1. SITE DESCRIPTION

For Information only to fulfill the CDPS-SCP (Colorado Discharge Permit System-Stormwater Construction Permit) Update to reflect current project site conditions.

A. PROJECT SITE DESCRIPTION: Roadway, shoulder, and bridges improvements including grade separation of railroad, realignment, passing lanes, replacement of existing culverts and drainage improvements.

B. PROPOSED SEQUENCING FOR MAJOR ACTIVITIES: Construct roadway detour/shoefly in the vicinity of the railroad crossing. Grade areas for the proposed roadway embankment outside the existing roadway. Construct offline roadway, bridge, wall and drainage facilities. Once this is complete the roadway improvements will be tied in with the existing roadway and all minor grading and drainage facilities will be finalized. After completion of the improvements and the roadway is open to traffic, the old roadway pavement will be removed where appropriate.

C. ACRES OF DISTURBANCE:
1. Total area of construction site: 42.3 Acres
2. Total area of disturbance: 25.6 Acres
3. Acreage of seeding: 17 Acres

D. EXISTING SOIL DATA: Sandy Clay

E. EXISTING VEGETATION, INCLUDING PERCENT COVER: Percent Cover is 31.0%
Date of survey: 10/11/07
Native Grasses & Weeds

F. POTENTIAL POLLUTANTS SOURCES: See first construction activities under potential pollutant sources. The ECS shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.

G. RECEIVING WATER:
1. Outfall locations: See table

SUMMARY OF EXISTING OUTFALL LOCATIONS:			
PIPE STATION	PROPOSED PIPE (SIZE, MATERIAL)	OUTFALL	RECEIVING WATERS
386+33	24" RCP	DITCH	GUNNISON RIVER
394+16	24" RCP	DITCH	GUNNISON RIVER
397+22	24" RCP	DITCH	GUNNISON RIVER
416+51	36" RCP	DITCH	GUNNISON RIVER
446+80	18" SIPHON PIPE	DITCH	GUNNISON RIVER
448+77	30" RCP	DITCH	GUNNISON RIVER

2. Names of receiving waters(s) on site and the ultimate receiving water: Big Gulch, North Fork Gunnison, Unnamed Tributaries
3. Distance ultimate receiving water is from project: 1 Mile

H. ALLOWABLE NON-STORMWATER DISCHARGES: Concrete washout and sawcutting are anticipated on Project.
1. Groundwater and stormwater dewatering: discharges to the ground of water from construction dewatering activities may be authorized provided that:
   - A. The source is groundwater and/or groundwater combined with stormwater that does not contain pollutants
   - B. The source and bmps are identified in the swmp
   - C. Discharges do not leave the site as surface runoff or to surface waters.
2. If discharges do not meet the above criteria a separate permit from the department of health will be required. Contaminated groundwater requiring coverage under a separate permit may include groundwater contaminated with pollutants from a landfill, mining activities, industrial pollutant plumes, underground storage tank, etc.

I. ENVIRONMENTAL IMPACTS:
1. Wetland impacts: yes (Locations as shown on erosion control plans)
2. Stream impacts: No
3. Threatened and endangered species: No

2. SITE MAP COMPONENTS: (SEE EROSION CONTROL PLAN SHEETS)

Pre-construction

A. PROJECT CONSTRUCTION POTENTIAL SITE BOUNDARIES:
See grading and erosion control plans sheets.

B. ALL AREAS OF GROUND SURFACE DISTURBANCE:
See grading and erosion control plans sheets.

C. AREAS OF CUT AND FILL:
See grading and erosion control plans sheets.

D. LOCATION OF ALL STRUCTURAL BMPs IDENTIFIED IN THE SWMP:
See grading and erosion control plans sheets.

E. LOCATION OF NON-STRUCTURAL BMPs AS APPLICABLE IN THE SWMP:
See grading and erosion control plans sheets.

F. SPRINGS, STREAMS, WETLANDS AND OTHER SURFACE WATER:
See grading and erosion control plans sheets.

G. PROTECTION OF TREES, SHRUBS, CULTURAL RESOURCES AND MATURE VEGETATION:
See grading and erosion control plans sheets.

H. AREAS USED FOR STORING AND STOCKPILING OF MATERIALS, STAGING AREAS (field trailer, fueling, etc) and BATCH PLANTS:
See environmental plans sheets.

3. SWMP ADMINISTRATOR FOR DESIGN:

Chuck Schrader, PKM Design Group is responsible for developing the SWMP sheets during the design.

4. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. DESIGNATE A SWMP ADMINISTRATOR/EROSION CONTROL SUPERVISOR (To be filled out at time of construction; designate the individual(s) responsible for implementing, maintaining and revising SWMP, including the title and contact information. The activities and responsibilities of the Administrator shall address all aspects of the projects SWMP.)

B. POTENTIAL POLLUTANT SOURCES Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place in the SWMP notebook. All BMPs related to potential pollutants shall be shown on the SWMP site map by the contractor's ECS.

C. BEST MANAGEMENT PRACTICES (BMPs) FOR STORMWATER POLLUTION PREVENTION
PHASED BMP IMPLEMENTATION, APPLICATION AND NARRATIVE:
During design: "BMP as designed" boxes are marked when used in the SWMP.
During construction: the ECS shall update the narratives, including new narratives and updates the "in use on site" boxes to match which BMPs are currently in use on site. Clearly describe the relationship between the phases of construction and the implementation of BMP control.

Know what's below. Call before you dig. 811

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Print Date: 11/4/2013		Sheet Revisions			Colorado Department of Transportation	As Constructed	STORMWATER MANAGEMENT PLANS	Project No./Code
File Name: 17772ErosionControlSWMP01.dgn		Date:	Comments	Init.	2424 North Townsend Avenue Montrose, CO 81401 Phone: 972-249-5285 FAX: 970-249-6018	No Revisions:		STA 092A-024
Horiz. Scale: 1:100 Vert. Scale:						Revised:	Designer: / Detailer: / Structure Numbers	17772
Unit Information Unit Leader Initials					Region 3 RA	Void:	Sheet Subset: SWMP / Subset Sheets: 01 of 04	Sheet Number 141
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STRUCTURAL AND NONSTRUCTURAL BMPs: that may be potentially used on the project for erosion and sediment control: practices may include, but are not limited to:

