



Land Use

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • www.bouldercounty.org

MEMO TO: Agencies
FROM: Bryan Harding, Planner II
DATE: March 18, 2011
RE: Docket LU-11-0005

**Docket LU-11-0005: CITY OF BOULDER VALMONT BUTTE PROPERTY
REMEDICATION**

Request: Request for Limited Impact Special Use Review for an estimated 304,000 cubic yards of earthwork and demolition of selected industrial structures associated with the proposed remediation of a former mill, industrial and debris disposal site.

Location: At 3000 63rd Street and 6680 Valmont Drive, approximately 1.5 miles east of the intersection of Valmont Road and Foothills Parkway, south of and adjacent to Valmont Road and northeast and adjacent to 63rd Street, in Sections 22 & 23, Township 1N, Range 70W.

Zoning: Agricultural (A) and General Industrial (GI)

Applicant: Joe Castro, City of Boulder

Agent: Paul Casey, Casey Resources, Inc.

Limited Impact Special Review is required of proposed uses that may have greater impacts on services, neighborhoods, or the environment than those allowed by right under the Boulder County Land Use Code. This process will review conformance of the proposed use with the Boulder County Comprehensive Plan and the Land Use Code.

This process includes a public hearing before the Board of County Commissioners. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of this hearing. The Land Use staff and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter. Late responses will be reviewed as the process permits; all comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to review the entire file at the Land Use Department. If you have any questions regarding this application, please contact me at (303) 441-3930 or bharding@bouldercounty.org.

Please return responses to the above address by **April 4, 2011**.

_____ We have reviewed the proposal and have no conflicts.

_____ Letter is enclosed.

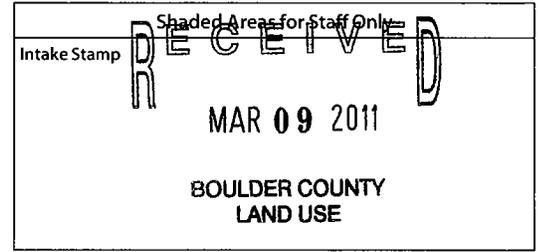
Signed _____ PRINTED Name _____

Agency or Address _____



Boulder County Land Use Department

Courthouse Annex Building
 2045 13th Street • PO Box 471
 Boulder, Colorado 80302
 Phone: 303-441-3930 • Fax: 303-441-4856
 Email: planner@bouldercounty.org •
 http://www.BoulderCounty.org/lu/
 Office Hours: Monday — Friday 8:00 AM to 4:30 PM



Application Form

Project Number LU-11-0005		Project Name	
* No Application Deadline		* Application Deadline: First Wednesday of the Month	
<input checked="" type="checkbox"/> Limited Impact Special Use <input type="checkbox"/> Limited Impact Special Use Waiver <input type="checkbox"/> Site Plan Review <input type="checkbox"/> Site Plan Review Waiver <input type="checkbox"/> Subdivision Exemption <input type="checkbox"/> Exemption Plat <input type="checkbox"/> 1041 State Interest Review <input type="checkbox"/> Other: _____		<input type="checkbox"/> Variance <input type="checkbox"/> Appeal <input type="checkbox"/> Sketch Plan <input type="checkbox"/> Preliminary Plan <input type="checkbox"/> Final Plat <input type="checkbox"/> Resubdivision (Replat) <input type="checkbox"/> Special Use/SSDP <input type="checkbox"/> Rezoning <input type="checkbox"/> Road/Easement Vacation <input type="checkbox"/> Location and Extent <input type="checkbox"/> Road Name Change	
Location(s)/Street Address(es) 3000 North 63rd Street			
Boulder, Colorado 80301			
Subdivision Name TR, 194-198 Commercial			
Lot(s) (Parcels) 14632300019, 14632240019	Block(s) -NA-	Section(s) 22, 23	Township(s) 1 North
Area in Acres 104.5	Existing Zoning GI-General Industrial	Existing Use of Property Vacant	Range(s) 70 West
Proposed Water Supply -NA-	Proposed Sewage Disposal Method -NA-		

Applicants:

Applicant/Property Owner City of Boulder (Joe Castro - Representative)		Email Address CastroJ@bouldercolorado.gov	
Mailing Address P.O. Box 791			
City Boulder	State Colorado	Zip Code 80306-0791	Phone 303.441.3163
		Fax 303.441.4063	
Applicant/Property Owner/Agent/Consultant		Email Address	
Mailing Address			
City	State	Zip Code	Phone
		Fax	
Agent/Consultant Casey Resources, Inc.		Email Address plcasey@caseyresourcesinc.com	
Mailing Address 4890 Kipling Street			
City Wheat Ridge	State Colorado	Zip Code 80033	Phone 303.940.7800
		Fax 303.423.7311	

Certification: (Please refer to the Regulations and Application Submittal Package for complete application requirements.)

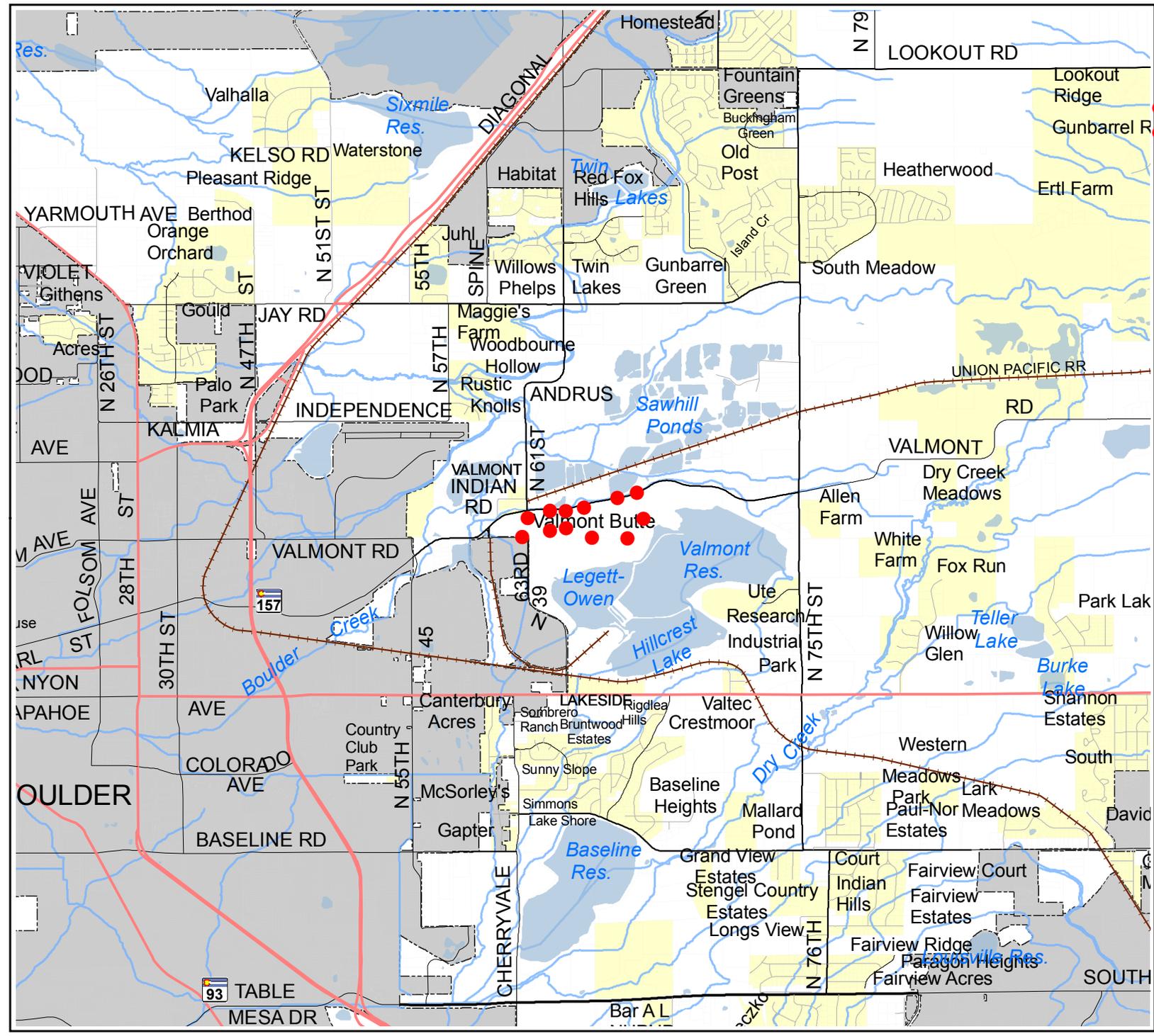
I certify that I am signing this Application Form as an owner of record of the property included in the Application. I certify that the information and exhibits I have submitted are true and correct to the best of my knowledge. I understand that all materials required by Boulder County must be submitted prior to having this matter processed. I understand that public hearings or meetings may be required. I understand that I must sign an Agreement of Payment for Application processing fees and that additional fees or materials may be required as a result of considerations which may arise in the processing of this docket. I understand that the road, school, and park dedications may be required as a condition of approval. I understand that I am consenting to allow the County Staff involved in this application or their designees to enter onto and inspect the subject property at any reasonable time, without obtaining any prior consent.

All landowners are required to sign application. If additional space is needed attach additional sheet signed and dated.

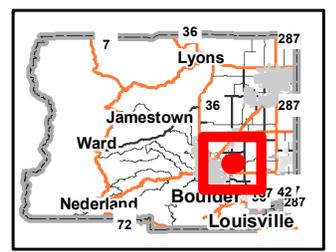
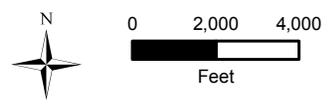
Signature of Property Owner <i>Joe Castro</i>	Date 3/1/2011	Signature of Property Owner	Date
Other Signature	Date	Other Signature	Date

* Only if the Land Use Director waives the landowner signature requirement for good cause shown under the applicable provisions of the Land Use Code.

Land Use Department Pre-Application Map: Vicinity

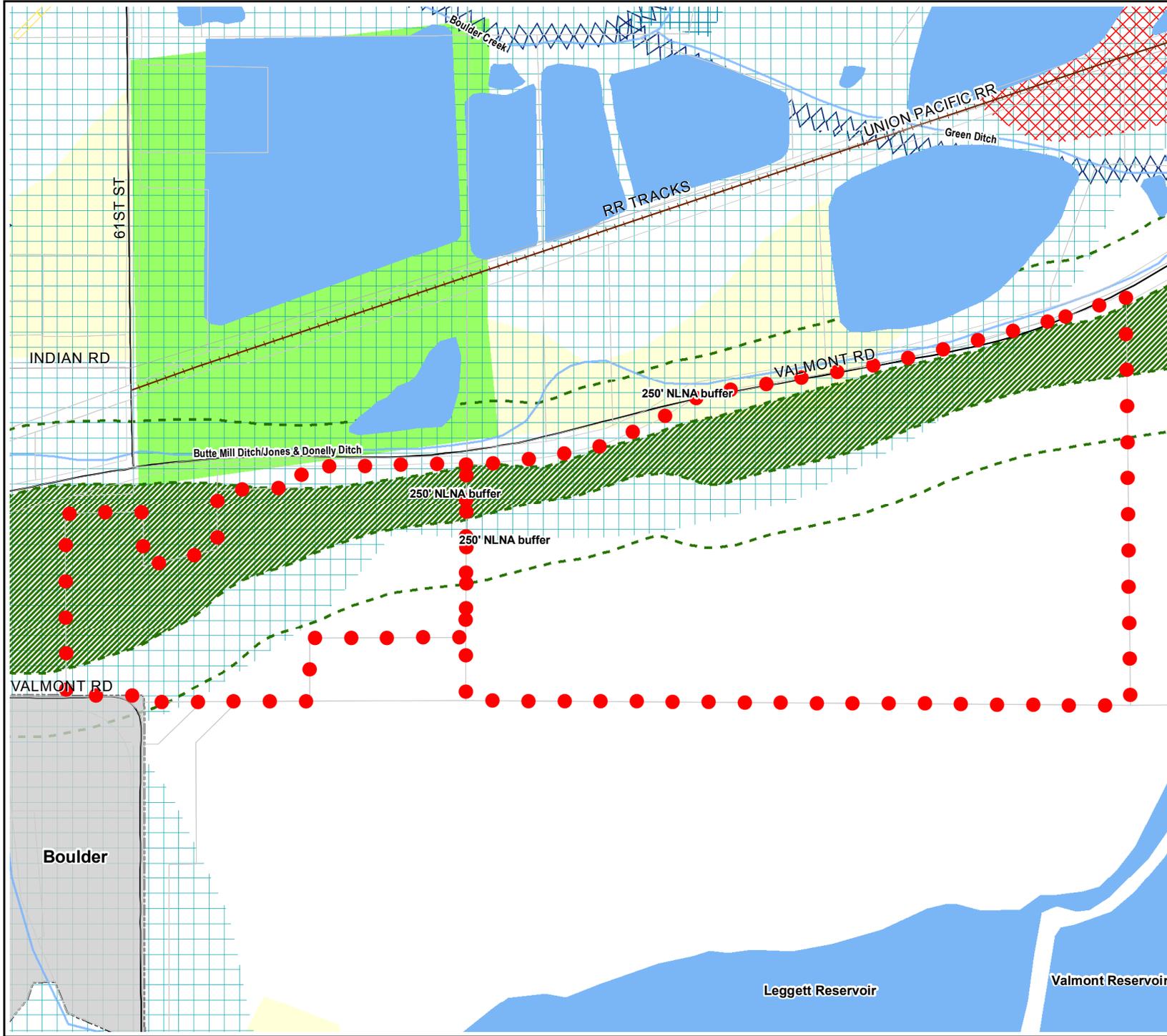


- Legend**
- PARCEL_NUMBER_14632300019
 - PARCEL_NUMBER_14632240019
 - County Boundary
 - Water
 - Municipality
 - Subdivisions

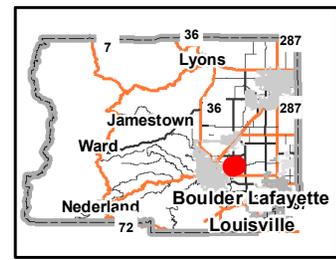


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Map Created February 2011

Land Use Department Pre-Application Map: Location

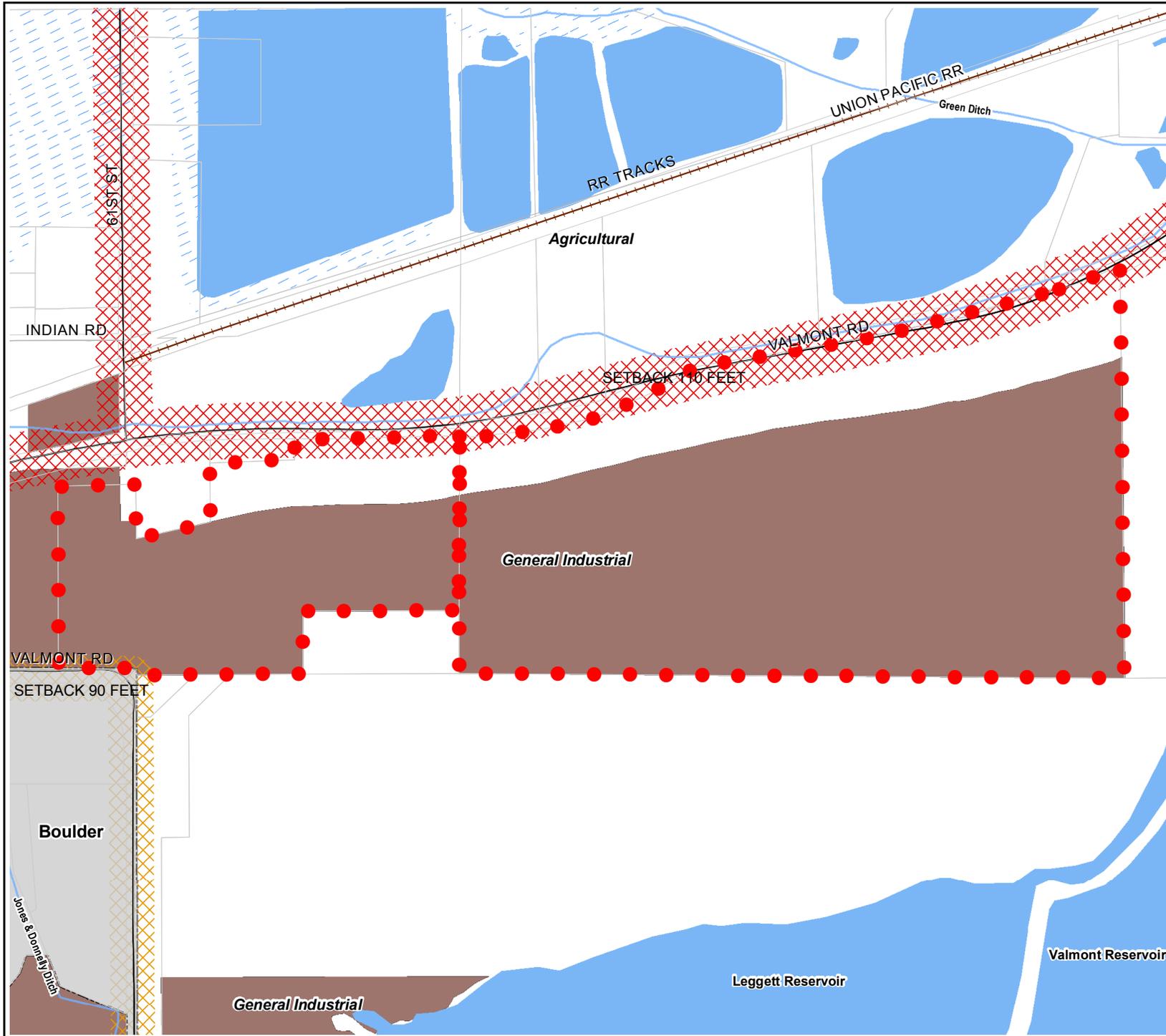


- Legend**
- PARCEL_NUMBER_14632300019
 - PARCEL_NUMBER_146322400019
 - Water
 - Streams
 - Municipalities
 - Archeologically Sensitive Travel Routes
 - Critical Wildlife Habitat
 - NLNA
 - 250 foot buffer
 - Streamside Open Corridor
 - Significant Riparian Corridors
 - Stream Habitat Connectors
 - Ag. Local Importance
 - Ag. National Importance



