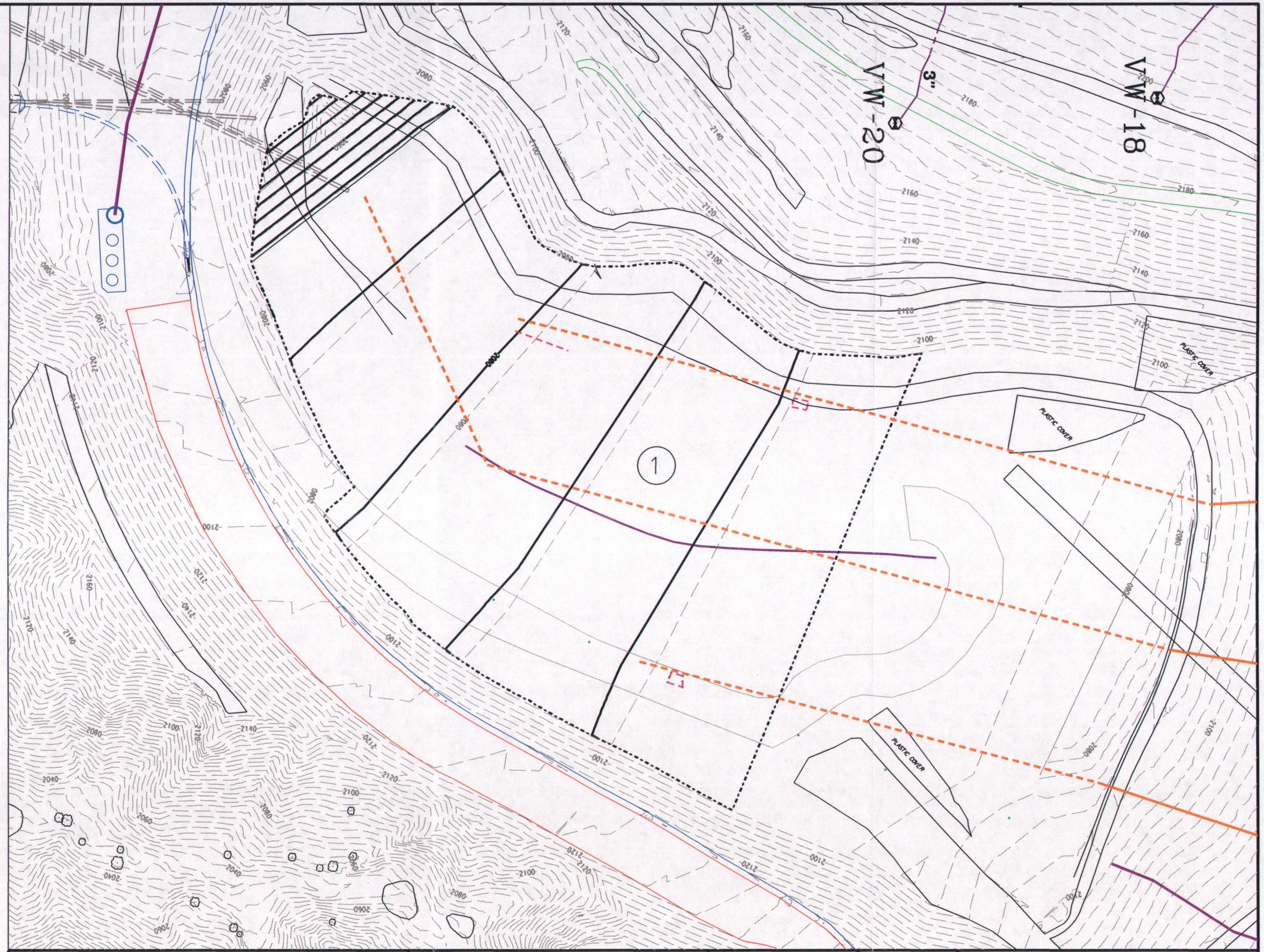
Construction Notes

(1) Place uncontrolled fill to design elevations

Fill Volume:
4,782 - 9,564 CY

Legend

- C4P3 Grading Limits
- Ground Contours
- Design Contours
- Concrete Drainage Structure
- Asphalt Drainage Structure
- Access Roads
- Surface and Burried Gas Lines (PIP)
- Proposed Gas Lines (PIP if built)
- PIP — Protect in Place



NO.	REVISIONS	BY	APPROVED	DATE

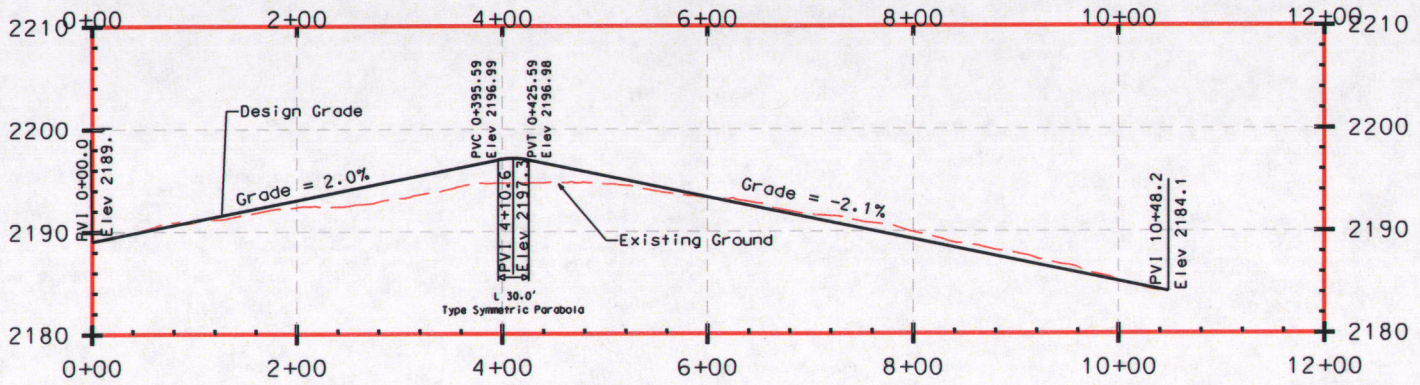
RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 100'
0 50 100 150 200 250
Datum is mean sea level Contour Interval is 4 feet

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34: 1"=75' 11x17: 1"=150'
PATH:	engineering\sites\Badlands\15 bd\projects\
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

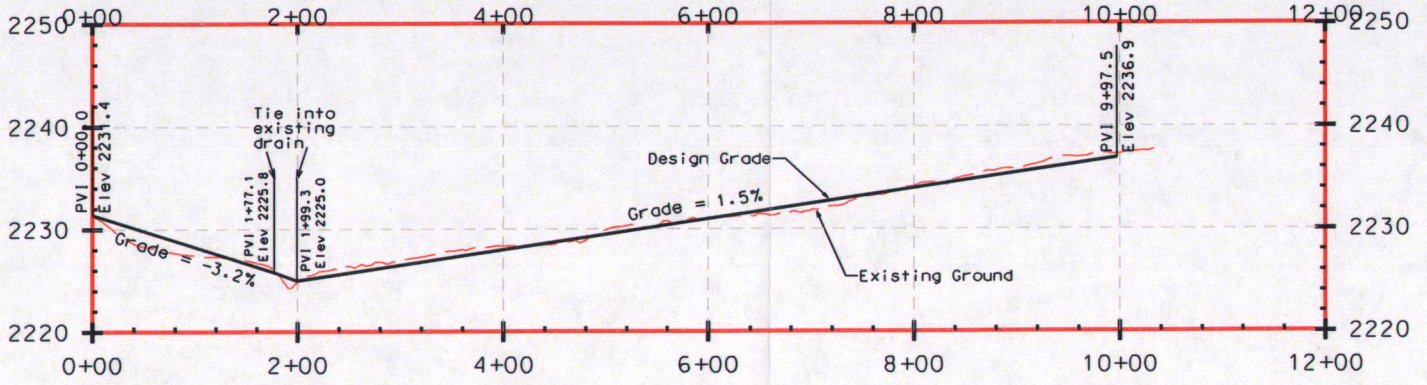
Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