Structural BMPs and Application	Narrative	BMP as Designed	In use on site	FIRST CONSTRUCTION ACTIVITIES	DURING CONSTRUCTION	INTERIM/ FINAL STABILIZATION
Earth Berm/Stockpile	Placed around toe to contain sediment around stockpile					
Earth Berm/Toe of fill	Placed prior to earthwork within specified distance of toe to capture sediment and protect undisturbed ares					
Earth Berm/Diversion	Placed to divert drainage and subdivide runoff volume from less than 10 acre sub basins. Temp feature to be remeoved upon final stabilization					
Rock Check Dams/Ditch	Velocity checks in ditches placed immediately after ditch grading					
Silt Fence/Sediment Control	Placed on contour to contain construction runoff	X		X	X	
Silt Fence/Protection of Vegetation	Placed to protect undisturbed area and delineate boundary of protected area	X		X	X	
Erosion Logs, Silt Berms or Silt Dikes/Ditch Checks	Erosion Control checks in ditches placed immediately after ditch grades to reduce flow velocity of runoff in ditch	X		X	X	X
Erosion Logs/ Existing Inlet	Placed prior to disturbance at existing inlets where disturbance maybe occurring to cause sediment laden water to enter pipe	X		X	X	
Erosion Logs/ Culvert Inlet or Outlet	Placed on culvert to filter or prevent sediment from entering pipe. If disturbance occurs above pipe then erosion logs are placed above pipe	X		X	X	X
Erosion Logs / Sediment Control	Placed to protect undisturbed area and delineate boundary of protected area	X		X	X	
Storm Drain Inlet Protection/ Sediment Control	Placed to protect storm drain inlets to filter or prevent sediment from entering drainage system			X	X	X
Temporary Sediment Trap/ Basin	Contain and filter sediment laden water from < 5 acre sub basin within construction disturbance					
Permanent Sediment Trap/ Basin	Utilized during construction to act as temporary sediment containment. Outlet structure shall be modified for construction runoff					
Embankment Protection or Temp Slope Drain	Placed as a conduit or chute to drain runoff down slope and prevent erosion of slope					
Outlet Protection	Material placed as energy dissipation device to prevent erosion at outlet structure	X			X	X
Concrete washouts/ Construction Control	Construction waste management of concrete washout material	X		X	X	
Vehicle tracking Pad/ Construction Control	Construction waste management of concrete washout material	X		X	X	
Sweeping/ Construction or Source Control	Utilized to remove sediment on pavement surface and to prevent sediment from entering drainage system					
Dewatering/ Construction Control	Sediment control to remove or filter sediment from construction dewatering	X				
Temporary Stream Crossing/ Construction Control	Constructed over stream or drainage to prevent discharge of pollutants from construction equipment into stream					
Clean Water Diversion	Placed to divert clean surface or gound water from mixing with construction runoff or activity	X			X	
Other						

Non Structural BMPs and Application	Narrative	BMP as Designed	In use on site	FIRST CONSTRUCTION ACTIVITIES	DURING CONSTRUCTION	INTERIM/ FINAL STABILIZATION
Surface Roughening/ Grading Techniques	Interim and temp stabilization of disturbance and to minimize wind and erosion	X			X	
Seeding Permanent/ Final Stabilization	Reduce runoff and control erosion on disturbed areas	X			X	X
Seeding Temporary	Over wintering or disturbance or used to control erosion for areas scheduled for future construction			X	X	
Mulch/ Mulch Tackifier/ Temp or Final Stabilization	Place as a surface cover for erosion control and or seeding establishment	X		X	X	X
Soil Retention Blanket/ Temp or Final Stabilization	Place as a surface cover for erosion control and or seeding establishment	X		X	X	X
Turf Reinforcement Mat / Final Stabilization	Placed in channels or on slopes for erosion control, channel liner and seeding establishment					
Soil Binder/ Temp Stabilization	Placed as surface treatment to provide temp erosion control					
Spray on Mulch Blanket/ Temp or Final Stabilization	Place cover on slopes to control erosion and seeding establishment	X		X	X	X
Vegetative Buffer Stripes	Filter sediment laden runoff from disturbance area	X		X	X	X
Protection of Trees/ Protected Resources - Fence Plastic	Placed prior to construction to protect existing vegetation to remain	X		X	X	X
Preservation of Mature Vegetation/ Work access Land grading plans	Used to protect existing stable cover and minimize impact to vegetation	X		X	X	X

*Check dams may be rock, erosion logs, silt dike, silt berm, etc. as indicated in the narratives and SWMP site map.
Erosion control devices are used to limit the amount of soil loss on site.
Sediment control devices are designed to capture sediment on the project site.
Construction control are BMPs related to construction access and staging.
BMP locations are indicated on the SWMP site map.
BMP details and narratives not covered by the SWMP and Standard Plan M-208-1 shall be added to the SWMP notebook by the ECS.

NARRATIVES

General Design BMP placement: Prior to construction commencing silt fence shall be placed to prevent the initial construction activity from causing sediment to leave the site. Construction Entrances and Concrete Washouts should be placed. During construction, erosion logs, hay bales, sediment traps, and erosion control blankets should be placed as identified on the Erosion Control Plans. Once drainage structures have been placed, inlet protection should be placed around the perimeter of the inlet. Once BMPs are installed, they shall be maintained continuously throughout the duration of the project and into the establishment phase. Once final grading has been established, BMPs listed in Table 2 should be placed.

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STORMWATER MANAGEMENT PLANS

Designer:
Detailer:
Sheet Subset: SWMP
Structure Numbers
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17772
Sheet Number 142

Narratives for BMPs used for Design are listed below:

EROSION LOGS/HAY BALES
Erosion logs and hay bales are used to capture and filter sediment laden run-off from disturbed areas during construction.
As Outlet Protection: shall be placed at existing culverts as shown in the plans and where disturbance may be occurring adjacent to the outlet and cause sediment laden water to enter pipe. Logs shall be placed prior to work commencing at these locations to filter sediment laden runoff. Where the slope has been worked above new and/or existing pipes (inlet/outlet) and sediment may enter the pipe from above, a log shall wrap the top of pipe and run down slope to direct water away from pipe. Logs shall be j-hooked or placed in such a manner at these locations that sediment laden water will not go around the ends of logs directly into the pipe or ditch. Outlet protection is used as an energy dissipation device to prevent scour and erosion at the pipe outlet by reducing the velocity and energy of the concentrated flow. Outlet protection shall be placed at the outlet of pipes immediately after the pipe is installed. See Erosion Control Plans for locations.
As Check Dam: Erosion logs and hay bales shall be placed in areas indicated in the plans or as directed as soon as possible, immediately in most cases after ditch grading has been completed (a completed ditch is one that is acting as a conduit for water). Ditches not directed to have riprap placed shall be permanently stabilized within 48 hours of completion during the seeding season. When seeding cannot occur due to seasonal constraints mulch/mulch tackifier shall be placed along with checks at intervals specified. If erosion occurs in the ditch, mulch and mulch tackifier shall be replaced by a blanket (straw/coconut) as a temporary measure. Seeding and crimping in ditch lines shall follow contour: crimping and drill rows running down a ditch line will not be allowed. Concrete lined ditches shall use erosion logs as temporary protection until concrete lining has been complete. Erosion logs and hay bales shown in the Erosion Control Plans are a graphical representation only and do not represent the actual length or configuration of erosion logs or hay bales to be installed.

SILT FENCE
Silt fence shall be used to capture sediment laden runoff from disturbed areas during construction. It shall be placed on the contour; ends shall be j-hooked to prevent water from running around the ends of the fence. Posts shall be spaced a maximum of three feet apart. Along the toe of fills, install the silt fence for runoff to pond and sediment to settle. A minimum distance of five feet from the toe of the fill is recommended. The height of the silt fence from the ground surface shall be a minimum of 24 inches and shall not exceed 36 inches.

GRAVEL BAG-INLET PROTECTION
Inlet Protection is used to intercept and filter sediment-laden runoff and prevent it from entering adjacent stream and drainage systems. Inlet protection should be used throughout construction, but used as a temporary feature. Storm drain inlet protection shall be placed immediately after installation of inlets. During construction, the erosion control supervisor (ECS) shall place the appropriate BMP at the inlet openings to prevent sediment and/or pollutants from entering. See Erosion Control Plans for placement.