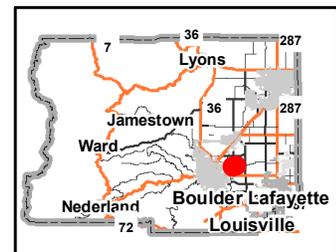
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Map Created February 2011

Land Use Department Pre-Application Map: Zoning



Legend

- PARCEL_NUMBER_146322400019
- PARCEL_NUMBER_146323000019
- Water
- Streams
- Municipalities
- 90 feet
- 110 feet
- Floodplain Overlay
- Zoning Districts**
- Agricultural
- General Industrial



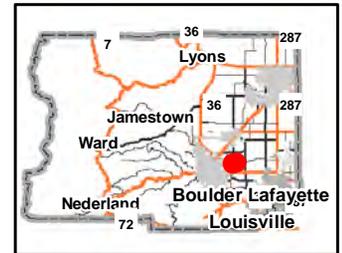
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 Map Created February 2011

Land Use Department Pre-Application Map: Aerial



Legend

- PARCEL_NUMBER_146323000019
- PARCEL_NUMBER_146322400019



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 Map Created February 2011



Environmental Engineering and Consulting
Remediation and Management Services

LIMITED IMPACT SPECIAL USE REVIEW PERMIT

SUBMITTAL ITEM 6 NARRATIVE/DEVELOPMENT REPORT

VALMONT BUTTE PROPERTY BOULDER, COLORADO

February 2011

A Narrative Report, which includes a summary of the planned development of the Valmont Butte Property is included under this cover.



Environmental Engineering and Consulting
Remediation and Management Services

NARRATIVE

FOR

LIMITED IMPACT SPECIAL USE REVIEW
SUBMITTAL APPLICATION

FOR THE

VALMONT BUTTE PROPERTY
BOULDER, COLORADO

FEBRUARY 2011

Prepared For:

Boulder County Land Use Department
2045 13th Street
Boulder, Colorado 80302

Prepared By:

Casey Resources, Inc.
4890 Kipling Street
Wheat Ridge, Colorado 80033
303-940-7800

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Figure 4	Mining Residual Management Area
Figure 5	Vehicle Access Points

LIST OF ATTACHMENTS

Attachment A	Digital Versatile Disc (“DVD”) Containing Supporting Documentation
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1.0 INTRODUCTION

The City of Boulder, Colorado (the “City”) purchased the Valmont Butte Property (the “Property”), located in Boulder County approximately 1.5 miles east of the Foothills Parkway and Pearl Street intersection (Figure 1) in 2000. Surface soil in several areas of the Property is impacted with heavy metals and low level naturally occurring radioactive materials (“NORM”). The City plans to complete remediation of these impacted surface soils to limit the risk of human and wildlife exposure. The remediation work requires a Limited Impact Special Use Permit from Boulder County.

The remediation plans for this project are summarized in this Narrative. The remediation plans are described in detail in the Voluntary Cleanup Plan (“VCUP”) Application for the Valmont Butte Property, dated June 15, 2010, which was approved by the Colorado Department of Public Health and the Environment (“CDPHE”) on September 1, 2010. The VCUP Application and approval letter are provided in Attachment A in electronic (“pdf”) format on digital versatile disc (“DVD”). Other pertinent documents discussed in this Narrative are provided on the DVD as well. The VCUP Application, site investigation reports, and other materials specific to the Property have also been posted on the City’s website at:

http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=4988&Itemid=2104.

2.0 BACKGROUND INFORMATION

The following sections provide a summary of the Property history, a description of the Property, and a description of the environmental issues identified at the Property.

2.1 PROPERTY HISTORY

In 1936, St. Joe Mining and Milling Co. acquired the Property and sometime thereafter built a mill on the western portion of the Property. St. Joe Mining and Milling Co. processed gold ore until approximately 1940, when the Property was sold to General Chemical Corporation. In 1947, General Chemical Corporation merged with Allied Chemical Corporation (“Allied”). Allied milled fluorspar ore at the Property from 1941 to 1973, generating approximately 400,000 cubic yards of fluorspar tailings. The fluorspar tailings contain naturally occurring radioactive materials (“NORM”) and heavy metals, including lead and arsenic. These tailings generally were deposited within two tailings impoundments referred to as the primary tailings pond and the secondary tailings pond (Figure 2).

In 1976, the Property was purchased by Tusco Incorporated (“Tusco”). In 1977, Hendricks Mining and Milling Company (“Hendricks”) leased the Property and converted the mill to process gold ore. Hendricks operated the mill until 1985, processing 75,000 tons of ore. Waste tailings from the gold ore processing were deposited on top of the fluorspar tailings in the primary tailings pond. The Hendricks milling operation placed approximately 45,000 cubic yards of gold tailings onto the primary tailings pond.

Valmont Butte Corporation purchased the Property from Tusco in July 1994, and the City purchased the Property in "fee simple" from Valmont Butte Corporation in September 2000. The Property has remained vacant and has not been used by the City since its purchase.

2.2 PROPERTY DESCRIPTION

The Property is located southeast of the intersection of Valmont Road and North 63rd Street, approximately four miles east of downtown Boulder, Colorado. The Property occupies an area of 104.5 acres. The Property lies on the south side of the Valmont Butte, a volcanic outcrop that trends east to west along the south side of Valmont Road, and north of the Xcel Energy Valmont Power Plant reservoirs (Leggett-Owen and Valmont Reservoirs) as shown on Figure 1. The Property consists of three areas as shown on Figure 2:

- Mill Site – The Mill Site includes the former mill complex, including the mill building used to crush and concentrate fluorspar and gold ores, a garage, laboratory building, office building, and several miscellaneous buildings. None of the buildings or structures on the Property are in use; however, the Mill Building and several adjacent structures are eligible for the National Register for Historic Buildings (Figure 3). The Mill Site area extends from the western Property boundary to approximately 900 feet east of the mill building and encompasses an area of approximately 18 acres. It includes the area west of the mill building, including the former railroad spur alignment and southwest trending gully, and backfilled area to the east of the buildings.
- Primary and Secondary Tailings Ponds - The tailings generated from the processing of ores at the mill generally were deposited in two tailings ponds located in the central part (primary tailings pond) and eastern side (secondary tailings pond) of the Property. The land area of the primary tailings pond and the secondary tailings pond are estimated at 12.5 acres and 4.5 acres, respectively. The primary and secondary tailings ponds each have constructed earthen dams at their respective eastern ends. Former erosional channels on the north side of the tailings ponds were also dammed. The primary tailings pond has one north side dam referred to as the primary dike dam. The secondary tailings pond has two north side dams referred to as the east and west secondary dike dams. The primary and secondary tailings ponds are approximately 30 feet lower in elevation than the Mill Site located to the west.
- Outlying Vacant Areas - The remainder of the Property, approximately 66 acres, is vacant land. This includes the Valmont Butte ridge north to Valmont Road, open land areas east of the primary and secondary tailings ponds extending to the eastern Property boundary, and open land to the south of the primary and secondary tailings ponds. These outlying areas include well established vegetation areas, areas of steep topography, and sensitive cultural areas.

2.3 ENVIRONMENTAL ISSUES

The tailings and certain areas outside the tailing ponds contain NORM and elevated concentrations of certain metals, particularly lead. The term "mining residuals" is used to define

the tailings materials generated from historic milling operations at the Property, including fluorspar and gold ore waste rock, unprocessed fluorspar and gold ore, plus any other related residuals.

These mining residuals resulted from the refining of fluorspar and gold ores at the mill. The fine grained mining residuals, consisting primarily of waste tailings from the milling of the ore, were deposited in the primary and secondary tailings ponds, respectively. The fluorspar milling operations at the Property resulted in the disposal of approximately 327,000 cubic yards in the primary tailings pond and 70,000 cubic yards in the secondary tailings pond (URS, 2005). The gold milling operations deposited approximately 45,000 cubic yards of gold tailings onto the fluorspar tailings contained in the primary tailings pond (URS, 2005).

In addition to the tailings ponds, up to 1,500 cubic yards of radium-226 impacted demolition debris from a Boulder Housing Authority construction project in the City was disposed at the Property. A 1976 Boulder County Department of Public Health (“BHD”) Special Environmental Health Report indicates the radium-226 impacted demolition debris were disposed and covered in a 90-foot diameter pit located west of the primary tailings pond (BHD, 1976). This disposal area was subsequently covered with additional backfill.

Site investigations have been conducted at the Property beginning in 1985 with the most recent investigation completed in 2009. Site investigations are summarized in the VCUP Application.

The site investigations conducted in 2009 were completed to assess the land area outside of the primary and secondary tailings ponds for potential impact from heavy metals and radiation (copy of this report provided on the DVD in Attachment A). Fourteen (14) areas, totaling approximately 679,600 square feet (15.6 acres) of the Property, were identified as containing lead concentrations that exceeded the screening value for lead of 800 milligrams per kilogram (“mg/Kg”). A radiation survey was also completed and did not identify any areas where radiation exposure rates at three feet above the ground surface were greater than the screening criteria of 68 micro-roentgens per hour (“ $\mu\text{R/hr}$ ”; $\leq 48 \mu\text{R/hr}$ above background) established by the CDPHE. Radiation areas previously identified by CDPHE with elevated radiation readings at the ground surface are included (are co-located) in the areas identified with lead concentrations exceeding the lead screening value.

3.0 REMEDIATION PLANS

The remediation plans are detailed in the Specifications document contained on the DVD in Attachment A. The Specifications include Construction Drawings and the following associated plans:

- Air Quality Monitoring Plan;
- Dust Control Plan;
- Health and Safety Plan;

- Materials Management Plan (includes confirmation soil sampling plans);
- Stormwater Management Plan; and
- Revegetation Plan.

3.1 REMEDIATION STRATEGY

The remediation strategy at the Property is driven by the need for a properly engineered cap on the primary tailings pond and the need to properly manage mining residuals located outside the tailings pond area. The mining residual areas identified outside the primary tailings pond include two areas that will be left undisturbed due to well established vegetation, steep topography, and/or cultural reasons. The remaining mining residual areas were subdivided into 14 separate remediation areas where mining residuals will be excavated (Figure 4). Prior to excavation, any prairie dog population will be removed from the construction area. The prairie dog removal will likely include the installation of vinyl mitigation barrier fencing by the contractor to limit prairie dog migration back into the work area. Vegetation within the excavation areas will be removed/grubbed as appropriate. Removed vegetation material will be mulched onsite and placed in the primary tailings pond.

The 14 mining residual areas along with the secondary tailings pond area will be excavated and placed (consolidated) on the primary tailings pond. The mining residuals will be used to regrade the primary tailings pond surface to improve incident precipitation drainage and establish a base level for cap construction. Once the mining residuals have been graded, the primary tailings pond will be capped with two feet of clean soil overlain by 1.5 feet of rock. The rock is needed to prevent prairie dog migration back onto the tailings pond area. Disturbed areas outside the capped primary tailings pond will be re-vegetated as outlined in the Revegetation Plan.

A small portion of remediation area "D" is located off Property on land owned by WMI-Boulder, Inc. (Lafarge North America) (See Figure 6.2 of the Construction Drawings). The volume of material to be removed from this area is estimated to be less than 50 cubic yards (30 feet by 60 feet by 0.5 feet). The City will contact Lafarge North America to obtain access permission to complete the excavation and backfill of this area.

The remediation will include the demolition of several buildings located onsite. The Mill Building and certain adjacent structures are eligible for inclusion on the National Register of Historic Buildings and will be protected during remediation activities (Figure 3). Section 5.0 of this Narrative discusses the activities completed to date to assess the historical significance of buildings and structures at the Property.

The remediation activities at the Property will not create a long-term demand for water supply, sewage disposal, electrical power, or other utilities.

3.2 REMEDIATION COMPLIANCE

The remediation will be completed following the plans outlined in the VCUP Application. The remediation of the Property will comply with the hazardous and solid waste regulations of the State of Colorado (administered by the CDPHE). Because these materials are being managed onsite, the managed soils are considered special solid waste as designated by the State of Colorado's Solid Waste regulations. The remediation plan is also regulated under the CDPHE Air Quality Control Division regulations as it relates to Air Pollution Emission Notification reporting specific to dust control planning and implementation.

3.3 TEMPORARY REMEDIATION FACILITIES

The remediation contractor will be selected by the City through a competitive bid process. It is anticipated that a qualified contractor will be selected by March/April 2011.

The selected contractor will establish a project trailer (base office) at the Property. The contractor will supply potable water and temporary sanitary port-a-potties for both female and male employees. There will be no discharge of sewage at the site.

In addition, the contractor will establish decontamination areas for its employees and equipment. Decontamination of equipment will be completed as follows. Visible mining residuals on equipment will be swept or washed off the equipment within an established decontamination containment area. After initial visual decontamination, the equipment will be frisked using a portable radiation ratemeter. The radiation ratemeter will be used to assess radiation dose primarily on tailgate areas, loader bucket, truck bed, excavator buckets, grader blades, and tires. If the radiation rate count is two times above background, the equipment will be washed a second time and then frisked again until radiation rates at or near background levels are recorded. Support vehicles used only for access and transport of personnel will not require as strict a decontamination procedure. These support vehicles will be required to have all loose soil and soil clods removed from tires and undercarriage. Under no circumstances will equipment be removed from the contaminated work area which does not meet the visual and radiation dose standard.

If showers are required for decontamination, the contractor will provide separate accommodations for male and female employees. Water for showering will be obtained from a City source.

Water for dust control will be obtained from a City water source located approximately one mile west of the Property and will be transported by truck to the site. See the Dust Control Plan contained in the Specifications document (DVD-Attachment A) for specific requirements.

4.0 LAND USE

Currently the Property is not in use. The north portion of the Property is designated non-accessible Open Space to protect certain natural features along the ridgeline of Valmont Butte.

Surrounding land use includes Keeter Trucking Company, Pioneer Sand and Gravel Company facilities, and the Valmont community to the north; Western Disposal refuse transfer station, Western Disposal yard waste collection center, Boulder County Hazardous Waste Collection center, the Stazio sports complex, and concrete recycling mixing batch plant to the west; Valmont Pioneer Cemetery, Xcel Energy Power Plant, Valmont Reservoir, Leggett-Owen Reservoir, and Hillcrest Lake to the south; and Xcel Energy fly ash disposal site to the east.

The City's potential future uses of the Property include outdoor equipment storage, energy generation, and possibly a historical mining museum or a commercial use located in the former mill area (Open Use) and open space for preservation of certain natural features and vistas (non-accessible Open Space). The proposed land use is compatible with the surrounding land use.

The land use complies with the zoning requirements which show the site as zoned as general industrial.

5.0 COMMUNITY/INTERESTED PARTIES

When the City purchased the Property in 2000, it worked closely with the public, including area residents, Native American groups including certain Indian Tribes (the "Tribes"), and the Valmont Pioneer Cemetery Association ("VPCA") over future use due to the fact that the Valmont Butte Property contains areas that are culturally significant, particularly to the Tribes and the VPCA. The City's goal continues to be the protection of the culturally sensitive areas. In this regard, the City has provided the Tribes with a letter describing the remediation strategy and requesting comments.