South C4P3 Grading Plans



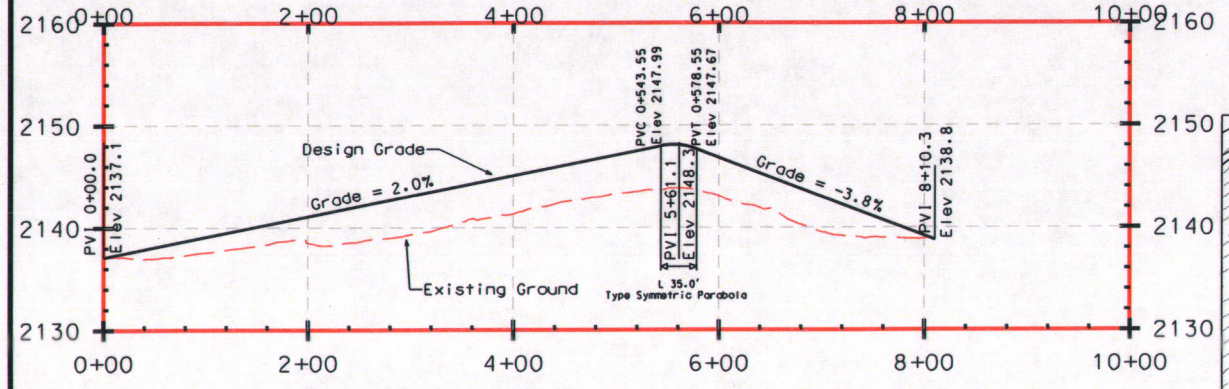
B Profile along Alignment of Bench 10

Not to Scale



C Profile along Alignment of Bench 11

Not to Scale



A Profile along Alignment of Bench 9

Not to Scale

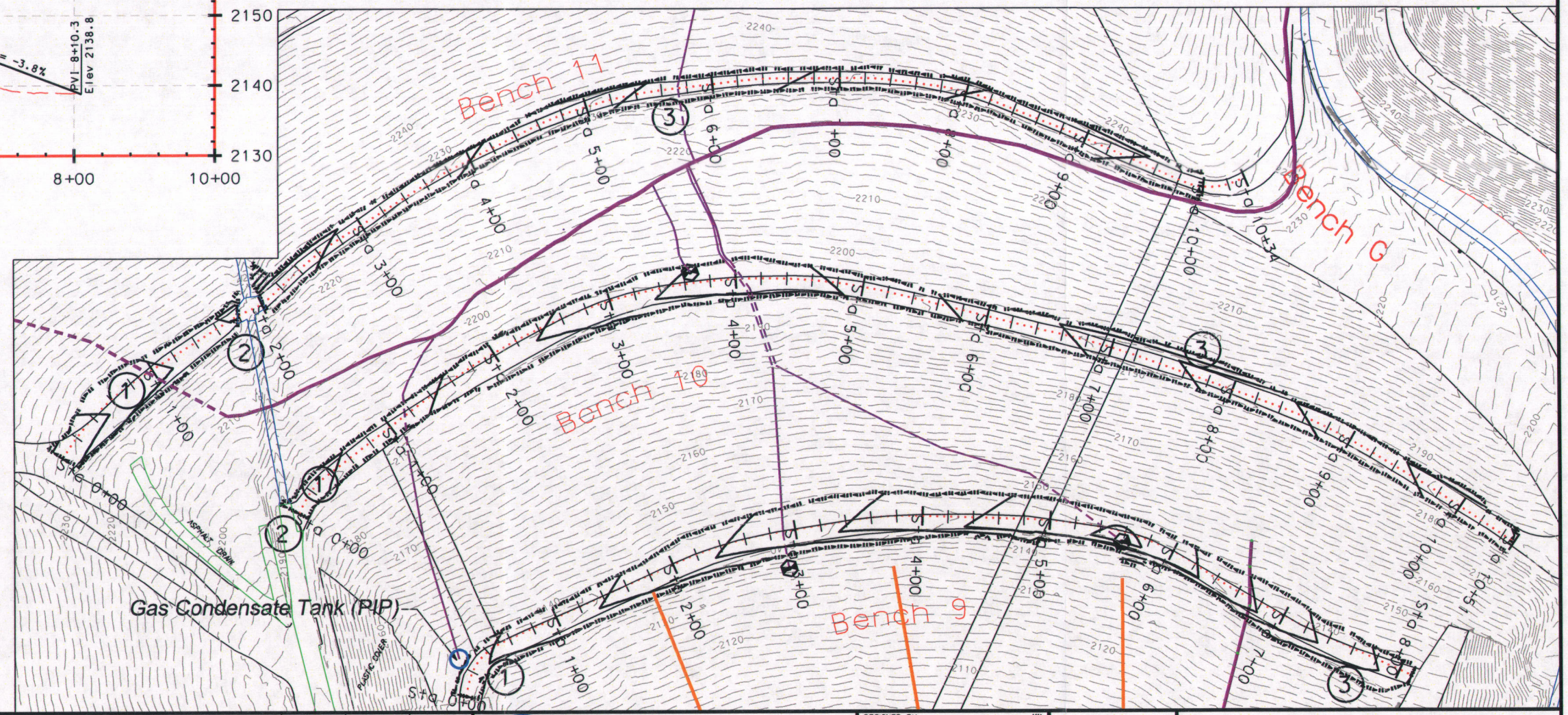
	Fill (CY)	Cut (CY)	Net (CY)
Bench 9	1,826.6	14.7	-1,811.9
Bench 10	413.3	243.4	-170.0
Bench 11	155.5	289.5	134.1
Total	2,395.4	547.6	-1,847.8

Construction Notes

1. Place engineered fill on Bench 9, 10, and 11
2. Protect drainage structures in place
3. Tie-in grading slope to existing

Legend

- Grading Limits
- Ground Contours
- Design Contours
- Bench Centerline
- Concrete Drainage Structure (PIP)
- Asphalt Drainage Structure (PIP)
- Surface and Burried Gas Lines (PIP)
- Proposed Gas Lines (PIP if built)



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 100'

0 50 100 150 200 250

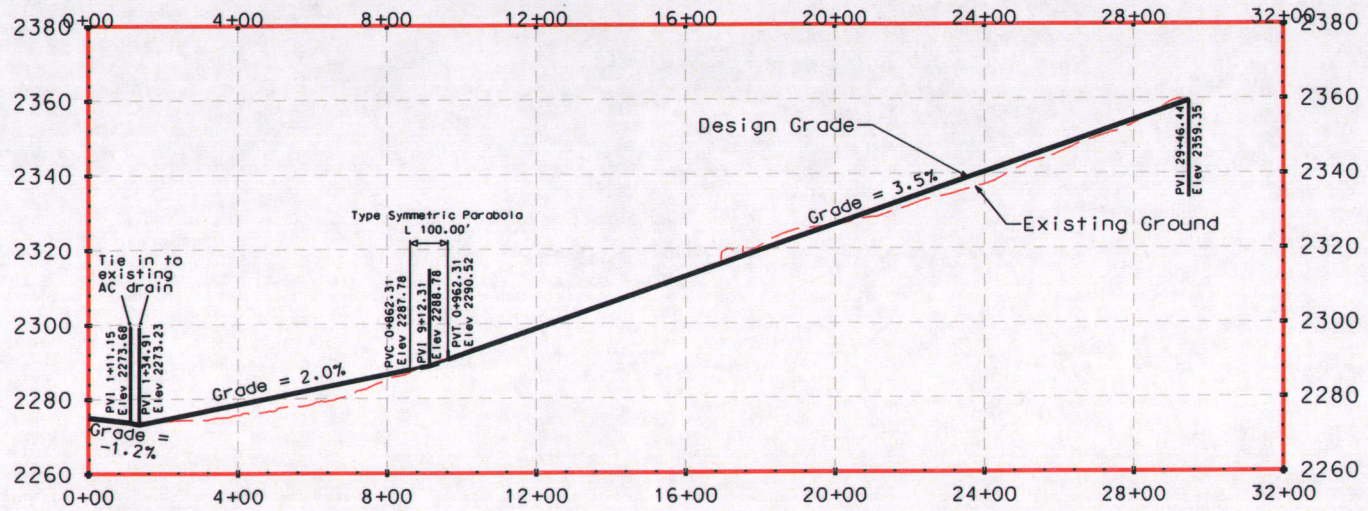
Datum is mean sea level Contour Interval is 2 foot

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34:1"=50' 11x17:1"=100'
PATH:	engineering\sites\Badlands\15 bd\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