CONCRETE WASHOUTS
Facilities or designated work areas where concrete waste is generated from demolition activities; where concrete is used as a construction material; where concrete trucks or concrete coated equipment are washed on site as permitted by the engineer; where slurries containing Portland cement concrete (PCC) or asphalt concrete are generated; and where mortar-mixing areas exist. During construction, the contractor may move the concrete washouts to convenient locations on the site. Concrete Washout location can be determined by the Contractor and checked by the ECS and maintained as required. Temporary concrete washout facilities shall be located 50 horizontal feet from drainage ways, inlets, and receiving waters unless otherwise approved by the Engineer. If a concrete washout is within 300 feet of a road or highway access, a vehicle tracking pad must be built as part of the washout, or at the entrance to the road or highway.

VEHICLE TRACKING PAD
Used to reduce the amount of mud tracked onto paved public roads by vehicles or runoff leaving the construction site. Used as a temporary feature. See CDOT Standard Plan M-208-01 for detail.

DEWATERING
Shall be performed to remove accumulated water and sediments from sediment traps, basins and excavated areas. The contractor shall notify the engineer of all planned discharges. All dewatering operations must comply with applicable CDPHE and local permits as well as regional and watershed-specific discharge requirements, including CDOT Standard Specifications. Sediment control measures, such as sediment traps, sediment basins, and dewatering structures shall be implemented to treat sediment-laden excess water from construction sites. Other sediment control measures such as filtration devices can be utilized if approved by the engineer. Perform routine spot checks to ensure dewatering techniques are properly implemented.

SOIL CONDITIONING
Soil surface roughening, terracing and rounding at tops of cuts, transitions and roadway ditches to facilitate plant establishment and minimize soil erosion. Used to temporarily stabilize disturbed areas and to protect from wind and water erosion. Disturbed surfaces shall be left in the roughened condition at all times by equipment tracking, scarifying or disking the surface on the contour with a 2 to 4 inch minimum variation in the soil surface.

PERMANENT SEEDING - SEEDING (NATIVE)
Seeding is used to control runoff and erosion on disturbed areas. Drill seeding shall occur on slopes flatter than 3:1 and shall occur on the contour of the slope. Completed areas (any portion of a slope that is at final grade) shall be seeded within 48 hours during seeding season. Seeded areas shall be inspected frequently for areas of failure. Slopes that are too steep for drill seeding shall have seed broadcast at double the rate and raked into the surface; see interim and final seeding. Seeding in ditch lines shall follow the contour, drill rows running down a ditch line shall not be allowed.

If during the seeding season and top of slopes are adjacent to paving operations, the entire slope shall be seeded, per Section 9 of SWMP template. When Engineer approves the top portion of the slope (approx. 15') can remain unseeded for paving operations to occur. Once paving operations are completed in an area, shouldering shall occur immediately. Seeding per Section 9 of the SWMP shall then take place within 48 hours. Slopes that had been previously seeded and were disturbed by paving / shouldering operations shall be reseeded at no additional cost to the project.

TEMPORARY SEEDING
Temporary seeding shall occur as directed by the Engineer. Seed shall be hand broadcast and raked into the slopes. Completed areas (any portion of a slope that is at final grade) shall be seeded within 48 hours during seeding seasons. Seeded areas shall be inspected frequently for areas for areas of failure.

MULCH AND MULCH TACKIFIER
Mulching and mulch tackifier is used for temporary erosion control on incomplete slope, stockpiles and on slopes when seeding is not allowed due to seasonal constraints. It is also used to cover permanent or temporary seeded areas. Mulch and mulch tackifier shall be in accordance with CDOT Construction Details subsection 213.03 (a). Crimping in ditch lines shall follow the contour, crimp rows running down a ditch line shall not be allowed.

BONDED FIBER MATERIAL MATRIX (BFM)
Shall be sprayed onto the surface of exposed soils to hold the soil in place and minimize erosion from runoff and wind. Shall be used in combination with mulches to temporarily stabilize soils in stockpiles, berms or when slopes cannot be seeded due to seasonal constraints. Apply BFM over roughened soil surface. If rill erosion occurs, this is an indication of poor produce mixture and / or application and shall be reapplied at the contractor's expense. Do not use in areas with vehicular traffic. BFM shall be reapplied every 6 to 12 months or when the surface has been disturbed / broken.

CLEAN WATER DIVERSION
During construction of the arch culvert extension at Big Gulch the stream shall be protected with BMPs necessary to prevent any concrete or sediment from entering the stream. If required, provide a temporary stream diversion to facilitate clean passing of flows. The design of the temporary stream diversion must be designed and stamped by a Professional Engineer. Update stormwater plans with locations, narratives, details, etc. for stream work. Including, but not limited to, dewatering, culvert headwall/wingwall demolition, headwall, wingwalls; ECS shall add information to the appropriate sections of the SWMP notebook.

SOIL RETENTION BLANKET
Shall be placed in areas shown on the Site Map or as directed; all slopes and steeper shall receive a blanket. Typically ditches that have a grade steeper than 2% shall have blanket placed. Slopes shall be properly prepared prior to placement of blanket. If rills, rocks, etc. are present they shall be removed prior to placing blanket to ensure blanket is placed on the soil with no tenting; see specifications and M&S Standards.

On slopes when seeding cannot occur due to seasonal constraints a temporary berm, erosion log or other BMP shall be placed at the top of slope to prevent stormwater from flowing onto slope and causing erosion; in addition soil binder or mulch / mulch tackifier shall be applied on the slopes. If erosion occurs on slope, soil binder or mulch and mulch tackifier shall be replaced by a blanket (straw / coconut) as a temporary measure. Once seeding can occur blanket shall be removed and disposed of; new soil retention blanket shall be placed.

LANDFORM/SWALES
Where indicated in the plans, existing landforms are used as a BMP. Landforms prevent sediment from entering onto a site. When a landform is present other BMPs may not be necessary. If a landform directs flow of water to a concentrated outfall point, the outfall point shall be protected to prevent erosion. If BMPs are needed at the outfall point the ECS shall add location, type and appropriate narrative to the plans or SWMP notebook.

VEGETATIVE BUFFER STRIPS AND PROTECTION ON EXISTING VEGETATION
Existing vegetation shall be used as a BMP on the project. Existing vegetation helps with erosion and sediment control and protects water quality. Areas of preserved vegetation shall be marked on the Erosion Control Plans by the ECS. The amount of sediment reaching buffer strips shall be cleaned and re-seeded as directed. Sediment in vegetative ditches shall be avoided to prevent sediment laden water from exiting the project site. All vegetative ditch outfalls (from CDOT right of way) shall be protected with erosion logs or berms as shown in the plans or as directed.

SPRAY-ON MULCH BLANKET FOR CUT SLOPES
Spray-on mulch blanket consists of fibers bound together by adhesives and photodegradable synthetic fiber. The fibers are colored yellow or green to help the operator insure coverage and apply the material uniformly. A sample product shall be submitted to Project Engineer at least 2 weeks prior to use on the project. A technical representative or authorized distributor shall be present for initial mixing and application of product.

PROTECTION OF EXISTING WETLANDS
Prior to construction commencing, orange plastic fence shall be placed in combination with erosion logs to prevent encroachment of construction traffic and sediment into state waters. Fence (plastic) shall be placed adjacent to the wetlands; erosion logs shall be placed between the plastic fence and disturbance area. Logs shall be placed to direct flows away from or filter water running into wetlands from disturbed areas.

D. OFFSITE DRAINAGE (RUN ON WATER)

1. Describe and record BMPS on the SWMP site map that has been implemented to address of site run-on water in accordance with subsection 208.03.