The culturally sensitive areas identified at the Property will be avoided and cultural oversight will be provided during the VCUP implementation. The City has contracted with Mr. Gary Brown, an archaeological consultant approved by the Tribes, to provide the cultural oversight. Where excavation is necessary, Mr. Gary Brown will monitor the excavation on behalf of the Tribes to ensure that existing and any newly identified cultural resources are protected. If, for example, Mr. Brown determines additional material should not be removed, capping in place will be considered in these areas. Any historical or archaeological objects of value discovered during construction activities will be reported to City representatives and preserved.

6.0 HISTORICAL PLANNING

The City has contracted several studies to assess the historical importance of the mill buildings and associated structures at the Property. A Historic Resource Survey of the Property was completed in 2001 and determined that that some of the buildings and structures on the Property were eligible for listing in the National Register of Historic Places. Eligible buildings and structures include the main flotation mill building and adjacent water pump house. The flotation mill at Valmont is reportedly recognized as being one of only several flotation mills still in existence in the United States. The mill building and associated structures are also eligible for listing in the State Register of Historic Places and as a local (county) landmark.

Hansen/Handley & Associates completed a preliminary condition assessment of the mill buildings in 2006. The assessment focused on the Valmont Mill including the ore mixing bin, and the southernmost pump house with the water clock. In addition, the report also evaluated the water reservoir. Hansen/Handley & Associates concluded that the mill building generally was in good condition.

In November 2006, the Historic Boulder's Board of Directors passed a resolution to save the mill building and that the City include a requirement in any sales contract for the Property that would require all future owners to preserve the Valmont Mill. Historic Boulder also recommended that the City landmark the Valmont Mill.

Recent conversations with the City's historic preservation planner indicate that in addition to the mill building and adjacent buildings that are eligible for the National Register of Historic Places, the cistern located on top of the butte may have historic significance and may be eligible for local landmarking.

7.0 TRANSPORTATION/TRAFFIC PLANNING

The remediation of the Property will include delivery of heavy equipment to the project site and dump trucks which will be utilized onsite for transporting excavated mining residuals to the primary tailings pond. It is anticipated that this equipment will remain onsite until the excavation and transport activities are completed.

The remediation will also include the import of soil and rock for capping of the primary tailings pond and soil for backfill of excavated areas. It will also include the import of water by truck for dust control.

As stated previously, the contractor for the remediation project has not been selected at this time. After selection, the contractor will be required to provide a detailed Traffic Control Plan, which will be provided to Boulder County for review and approval. The traffic plan will be required to provide information concerning access to the Property, signage that will be used, and days and hours of planned operation.

There are two entrances to the Property. These include an access from North 63rd Street and from Valmont Road as shown on Figure 5. It is anticipated that truck traffic will likely enter and exit from the Valmont Road access gate. Signage, such as “Caution Trucks Turning”, and/or flagmen will be used as necessary. Truck traffic will be limited from 9:00 AM to 4:00 PM in order to control impact to normal rush hour traffic along Valmont Road and North 63rd Street. The work week will be limited to Monday through Friday and will exclude holidays. Work on weekends is not anticipated unless the project falls behind schedule due to weather delays. Dust control activities (water truck spray) may be conducted on weekends in exposed excavation or graded areas.

All vehicles will be required to be decontaminated prior to leaving the Property. Equipment that is used onsite in impacted areas will not leave the Property until that equipment is no longer needed. When equipment is removed, it will undergo a rigorous decontamination process to ensure no impacted material leaves the site. Other vehicles accessing the Property will not enter identified impacted areas. These vehicles will be inspected and decontaminated as necessary before leaving the site; this decontamination will include visual inspection and removal of all loose soil and soil clods from tires and undercarriage.

The actual volume of materials excavated and transported will be dependent on the size of the impacted area, and therefore, the actual volumes of material import and the number of trucks used daily cannot be accurately estimated at this time. However, based on the site investigation data, it is estimated that 115,000 cubic yards of import fill from an offsite source will be needed to construct the primary tailings soil cap layer and to backfill remaining low spots outside of the capped area. Approximately 53,000 cubic yards (60,000 tons) of rock will be imported for the prairie dog exclusion layer.

To develop a theoretical truck traffic scenario for the project, it is assumed the contractor will have a fleet of 15-twenty cubic yard dump trucks that will be filled to approximately 18 cubic yards on average per trip. Since the location of the soil/rock source is not known, it is assumed a round trip will take less than 1.5 hours. It is also assumed that the contractor will import and stockpile all the soil and rock onsite, rather than transporting limited volumes over a longer period. Based on these assumptions, one truck will be able to complete approximately five round trips per day, delivering approximately 90 cubic yards of soil/rock, or with 15 trucks running, 1,350 cubic yards of soil/rock per day. This would result in 75 trips per day over approximately 85 days for the soil import and approximately 39 days for the rock import. Once the import is completed, there will be no long term transportation-related impacts from the project. In addition, once the remediation is completed, traffic will return to pre-remediation volumes. There will be no negative impacts to the transportation system or new traffic hazards due to the planned land use of the Property.



LIMITED IMPACT SPECIAL USE REVIEW PERMIT

SUBMITTAL ITEM 7 ENGINEERING REPORTS

VALMONT BUTTE PROPERTY BOULDER, COLORADO

February 2011

The Professional Engineer (P.E.) of record from Casey Resources, Inc. ("CRI") for the Valmont Butte remediation project is Mr. Paul L. Casey, Registration Number 26224.

Plan and Profile:

Plan and Profile illustrations are included in CRI's Construction Drawings, which are attached to this Submittal Package as Item 22 - Engineer's Construction Drawings.

The original Construction Drawings were created as D-Size (24"x36") bond prints. The reproductions included as part of this Submittal Package are scaled-to-fit on 11"x17" bond media. A digital versatile disc ("DVD") in Appendix A of the Narrative Report (Item 6 of this Submittal Package) contains electronic files for printing D-Size copies of these drawings.

Soil Characteristics:

Based on a previous geotechnical report by Terracon Consultants, Inc. entitled *Geotechnical Engineering Report, Valmont Drive, Project No. 22037003*, dated June 26, 2003, the existing surface soil on the Valmont Butte Property (the "Property") is primarily lean clay, which overlays claystone bedrock at depths of five feet below ground surface or greater.

As described in the Narrative Report (Item 6), the primary and secondary tailings ponds contain tailings which resulted from the milling (processing) of fluorspar and gold ores. The fluorspar tailings contain naturally occurring radioactive materials ("NORM") and both the fluorspar and gold tailings contain heavy metals, including lead and arsenic. Several areas outside of the primary and secondary tailings ponds have been impacted by the milling operations and require remediation. In addition, the primary tailings pond requires a properly engineered cap to prevent exposure to humans and wildlife. The remediation plans are summarized in the Narrative Report (Item 6).

Earthwork Calculations:

Based on volume calculations performed through use of AutoCAD Civil 3D, a three-dimensional drafting program, the following estimates for earthwork volumes were obtained:

Volume of impacted soil to be excavated and transported to the Primary Tailings Pond:
67,000 cubic yards

Volume of soils within Primary Tailings Pond that exceed design elevations to be graded:
27,500 cubic yards

Volume of soils outside of Primary Tailings Pond that exceed design elevations to be graded:
41,600 cubic yards

Volume of clean soil to be imported (or borrowed from onsite) to construct Primary Tailings Pond CAP and fill in low spots outside of the CAP area to meet design grades:
115,000 cubic yards

Total volume of rock imported to construct Prairie Dog Exclusion over the CAP:
53,000 cubic yards (approximately 60,000 tons)

Drainage Plans:

Drainage Plans are included as "Grading and Drainage Plans" in CRI's Construction Drawings, which are attached to this Submittal Package as Item 22 - Engineer's Construction Drawings.

A stormwater analysis was conducted for the Property, which is attached to this Submittal Package as Item 21 - Stormwater Analysis.

Geotechnical Evaluations:

Import soil for the project from offsite borrow sites or other fill sources identified for potential use on the Property will be screened for environmental and geotechnical suitability using the protocol set out in CRI's Import Soils Protocol for the Valmont Butte Property to ensure that such soils are suitable for unrestricted use. Under no circumstances will imported soils be brought onto the Property without proper screening and documentation.

Import soils for use on the Property will be free of frozen material, organic material, and debris (roots, wood, peat, cinders, trash or other deleterious materials) and will have a maximum particle size of six-inches in diameter. Import soils for use on the Property will be capable of being compacted to the minimum specified density for the project (assume 95% Proctor compaction density based on standard).

Import rock for the Prairie Dog Exclusion layer over the Primary Tailings Pond Cap will also be free of frozen material, organic material, and debris (roots, wood, peat, cinders, trash or other deleterious materials). Import rock for the cap will contain 85% nominal size from six inches to 18 inches in diameter, with no rock fragments greater than 18 inches and no more than 0 to 7% fines passing the 200-mesh sieve.

At a minimum, gradation analysis at a frequency of one gradation analysis per 10,000 cubic yards or portion thereof will be required for import soil and rock.

Soils for onsite use will not be brought onto the Property without the approval of the Materials Management Coordinator ("MMC") and the selected geotechnical consultant. Approval from the MMC and Geotechnical Consultant will be in written form provided to the Construction Contractor and the City of Boulder Project Manager.

Traffic Reports:

A Traffic Report is included in this Submittal Package as Item 14 - Traffic Report.



LIMITED IMPACT SPECIAL USE REVIEW PERMIT

SUBMITTAL ITEM 11 WATER AND SEWER INFORMATION

VALMONT BUTTE PROPERTY BOULDER, COLORADO

February 2011

The remediation contractor will be selected by the City of Boulder (the Owner) through a competitive bid process. It is anticipated that a qualified contractor will be selected by March/April 2011.

The selected contractor will establish a project trailer (base office) at the Property. The contractor will supply potable water and temporary sanitary "port-a-potties" for both female and male employees. There will be no discharge of sewage at the site.

In addition, the contractor will establish decontamination areas for its employees and equipment. Decontamination of equipment will be completed as follows: Visible mining residuals on equipment will be swept or washed off the equipment within an established decontamination containment area. After initial visual decontamination, the equipment will be frisked using a portable radiation ratemeter. The radiation ratemeter will be used to assess radiation dose primarily on tailgate areas, loader buckets, truck beds, excavator buckets, grader blades, and tires. If the radiation rate count is two times above background, the equipment will be washed a second time and then frisked again until radiation rates at or near background levels are recorded. Support vehicles used only for access and transport of personnel will not require as strict a decontamination procedure. These support vehicles will be required to have all loose soil and soil clods removed from tires and undercarriage. Under no circumstances will equipment be removed from the contaminated work area which does not meet the visual and radiation dose standard.

If showers are required for decontamination, the contractor will provide separate accommodations for male and female employees. Water for showering will be obtained from a City source.

Water for dust control will be obtained from a City water source located approximately one mile west of the Property, and will be transported by truck to the site. See the Dust Control Plan contained in the Specifications document (DVD-Attachment A) for specific requirements.



LIMITED IMPACT SPECIAL USE REVIEW PERMIT

SUBMITTAL ITEM 13 LANDSCAPE/EROSION CONTROL PLAN

VALMONT BUTTE PROPERTY BOULDER, COLORADO

February 2011

A Landscape Plan entitled Revegetation Plan for the Valmont Butte Property (the "Property"), authored by Bamberg Ecology, is included under this cover. In addition, a supplemental Revegetation Plan drawing (Sheet 9.0) is included in Casey Resources Inc.'s ("CRI's") Construction Drawings, which are attached to this Submittal Package as Item 22 - Engineer's Construction Drawings.

An Erosion Control Plan for the Property, entitled Stormwater Management Plan, authored by CRI is attached to this Submittal Package as Item 20 - Stormwater Management Plan. A supplemental Stormwater Management Plan drawing set (Sheets 7.1 and 7.2), which illustrates proposed erosion control measures is also included in CRI's Construction Drawings, which are attached to this Submittal Package as Item 22 - Engineer's Construction Drawings.

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**REVEGETATION PLAN
FOR THE
VALMONT BUTTE PROPERTY
VOLUNTARY CLEANUP OPERATION
BOULDER, COLORADO**

February 2011

Prepared for:

**City of Boulder
1720 13th Street
Boulder, Colorado 80306**

Prepared by:

**Bamberg Ecology, LLC
2622 Valentia St
Denver, Colorado 80238**

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1.0 INTRODUCTION

This Revegetation Plan accompanies the Specifications document for the remediation of the Valmont Butte Property (the "Property"). This remediation will be accomplished via a Voluntary Cleanup Plan¹ ("VCUP") for the Property that was submitted by Casey Resources Inc. ("CRI") and approved by the Colorado Department of Public Health and Environment ("CDPHE"). The 104.5-acre Property is owned by the City of Boulder (the "City") and located approximately four miles east of the City's central business district, 1.5 miles east of the Foothills Parkway and Pearl Street intersection in Boulder County, Colorado.

The City's potential future uses of the Property include outdoor equipment storage, energy generation, a historical mining museum or commercial use located in the former mill area (Open Use), and open space for preservation of certain natural features and vistas (non-accessible Open Space). The north portion of the Property is quite steep and generally is dedicated non-accessible Open Space to protect certain natural features along the ridgeline of Valmont Butte. The cleanup action includes removal of abandoned structures associated with a former mill operation and consolidation of contained mine tailings. This Revegetation Plan includes goals and objectives; a mixed design including complete revegetation of newly disturbed, bare surface (approximately 30 acres) and overseeding of poorly or weedy vegetated lands (approximately 30 acres); performance standards; and discussion of potential concerns including weed control and prairie dogs (*Cynomys ludovicianus*).

2.0 BACKGROUND

PROPERTY HISTORY

A full discussion of the complete Valmont Butte Property VCUP project is provided in the VCUP Application¹. In summary, the Property is the site of a former (1940 to 1985) milling operation that processed fluor spar and gold ores shipped from nearby mines in the Rocky Mountain foothills. Waste material from the milling operation was contained primarily within two tailings ponds, referred to as the primary and secondary tailings ponds. In 1985, upon cessation of operations, the tailings ponds were reportedly covered with topsoil and seeded. The mill and related structures remain on the Property. The City purchased the Property in September 2000; however, it has remained vacant and has not been used by the City since its purchase.

¹ Casey Resources Inc., 2010, Voluntary Cleanup Plan Application for the Valmont Butte Property, 3000 North 63rd Street, Boulder, Colorado. June 2010.

VCUP REMEDIATION STRATEGY

The VCUP remedial strategy was developed following a variety of investigations, including geology, hydrology, soil quality (including radiation surveys), and survey of onsite historic, cultural, and natural resources¹. The remediation strategy is driven by the need for a properly engineered cap on the tailings and the need to properly manage mining residuals located outside the tailings pond area. Mining residuals will be consolidated into the primary tailings pond from the secondary tailings pond area and, where feasible, outlying areas. The primary tailings pond will then be covered with an engineered cap that will meet applicable regulatory criteria and withstand prairie dog incursions. This cap will consist of two feet of clean soil overlain by 1.5 feet of rock. All buildings except the mill and associated historic structures are proposed to be removed and the area revegetated to prairie land.

ECOLOGICAL SETTING

The Property is located in the Eastern Plains at the base of the Rocky Mountains at an elevation of 5,190 to 5,389 feet above mean sea level ("AMSL"), with the upper plains vegetation transitioning into vegetation of the foothills. The climate is typical of the high plains of this intermountain region with moderately hot summers characterized by low humidity and cool winters with moderate snowfall that melts quickly. Boulder has an annual precipitation of 457 millimeters (18 inches) with the maximum moisture coming in April and May. Upslope storms occur in the spring and autumn while convective storms are common on late summer afternoons. The average temperature is 10.50°C (51°F) with 152 frost free days. Winds are predominantly from the west. Strong, warm, dry winds occur in the winter months and act to desiccate the landscape.

In general, vegetation on the Property remains as described in the Valmont Community and Environmental Assessment Process ("CEAP")². Vegetation is typical for this high plains location with extensive surface disturbance. Historically, the vegetation was a short grass prairie; however, periodic disturbance and prairie dog occupation has resulted in a weedy vegetative cover of non-native forb and grass species and expanses of bare ground. A mostly-native shrubland community occurs on the north-facing and upper south-facing hillside of the escarpment that is Valmont Dike. The flatter areas south of Valmont Dike consist primarily of weedy forbs that are a result of past land uses including extensive grading, berming, and terracing

² Community and Environmental Assessment Process (CEAP) for the Valmont Butte Property. March 4, 2005.

to accommodate the milling operation and tailings ponds, and later grading and capping of the tailings ponds.