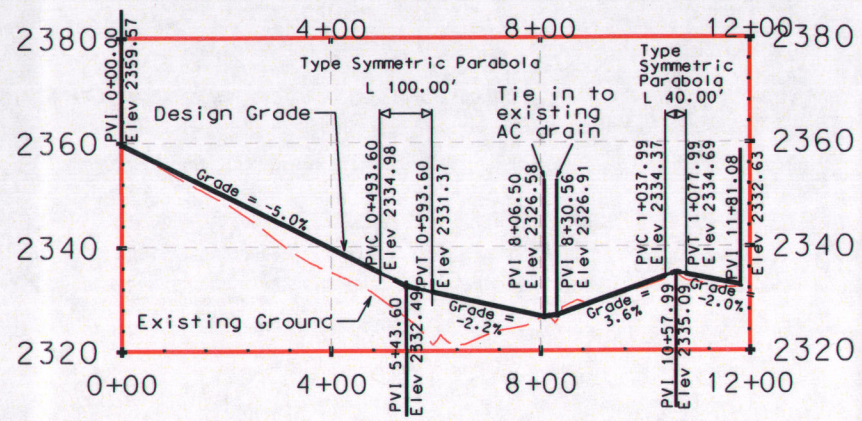
Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Bench 9, 10, and 11 Grading Plans

SHEET 15 OF 19



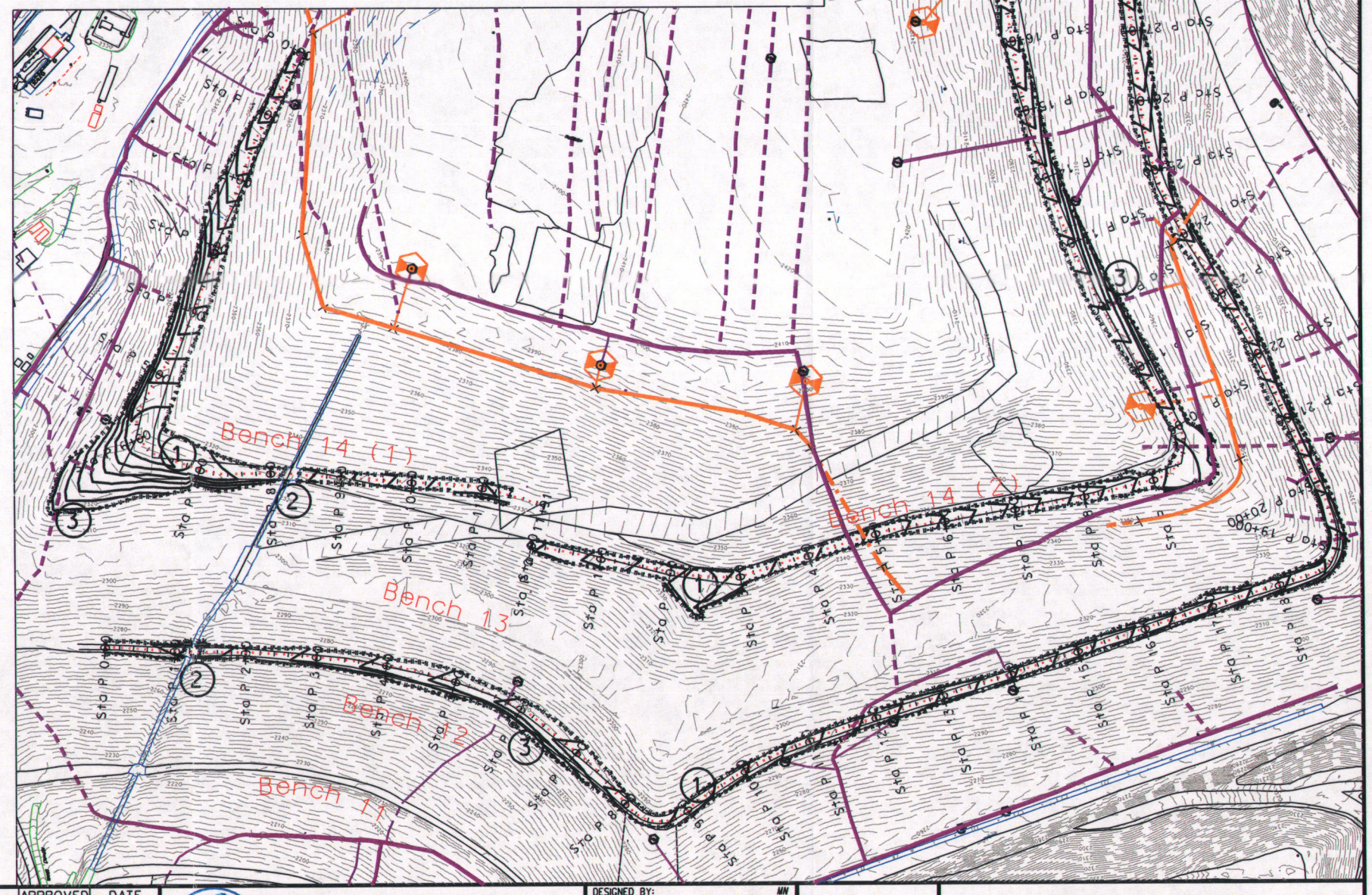
A Profile along Alignment of Bench 12
Not to Scale



B Profile along Alignment of Bench 14 (1)
Not to Scale

C Profile along Alignment of Bench 14 (2)
Not to Scale

	Fill (CY)	Cut (CY)	Net (CY)
Bench 12	2,494.7	783.8	-1,710.9
Bench 14 (1)	4,979.1	146.6	-4,832.5
Bench 14 (2)	1,675.3	484.4	-1,190.8
Total	9,148.3	1,414.8	-7,734.2



Legend

- Grading Limits
- Ground Contours
- Design Contours
- Bench Centerline
- Concrete Drainage Structure (PIP)
- Asphalt Drainage Structure (PIP)
- Surface and Burried Gas Lines (PIP)
- Proposed Gas Lines (PIP if built)

Construction Notes

1. Place engineered fill on Bench 12, 14 (1) and 14 (2)
2. Protect drainage structures in place
3. Tie-in graded slope to existing

NO.	REVISIONS	BY	APPROVED	DATE

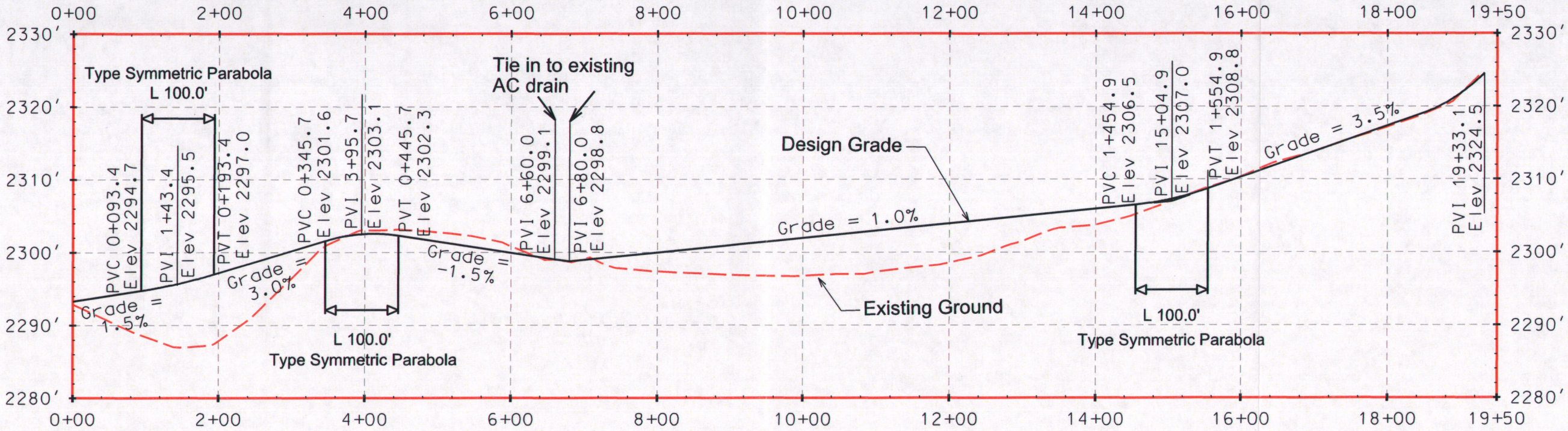
RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 200'
0 100 200 300 400 500
Datum is mean sea level Contour interval is 2 foot

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34:1"=100' 11x17:1"=200'
PATH:	engineering\sites\Badlands\15 ba\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015
Bench 12 and 14 Grading Plans