E. VEHICLE TRACKING PAD

1. BMPs shall be implemented in accordance with subsection 208.04.

F. PERIMETER CONTROL

1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
2. Perimeter control shall consist of erosion logs or other BMPs as approved.
3. Perimeter control shall be in accordance with subsection 208.04.

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No Revisions:				STA 092A-024
Revised:	Designer:	Structure Numbers		17772
Void:	Detailer:			
	Sheet Subset: SWMP	Subset Sheets: 03 of 04		Sheet Number 143 .

5. DURING CONSTRUCTION

RESPONSIBILITIES OF THE SWMP ADMINISTRATOR/EROSION CONTROL SUPERVISOR DURING CONSTRUCTION:
The SWMP should be considered a "living document" that is continuously reviewed and modified. During Construction, the following items shall be added, updated, or amended as needed by the SWMP Administrator/Erosion Control Supervisor (ECS) in accordance with section 208.

- **A.** **STOCKPILE MANAGEMENT** - Shall be done in accordance with subsection 101.95 and 208.07
- **B.** **CONCRETE WASHOUT** - Concrete washout water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05
- **C.** **SAW CUTTING** - Shall be done in accordance with subsection 101.95, 208.04 and 208.05
- **D.** **STREET CLEANING** - Shall be done in accordance with subsection 208.04

6. INSPECTIONS

A. Inspections shall be in accordance with subsection 208.03 (C).

7. BMP MAINTENANCE

A. Maintenance shall be in accordance with subsection 208.04 (F).

8. RECORD KEEPING

A. Records shall be kept in accordance with subsection 208.03 (C).

9. INTERIM AND FINAL STABILIZATON

A. SEEDING PLAN:

Soil preparation, soil conditioning or topsoil, seeding (native), mulching (weed free) and mulch tackifier will be required for an estimated 3.0 acres of disturbed area within the right-of-way limits which are not surfaced. The following types and rates shall be used:

COMMON NAME	BOTANICAL NAME	LBS PLS PER ACRE
Western wheatgrass	*Pascopyrum smithii* "Arriba"	7.0
Alkali sacaton	*Sporobolus airoides* "Salado"	0.2
Inland saltgrass	*Distichlis spicata*	1.3
Galleta	*Hilaria jamesii*	2.2
Sand dropseed	*Sporobolus cryptandrus*	0.1
Indian ricegrass	*Achnatherum hymenoides*	2.0
Blue grama	*Bouteloua gracilis* 'Hachita'	0.1
Bottlebrush squirreltail	*Elymus elemoides*	3.0
Oats	*Avena sativa*	3.0
Basin big sagebrush	*Artemisia tridentate tridentate*	0.1
Four-wing saltbush	*Atriplex canescens*	1.0
Scarlet globemallow	*Sphaeralcea coccinea*	0.1
TOTAL		20.1

B. SEEDING APPLICATION:

FLATTER THAN 2.5:1: Drill seed 0.25 inch to 0.5 inch into the soil.
2.5:1 AND STEEPER: Hydroseed shall be applied at double the rate, in a single slurry which contains seed, mulch tackifier, fertilizer, humate and spray-on hydraulic organic amendment. Slurry shall be applied from top of slope downward, in 50' vertical lifts unless otherwise approved by the Engineer.
SMALL AREAS NOT ACCESSIBLE TO A DRILL OR AS DIRECTED:
Hand broadcast at double the rate and rake 0.25 inch to 0.5 inch into the soil.

C. SOIL CONDITIONING AND FERTILIZER REQUIREMENTS:

FLATTER THAN 2.5:1 (DRILL SEEDING):

Soil conditioner paid for as Item 212 - Soil Conditioning (Acre)		
Biological Nutrient Organic Based Fertilizer (lbs/acre)*	Humate (lbs/acre)	Compost (cys/acre) (1/2 inch depth)
600	200	65

*Biological nutrient shall not exceed 8-8-8 (N-P-K). Humate based material shall be in accordance to section 213 and compost shall be in accordance to special provision 212. refer to project special-topsoil for additional topsoil amendments. [Include topsoil project special provision] Placing compost when required to amend embankment and as soil conditioner may be combined as a single application.

2.5:1 AND STEEPER (HYDROSEEDING):

Soil conditioner paid for as Item 212- Soil Conditioning (Acre)

(Soil conditioner shall be applied in a single slurry which contains seed, mulch tackifier, fertilizer, humate and spray-on hydraulic organic amendment.)		
Biological nutrient organic based fertilizer (lbs/acre)*	Humate (lbs/acre)	Spray-on hydraulic organic amendment (lbs/acre)*
600	200	3500

*Biological nutrient shall not exceed 8-8-8 (N-P-K). Humate based material shall be in accordance to Section 212.
*Spray-on hydraulic organic amendment shall be 3-6-3 or other as approved.

D. MULCHING APPLICATION: Apply a minimum of 1 1/2 tons of certified weed free native hay per acre and in accordance with Section 213, and mechanically crimp it into the soil in combination with an organic mulch tackifier.

E. TRM/BLANKET APPLICATION: On slopes and ditches requiring a TRM and/or blanket, the blanket shall be placed in lieu of mulch and mulch tackifier. See SWMP for blanket locations.

F. RESEEDING OPERATIONS/ CORRECTIVE STABILIZATION:

Prior to final acceptance.

1. Seeded areas shall be reviewed during the 14 day inspections by the erosion control supervisor for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. Shall be regraded, seeded, mulched and have mulch tackifier (or blanket) applied as necessary.
2. Areas where seed has not germinated after one season shall be evaluated by the Engineer and CDOT Landscape Architect. Areas that have not germinated shall have seed, mulch and mulch tackifier (or blanket) reapplied. Work shall be paid for by the appropriate bid item.
3. The contractor shall maintain seeding/mulch/tackifie and mow to control weeds or apply herbicide to control weeds in the seeded areas until final acceptance.

10. PRIOR TO FINAL ACCEPTANCE

A. Final acceptance shall be in accordance with subsection 208.10.

11. TABULATION OF STORMWATER QUANTITIES

Pay Item	Description	Pay Unit	*Quantity
203	Blading	Hour	80
203	Backhoe (Landscaping)	Hour	80
203	Combination Loader	Hour	40
203	Dozing (Landscaping)	Hour	40
208	Erosion Log (12 Inch)	LF	7,149
208	Silt Fence	LF	1,000
208	Concrete Washout Structure	Each	4
208	Vehicle Tracking Pad	Each	6
208	Removal and Disposal of Sediment (Equipment)	Hour	150
208	Removal and Disposal of Sediment (Labor)	Hour	200
208	Erosion Control Supervisor	Day	80
212	Seeding (Native)	Acre	17
212	Soil Conditioning	Acre	17
213	Mulching (Weed Free Hay)	Acre	17
213	Mulching Tackifier	LB	2,600
213	Soil Binder	Acre	5
216	Soil Retention Blanket (Straw/Coconut) (Biodegradable Class 1)	SY	25,684
217	Herbicide Treatment	Hour	40
607	Plastic Fence	LF	1,200
700	Erosion Control	FA	1

*It is anticipated that additional BMPs and BMP quantities not shown on the SWMP site maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsection 208.03 and 208.04 (e). Quantities for all BMPs shown are estimated, and have been increased for unforeseen project conditions.

A. BMP sediment removal and disposal shall be paid for as 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other BMP maintenance shall be included in the cost of the BMP Device.