Weedy species dominate the two tailings ponds, particularly the primary tailings pond. The western portion of the primary tailings pond supports a small grove of plains cottonwood (*Populus deltoides*), Russian olive (*Elaeagnus angustifolia*), and Siberian elm (*Ulmus pumila*) trees with an understory of weedy forbs. Three healthy ponderosa pine (*Pinus ponderosa*) trees grow within the secondary tailings pond area. The southern slope of the Property contains a disturbed upland area dominated by weedy forbs on the slopes and native, grazing-tolerant forbs on the level portion. The mill site is mostly bare ground with some cover by weeds and noxious weeds (i.e., knapweed and thistle).

Wildlife on the site is typical of human “commensal” species - species that derive some direct benefit from humans and human-altered habitats and includes coyote (*Canis latrans*), red fox (*Vulpes fulva*), striped skunk (*Mephitis mephitis*), spotted skunk (*Spilogale putorius*), raccoon (*Procyon lotor*), and small rodents. Mule deer (*Odocoileus hemionus*) were seen on the upland south of the primary tailings pond and in the mill area. Birds include typical passerine birds, magpie (*Pica pica*), and urban adapted raptors such as red-tailed hawk (*Buteo jamaicensis*). Prairie dogs and their burrow colonies are present throughout the Property on the level to semi-level areas, except for the primary and secondary tailings pond areas where they are currently being controlled. Prairie dogs are also present on neighboring properties to the south.

3.0 GOALS AND OBJECTIVES

Based on the preliminary remediation plans, approximately 30 acres of the Property will require complete revegetation; approximately 30 acres have sparse vegetation and will receive overseeding of existing vegetation; approximately 22 acres will be capped with rock and will not be revegetated; and the remaining 26 acres will not be disturbed and exhibit adequate vegetation.

The objective of this Revegetation Plan is to establish native vegetation species in the areas of disturbance, except for the area that will be capped with rock, and augment inadequate vegetation in areas of prior disturbance. The goals of the revegetation are to establish a native plant species population that can maintain itself and wildlife, and protect the landscape from wind and water erosion. Three primary factors are expected to influence the success of this

endeavor: climate, soil nutrients, and prairie dog activity. No irrigation is planned for this revegetation effort; therefore, low precipitation and high summer temperatures may reduce seed germination and growth especially in the first year after seeding. The low plant available nutrients in the soils will also reduce revegetation efforts. Therefore, analysis of the imported topsoil and nutrient supplementation as needed is important. Finally, adapting the seed mix to prairie dog activity is critical.

BLACK-TAILED PRAIRIE DOGS

The black-tailed prairie dogs are not planned for removal from areas outside the engineered cap; however, the prairie dogs will be controlled in certain areas during construction. The City has been addressing the prairie dog issue on an ongoing basis¹. In 2007 barrier fences were installed in order to restrict prairie dog migration into the tailings pond areas.

Understanding the life-strategy and activity of prairie dogs and adapting the vegetation efforts accordingly will greatly improve the revegetation success of this project. Prairie dog presence alters the local ecosystem to a significant degree resulting in them being considered a key-stone species. Prairie dogs are prey species and their defense is visual; therefore, they keep the vegetation in and around their colony and burrows cropped close to the ground or remove it entirely. Their burrowing changes soil structure. Historically, prairie dogs very slowly migrate their colonies across the landscape, revitalizing the soil and plants in their wake.

Modern suburban and open space landscapes restrict their ability to migrate, causing over utilization and degradation of the local ecosystem. Most native grass and forb species will not survive the constant mowing, especially during establishment. Therefore, the plants that will grow are the low-growing invasive species such as field bindweed (Colorado Noxious Weed List C species) or low-growing grasses such as blue grama (*Bouteloua gracilis*). It is not possible for many native grass, herbaceous, or shrub plants to establish under these conditions.

REVEGETATION STRATEGY

To date, the answer to the prairie dog situation has been to eradicate them, but an understanding of their importance to the prairie ecosystem has resulted in some recent studies on revegetation with prairie dogs present. The strategy for this Revegetation Plan is two-fold:

- Complete Revegetation - In the areas where construction will occur (see Sheet 9 CRI's Construction Drawings), it will be necessary and most humane to remove the prairie dogs and barrier the neighboring prairie dogs for a period of up to five years until the vegetation has established. This vegetation will be tall, dense, and include shrubs to deter the re-entry of the prairie dogs.
- Overseed Vegetation – In areas of previous use or construction (see Sheet 9 CRI's Construction Drawings) and where prairie dog colonies are present, overseeding with short stature and resilient grass species will be done at a heavy seeding rate without ground tillage.

4.0 DISTURBED AREAS - COMPLETE REVEGETATION

Prairie dogs will be humanely controlled in these areas prior to any construction activity. A vinyl fence will be constructed around these areas to exclude the prairie dogs and will be maintained for a period of five years while vegetation establishes.

4.1 Grading Plan

Grading will be completed as specified in the VCUP with final contours matching the surrounding landscape as close as possible and with awareness of drainage issues. After shaping, all non-natural debris and oversized rocks should be removed from the area. The subsurface, although settled and firm, should not be compacted, but remain friable to facilitate water and root penetration. In addition, this may reduce future prairie dog activity since they need well compacted subsoils to develop their burrows and tunnels.

Topsoil, which will be composed of existing graded soil and soil imported from an offsite source shall be weed free and of good quality for plant growth. Potential topsoil should be evaluated by a qualified landscape or revegetation specialist and laboratory tested for a typical agricultural analysis of the plant available nutrients, soil texture, and pH. Topsoil will be four to eight inches deep in the complete revegetation areas as specified in the VCUP. The topsoil should not be compacted and, as equipment allows, the surface should be slightly irregular to create micro-catchment areas to slow water movement on hillsides and provide minute shading and wind protection for young seedlings as they emerge.

4.2 Soil Amendments

A soil plant nutrient, texture, and pH test will be conducted on the topsoil to determine if any fertilizer or other nutrients are needed. Native species are adapted to relatively low nutrient conditions, so additions should be made at the lowest recommended levels. Higher nutrient additions promote invasive species. Fertilizer needs to be of an organic source, not inorganic. Inorganic fertilizers promote the need to fertilize on a yearly basis.

In addition to fertilizer, a mycorrhizae inoculant appropriate to the seed mix should be added at the time of seeding. The fertilizer and inoculant are available in several forms and can be added with the drilling seeding to avoid multiple passes with heavy equipment on the revegetation areas.

4.3 Nursery Crop or Mulch

It is highly recommended to plant a nursery crop for one growing season prior to planting the native seed mix. A nursery crop gives several important advantages in establishing a native vegetation landscape. The nursery species are highly competitive with invasive species in a bare ground setting. One season of the high competition greatly reduces the number of weeds established on the site. In addition, the nursery crop helps establish the soil system with a high carbon nutrient source. Perhaps most importantly, the nursery crop quickly stabilizes the ground surface, reducing wind and water erosion. The resultant stubble provides a protective environment for the young native species to germinate and establish in without competition from the nursery crop itself since the nursery crop is dead.

The nursery crop can be annual millet, long-season sorghum, or Triticale. The cover crop can be planted:

- late spring (June), mowed in late fall (September-October) after it dies and the native seed mix should be drilled into the stubble between December and March; or
- fall (August) when it will germinate, overwinter, and then grow in early spring. When young plants are several inches tall (first of April), kill the nursery crop with Roundup or a similar herbicide and then drill seed the native seed mix over the dead nursery crop within a week.

Mulching is not needed if a nursery crop is planted. However, if a nursery crop is not planted, certified weed-free mulch should be used. The mulch is applied after seeding at about 4,000 pounds per acre ("lbs/acre") and crumped into the soil surface. At least 50% of the mulch by

weight should be ten inches or longer. If hydromulch is used, it should include material with a bonding agent and applied with the seed or within a few days after seeding.

4.4 Native Seed Mix

Seeds planted on the Property must be native and adapted to the High Plains climate. Several commercial seed companies sell native seed within the Front Range area. Table 1 provides a recommended seed list. This mix may be adjusted depending on the results of the topsoil nutrient analysis or other factors such as seed availability, however only native species will be substituted and the objective is to establish multi-layered vegetation with a tall grass and shrub component. Grass seeds are generally the least expensive of the native seeds available and establish readily on well prepared sites. Grasses have extensive root systems that provide excellent wind and water erosion protection, which is one of the main goals of this revegetation project. However, it is highly recommended to include shrubs and wildflowers in the mix to establish diversity and good bird and other wildlife habitat, also one of the goals of this project within Open Space. In addition, tall shrubs such as rubber rabbitbrush will deter invasion by prairie dogs once established to a height of 18 inches or more.

4.5 Seeding Rates

Seed recommended Foothills Native Grass, Native Shrub, and Native Prairie Wildflower mix by drill at a rate of 10-12 lbs/acre for Grass Mix, 2 lbs/acre for the Shrub Mix, and 6-8 lbs/acre for Wildflower Mix. If the Wildflower Mix is not included, increase Grass Mix to 18-20 lbs/acre.

4.6 Seeding Method

Seed should be planted by mechanical drilling at a depth of $\frac{1}{2}$ to $\frac{3}{4}$ inches below the soil surface. The drill must meet the specifications for the type of seed and seeding rates recommended, and terrain present. Seed should be drilled after November 1 and before May 1. Mechanical revegetation activities should not be performed when the ground is wet to avoid rutting or other ground disturbance. Frozen ground will greatly diminish the effectiveness.

Table 1.0 Recommended Seed Mix for Valmont Butte

Foothills Native Grass Mix

- (10%) Indian Ricegrass
- (10%) Little Bluestem
- (10%) Blue Grama
- (10%) Indiangrass
- (7.5%) Sandberg Bluegrass
- (10%) Arizona Fescue
- (10%) Sideoats Grama
- (10%) Green Needlegrass
- (10%) Buffalo Grass
- (10%) Western Wheatgrass
- (2.5%) Spike Muhly

Native Shrub Mix

- (50%) Rubber Rabbitbrush
- (50%) Bitterbrush

Native Prairie Wildflower Mix

- (21%) Annual Sunflower
- (10%) Annual Gaillardia
- (10%) Perennial Gaillardia
- (10%) Gayfeather
- (10%) Thickspike Gayfeather
- (10%) Lance-Leaved Coreopsis
- (8%) Purple Prairie Clover
- (5%) Maximillan Sunflower
- (5%) White Prairie Clover
- (3%) Greyheaded Coneflower
- (3%) Upright Prairie Coneflower
- (3%) Mexican Hat
- (2%) Plains Coreopsis

4.7 Irrigation

No irrigation or supplemental watering is needed for the seed type and method recommended.

4.8 Tree Salvage

The three healthy ponderosa pine trees growing within the secondary tailings pond area should be considered for salvage. The remaining trees on the site are non-native or cottonwood trees that will not transplant well.

5.0 UNDISTURBED AREAS - OVERSEED VEGETATION

5.1 Preparation and Amendments

These areas should be fully evaluated before following these overseeding procedures. Areas with excessive weedy species and previous ground disturbance should be considered for surface scraping to remove weeds and/or ripping of compacted soil and augmentation of poor soils. This earthwork could be completed when equipment is onsite to save additional cost and time. These

areas would then follow the Complete Revegetation procedures as defined in Section 4.0 with the exception of the grading and topsoil placement.

If existing vegetation is thick, the vegetation should be mowed with a brush hog to a height of two inches (or higher depending on the ability of the equipment). This will facilitate drill seeding. Where existing vegetation is thin and drill seeding can be accomplished with relative ease, no mowing will be necessary. However, mowing may also be recommended as a weed control measure. Soil amendments are not recommended for the overseeding portions of the project area.

Areas defined in CRI's Construction Drawings as having "mining residuals/tailings to be left in place and undisturbed" and selected areas that are deemed culturally sensitive are not to be subjected to any surface scraping, ripping of soil, mowing, or any other soil disturbing activities. Only seeding activities that do not disturb the soil should be conducted in these areas.

5.2 Seeding Instructions

Drill seed into the ground around the existing vegetation. The drill can pass over the prairie dog mounds without harm to the prairie dogs. The recommended seed drill depth is the same as per Complete Revegetation instructions in Section 4.6 of this report. The seed mix and rate in Table 2.0 is recommended for the overseed areas. The recommended seeding rate is 33.5 lbs/acre. This rate is much higher than generally recommended because of the presence of prairie dogs as studies have shown this to be an effective strategy. To obtain this seed rate, the drill should make more than one pass over each area, offsetting the drill line so that the lines will be closer together than in a standard drill seed pattern. In areas where drill seeding is not practicable due to terrain, substrate, size of the area, or cultural sensitivity, broadcast seeding may be done at double the seed rate recommended for drill seeding. Seed into sparse existing or mown vegetation in late fall through early spring (best between early November to early March as weather permits).

Table 2.0 Recommended Seed Mix for Valmont Butte in Prairie Dog Access Areas

Grass species	Scientific name	Composition (%)	Application rate (lbs/acre)
Buffalo Grass	<i>Buchloe dactyloides</i>	25	17.50
Blue Grama	<i>Chondrosium gracilis</i>	40	1.90
Sideoats Grama	<i>Bouteloua curtipendula</i>	25	5.13
Western Wheatgrass	<i>Pascopyrum smithii</i>	10	9.0
Total		100	33.53

6.0 PERFORMANCE CRITERIA

Native landscapes are notably slower to establish than commercial landscapes. Whereas commercial landscapes with non-native plants in high nutrient soils and with irrigation generally establish to full desired ground cover within the first year, native landscapes usually require three to five years for establishment to a self-sustaining level. In the first year, native grass density may be as low as two or four grass seedlings per square foot and be considered acceptable. Large areas with lower than this level of density should be reseeded by the end of the first growing season (late spring). Nursery crops have been recommended because quick erosion control is necessary for the bare-ground construction areas (Complete Revegetation Areas).

The revegetation areas should be monitored a minimum of twice per year, early in the growing season and again late in the growing season. Plant cover, species richness, and invasive species observations should be recorded and any appropriate intermediate measures recommended. Weed control must be implemented as necessary, especially during the first and second year.

The Complete Revegetation areas, which have construction with resulting bare ground and prairie dog fencing, should be considered successful when the following criteria have been met.

- 70% total vegetation ground cover
- 0% cover Colorado noxious weeds List A
- ≤10% cover Colorado noxious weeds List B
- ≤10% cover total invasive plant species (weeds)
- ≥5 species from the mix (species richness) present at as a minimum of 3% ground cover per individual species

These criteria should be met within the first five years after seeding with close observation and quick response to potential problems. When the criteria are met or five years have passed, prairie dog control measures will cease and the site will return to normal Boulder Open Space maintenance.

The Overseed Vegetation areas are variable in their existing conditions and are expected to be variable in their response to these revegetation efforts. Success criterion for these areas should be limited to the first year or two with a seedling germination rate of at least four grass seedlings per square foot. If this criterion is not met, additional review of other revegetation projects within prairie dog inhabited areas should be conducted and, if appropriate, additional revegetation measures based on the results from other studies be made at this site.

7.0 WEED MANAGEMENT

Weed management is a critical component of the revegetation effort for Valmont Butte. This plan provides a combination of several methods for weed control: integrating cultural, biological, mechanical, and chemical approaches. Generally a combination of these methods is most effective.

The Property has some invasive and noxious weed species, already present. These should be identified prior to commencement of the proposed earthwork. Some of the weedier vegetation areas can be scraped prior to and buried during the earthwork. Then, weed management should continue after re-seeding and planting of desirable native plants species.

7.1 Cultural Management

Cultural management relies on competition with native plant species to prevent the invasion of weeds and other nonnative plants. Also critical are plant establishment and maintenance techniques such as appropriate seeding, and initial fertilization that promote native species rather than weeds. A nursery crop provides very strong cultural weed management. For establishing native prairie ecosystems, re-seeding vulnerable or recently cleared patches will be integral to cultural control; avoidance of over fertilizing generally can aid in this effort as well. Monitoring of the revegetation site should occur after planting to ensure successful establishment of vegetation. Corrective actions should be taken immediately for any problem areas identified during monitoring.

7.2 Biological Control

Biological control agents are organisms, usually insects, which are deliberately introduced to an area to control noxious weeds. The aim of biological control is not weed eradication, but rather to exert enough herbivore or parasite pressure on a weed population to reduce its abundance to tolerable levels. Biological control agents are most useful for reducing seed production or weakening undesirable plants in large, dense infestations where other control methods are not cost-effective. The effects of biological weed management may not be observed as quickly when compared to other methods, but their long-term influence has proven to be highly beneficial in the fight against noxious weeds. "Active" biological weed management involves the deliberate release of insects on select weed populations, whereas "passive" biological weed management takes advantage of the migratory patterns of beneficial insects. Potential biological control agents are listed in Table 3.0.