SHEET 16 OF 19



A Profile along Alignment of Bench 13
Not to Scale

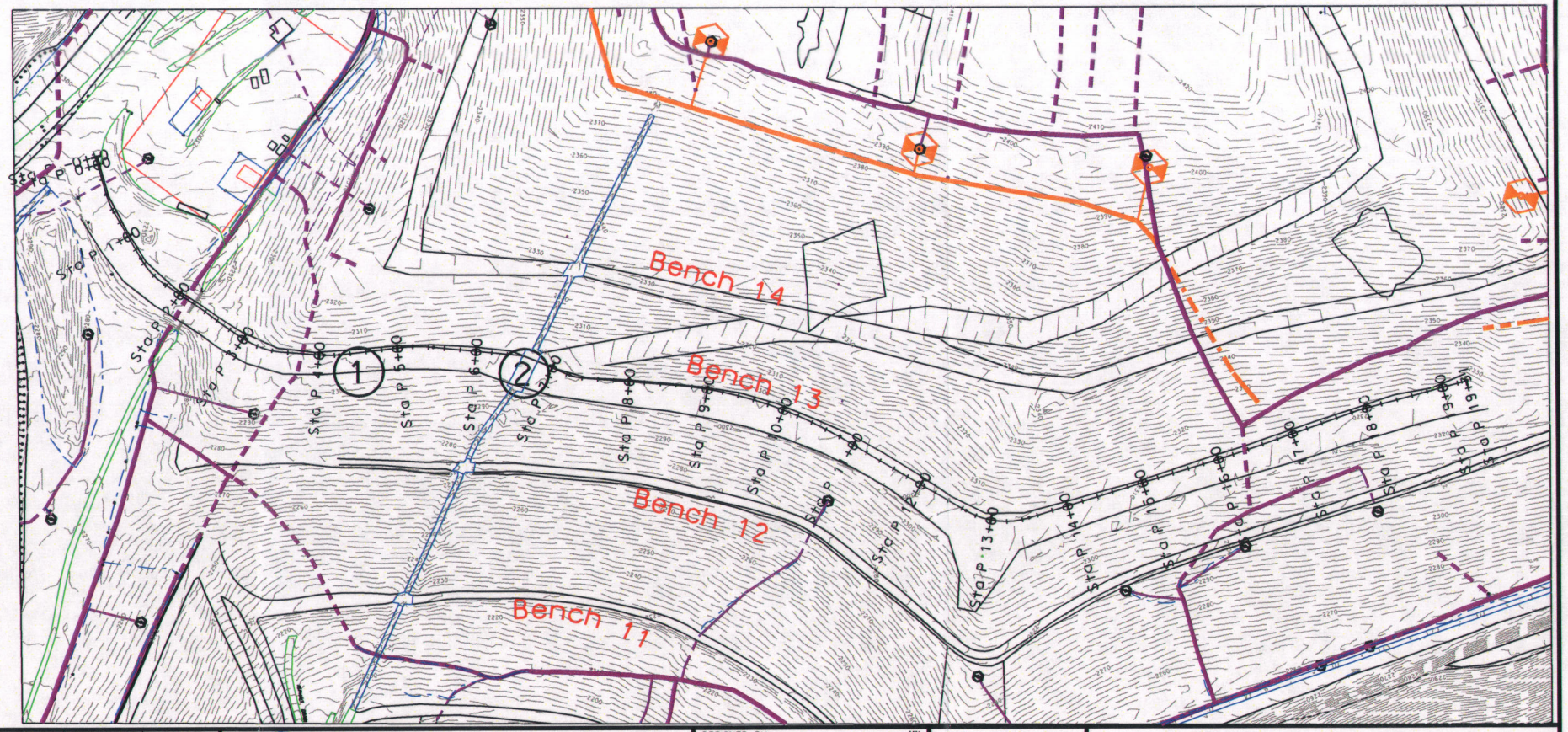
Construction Notes

1. Place engineered fill on Bench 13
2. Protect drainage structures in place

Legend

- Grading Limits
- Ground Contours
- Design Contours
- Concrete Drainage Structure (PIP)
- Asphalt Drainage Structure (PIP)
- Surface and Burried Gas Lines (PIP)
- Proposed Gas Lines (PIP if built)

Bench 13: -8,816 CY
(Net)



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager/Chief Engineer

Scale: 1" = 200'
0 100 200 300 400 500
Datum is mean sea level Contour Interval is 2 foot

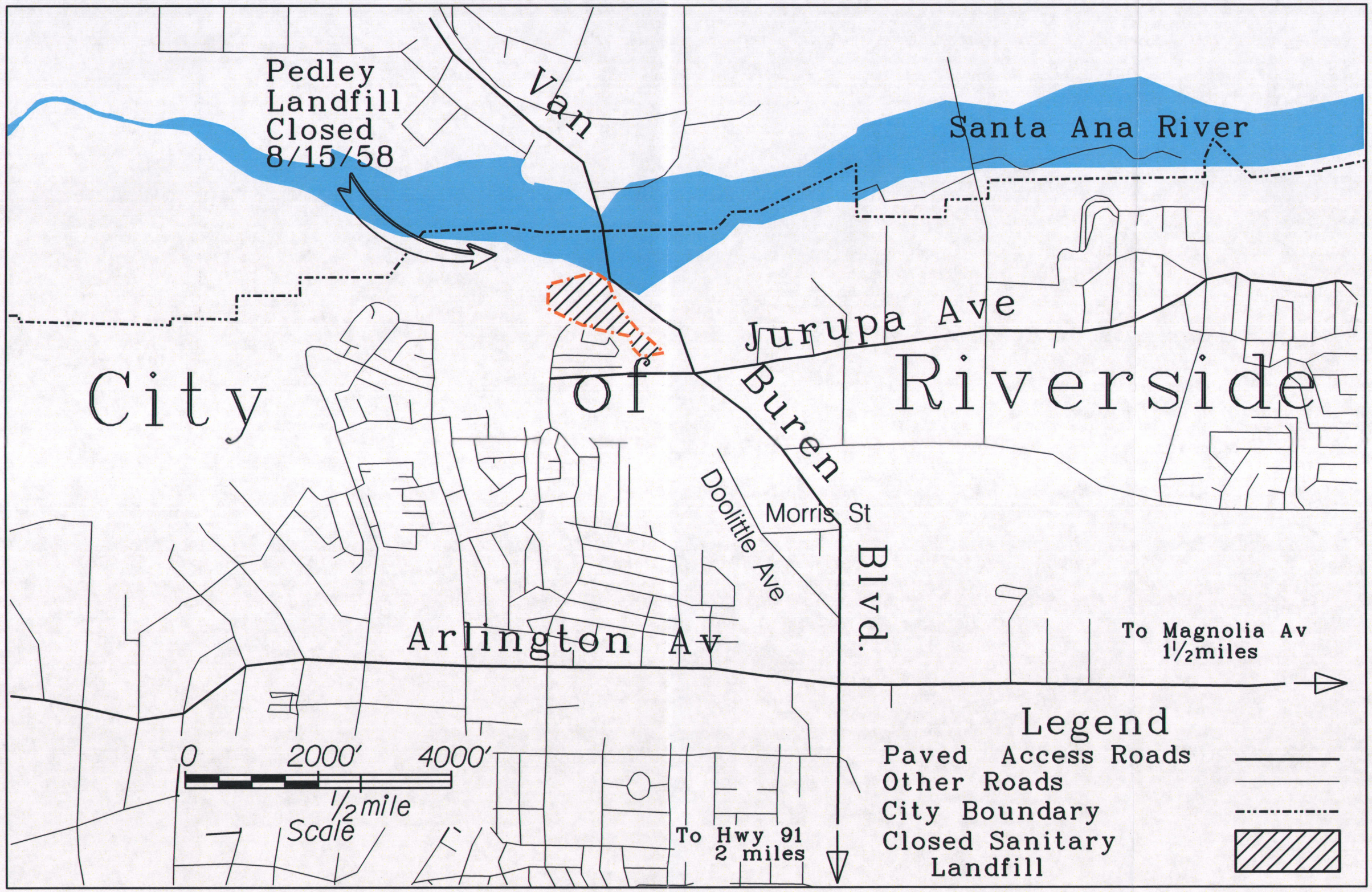
DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	July 2015
SCALE:	22x34:1"=100' 11x17:1"=200'
PATH:	engineering\sites\Badlands\ 15 bd\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Grading\Grading Plans.dgn

Badlands Sanitary Landfill
Site Maintenance and Improvements
September 2015

Bench 13
Grading Plan for Soil Cement

SHEET 17 OF 19

Pedley Closed Landfill
Vicinity Map



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

Hans Kernkamp, General Manager/Chief Engineer

Scale: 1"=800' (full), 1"=1600' (11"x17")

0 800' 1600' 2400' 3200' 4000'

Datum is mean sea level. Contours are 10 feet.