B. It is estimated that 240 hours of labor, blading (120 horsepower), dozing (100 horsepower), combination loader (75 horsepower) and/or backhoe (75 horsepower) may be required for miscellaneous erosion control work as directed by the engineer. Work shall be paid for as: 203 Blading, 203 Dozing, 203 Combination Loader or 203 Backhoe.

C. Maintenance of seeded areas shall be paid for as: FA erosion control and 212 seeding (Native).

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STORMWATER MANAGEMENT PLANS

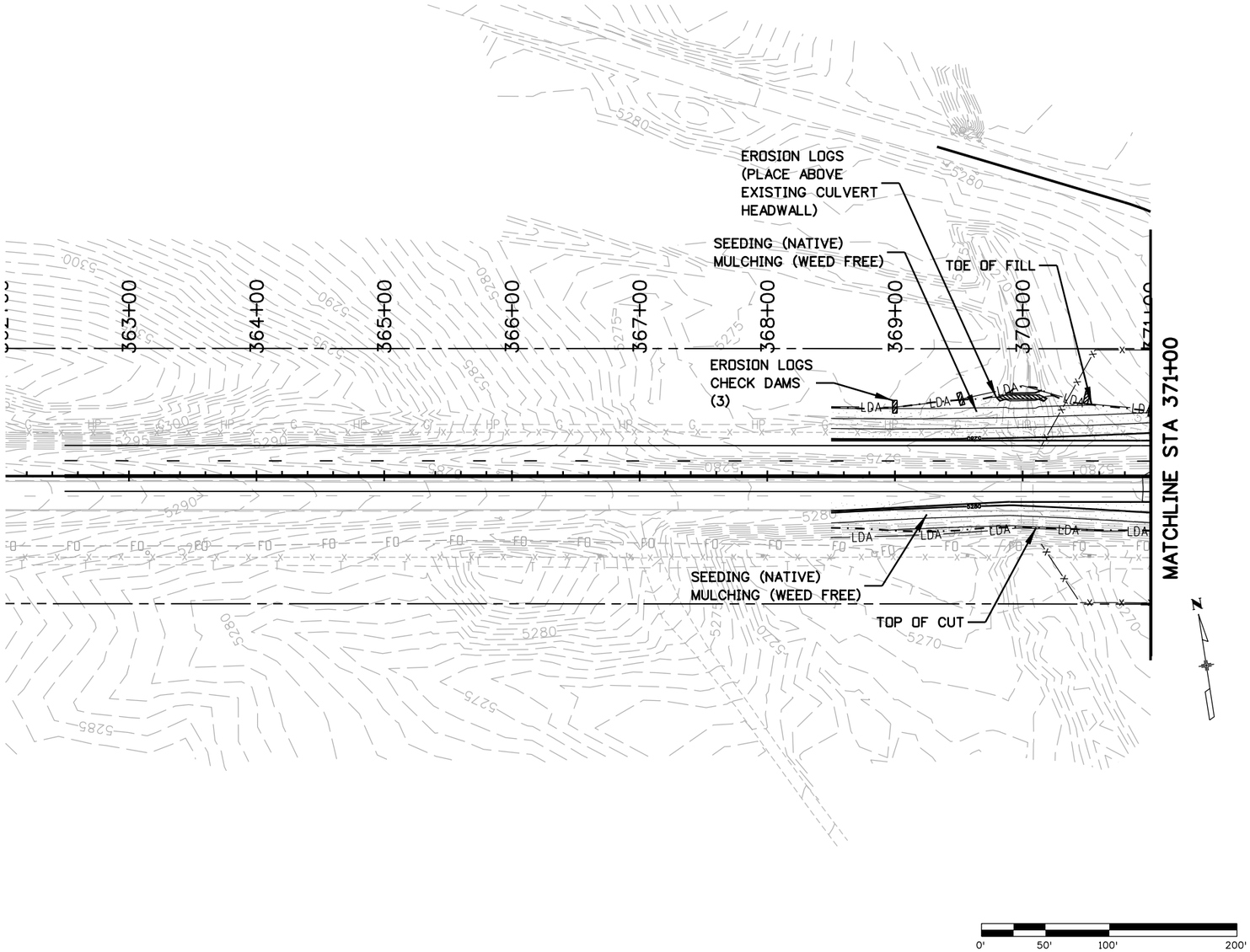
Designer:
Detailer:
Sheet Subset: SWMP
Structure Numbers
Subset Sheets: 04 of 04

Project No./Code
STA 092A-024
17772
Sheet Number 144 .

EROSION CONTROL LEGEND

- IPG — INLET PROTECTION
- OP — OUTLET PROTECTION
- SEEDING (NATIVE) MULCHING (WEED FREE)
- SOIL RETENTION BLANKET (STRAW/COCONUT) >2% DITCHES
- EXISTING WETLANDS
- EROSION CONTROL LOG (12") (PERIMETER CONTROL)
- EROSION CONTROL LOG (12") (CHECK DAMS)
- —PF— PLASTIC FENCE
- TOP OF CUT
- TOE OF FILL
- DIRECTION OF FLOW
- CWO — CONCRETE WASHOUT (TBD)
- VTC — VEHICLE TRACKING CONTROL (TBD)
- —LDA— LIMITS OF DISTURBANCE
- ROW LINES
- TEMPORARY EASEMENT

NOTE:
1. IF SEEDING AND BLANKET PLACEMENT DOES NOT OCCUR WITHIN 7 DAYS OF DITCH GRADING, TEMPORARY EROSION LOGS SHALL BE PLACED 50' APART IN BLANKET AREAS TO REDUCE VELOCITY OF THE WATER, ONCE SEEDING AND BLANKET HAS BEEN INSTALLED, EROSION LOGS SHALL BE PLACED AS SHOWN.
2. BMP'S NOT DRAWN TO SCALE.
3. BMP PLACEMENT IS APPROXIMATE.