7.3 Mechanical Control

Mechanical control techniques like mowing, tilling, hand-pulling, or burning can physically disrupt invasive plant growth. Tilling and burning are indiscriminant in their destruction of plant life and soil surface, which can create fresh conditions for weed germination, so should not be used in this case.

Mowing, if appropriate, should be done once in the spring, after weeds bolt and before they set seed. Mow higher than the desirable native seedlings, but do not allow weeds to grow any higher than 6-8". Some patches may require an additional mowing later in the first season to prevent weeds from setting seed, which can happen rapidly, particularly after receiving precipitation. In the second season, mowing to control weeds should be required no more than twice and should be no shorter than 8". Again, mowing in the second season should be before weeds flower and set seed.

Table 3.0 Potential insects for biological control of common weeds.

Weed Species		Potential biocontrol agent
Common Name	Scientific Name	
Canada Thistle	<i>Cirsium arvense</i>	Weevil, fly
Musk Thistle	<i>Carduus nutans</i>	Seed head weevil, rosette weevil, defoliating beetle
Scotch Thistle	<i>Onopordum acanthium</i>	(no biocontrols are available)
Spotted Knapweed	<i>Centaurea maculosa</i>	Seed head gall flies, beetle
Diffuse Knapweed	<i>C. diffusa</i>	Seed head gall flies, beetle
Russian Knapweeds	<i>C. repens</i>	(no biocontrols are available)
Leafy Spurge	<i>Euphorbia esula</i>	Several flea beetle species incl. the brown-legged leafy spurge flea beetle (<i>Apthona lacertosa</i>)*, long-horned beetle, shoot-tip gall midge (fly)
Dalmatian Toadflax	<i>Linaria dalmatica</i>	(no biocontrols are available)
Yellow Toadflax	<i>L. vulgaris</i>	(no biocontrols are available)
Hoary Cress	<i>Cardaria spp.</i>	(no biocontrols are available)
Pepperweed	<i>Lepidium latifolium</i>	(no biocontrols are available)

* Available from the Colorado Department of Agriculture

7.4 Herbicides

Herbicides decrease the growth, seed production, and competitiveness of susceptible weeds. If herbicides are used for weed control, their use should be judicious and conservative, as they are often used to compensate for insufficient cultural or mechanical weed-control approaches. Some species, such as Canada thistle and knapweed, indisputably require the use of chemicals. In such cases, spot applications are best to prevent the distribution of herbicides to desirable natives, which can be highly sensitive. Avoid using soil-active herbicides near desirable woody vegetation, and avoid the use of all herbicides near water.

Herbicides can be applied to infested areas using a spray rig attached to an all-terrain vehicle ("ATV"). In areas not accessible by ATV, a backpack sprayer will be required. Potential chemical treatments for likely weeds are listed in Table 4.0.

Table 4.0 Potential herbicides for chemical control of common weeds.

Weed Species		Potential Herbicide
Common Name	Scientific Name	
Canada Thistle	<i>Cirsium arvense</i>	Tordon 22K (Restricted Use Pesticide [RUP]) (1 qt/per acre), Banvel (2 qt/acre), or spot-spray Escort (1 oz/acre)
Musk Thistle	<i>Carduus nutans</i>	Tordon 22K (RUP) in fall only (1 pt/acre) + 2,4-D in spring only (1 qt/acre), or Banvel (1 pt/acre) + 2,4-D (1 qt/acre) in spring only
Scotch Thistle	<i>Onopordum acanthium</i>	Tordon 22K (RUP) in fall only (1 pt/acre) + 2,4-D in spring only (1 qt/acre), or Banvel (1 pt/acre) + 2,4-D (1 qt/acre) in spring only
Spotted Knapweed	<i>Centaurea maculosa</i>	Tordon 22K (RUP) (1pt/acre), Banvel (½ - 1 qt/acre), Tank mixes of Banvel+Tordon (½ pt + ½ pt/acre), or 2,4-D (1 qt/acre)
Diffuse Knapweed	<i>C. diffusa</i>	Tordon 22K (RUP) (1pt/acre), Banvel (½ - 1 qt/acre), Tank mixes of Banvel+Tordon (½ pt + ½ pt/acre), or 2,4-D (1 qt/acre)
Russian Knapweed	<i>C. repens</i>	Tordon 22K (RUP) (1 qt/acre)
Leafy Spurge	<i>Euphorbia esula</i>	DuPont™ Krenite® S* or Tordon 22K (RUP) (1 qt/acre) or Banvel (2 qts/acre)
Dalmatian Toadflax	<i>Linaria dalmatica</i>	Escort (2 oz/acre)
Yellow Toadflax	<i>L. vulgaris</i>	Escort (2 oz/acre)
Hoary Cress	<i>Cardaria</i> spp.	Escort (1 oz/acre) + Vanquish (spring only; 2 pints/acre)
Pepperweed	<i>Lepidium latifolium</i>	Escort (1 oz/acre) + Vanquish (spring only; 2 pints/acre)

* Although not marketed by DuPont™ for leafy spurge, Craig Miller of the Town of Parker has used this product with great success (90-95%).



LIMITED IMPACT SPECIAL USE REVIEW PERMIT

SUBMITTAL ITEM 14 TRAFFIC REPORT

VALMONT BUTTE PROPERTY BOULDER, COLORADO

February 2011

The remediation of the Property will include delivery of heavy equipment to the project site and dump trucks which will be utilized onsite for transporting excavated mining residuals to the primary tailings pond. It is anticipated that this equipment will remain onsite until the excavation and transport activities are completed.

The remediation will also include the import of soil and rock for capping of the primary tailings pond and soil for backfill of excavated areas. It will also include the import of water by truck for dust control.

As stated previously, the contractor for the remediation project has not been selected at this time. After selection, the contractor will be required to provide a detailed Traffic Control Plan, which will be provided to Boulder County for review and approval. The traffic plan will be required to provide information concerning access to the Property, signage that will be used, and days and hours of planned operation.

There are two entrances to the Property. These include an access from North 63rd Street and from Valmont Road as shown on Figure 5 (included in Item 6 - Narrative/Development Report). It is anticipated that truck traffic will likely enter and exit from the Valmont Road access gate. Signage, such as "Caution Trucks Turning", and/or flagmen will be used as necessary. Truck traffic will be limited from 9:00 AM to 4:00 PM in order to control impact to normal rush hour traffic along Valmont Road and North 63rd Street. The work week will be limited to Monday through Friday and will exclude holidays. Work on weekends is not anticipated unless the project falls behind schedule due to weather delays. Dust control activities (water truck spray) may be conducted on weekends in exposed excavation or graded areas.

All vehicles will be required to be decontaminated prior to leaving the Property. Equipment that is used onsite in impacted areas will not leave the Property until that equipment is no longer needed. When equipment is removed, it will undergo a rigorous decontamination process to ensure no impacted material leaves the site. Other vehicles accessing the Property will not enter identified impacted areas. These vehicles will be inspected and decontaminated as necessary

before leaving the site; this decontamination will include visual inspection and removal of all loose soil and soil clods from tires and undercarriage.

The actual volume of materials excavated and transported will be dependent on the size of the impacted area, and therefore, the actual volumes of material import and the number of trucks used daily cannot be accurately estimated at this time. However, based on the site investigation data, it is estimated that 115,000 cubic yards of import fill from an offsite source will be needed to construct the primary tailings soil cap layer and to backfill remaining low spots outside of the capped area. Approximately 53,000 cubic yards (60,000 tons) of rock will be imported for the prairie dog exclusion layer.

To develop a theoretical truck traffic scenario for the project, it is assumed the contractor will have a fleet of 15-twenty cubic yard dump trucks that will be filled to approximately 18 cubic yards on average per trip. Since the location of the soil/rock source is not known, it is assumed a round trip will take less than 1.5 hours. It is also assumed that the contractor will import and stockpile all the soil and rock onsite, rather than transporting limited volumes over a longer period. Based on these assumptions, one truck will be able to complete approximately five round trips per day, delivering approximately 90 cubic yards of soil/rock, or with 15 trucks running, 1,350 cubic yards of soil/rock per day. This would result in 75 trips per day over approximately 85 days for the soil import and approximately 39 days for the rock import. Once the import is completed, there will be no long term transportation-related impacts from the project. In addition, once the remediation is completed, traffic will return to pre-remediation volumes. There will be no negative impacts to the transportation system or new traffic hazards due to the planned land use of the Property.



LIMITED IMPACT SPECIAL USE REVIEW PERMIT

SUBMITTAL ITEM 20 STORMWATER MANAGEMENT PLAN

VALMONT BUTTE PROPERTY BOULDER, COLORADO

February 2011

A Stormwater Management Plan for the Valmont Butte Property (the "Property") is included under this cover.

A supplemental Stormwater Management Plan drawing set (Sheets 7.1 and 7.2) for the Property is included in Casey Resources Inc.'s ("CRI's") Construction Drawings, which are attached to this Submittal Package as Item 22 - Engineer's Construction Drawings.

The original Construction Drawings were created as D-Size (24"x36") bond prints. The reproductions included as part of this Submittal Package are scaled-to-fit on 11"x17" bond media. A digital versatile disc ("DVD") in Appendix A of the Narrative Report (Item 6 of this Submittal Package) contains electronic files for printing D-Size copies of these drawings.



Environmental Engineering and Consulting
Remediation and Management Services

CITY OF BOULDER

VALMONT BUTTE PROPERTY

STORMWATER MANAGEMENT PLAN

FEBRUARY 2011

Prepared for:

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1.0 INTRODUCTION

During construction operations, soil is most vulnerable to erosion by wind and water. The eroded soil endangers area water resources by reducing water quality and by adding silt to aquatic habitats. Clearing and grubbing during construction operations removes vegetation that may be necessary for terrestrial or aquatic habitat.

The intent of the Stormwater Management Plan ("SWMP") is to minimize water pollution by providing guidance on how to protect storm drainage channels and waterways during construction activities including grading, clearing/grubbing, and any other disturbances of the soil on site. The SWMP will also provide guidance to protect as much existing vegetation as possible, slow down surface water runoff, prevent or minimize construction-related erosion, and stabilize soil disturbances to prevent sediment from reaching surrounding surface water bodies.

2.0 PROPERTY DESCRIPTION

The Valmont Butte Property (the "Property") is located in Boulder County approximately four miles east of the City of Boulder's central business district and more specifically 1.5 miles east of the Foothills Parkway and Pearl Street intersection. The Property is bounded on the north by Valmont Road and on the west by North 63rd Street and consists of approximately 104.5 acres. The main entrance to the Property is listed as 3000 North 63rd Street (see CRI's Construction Drawings).

The Property can be divided into three distinct areas based on past land uses. These areas include the Mill Site, the primary and secondary tailings pond areas, and the outlying vacant areas. Each of these areas is shown on CRI's Construction Drawings and described below.

- Mill Site - From 1936 to 1985 a mill for processing fluorspar and gold ores operated on the western portion of the Property. The mill structure and associated buildings, referred to hereafter as the "Mill Site", remain on the Property. These buildings include the main mill building, a garage, laboratory building, office building, and several miscellaneous buildings. None of these structures are currently occupied or in use. The Mill Site area extends from the western Property boundary to approximately 900 feet east of the mill building and encompasses an area of approximately 18 acres. It includes the area west of the mill building including the former railroad spur alignment and southwest trending gully, and backfilled area to the east of the buildings. The Mill Site is approximately 30 feet higher in elevation than the primary tailings pond located to the east.
- Primary and Secondary Tailings - The tailings generated from the processing of ores at the mill were deposited in two tailings impoundments located in the central part (primary tailings pond) and eastern side (secondary tailings pond) of the Property. An estimated total of 372,000 cubic yards of fluorspar and gold tailings are contained in the primary tailings area. An estimated 42,000 cubic yards of fluorspar tailings are contained in the secondary tailings pond area. The fluorspar tailings can contain naturally-occurring radioactive materials ("NORM"). The gold tailings were deposited on top of the fluorspar. URS (2005) estimated the area of the primary tailings pond at 12.5 acres and the area of the secondary tailings pond at 4.5 acres.
- Outlying Vacant Areas - The remainder of the Property, approximately 69.5 acres, is vacant land. This includes the Valmont Butte ridge and land area north to Valmont Road, open land areas east of the primary and secondary tailings pond areas extending to the eastern Property boundary, and open land to the south of the primary and secondary tailings ponds. These outlying areas include well established vegetation areas and sensitive cultural areas.

3.0 PROJECT DESCRIPTION

A Voluntary Cleanup Plan ("VCUP") developed for the Property includes the excavation of 14 impacted soil locations and the secondary tailings pond tailing and consolidating these soils onto the primary tailings pond. Onsite "real time" monitoring will be conducted during excavation and other remediation activities in order to limit the volume of materials excavated and to prevent the unnecessary disturbance of native vegetation in areas with no soil impact.

After placement of impacted soils from the 14 impacted areas and the secondary tailings pond onto the primary tailings pond, the primary tailings pond will be graded to promote stormwater flow to the southeast and then capped with two feet of soil followed by 1.5 feet of rock (presented in CRI's Construction Drawings).

The planned remediation will include clearing and grubbing, grading and other earthwork, removal of some man-made structures, and final placement of capping materials. Construction equipment used for the remediation may also be subject to onsite maintenance and wash-downs to remove soils prior to departing the Property.

Those areas outside of the 14 impacted areas and secondary tailings pond will not be subject to major construction activities, but may be subject to some construction traffic during grading and hauling activities. The Excavation Plan contained in CRI's Construction Drawings shows the projected areas of impacted soils, the primary and secondary tailings areas, pre-construction surface drainage pathways, and the surface water receptors for the construction areas.

4.0 STORMWATER MANAGEMENT CONTROLS

Managing stormwater runoff and minimizing the sediment load in stormwater runoff from the Property during construction requires a combination of structural controls and administrative controls. The necessary stormwater management controls vary with the different phases of construction at the Property. Throughout the construction process the stormwater controls must be evaluated and modified or replaced if they do not adequately prevent sediment from impacting stormwater runoff. These changes must be incorporated into an amendment to the SWMP when they occur. The proposed stormwater management controls for this Property are detailed in the following paragraphs.

4.1 SWMP ADMINISTRATOR

The SWMP Administrator is the contact for all SWMP-related issues, and is responsible for its accuracy, completeness, and implementation. The SWMP Administrator is not necessarily the person who will be performing inspections, implementing Stormwater Management Controls, or conducting training; however, the SWMP Administrator will be responsible for insuring that these activities are conducted in accordance with the SWMP.

4.2 POTENTIAL POLLUTANT SOURCES AND BEST MANAGEMENT PRACTICES

Potential stormwater pollutant sources are construction activities and materials on the Property, which have the potential to contaminate stormwater. The evaluation of potential sources encompasses not only construction, but also maintenance activities. The 'potential' of a source is evaluated without additional controls added to the activity. For example, although loading or unloading fuel from an onsite storage tank involves a common pollutant, having the activity conducted in a structure that was built with overhead cover to prevent contact with precipitation and curbing to prevent inflow and outflow from the structure makes the 'potential' negligible.

For those sources that are not negligible and do have a potential for stormwater contamination, appropriate preventive measures including structural controls and Best Management Practices ("BMPs") must be incorporated into the activities at the Property. The Contractor shall refer to the Stormwater Management portion of the Engineer's (CRI's) Construction Drawings for specific BMPs and structural controls as they apply to this SWMP. Additionally, the Contractor shall maintain and update the Stormwater Management portion of the Engineer's Construction Drawings, which the Engineer will provide to the Contractor. The following paragraphs describe the potential sources, the recommended controls and BMPs, and when in the project schedule the activity is expected to occur.

4.2.1 Loading and Unloading Operations

Throughout the remediation project, the only projected loading/unloading operations include the delivery of construction materials and the possible delivery of fuel to an onsite equipment fuel tank.

Construction Materials

The construction materials would include stormwater control materials (e.g. straw bales, coir rolls, etc.) and different grades of soil and/or rock for capping material, clean fill, or topsoil. The stormwater control materials have negligible impact on stormwater and will not be described in further detail. The imported soils have the potential to produce high concentrations of sediment in stormwater runoff and must be managed by structural controls and BMPs.

Structural controls for stormwater runoff from loading and unloading operations of imported stockpiled soils include constructing earthen dikes around the stockpiled area to prevent stormwater from draining through the stockpile area. If the stockpile area is large enough to create its own high volume of runoff during a moderate to heavy precipitation event, the dike area should be constructed to allow controlled runoff through straw bales, coir rolls, or similar sediment-filtering media. Stockpiles should also be frequently wetted in accordance with the Dust Control Plan for this project.

BMPs for controlling stormwater runoff from stockpiled soils include efficient project scheduling that minimizes the volume and duration of stockpiled soils onsite as much as practical; controlled traffic patterns around the stockpiles to minimize damage to structural controls, and managing loading operations to prevent overfilling of haul trucks and excessive sloughed soil in traffic ways. If vehicle washing becomes necessary, a lined, bermed wash area will be established onsite to decontaminate, if necessary, any vehicle prior to leaving the site.