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	-
SCALE:	NTS
PATH:	engineering\sites\Badlands\ 15 bd\projects\
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Pedley\Pedley_Exhibits.dgn

Pedley Sanitary Landfill
Site Maintenance and Improvements
September 2015

Vicinity Map

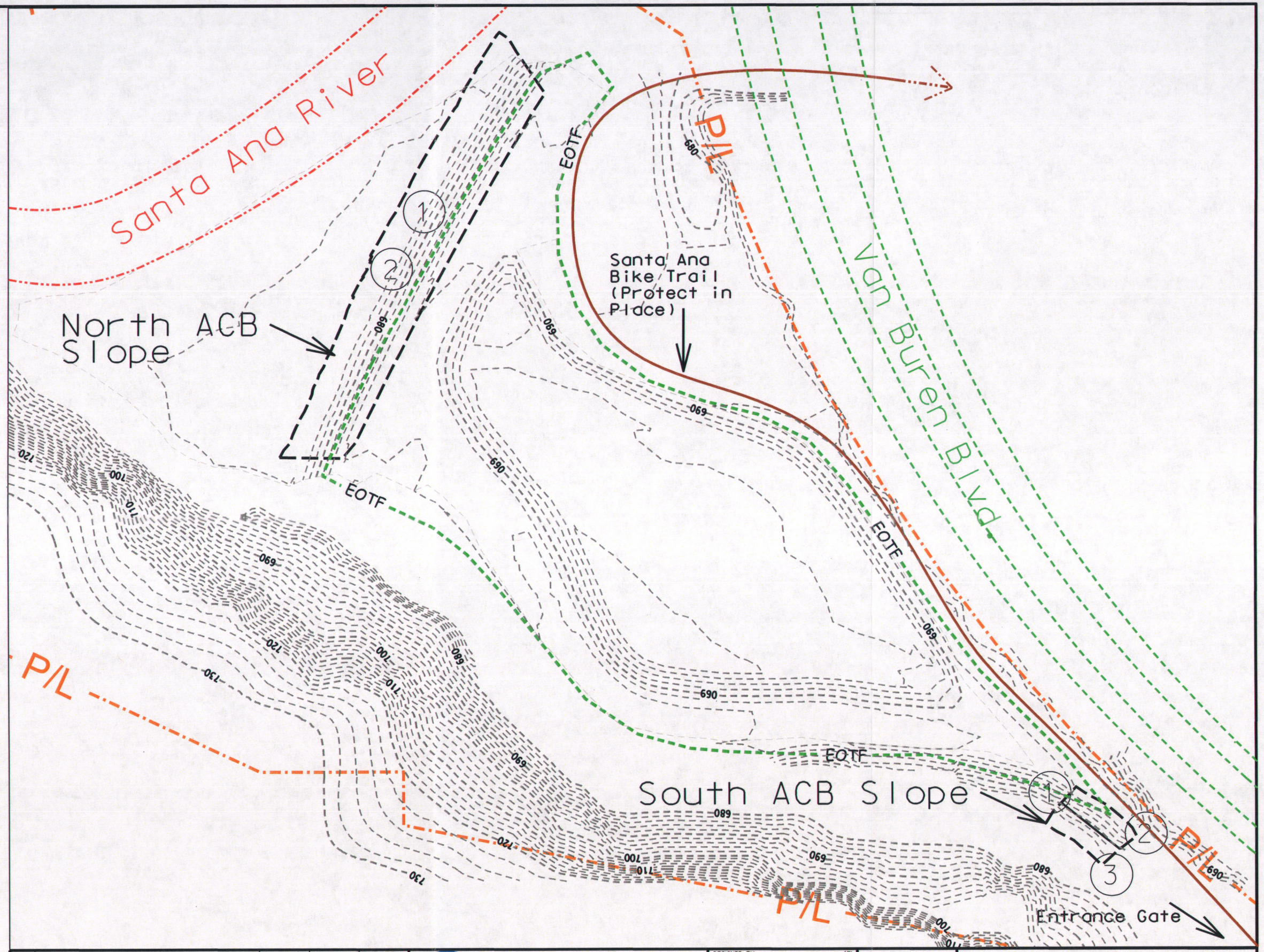
Construction Notes

1. Place backfill over ACB slopes
2. Hydroseed ACB slope with Desert Sage Scrub Mix
3. Hydroseed ACB slope with Riparian Rescue Mix

Backfill Volume:
128 CY

LEGEND

- Existing Ground
- Property Limits
- Edge of Trash Fill
- ACB Slope Limits
- Santa Ana Bike Trail



NO.	REVISIONS	BY	APPROVED	DATE

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager/Chief Engineer

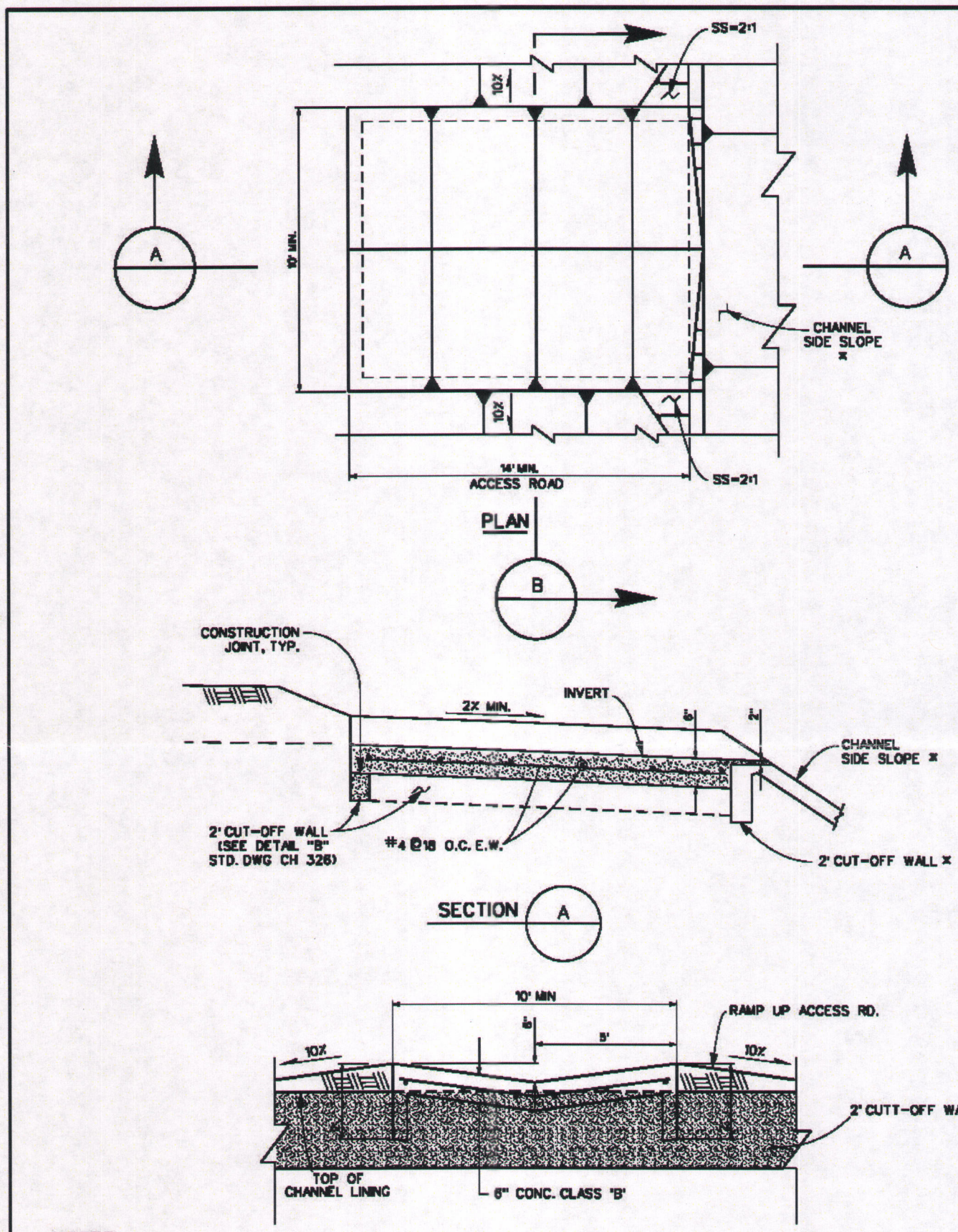
Scale: 1" = 90
0 45 90 135 180 225
Datum is mean sea level Contour Interval is 2 foot

DESIGNED BY:	MN
DRAWN BY:	MN
CHECKED BY:	MR/AC
DRAWING DATE:	Sept 2015
TOPO DATE:	Dec 2014
SCALE:	22x34:1"=45' 11x17:1"=90'
PATH:	engineering\sites\Badlands^\ 15 txt\projects
PATH:	Site Maintenance and Improvement Project\
PATH/FILE:	Pedley\Pedley_Exhibits.dgn

Pedley Sanitary Landfill
Site Maintenance and Improvements
September 2015

Pedley Site Map

SHEET 19 OF 19



x **NOTES:**

DRAINAGE APRON MAY ALSO BE USED FOR RECTANGULAR CHANNEL ACCESS ROADS.