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EROSION CONTROL LEGEND

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NOTE:
1. IF SEEDING AND BLANKET PLACEMENT DOES NOT OCCUR WITHIN 7 DAYS OF DITCH GRADING, TEMPORARY EROSION LOGS SHALL BE PLACED 50' APART IN BLANKET AREAS TO REDUCE VELOCITY OF THE WATER, ONCE SEEDING AND BLANKET HAS BEEN INSTALLED, EROSION LOGS SHALL BE PLACED AS SHOWN.
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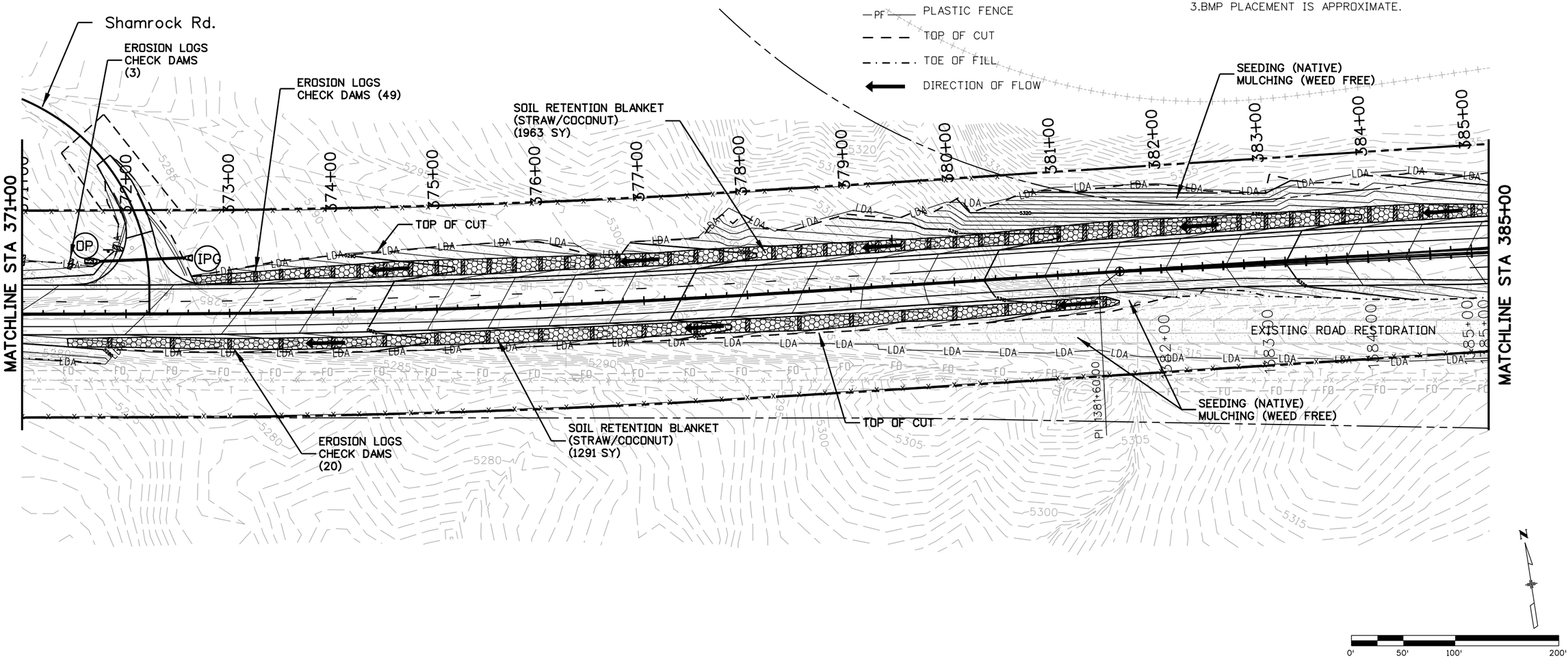

Print Date: 11/5/2013
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GRADING AND EROSION CONTROL PLANS

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Structure Numbers
Subset Sheets: 02 of 07

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EROSION CONTROL LEGEND

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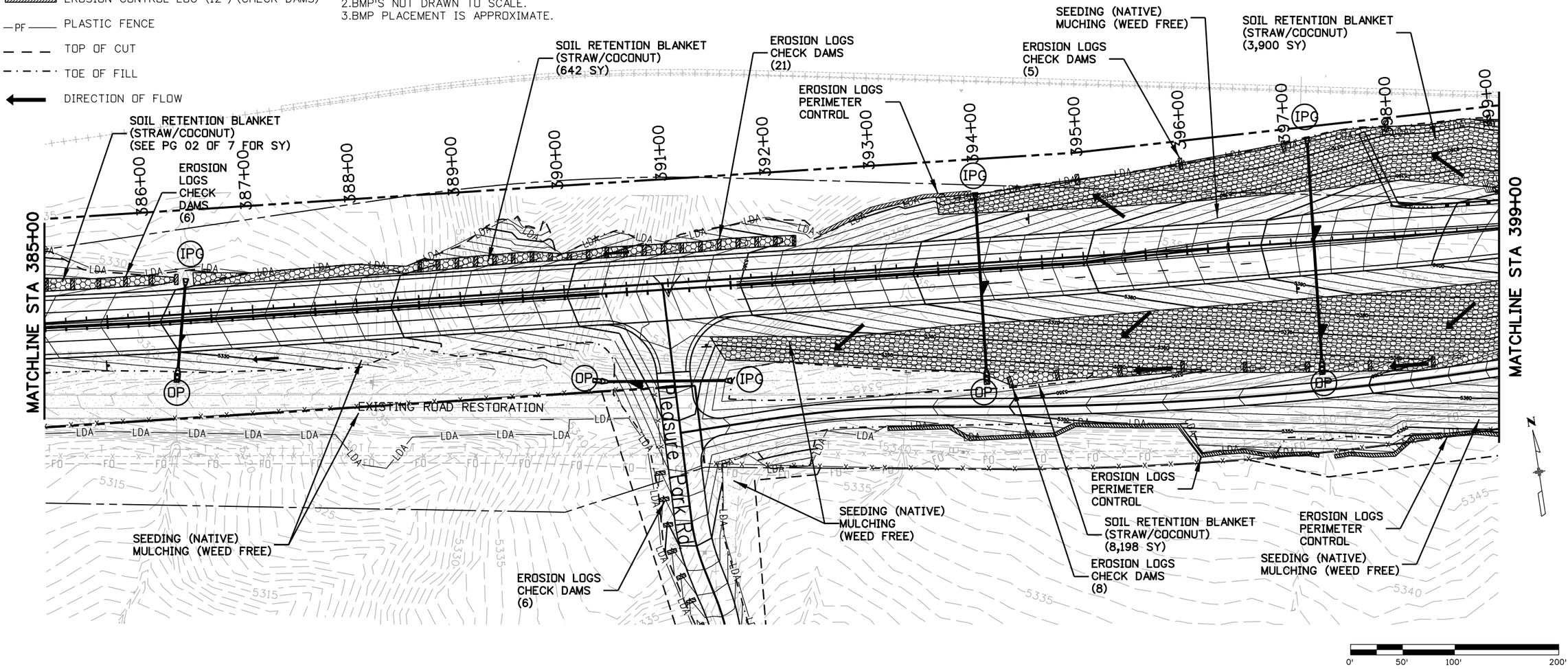
NOTE:
1. IF SEEDING AND BLANKET PLACEMENT DOES NOT OCCUR WITHIN 7 DAYS OF DITCH GRADING, TEMPORARY EROSION LOGS SHALL BE PLACED 50' APART IN BLANKET AREAS TO REDUCE VELOCITY OF THE WATER, ONCE SEEDING AND BLANKET HAS BEEN INSTALLED, EROSION LOGS SHALL BE PLACED AS SHOWN.
2. BMP'S NOT DRAWN TO SCALE.
3. BMP PLACEMENT IS APPROXIMATE.