Onsite Equipment-Fueling Storage Tank

Proper storage of petroleum products is regulated in the State of Colorado by the Department of Labor and Employment, Division of Oil and Public Safety ("OPS"), and by the Environmental Protection Agency's ("EPA's") Oil Pollution Prevention Act. Regardless of the quantity of bulk petroleum stored at a construction project of this size, State and Federal oil spill regulations should be followed. A primary requirement of a regulated facility is the development of a Spill Prevention, Control, and Countermeasure Plan ("SPCC Plan"). An SPCC Plan should be developed by the Contractor if they choose to store bulk petroleum products onsite during the construction project. If the SPCC Plan is adhered to, stormwater runoff from loading/unloading operations at petroleum storage areas will be negligible. A description of general spill prevention and response procedures is included in Section 4.5 of this SWMP.

If the Contractor chooses to use direct fueling of construction equipment by a bulk fuel truck, the vendor should provide a copy of their spill prevention guidelines for their operators. Regardless of the thoroughness of the vendor's spill prevention guidelines, the Contractor will have a spill response kit available at all times on site for spills and overfills as well as for preventive maintenance issues addressed in the following section.

4.2.2 Outdoor Storage Activities

The projected outdoor storage activities for this project include the two activities discussed in the previous section. As discussed in the previous section, stormwater runoff from these two

activities can be managed by following some basic structural controls and BMPs. No other outdoor storage activities are expected. Maintenance products for onsite equipment should be stored in a protected structure not only for stormwater runoff prevention, but also for protection against vandalism and theft.

4.2.3 Outdoor Manufacturing or Processing Activities

No outdoor manufacturing or processing activities are expected to occur at the Property throughout the project.

4.2.4 Significant Dust or Particulate Generating Processes

The construction activities for this project have the potential to generate significant amounts of dust and particulate emissions if not controlled properly. A separate Dust Control Plan has been developed to provide specific corrective measures to minimize dust generation during the project. Most of these corrective measures involve using proper wetting methods during soil disturbance activities which would create a separate risk of sediment-laden stormwater runoff. A combination of BMPs (inspections of disturbance activities and subsequent wetting activities, managing wetting rates and volumes of wetting agents used, etc.) and structural controls (diversion of runoff to easily maintained silt collection barriers) will be used to minimize dust generation and sediment in runoff from dust control activities.

The project will involve disturbing native vegetation and constructing an earthen cap over impacted soils. When the construction work is completed, the site shall be graded to match natural topography in the area and to reduce surface flow velocities wherever possible. The maximum finished grade slope will not exceed 3:1 (2:1 for specified cap-in-place and match existing areas). A seed mixture as described in the Revegetation Plan will be applied to disturbed areas and covered with mulch to encourage revegetation of the site and prevent erosion after completion of the work.

4.2.5 Onsite Waste Disposal Practices

CRI's Construction Drawings outline the management of waste materials generated from demolition of buildings and structures on the Property and during clearing and grubby activities. All other waste generated onsite during this project must be removed by the Contractor and hauled to an appropriate, licensed waste disposal facility using appropriate hauling techniques.

4.2.6 Salt Piles

No salt piles are expected to be needed for this project.

4.2.7 Historical Spill / Leak Locations of Toxic or Hazardous Substances

Significant investigations have been conducted at the Property to determine the locations and severity of residual contaminants at the site. While the largest areas of impacted soils on the Property are within the tailings areas, several areas of impacted soils outside these tailings areas

have been identified as illustrated on the Excavation Plans contained in CRI's Construction Drawings. Each of these areas will be remediated in accordance with the VCUP and the impacted soils will be consolidated into the primary tailings pond area. To prevent stormwater runoff from these areas, the measures described under Section 4.2.4 of this SWMP must be strictly followed. An additional concern for these areas is transporting impacted soil to a 'clean area' by allowing haul vehicles to drive through impacted soil prior to driving across clean roads. Managing stormwater runoff from small impacted areas is much easier and less expensive than trying to manage runoff from the entire 104.5 acres of the Property. The Contractor must evaluate the impacted satellite locations, the site topography and existing road networks to determine a traffic pattern that will minimize contact of haul trucks with potentially impacted soils. The SWMP Administrator should be consulted with any questions about how to route traffic. Throughout the project, the Contractor must implement the BMPs (including inspections) to determine if the loading areas for haul trucks are staying clear of sloughed, impacted soil. If additional resources are needed to keep the loading area clean (i.e. skid loader), the Contractor will insure that the equipment is added and the operator understands the significance of keeping the impacted soil from being spread across the Property by the haul truck traffic.

4.3 PREVENTIVE MAINTENANCE

In addition to standard preventive maintenance of the Contractor's construction equipment, the stormwater runoff controls must also be conducted. The Contractor must require the construction equipment operators to conduct an inspection at least once per day to insure that fluid reservoirs and hoses or lines are in good working order and are not leaking or showing signs of wear that would result in leaks. Any equipment found to be leaking should be fixed prior to operating on the site, and if repairs are not possible with onsite tools and expertise, the equipment needs to be positioned for easy access by the maintenance personnel and the leaking equipment must be sheltered from storms as much as practical. A drip pan must also be placed under the leaking component and spill absorbent material must be placed on any leaked fluids to recover the product prior to becoming stormwater runoff. The Contractor's internal preventive maintenance program will be strictly followed throughout the project. The Contractor will abide by the spill reporting and soil management requirements as presented in the Resource Conservation and Recovery Act ("RCRA").

Inspections of stormwater runoff controls must be conducted prior to conducting dust control watering activities, prior to soil disturbance activities, and prior to any obvious precipitation event. These inspections will verify the mechanical integrity (including appropriate anchoring) of sediment collection barriers, will determine if barriers have reached their maximum capacity for filtering sediment, and will determine if the control devices are in the correct places to intercept runoff from the activity. In addition to pre-activity inspections, after a runoff-generating precipitation event, the runoff controls for the entire site will need to be inspected to determine if any of the controls are not working properly or are not appropriately located. Corrections must be made as quickly as practical, and replacement controls must meet or exceed the standard of protection that the deficient control device provided.

4.4 GOOD HOUSEKEEPING

The general intent of good housekeeping is to prevent items from being exposed to stormwater events by properly storing them or removing them from the site as quickly as possible. Good housekeeping is largely a matter of common sense and construction personnel need to understand that any man-made material that is on the ground has the potential to become stormwater runoff and will cost the Contractor time, materials, and equipment to manage once the runoff is generated. The two main categories to be discussed in more detail are “Operations and Maintenance Techniques” and “Material Storage and Inventory”.

4.4.1 Operations and Maintenance Techniques

For this project, three specific operations and maintenance techniques will be important to minimize stormwater runoff. Simple signs shall be posted to indicate where used oils and trash should be disposed / staged. Spill clean-up materials and equipment must be staged as close as practical to locations where potential leaks are most likely to occur. The container or structure where the clean-up materials are stored should be clearly marked so prompt responses can be completed. If any chemical amendments are used for dust suppression or erosion control, the chemicals need to be applied at the lowest volumes or concentrations necessary to be effective.

4.4.2 Material Storage and Inventory

Although very few materials are expected to be stored onsite throughout the project, the application of good housekeeping BMPs for the storage areas and equipment will significantly reduce the risk of stormwater contamination. The probable materials to be stored onsite that would require the use of these BMPs include: petroleum fuel for equipment, used oil from onsite maintenance activities, stabilization compounds for dust control or erosion control activities, equipment maintenance compounds, and trash.

BMPs that are applicable to all materials (except trash) include: making sure all containers are labeled in accordance with current regulatory standards, documentation of all Material Safety Data Sheets ("MSDS") for stored materials in a centrally-located and labeled location onsite (typically a well-labeled binder in a construction trailer), elevating storage containers off the ground to prevent corrosion and contact with stormwater, and placing containers away from traffic routes to prevent accidental damage and spills. In addition, empty storage containers should be consolidated to a designated area, covered to prevent collection of precipitation, and removed from the property as quickly as practical. Outdoor trash containers shall have functional lids to keep precipitation out. If a centralized used oil container is used, the container must be emptied at a frequency that will prevent overfills and spills.

4.5 SPILL PREVENTION AND RESPONSE PROCEDURES

When the construction Contractor for the project has identified material storage areas, their Site Map will be modified to include the locations of these areas. Preventing spills not only reduces the risk of stormwater contamination, but also reduces the operating costs for the construction Contractor due to lost product, expense of clean-up materials, disposal cost, and the additional

labor expense for time spent responding to a spill. However, if a spill occurs, the Contractor must have a Spill Plan in place that will reduce the contamination potential and minimize the volume of contaminated material to be disposed. If a SPCC Plan is required for the Property due to the volume of petroleum products stored, the SPCC Plan will be reviewed to determine what chemicals stored onsite will require a separate Spill Plan.

4.5.1 Spill Plan

Some of the Spill Plan cannot be finalized until the Contractor determines the materials they will store onsite and where they will store them. Once these determinations are made, the Site Map will be modified by labeling material storage areas and spill response kit areas. The resulting map will be labeled "Spill Plan Map", and incorporated into the SWMP.

The SWMP Administrator will be the primary point of contact for spills onsite. Additional points of contact will only be necessary if the SWMP Administrator cannot be reached, and the quantity or toxicity of material spilled requires notification of outside regulatory agencies. In Colorado, the Colorado Department of Health and Environment ("CDPHE") manages a 24-hour spill hotline (877-518-5608) to report spills of reportable quantities of hazardous substances. The spilled material should be controlled and quantified prior to contacting the CDPHE spill hotline to make the report as factual and complete as possible. A small sign with a list of phone numbers and spill reporting contacts should be posted in a central location, and should be laminated and placed at storage locations that have a potential to have a reportable quantity of spilled material.

Once the Contractor has determined the materials to be stored onsite, the Contractor will provide the MSDS to the SWMP Administrator to help determine the quantity of spilled product that would result in a reportable spill and the appropriate spill kit compounds and Personal Protective Equipment ("PPE") needed to respond to a spill. If the requirements for PPE and reportable quantities are too restrictive, the Contractor may be asked to find a less toxic replacement product. In general, spilled compounds will be cleaned up by absorbing with a chemically-compatible absorbent material. The amount of material used will be sufficient to recover as much of the spilled material as possible. The absorbent material or a spill response boom, sock, or flexible dam may be used to construct a downstream barrier to prevent the spilled material from leaving the Property.

Equipment operators and fueling personnel should receive specific training on the SPCC and/or Spill Plan. The training should address (at a minimum) the reason for cleaning up spilled material, the location of stored product, the location of the SPCC and Spill Plan, the location of spill response kits, and the procedures for reporting spills.

4.5.2 Spill Reporting and Documentation

A simple spill report form should be used to document spills at the project site. The spill report form can be used to prepare information to report to outside agencies to minimize incomplete or false reporting. An example of a simple spill report form is included as Appendix A. The Contractor's site foreman and the SWMP Administrator should keep copies of the spill report

forms and should review each form to determine if storage or maintenance activities should be modified to prevent similar future spills. The spill report forms can also be used for non-reportable spills to document 'near miss' situations that may also require changes in operating procedures.

These spill report forms should be maintained in a binder for the duration of the project. Reportable spill documentation must be maintained for three years after the date of the spill unless otherwise directed by the report-receiving agency.

4.6 EMPLOYEE TRAINING

SWMPs, SPCCs, Spill Plans and other pollution prevention documents will only provide a significant layer of protection for a facility if the correct personnel are provided useful training. All onsite personnel need a general understanding of the SWMP, but onsite personnel such as equipment operators, fuel-handlers, maintenance personnel and site supervisors need a more thorough training program to help them identify potential problems, and to respond effectively to an incident if it occurs. This training will include spill response and cleanup, good housekeeping practices, BMPs, inspections, and recordkeeping (including samples of the spill report form). Training is most effectively conducted onsite after stormwater controls are constructed and visible and the majority of pre-staged material is delivered to the site.

Onsite personnel will receive SWMP training prior to operating equipment or supervising operations onsite. Additional training will be required if stormwater controls or BMPs are modified and prior to the onset of the next heavy precipitation season (October and April for Colorado). Temporary site personnel (vendors, subcontractors) will receive a consolidated SWMP training brief targeted to the areas they will most likely interact with while they are onsite. At a minimum, temporary personnel will be trained on the concept of stormwater management, the location of the SWMP, and the current onsite supervisor responsible for implementation of the SWMP.

4.7 IDENTIFICATION OF DISCHARGES OTHER THAN STORMWATER

Throughout the previous assessment work at the Property, no probably sources of non-stormwater discharges were identified. If a discharge location is discovered during construction activities, the SWMP Administrator will be notified, and a complete characterization of the discharge will be conducted.

5.0 COMPREHENSIVE INSPECTIONS

Stormwater control inspections were previously discussed in Section 4.3 – Preventive Maintenance. In addition to these inspections, proper implementation of a SWMP requires periodic comprehensive inspections by qualified personnel. Qualified personnel are “those who possess the knowledge and skills to assess conditions and activities that could impact stormwater quality at the facility, and who can also evaluate the effectiveness of BMPs selected” (CDPHE Water Quality Control Division – Stormwater Management Plan Contents and Requirements) The SWMP Administrator will select the qualified inspector(s) and evaluate the inspection report to determine if any operational or BMP modifications are necessary.

The comprehensive inspections will be conducted prior to the start of construction operations (but after stormwater controls are constructed), and at least twice a year after construction begins. The periodic inspections will occur in the spring and fall to coincide with the beginning of the heavy precipitation time periods for Colorado.

The areas to be inspected will include all material storage areas, all areas of planned or ongoing soil disturbance, all designated maintenance areas, and any waste storage areas. Existing stormwater controls will be inspected for mechanical integrity and effectiveness in treating runoff at the location. Spill response kits and used sorbent storage areas will be inspected to insure significant and appropriate materials are present, and any used sorbent is being quickly disposed to free up storage for future used materials. Documents such as the SWMP, SPCCs, and Spill Plans will be inspected to make sure they are readily available for reference onsite. Completed spill report forms will be reviewed and discussed with onsite personnel to make sure the probability of similar incidents has been minimized.

Any deficiencies in stormwater controls or BMPs will be corrected immediately, if possible. If materials are not available, an implementation schedule will be determined and a follow up inspection will be conducted depending on the significance of the activity or control being corrected. Significant modifications will require an amendment to the SWMP, and may require additional training for employees.

A report detailing results of the inspection will be prepared and forwarded to the SWMP Administrator and the site supervisor. The report will be retained for three years after the inspection.

6.0 CONSISTENCY WITH OTHER PLANS

The SWMP is a comprehensive document to determine appropriate methods to minimize introduction of contaminants into stormwater runoff from the Property. As discussed in several sections of this SWMP, the construction Contractor may have several internal plans or programs that are for specific activities, but may significantly reduce the potential for stormwater contamination. Some of these plans could include SPCC Plans, Good Housekeeping Guidance, Pollution Prevention Plans, and Dust Control Plans. Any internal plans or programs for the construction Contractor will be incorporated into this SWMP by reference and will be maintained in a labeled binder at the same onsite location as the SWMP.

APPENDIX A
SAMPLE SPILL REPORT FORM

SPILL REPORT FORM

Regulatory Agencies:

CO Div of Oil and Public Safety (OPS) (303) 318-8547 (business hours only)

CO Dept of Public Health & Environment (CDPHE) 1-(877) 518-5608 (after hours only)

US Environmental Protection Agency (EPA) 1-(800) 424-8802 This number staffed by National Response Center (use only if no contact with OPS or CDPHE)

Other? _____

Reporter's Last Name: _____ First: _____ M.I.: _____

Position: _____

Phone Numbers:

Day () _____ - _____

Evening () _____ - _____

Company: _____

Organization Type: _____

Address: _____

City: _____

State: Colorado

Zip: _____

Were materials discharged? Y N Were materials confidential? Y N

Meeting Obligations to Report to State Federal?

Date Called: _____

Calling for Responsible Party? Y N

Time Called: _____

Incident Description:

Source and/or Cause of Incident:

Date of Incident: _____

Time of Incident: _____ AM/PM

Incident Address/Location: _____

Nearest City: _____ State: _____

County: _____ Zip: _____

Distance from City: _____ Units of Measure: miles

Direction from City: _____

Section: _____ Township: _____ Range: _____ Borough: n/a

Container Type: aboveground steel tank steel drum plastic drum other _____

Tank Oil Storage Capacity: 1,000 gals 660 gals 500 gals 55 gals 30 gals other _____

Facility Oil Storage Capacity: _____ gallons

Facility Latitude: _____ Degrees _____ Minutes _____ Seconds

Facility Longitude: _____ Degrees _____ Minutes _____ Seconds

SPILL REPORT FORM (continued)

Material:

CHRIS Code Discharged quantity _____

Unit of measure Material Discharged gallons

Quantity in water _____ Unit of measure gallons

Response Action:

Actions Taken to Correct, Control or Mitigate

Incident:

Impact:

Number of Injuries: _____ Number of Deaths: _____

Were there Evacuations? Y N Number Evacuated: _____

Was there any Damage? Y N

Damage in Dollars (approximate): _____

Medium Affected: soil surface water ground water other _____

More Information about Medium:

Additional Information:

Any information about the incident not recorded elsewhere in the report:

Caller Notifications:

OPS? Y N Additional agency notification required?