REGISTERED PROFESSIONAL ENGINEER
WARREN D. WILLIAMS
No. 32336
Exp. 12-31-04
Civil
STATE OF CALIFORNIA

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

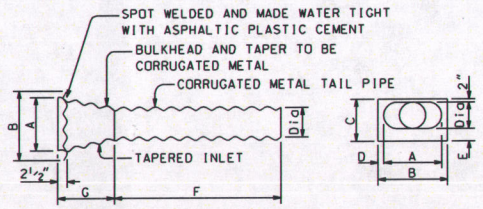
APPROVED BY:

CHIEF ENGINEER

DATE: April 5, 2004 R.C.E. NO. 32336

DRAINAGE APRON FOR ACCESS ROAD

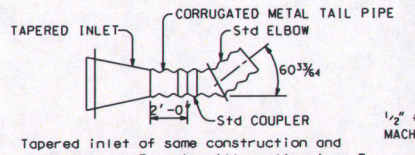
STANDARD DRAWING NUMBER CH333



PLAN END VIEW

Bulkhead and taper of same thickness as tail pipe with 0.079" maximum. Tail pipe of same thickness as downdrain pipe.

ENTRANCE TAPER - TYPE 1 ALTERNATIVE A



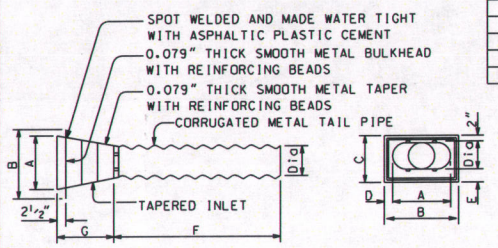
Tapered inlet of same construction and dimensions as Type 1 - Alternative A or B except tail pipe length will be 2'-0".

ENTRANCE TAPER - TYPE 2

Taper joints may be welded or riveted. Dimensions to be as tabulated below for Type 1 Alternatives A and B.

Dia	A	B	C	D	E	F	G
8"	1'-4"	2'-1½"	1'-3"	4¾"	5"	6'-0"	2'-0"
12"	1'-6"	2'-1½"	1'-7"	3¾"	5"	6'-0"	2'-0"
15"	1'-9"	2'-6"	1'-11"	4½"	6"	6'-0"	2'-0"
18"	2'-0"	2'-10"	2'-3"	5"	7"	6'-0"	2'-0"
24"	2'-10"	3'-10"	2'-11"	6"	9"	4'-0"	4'-0"

ENTRANCE TAPER - TYPE 1 ALTERNATIVE A AND B



PLAN END VIEW

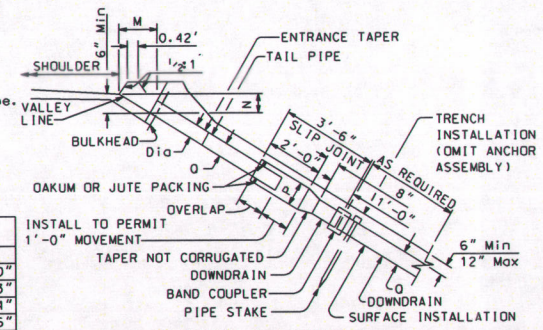
Tail pipe of same thickness as downdrain pipe.

ENTRANCE TAPER - TYPE 1 ALTERNATIVE B

CMP dimensions as tabulated below

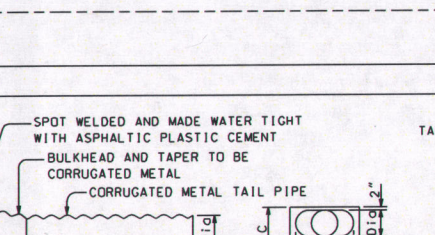
P	10"	15"	18"	21"	27"
Q	8"	12"	15"	18"	24"

Slip joint to be same thickness as downdrain pipe.



SECTION A-A TYPE 1

Dia	Min L	M	N
8"	10'-0"	1'-6"	8"
12"	15'-0"	1'-8"	1'-0"
15"	25'-0"	2'-0"	1'-3"
18"	30'-0"	2'-6"	1'-4"
24"	40'-0"	3'-0"	1'-6"



ALTERNATIVE A ALTERNATIVE B

CORRUGATED METAL PIPE DOWNDRAIN ANCHOR ASSEMBLY

Cable and cable clamps to be used when required by the Special Provisions.

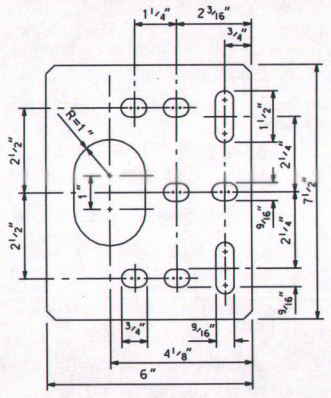
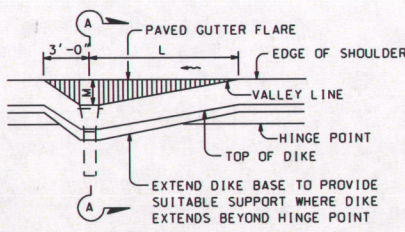


PLATE DETAIL

Material to be ¼" plate galvanized after fabrication.

NOTES:

1. Either Alternative A or Alternative B anchor assemblies and pipe stakes may be used at Contractor's option for corrugated steel pipe or corrugated aluminum pipe. Alternative A anchor assembly only to be placed in annular corrugation. Alternative A anchor assembly may be placed on annular coupling band if securely fastened on downstream side of joint. Alternative B anchor assembly to be fastened to pipe sections and not to a band coupler used to join sections.
2. For cable anchorage system details, see Standard Plan D87C.

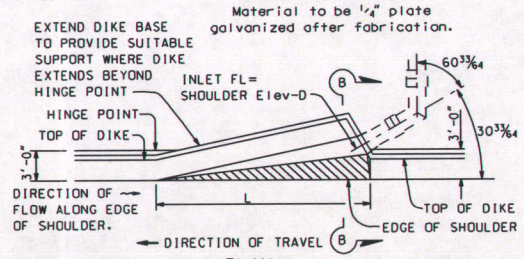


PLAN

MOUNTABLE DIKE TYPE 1

NOTES:

1. Cable, slip joint or anchor assembly to be used when specified.
2. Slip joint to be omitted when completely buried.
3. Slip joint for Type 1 entrance taper shown. Type 2 similar.

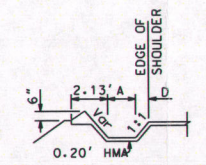


PLAN

MOUNTABLE DIKE TYPE 2

(For use on full freeway sections ONLY with grades of 2% or greater)

Dia D	Min L
8"	15'
12"	20'
15"	30'
18"	35'
24"	45'