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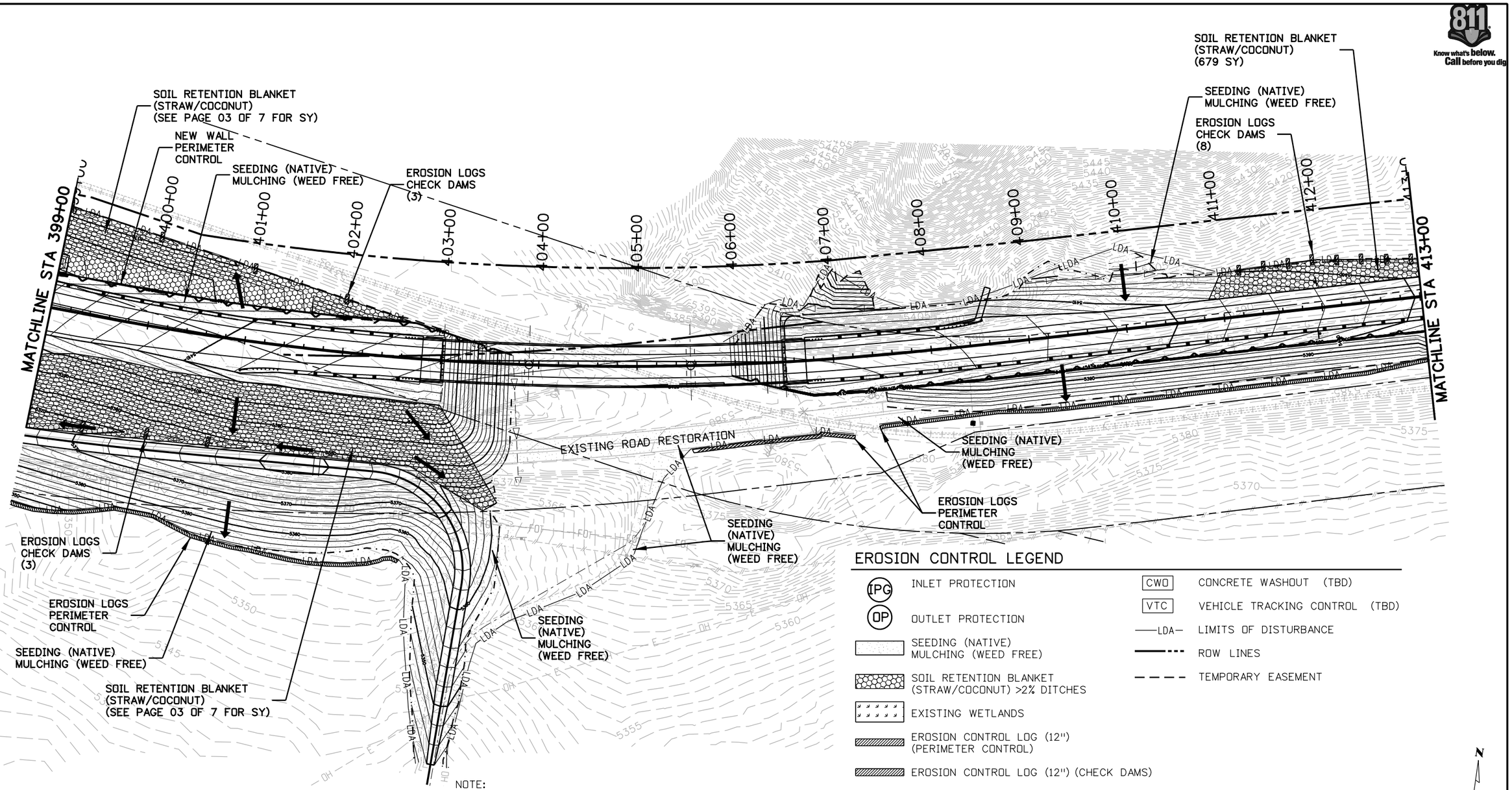

EROSION CONTROL LEGEND

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- —LDA— LIMITS OF DISTURBANCE
- ROW LINES
- TEMPORARY EASEMENT

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0' 50' 100' 200'

NOTE:
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2. BMP'S NOT DRAWN TO SCALE.
3. BMP PLACEMENT IS APPROXIMATE.

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GRADING AND EROSION CONTROL PLANS

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EROSION CONTROL LEGEND

- IPG — INLET PROTECTION
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NOTE:
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2. BMP'S NOT DRAWN TO SCALE.
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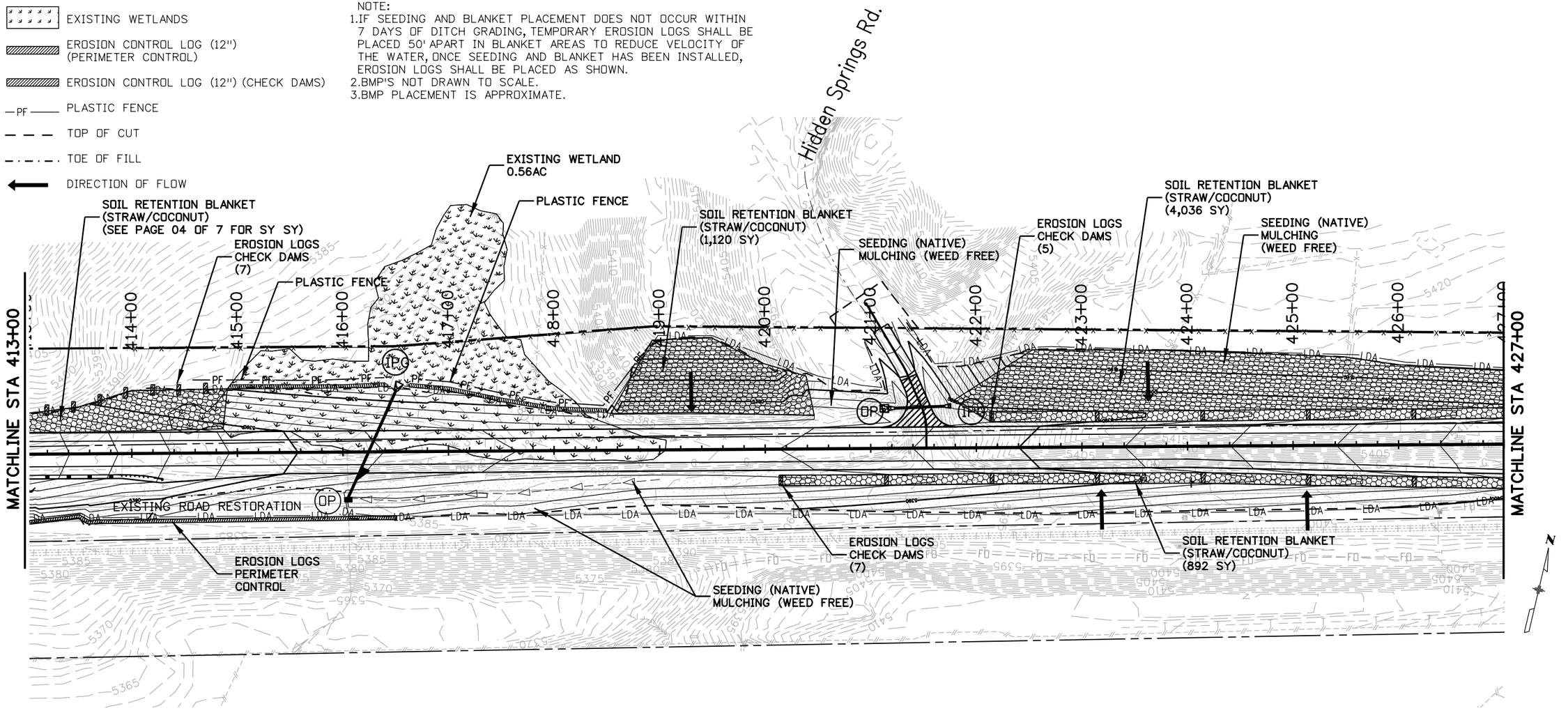

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File Name: 17772ErosionControlPLAN05.dgn	Date: / Comments / Init.	2424 North Townsend Avenue	No Revisions:
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GRADING AND EROSION CONTROL PLANS			Project No./Code
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EROSION CONTROL LEGEND