CDPHE? Y N Additional agency notification required?

EPA? Y N Additional agency notification required?

Other? _____ Y N

Response Equipment List:

Date of Last Update: _____

Spill kits located: _____

Emergency Response: _____ Fire Department: _____ 911 _____



Environmental Engineering and Consulting
Remediation and Management Services

LIMITED IMPACT SPECIAL USE REVIEW PERMIT

SUBMITTAL ITEM 22 CONSTRUCTION DRAWINGS

VALMONT BUTTE PROPERTY BOULDER, COLORADO

February 2011

Engineer's Construction Drawings for the Valmont Butte Property (the "Property"), created by Casey Resources, Inc. ("CRI") are included under this cover.

The original Construction Drawings were created as D-Size (24"x36") bond prints. The reproductions included as part of this Submittal Package are scaled-to-fit on 11"x17" bond media. A digital versatile disc ("DVD") in Appendix A of the Narrative Report (Item 6 of this Submittal Package) contains electronic files for printing D-Size copies of these drawings.

VALMONT BUTTE CONSTRUCTION DRAWINGS

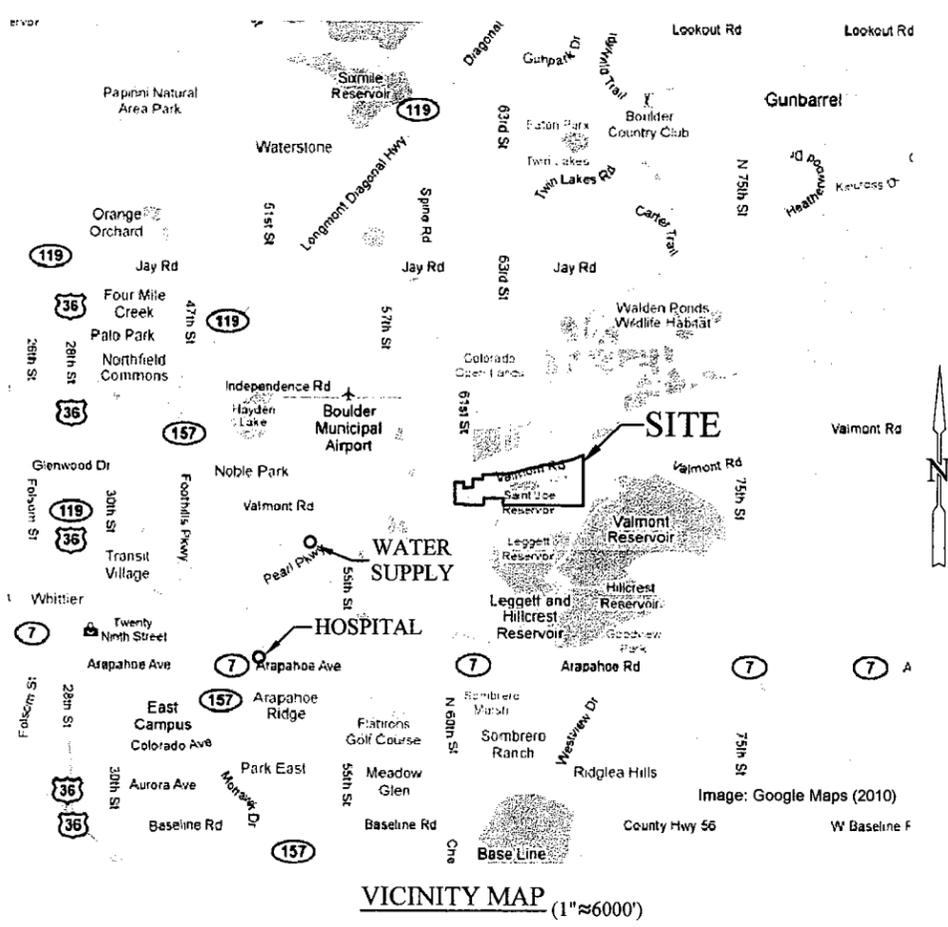


4890 Kipling Street
Wheat Ridge, Colorado 80033
303.940.7800
www.caseyresourcesinc.com

VALMONT BUTTE
COVER SHEET
3000 NORTH 63rd STREET
BOULDER, COLORADO



PROJECT: 021
DATE: 2/11/11
DRAWN: S.R.S.
CHECKED: P.L.C.
SHEET NO: 1



VICINITY MAP (1"≈6000')

ENGINEER:

CASEY RESOURCES, INC.
4890 KIPLING STREET
WHEAT RIDGE, CO 80033
(TEL) 303.940.7800

AIR QUALITY SPECIALIST:

MYERS ENVIRONMENTAL SERVICES, INC.
20385 FLINT LANE
MORRISON, CO 80465
(TEL) 303.601.2186

VEGETATION SPECIALIST:

BAMBERG ECOLOGY
2622 VALENTIA STREET
DENVER, CO 80238
(TEL) 303.249.8051

CONSTRUCTION CONTRACTOR:

TO BE DETERMINED

OWNER:

CITY OF BOULDER
1777 BROADWAY
BOULDER, CO 80302
(TEL) 303.441.4058
(FAX) 303.441.4063

SITE ADDRESS:

3000 NORTH 63rd STREET
BOULDER, CO 80301

ADJACENT PROPERTY OWNERS:

PARCEL NO. 146322400017
WMI-BOULDER, INC.,
C/O LAFARGE NORTH AMERICA
18301 WEST COLFAX AVENUE, #R1
GOLDEN, CO 80401

PARCEL NO. 146327000005
BNSF RAILWAY COMPANY,
C/O H A KNUDEN DIR PROP TAX
176 EAST 5th STREET, ROOM 1120
ST. PAUL, MN 55101

SHEET INDEX:

1. COVER SHEET
2. NOTES
3. DETAILS
4. EXISTING SITE LAYOUT
5. DEMOLITION PLAN
 - 5.1 WEST
 - 5.2 EAST
6. EXCAVATION PLAN
 - 6.1 OVERVIEW
 - 6.2 WEST
 - 6.3 EAST
7. STORM WATER MANAGEMENT PLAN
 - 7.1 WEST
 - 7.2 EAST
8. GRADING & DRAINAGE PLAN (PROPOSED SITE LAYOUT)
 - 8.1 WEST
 - 8.2 CENTRAL
 - 8.3 EAST
 - 8.4 CROSS-SECTIONS
 - 8.5 CROSS-SECTIONS
 - 8.6 CROSS-SECTIONS
 - 8.7 CROSS-SECTIONS
 - 8.8 CROSS-SECTIONS
9. REVEGETATION PLAN

CONSTRUCTION WATER SUPPLY:

CITY OF BOULDER
5395 PEARL PARKWAY
BOULDER, CO 80301

EMERGENCY:

BOULDER COMMUNITY FOOTHILLS HOSPITAL
4747 ARAPAHOE AVENUE
BOULDER, CO 80303
(TEL) 720.854.7000

UTILITIES:

ELECTRICITY: XCEL ENERGY
GAS:
SEWER:
WATER:

UTILITY LOCATE:

UTILITY NOTIFICATION CENTER OF COLORADO
16361 TABLE MOUNTAIN PARKWAY
GOLDEN, CO 80403
(TEL) 303.232.1991
(FAX) 303.234.1712

LEGAL:

PORTION OF THE SOUTHEAST 1/4 OF SECTION 22 AND
THE SOUTHWEST 1/4 OF SECTION 23, TOWNSHIP 1 NORTH,
RANGE 70 WEST OF THE 6th PRINCIPAL MERIDIAN,
COUNTY OF BOULDER, STATE OF COLORADO.

ASSESSOR PARCEL NO: 146323000019, 146322400019

THIS DRAWING SET IS AN INSTRUMENT OF CASEY RESOURCES, INC. AND SHALL REMAIN THEIR PROPERTY. THE USE OF THESE DRAWINGS SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY WERE PREPARED, AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE. REUSE, REPRODUCTION, MODIFICATION, OR PUBLICATION BY ANY METHOD IN PART OR IN WHOLE IS PROHIBITED WITHOUT THE EXPRESS WRITTEN CONSENT OF CASEY RESOURCES, INC.

EXISTING SURVEY NOTES:

1. ORIGINAL BASE SURVEY CREATED BY FLATIRONS SURVEYING, INC. PROVIDED BY THE CITY OF BOULDER UNDER THE AMENDMENT TO CONSULTING SERVICES AGREEMENT WITH CASEY RESOURCES, INC. DATED 4/2/2010.
2. BENCHMARK BASED ON GPS OBSERVATIONS USING NGS POINT "X438" PID# LL1137 (NAD 83/92 NORTH ZONE) WITH AN ELEVATION OF 5289.64' (NAVD 88).
3. EXISTING SURFACES GENERATED FROM WORK BY OTHERS.
4. EXISTING TOPOGRAPHIC CONTOURS SHOWN WERE INTERPOLATED USING AERIAL PHOTOGRAMMETRY (DATE OF PHOTOGRAPHY: FEBRUARY 19, 2003). CONTOURS SHOWN MAY NOT BE AN EXACT REPRESENTATION OF CURRENT SITE TOPOGRAPHY.
5. BOUNDARY INFORMATION SHOWN IS BASED ON A LAND SURVEY PLAT PREPARED BY FORESIGHT WEST SURVEYING, INC. DATED AUGUST 10, 2000.
6. IN SOME INSTANCES, THE BASE SURVEY HAS BEEN MODIFIED BY CASEY RESOURCES, INC. TO REFLECT CURRENT CONDITIONS.

CONSTRUCTION NOTES:

1. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL BUILDINGS, UNDERGROUND OBSTRUCTIONS, UTILITY LINES, AND OTHER EXISTING FEATURES IN THE WORK AREA; HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THESE FEATURES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATIONS IN ADVANCE.
2. THESE PLANS FOLLOW A SUGGESTED SEQUENCE OF ACTIVITIES (I.E., SITE ENGINEERING CONTROLS, DEMOLITION OF STRUCTURES, SOIL EXCAVATION, GRADING, CAPPING). CONTRACTOR TO PROVIDE WORK PLAN DESCRIBING SEQUENCE OF ACTIVITIES.
3. THE ESTIMATED QUANTITIES SHOWN HEREIN ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETENESS AND ACCURACY OF A DETAILED ESTIMATE BASED ON THESE PLANS, CURRENT CODES, AND SITE VISITATION.
4. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING CONSTRUCTION. THE PLAN MAY BE MODIFIED AS FIELD CONDITIONS WARRANT WITH APPROVAL FROM CASEY RESOURCES, INC.

SYMBOLS:

- (10) MATCH EXISTING GRADE.
- (10) EXISTING BUILDING, UTILITY, FENCE, CONCRETE PAD, OR OTHER STRUCTURE TO REMAIN INTACT.
- (11) EXISTING BUILDING, UTILITY, UTILITY POLE, SIGN, FENCE, CONCRETE PAD, OR OTHER STRUCTURE/OBJECT TO BE REMOVED/DEMOLISHED AS SPECIFIED. SUBSEQUENT METAL AND CONCRETE RUBBLE TO BE PLACED IN FILL AREA OF PRIMARY TAILINGS POND. REMAINING RUBBLE TO BE DISPOSED OFFSITE. CONTRACTOR TO VERIFY ALL LOCATIONS.
- (A) EXCAVATION AREA IDENTIFIER. EXCAVATE MINING RESIDUALS/TAILINGS TO SPECIFIED DEPTH. PLACE EXCAVATION CUTTINGS IN PRIMARY TAILINGS POND FILL AREA AND GRADE ACCORDING TO PLAN.
- (21) MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED.
- (22) AREA OF NO DISTURBANCE. SOILS MEET PROJECT ACTION LEVELS.
- (23) CONSOLIDATE, GRADE, AND CAP MINING RESIDUALS/TAILINGS AND IMPORTED FILL PER TYPICAL CAP SECTION (SEE SHEET 3).
- (30) INSTALL TEMPORARY STRAW BALE CHECK DAM PER CITY OF BOULDER DRAWING NO. 7.24 (SEE SHEET 3). DIMENSIONS AS SPECIFIED.
 - a. INSTALL PRIOR TO BEGINNING OF CONSTRUCTION.
 - b. INSTALL IMMEDIATELY FOLLOWING INSTALLATION OF PROPOSED FEATURE.
- (31) INSTALL TEMPORARY STRAW BALE(S) PER CITY OF BOULDER DRAWING NO. 7.25 (SEE SHEET 3) IMMEDIATELY FOLLOWING INSTALLATION OF PROPOSED FEATURE.
- (32) INSTALL TEMPORARY SILT FENCE PER CITY OF BOULDER DRAWING NO. 7.26 (SEE SHEET 3) PRIOR TO BEGINNING OF SOIL DISTURBING ACTIVITIES.
- (33) INSTALL TEMPORARY VEHICLE TRACKING PAD PER CITY OF BOULDER DRAWING NO. 7.30 (SEE SHEET 3) PRIOR TO BEGINNING OF SOIL DISTURBING ACTIVITIES. 30' WIDE x 60' LONG.
- (40) CONSTRUCT CAP PER TYPICAL CAP SECTION (SEE SHEET 3).
- (41) INSTALL 18" DIAMETER CIRCULAR POLYVINYL CHLORIDE (PVC) CULVERT PER CDOT STANDARD PLAN NO. M-603-5 (SEE SHEET 3).
- (42) CONSTRUCT METAL FLARED END SECTION PER BOULDER COUNTY STANDARD DETAIL 9, MODIFIED FOR PVC PIPE AND WITH RIP RAP ARMORING (SEE SHEET 3).
- (43) INSTALL BOULDER HEADWALL PER DETAIL SHEET 3.
- (44) CONSTRUCT UNIMPROVED ACCESS ROAD. 15% MAX GRADE, 7% MAX CROSS SLOPE.
- (45) INSTALL RIVER RUN ROCK ARMORING 20' WIDE WITHIN SWALE. D₅₀=4" MEDIAN ROCK DIAMETER.
- (46) INSTALL GABION BASKET(S) FLUSH WITH TOP OF CAP, MINIMUM 18' LONG x 3' WIDE x 1' DEEP PER DETAIL SHEET 3 OR EQUIVALENT.
- (47) CISTERN STRUCTURE TO REMAIN. FILL WITH INERT MATERIAL, SUCH AS SAND OR CONCRETE AND CAP WITH 6 INCHES OF CONCRETE. PRESERVE EXISTING ROOF STRUCTURE.

LEGEND:

ABBREVIATIONS:

APPX	APPROXIMATE
AST	ABOVE-GROUND STORAGE TANK
BGS	BELOW GROUND SURFACE
BLDG	BUILDING
C.Y.	CUBIC YARDS
CONC	CONCRETE
D ₅₀	MEDIAN ROCK DIAMETER
E	EAST
EG	EXISTING GRADE ELEVATION
EX	EXISTING
FG	FINISH GRADE ELEVATION
FT.	FEET
INV	INVERT ELEVATION
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS OBJECT
N	NORTH
OHE	OVERHEAD ELECTRIC
PR	PROPOSED
R	RANGE
R.R.	RAILROAD
S	SOUTH
SEC	SECTION
ST.	STREET
T	TOWNSHIP
TYP	TYPICAL
W	WEST

EXISTING FEATURES:

	1' INTERMEDIATE TOPOGRAPHIC CONTOUR
	5' INDEX TOPOGRAPHIC CONTOUR
	CONCRETE SURFACE
	CHAIN LINK FENCE
	UNDERGROUND GAS LINE
	OVERHEAD ELECTRIC UTILITY
	UTILITY POLE
	PAVEMENT SURFACE
	PROPERTY BOUNDARY
	93.4 x SPOT ELEVATION
	UNIMPROVED ACCESS ROAD
	VEGETATION
	RAILROAD TRACKS (ABANDONED)
	PRAIRIE DOG FENCE (APPROXIMATE LOCATION)

PROPOSED FEATURES:

	1' INTERMEDIATE TOPOGRAPHIC CONTOUR
	5' INDEX TOPOGRAPHIC CONTOUR
	CONCRETE SURFACE
	CHAIN LINK FENCE
	PAVEMENT SURFACE
	UNIMPROVED ACCESS ROAD
	SILT FENCE
	STRAW BALE
	CAP BOUNDARY
	3:1 SLOPE: 3 HORIZONTAL TO 1 VERTICAL
	5% SLOPE: PERCENT GRADE

VEGETATION NOTES:

GRADING AREAS (COMPLETE REVEGETATION):

SOIL PREPARATION AND AMENDMENTS

1. AFTER GROUNDWORK IS COMPLETE, INSURE SURFACE OF SOIL IS LOOSE, NOT COMPACTED, AND LEFT ROUGHENED TO PROVIDE MICROCLIMATE FOR WIND PROTECTION AND WATER CATCHMENT.
2. SOIL NUTRIENT ANALYSIS FOR BASIC PLANT NUTRIENT LEVELS SHALL BE PERFORMED IN A LABORATORY PRIOR TO SEEDING. FOLLOW LAB-RECOMMENDED SOIL NUTRIENT ADDITIVE LEVELS FOR A RANGELAND YIELD OF 2000 LBS/ACRE. FERTILIZER SHALL BE FROM AN ORGANIC SOURCE.
3. IT IS RECOMMENDED THAT SOIL MYCORRHIZAE INOCULANT (AT LEAST 4 ENDO TYPES) BE ADDED WITH THE SEEDING.