SECTION B-B

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

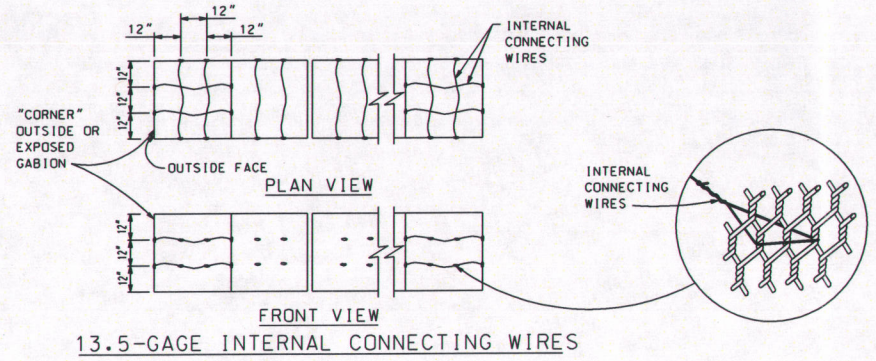
CORRUGATED METAL PIPE DOWNDRAIN DETAILS

NO SCALE

ENTRANCE TAPER AND PIPE DOWNDRAIN

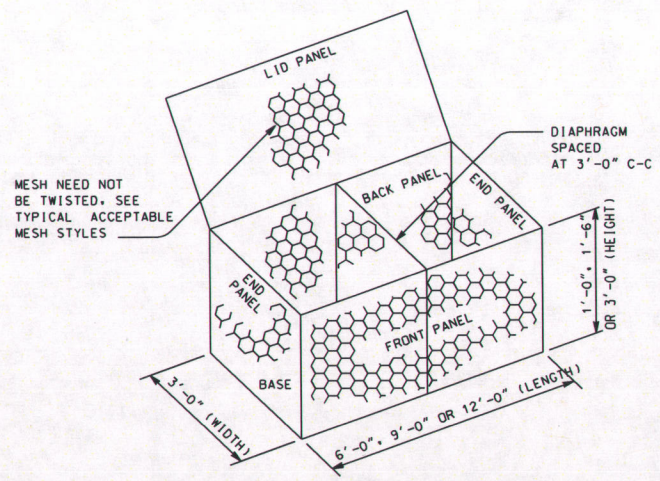
D87A

8-19-09



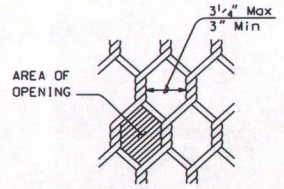
13.5-GAGE INTERNAL CONNECTING WIRES

STANDARD GABION SIZES					
LETTER CODE	LENGTH	WIDTH	HEIGHT	NUMBER OF DIAPHRAGMS	VOLUME CY
A	6'-0"	3'-0"	3'-0"	1	2.0
B	9'-0"	3'-0"	3'-0"	2	3.0
C	12'-0"	3'-0"	3'-0"	3	4.0
D	6'-0"	3'-0"	1'-6"	1	1.0
E	9'-0"	3'-0"	1'-6"	2	1.5
F	12'-0"	3'-0"	1'-6"	3	2.0
G	6'-0"	3'-0"	1'-0"	1	0.66
H	9'-0"	3'-0"	1'-0"	2	1.0
I	12'-0"	3'-0"	1'-0"	3	1.33

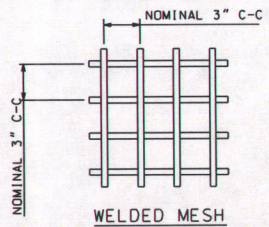


TYPICAL GABION BASKET

NOTE:
Area of opening not to exceed 10.3 square inches.



TWISTED MESH



WELDED MESH

TYPICAL ACCEPTABLE MESH STYLES

NOTES:

1. Internal connecting wire (13.5-gage) to be installed across width of interior Gabions and across width and length of end Gabions.
2. Internal connecting wires required on all gabions 3'-0" high.
3. Preformed stiffeners (11-gage or 9-gage) are an acceptable alternative to internal connecting wires. Install them as recommended by manufacturer or as directed by the Engineer at * points.
4. Place rock in end Gabion cell first. and continue by filling interior Gabion cells.
5. For Gabion dimensions, refer to table "Standard Gabion Sizes".

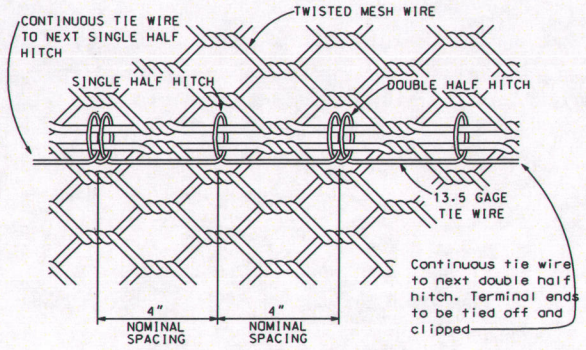
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

GABION BASKET DETAILS No. 1

NO SCALE

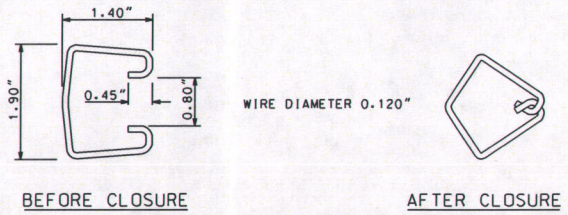
D100A

6-30-09

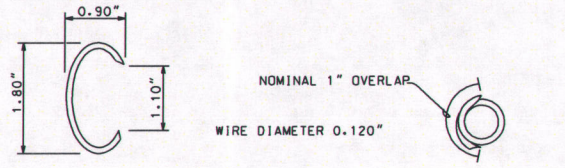


STANDARD TIE WIRE DETAIL

Alternating single and double half hitches (locked loops)
(See Note 2)



INTERLOCKING FASTENER



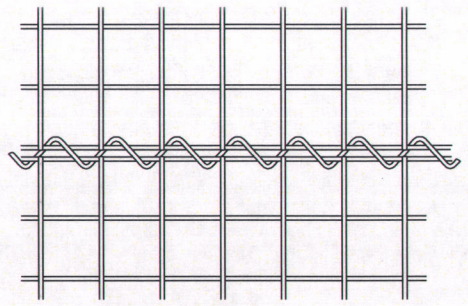
OVERLAPPING FASTENER

ALTERNATIVE GABION JOINT MATERIAL FASTENERS

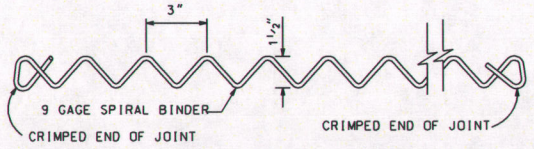
(Fastener dimensions nominal)
(See Note 3)

NOTES:

1. A joint connection must be made where any panel edge meets another panel. This includes adjacent gabion baskets, individual panels within a basket, diaphragm edges, etc.
2. Standard tie wire may be used as a joint connector for either twisted or welded mesh. Spiral binder is to be used with welded mesh only.
3. When alternative Gabion joint material fasteners are not capable of enclosing all wires along a joint, especially at Basket-To-Basket Joints, either standard tie wire or spiral binder, as applicable, must be used.

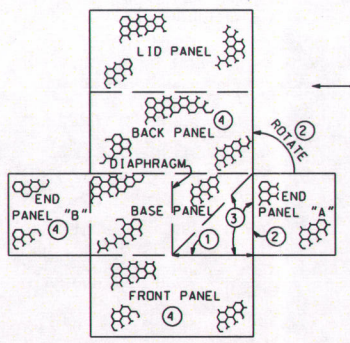


SPIRAL BINDER LACING



STANDARD SPIRAL BINDER

(See Note 2)



FLAT LAYOUT OF GABION BASKET

To Assemble Transitional Gabion Basket:

Step 1. Cut mesh along joint between Front Panel and Base Panel.

Step 2. Unfasten End Panel "A" from Base Panel and rotate End Panel "A". Fasten End Panel Panel "A" to Back Panel.

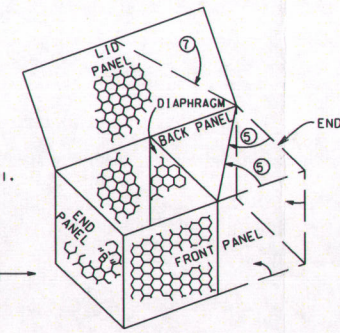
Step 3. Fold the cut portion of the Base Panel into upright position along diagonal from the diaphragm to the corner of the Back Panel.

Step 4. Fold the Back Panel. Front Panel and End Panel "B" into upright positions. Fasten End Panel "B" to the Back Panel and the Front Panel.

Step 5. Rotate End Panel "A" and the cut portion of the Front Panel inward against the upturned portion of the Base Panel. Fasten along the overlapped portion of the Front Panel and End Panel "A". Fasten the overlapped portion of the Front Panel and End Panel "A" to the folded upright portion of the Base Panel along the diagonal (described in Step 3).

Step 6. Fill the Transitional Gabion Basket with rock as per specifications.

Step 7. Close lid and fold over corner of Lid Panel. Fasten along Lid Panel edges.