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NOTE:
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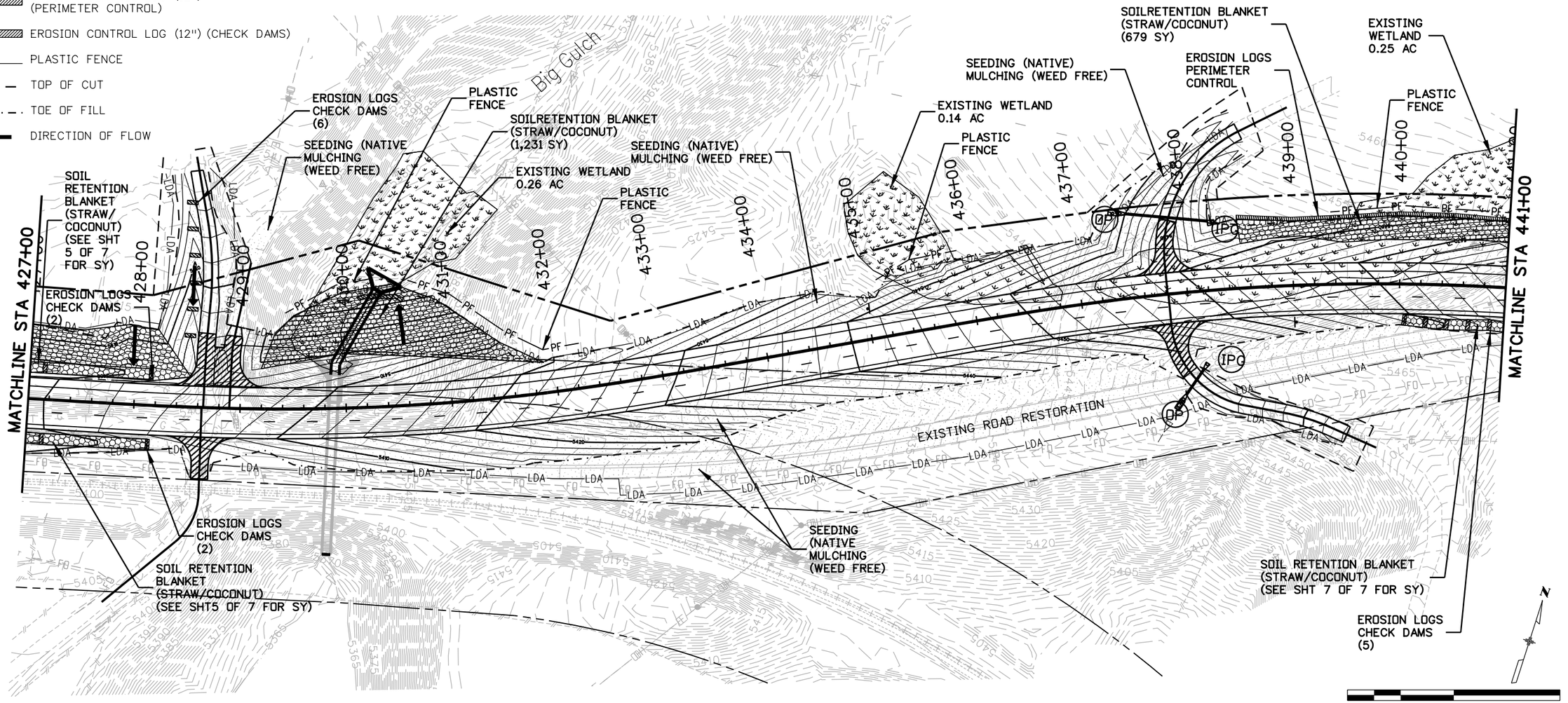

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File Name: 17772ErosionControlPLAN06.dgn	Date: / Comments / Init.	2424 North Townsend Avenue, Montrose, CO 81401	No Revisions:
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EROSION CONTROL PLANS			Project No./Code
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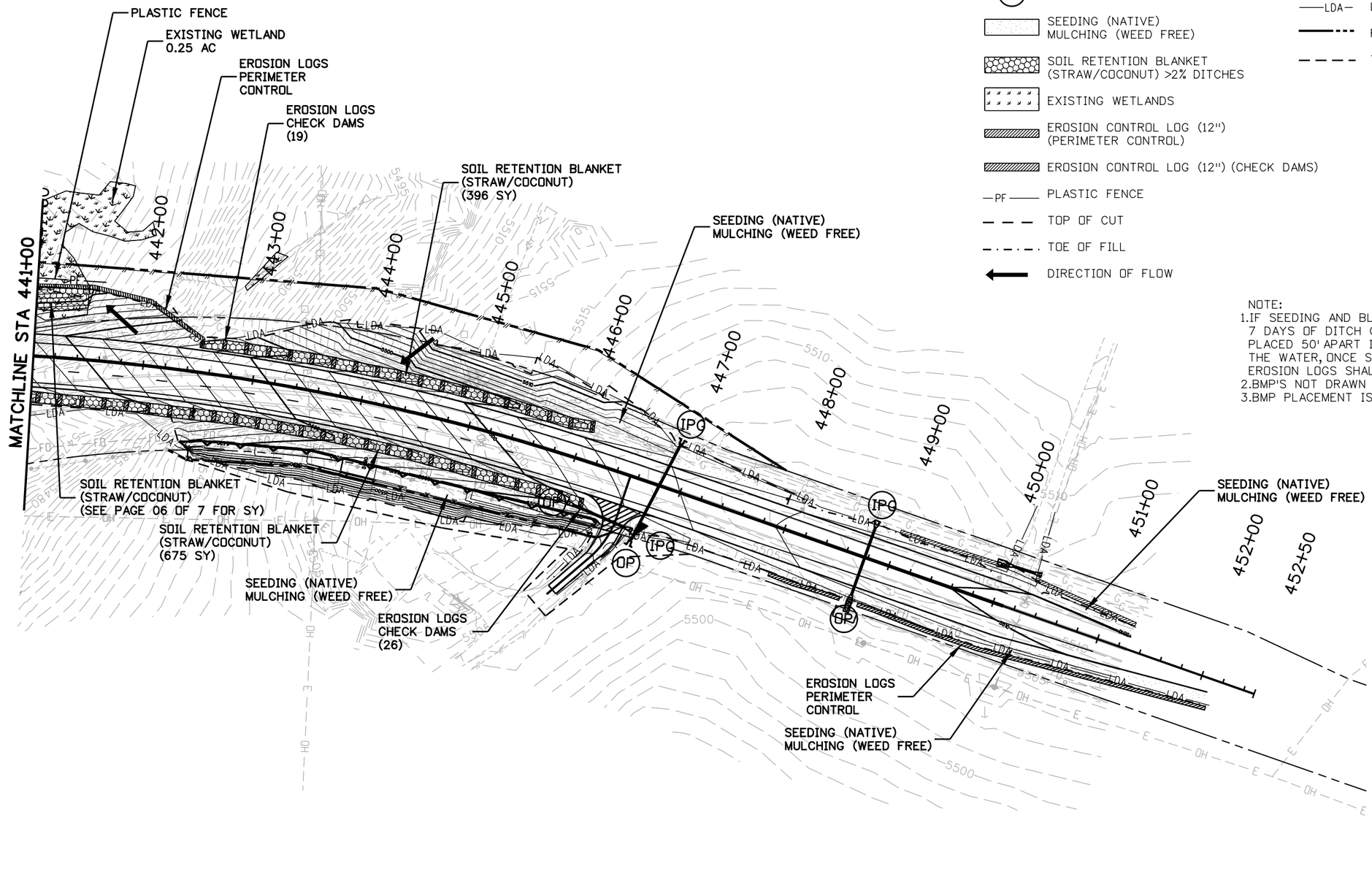

EROSION CONTROL LEGEND

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NOTE:
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