ASSEMBLED TRANSITIONAL GABION BASKET

TRANSITIONAL GABION BASKET

(For 6'-0", 9'-0" or 12'-0" gabion)

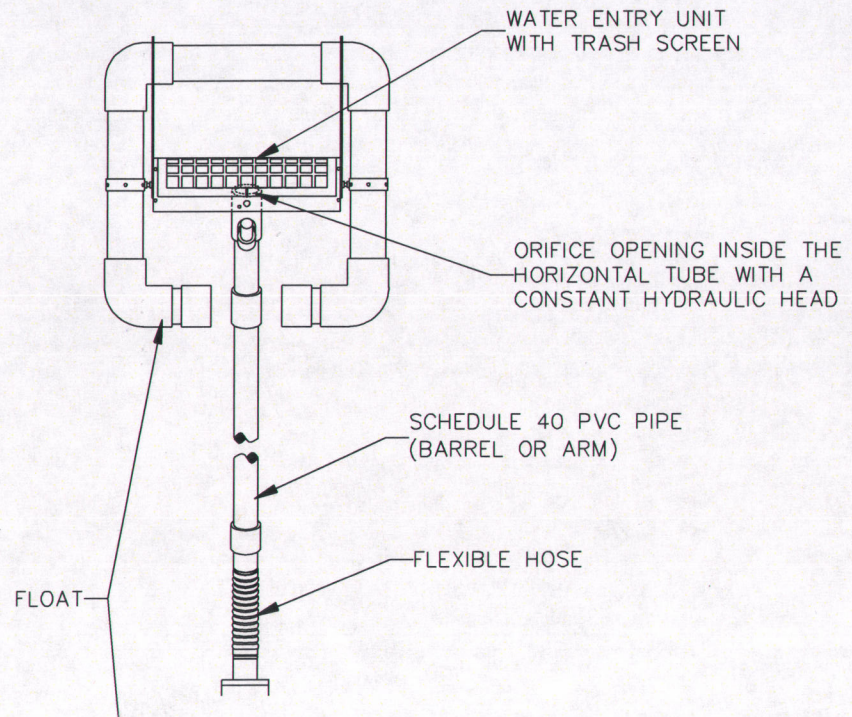
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

GABION BASKET DETAILS No. 2

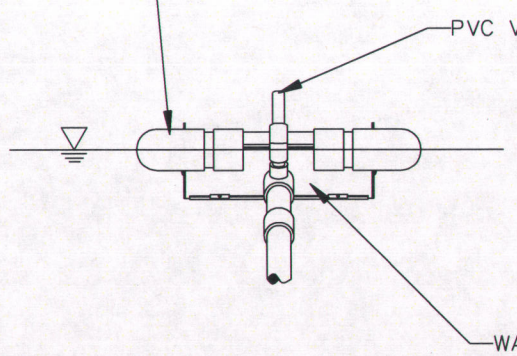
NO SCALE

D100B

6-30-09



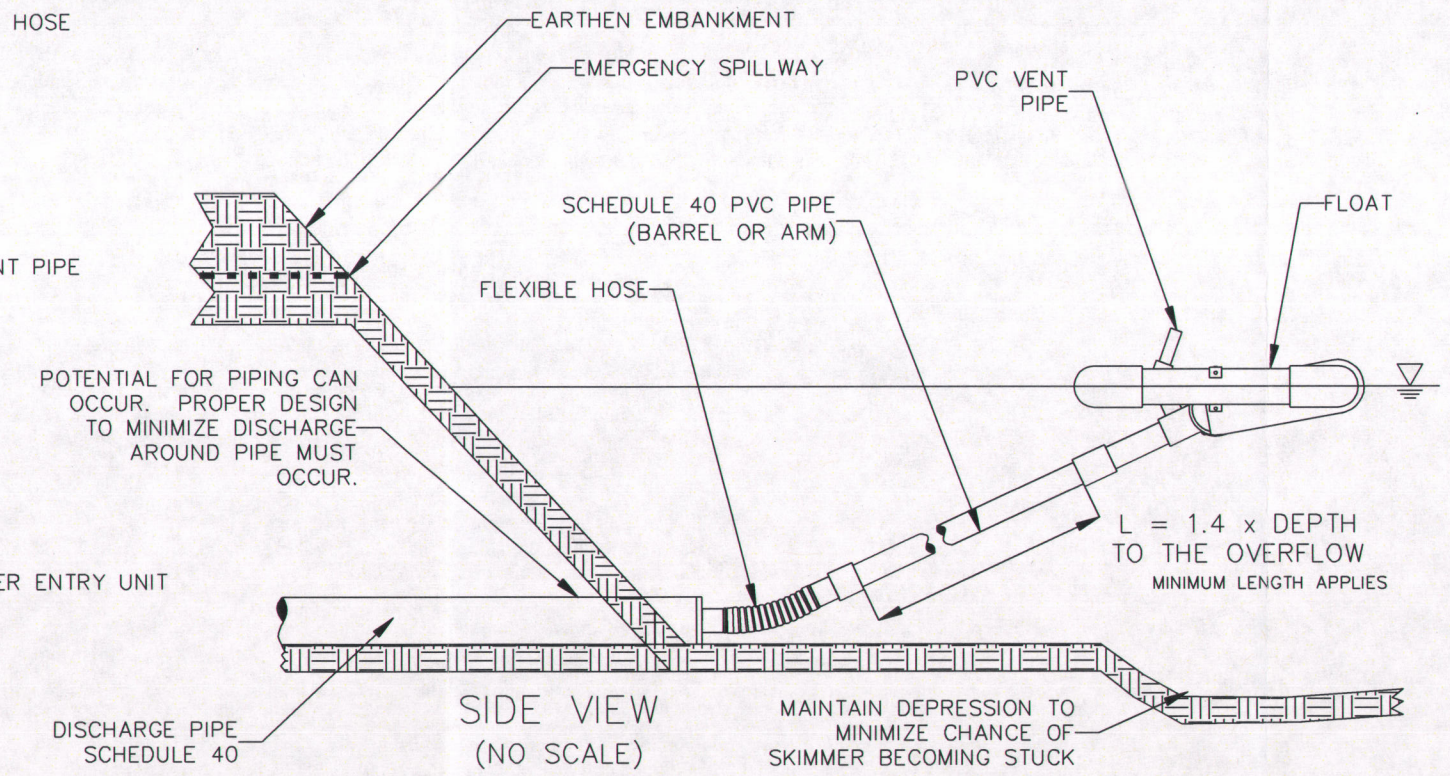
TOP VIEW



END VIEW

GENERAL NOTES:

1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
3. EMBANKMENT MUST BE COMPACTED TO DESIGN SPECIFICATIONS.
4. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
5. EROSION PROTECTION MUST BE INSTALLED ALONG THE EMBANKMENT AND AT THE DISCHARGE END OF THE PIPE.
6. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
7. EIGHT SIZES OF SKIMMERS ARE AVAILABLE, REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.



SIDE VIEW
(NO SCALE)

DRAWN BY T. R. EVANS 10/10

FAIRCLOTH SKIMMER® DISCHARGE SYSTEM WITH EMBANKMENT

J. W. FAIRCLOTH & SON INC.
WWW.FAIRCLOTHSKIMMER.COM
TELEPHONE: (919) 732-1244
FAX: (919) 732-1266
EMAIL: WARREN@FAIRCLOTHSKIMMER.COM

Appendix "A"

SCAQMD Form 403-N & Rule 403 Dust Control Requirement Tables 2 and 3

FORM 403N

RULE 403 - LARGE OPERATION NOTIFICATION
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

21865 Copley Drive, Diamond Bar, CA 91765

Is this plan being submitted to comply with the requirements of a Notice to Comply or Notice of Violation? **YES/NO**
Notice Number_____ Please attach copy

Qualifying Criteria:

1. Does this operation contain more than 50 acres of disturbed surface area as of the date of submittal? **YES/NO**
   Please indicate the size of the project _____.
2. Will the earth moving operation exceed a daily earth moving or throughput volume of 5,000 cubic yards three times during the most recent 365-day period from the date grading begins? **YES/NO**

Please Print or Type

Contractor/ Consultant/ Owner: **(Circle one of the above)**		**Phone Number:**	
Address:	**City:**	**State:**	**Zip:**
Project Name:			
Nature of Business: □**Construction/Demolition** □**Sand & Gravel/Mining Operations** □**Cement Manufacturing**			
Name of Responsible Person of Organization: **Title:**		**Phone Number:**	
Environmental Observer: **Date Attended Dust Class:**		**Phone Number:** **ID Number:**	
Project Address: **(Attach location map)**	**City:**	**State:**	**Zip:**
Name of Property Owner: **(If different than above)**			
Anticipated Start Date:		**Anticipated Completion Date:**	
Telephone Number:			
Emergency Phone Number:			

In accordance with paragraph (e)(1) of Rule 403, I will ensure that the actions specified in Tables 2 and 3 will be implemented on-site for each applicable fugitive dust source type within the property lines and that records are maintained in accordance with Rule 403, subparagraph (e)(1)(c) . Further, I hereby certify that all information contained herein is true and correct.

SIGNATURE OF RESPONSIBLE MEMBER OF ORGANIZATION	TITLE	DATE

TABLE 2
DUST CONTROL ACTIONS FOR EXEMPTION FROM PARAGRAPH (d)(3)*

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued) *

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 [70] percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 [70] percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 [30] days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued) *

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 [70] percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 3
TRACK-OUT CONTROL OPTIONS
PARAGRAPH (d)(5)(B)

CONTROL OPTIONS

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.