SEEDING INSTRUCTIONS

1. IT IS HIGHLY RECOMMENDED THAT A NURSERY CROP BE PLANTED FOR ONE GROWING SEASON PRIOR TO PLANTING THE NATIVE SEED MIX. THE NURSERY CROP CAN BE ANNUAL MILLET, LONG-SEASON SORGHUM, OR TRITICALE. THE COVER CROP CAN BE PLANTED:
 - A. LATE SPRING (JUNE), MOWED IN LATE FALL (SEPTEMBER - OCTOBER) AFTER IT DIES AND THE NATIVE SEED MIX IS DRILLED INTO THE STUBBLE BETWEEN DECEMBER AND MARCH; OR
 - B. FALL (AUGUST), WHEN IT WILL GERMINATE OVER WINTER, AND THEN GROW IN EARLY SPRING. WHEN YOUNG PLANTS ARE SEVERAL INCHES TALL (FIRST OF APRIL), KILL WITH ROUNDUP OR SIMILAR HERBICIDE AND DRILL SEED THE NATIVE SEED MIX WITHIN ONE WEEK.
2. PLANT RECOMMENDED FOOTHILLS NATIVE GRASS AND NATIVE PRAIRIE WILDFLOWER MIX BY DRILL SEEDING AT A RATE OF 10-12 LBS/ACRE FOR GRASS MIX, AND 6-8 LBS/ACRE FOR WILDFLOWER MIX. IF THE WILDFLOWER MIX IS NOT INCLUDED, INCREASE GRASS MIX TO 18-20 LBS/ACRE.

RECOMMENDED SEED MIX:

FOOTHILLS NATIVE GRASS MIX	NATIVE PRAIRIE WILDFLOWER MIX
(10%) ARIZONA FESCUE	(21%) ANNUAL SUNFLOWER
(10%) BLUE GRAMA	(10%) ANNUAL GAILLARDIA
(10%) BUFFALO GRASS	(10%) GAYFEATHER
(10%) GREEN NEEDLEGRASS	(10%) LANCE-LEAVED COREOPSIS
(10%) INDIANGRASS	(10%) PERENNIAL GAILLARDIA
(10%) INDIAN RICEGRASS	(10%) THICKSPIKE GAYFEATHER
(10%) LITTLE BLUESTEM	(8%) PURPLE PRAIRIE CLOVER
(10%) SIDEOATS GRAMA	(5%) MAXIMILLAN SUNFLOWER
(10%) WESTERN WHEATGRASS	(5%) WHITE PRAIRIE CLOVER
(7.5%) SANDBERG BLUEGRASS	(3%) GREYHEADED CONEFLOWER
(2.5%) SPIKE MUHLY	(3%) MEXICAN HAT
	(3%) UPRIGHT PRAIRIE CONEFLOWER
	(2%) PLAINS COREOPSIS

FOOTHILLS NATIVE GRASS MIX
(50%) BITTERBRUSH
(50%) RUBBER RABBITBRUSH

AREAS OF NO EARTHWORK (OVERSEED VEGETATION):

PREPARATION AND AMENDMENTS

1. THESE AREAS SHOULD BE EVALUATED BEFORE FOLLOWING THESE PROCEDURES. AREAS WITH EXCESSIVE INVASIVE SPECIES AND PREVIOUS GROUND DISTURBANCE SHOULD BE CONSIDERED FOR SURFACE SCRAPING TO REMOVE WEEDS, RIPPING OF COMPACTED SOIL, AND AUGMENTATION OF POOR SOILS, EXCEPT IN AREAS DESIGNATED AS "MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED" AS SPECIFIED IN THE EXCAVATION AND GRADING & DRAINAGE PLANS.
2. IF EXISTING VEGETATION IS THICK, MOW WITH A BRUSH HOG TO A HEIGHT OF 2" (OR MORE AS EQUIPMENT CAN MANAGE), EXCEPT IN AREAS DESIGNATED AS "MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED" AS SPECIFIED IN THE EXCAVATION AND GRADING & DRAINAGE PLANS.

SEEDING INSTRUCTIONS

1. DRILL SEED THE RECOMMENDED SEED MIX AT A RATE OF 33.53 POUNDS PER ACRE INTO SPARSE EXISTING OR MOWN VEGETATION IN LATE FALL THROUGH EARLY SPRING (BEST BETWEEN EARLY NOVEMBER TO EARLY MARCH AS WEATHER PERMITS).
2. EXECUTE MULTIPLE PASSES OVER EACH AREA, OFFSETTING THE DRILL LINES SO THAT THEY WILL BE CLOSER TOGETHER THAN STANDARD.

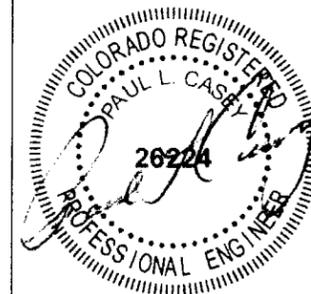
RECOMMENDED SEED MIX:

GRASS MIX	APPLICATION RATE (lbs/acre)
(40%) BLUE GRAMA	1.90
(25%) BUFFALO GRASS	17.50
(25%) SIDEOATS GRAMA	5.13
(10%) WESTERN WHEATGRASS	9.00
TOTAL	33.53



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NOTES
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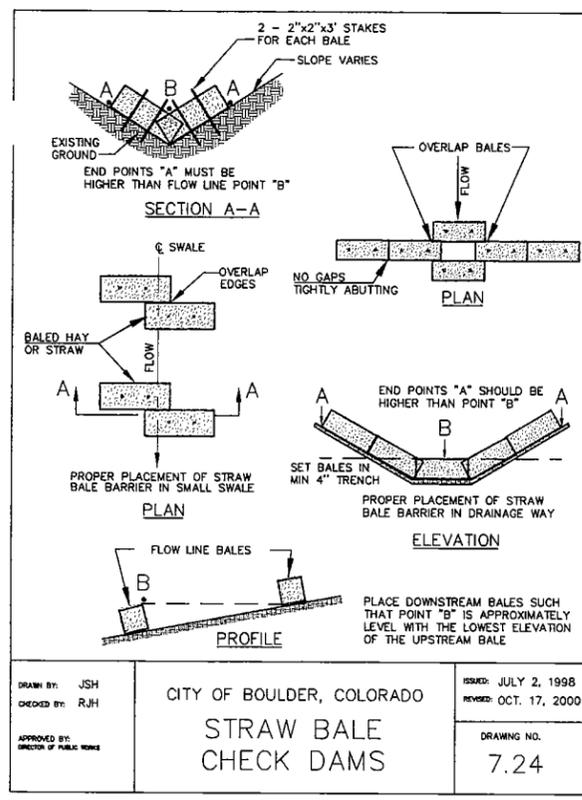
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DATE: 2/11/11

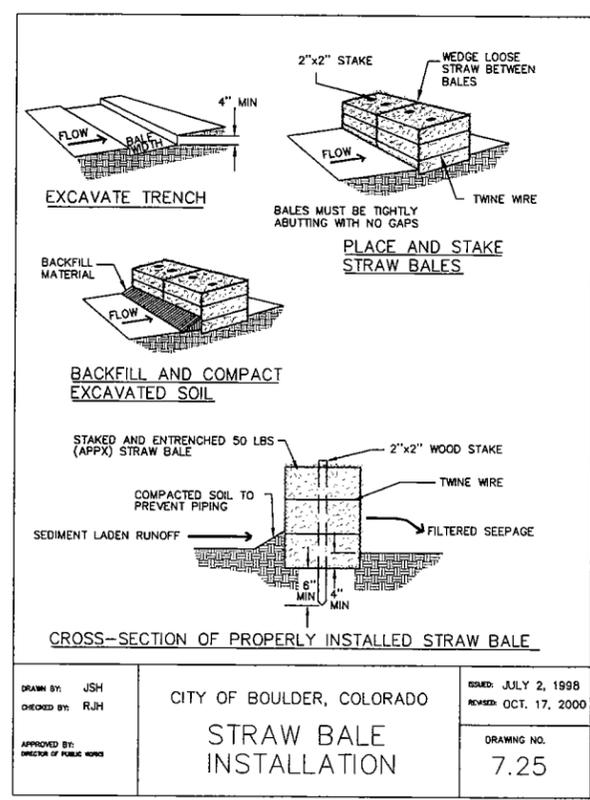
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CHECKED: P.L.C.

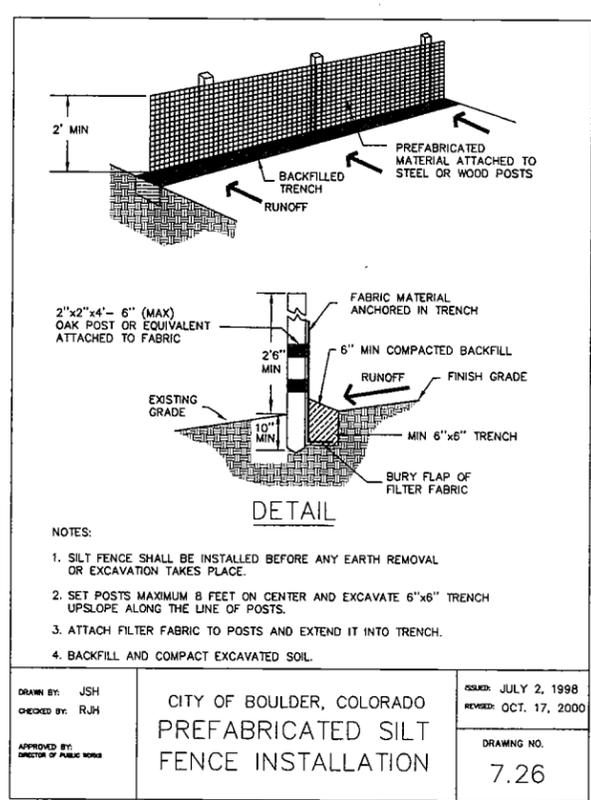
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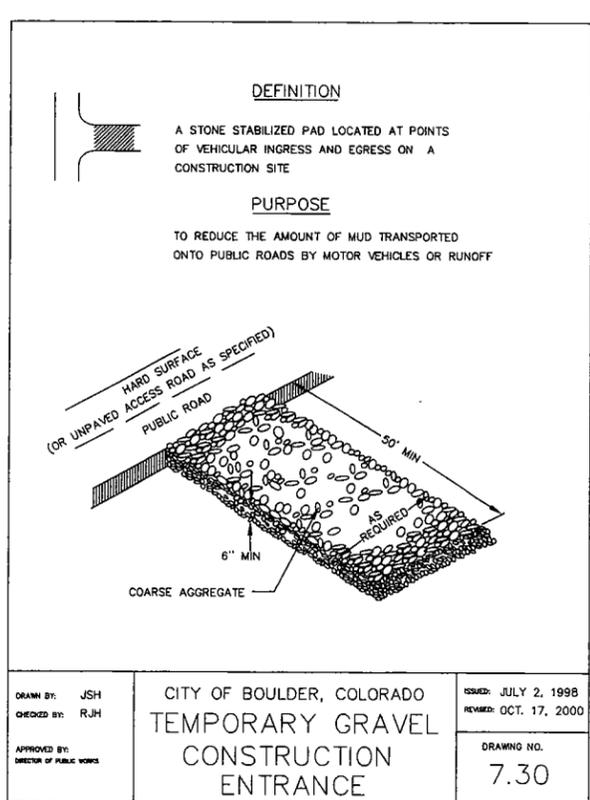
30 STRAW BALE CHECK DAM



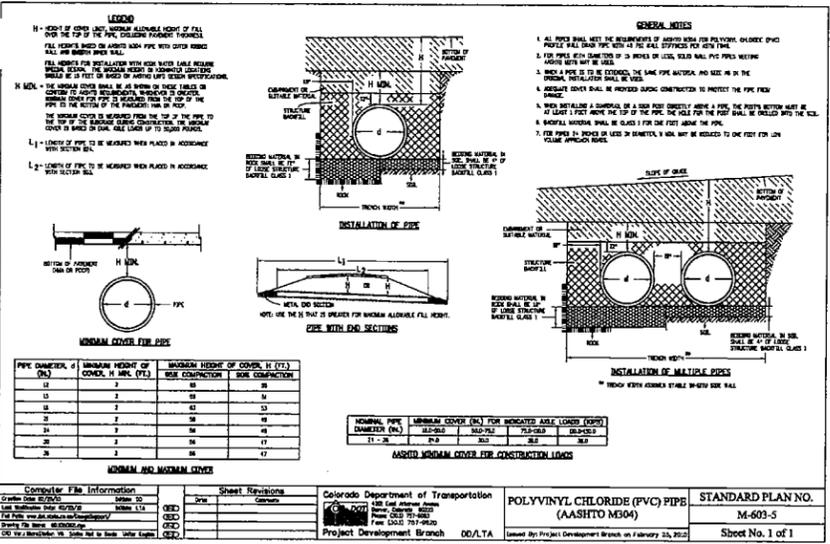
31 STRAW BALE



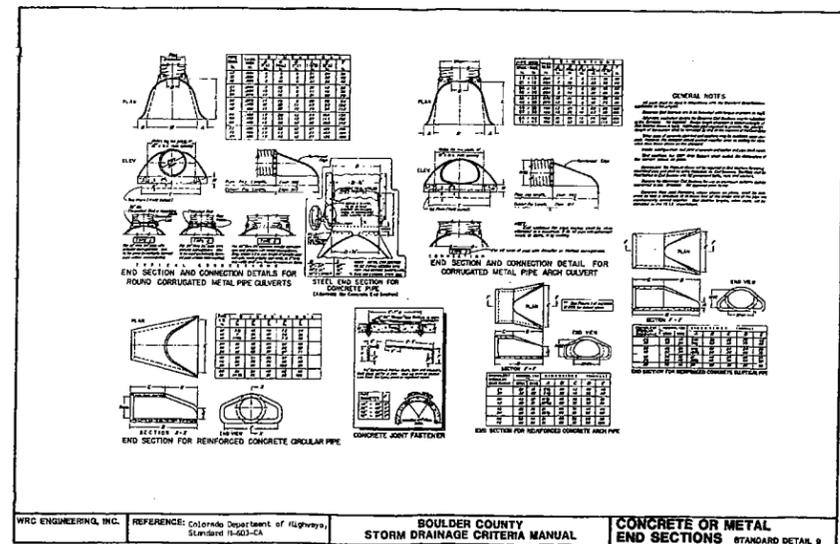
32 SILT FENCE



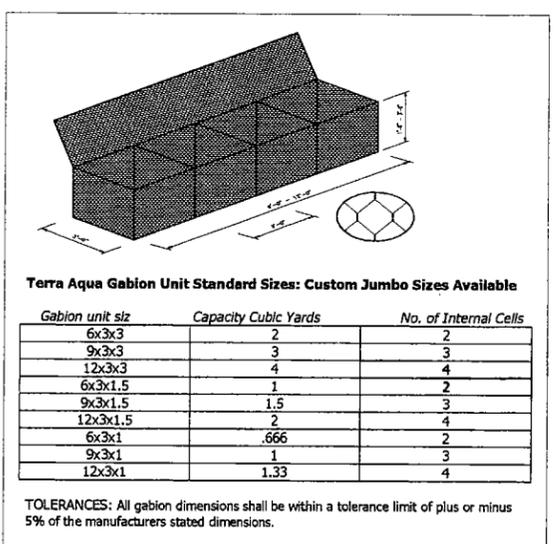
33 VEHICLE TRACKING PAD



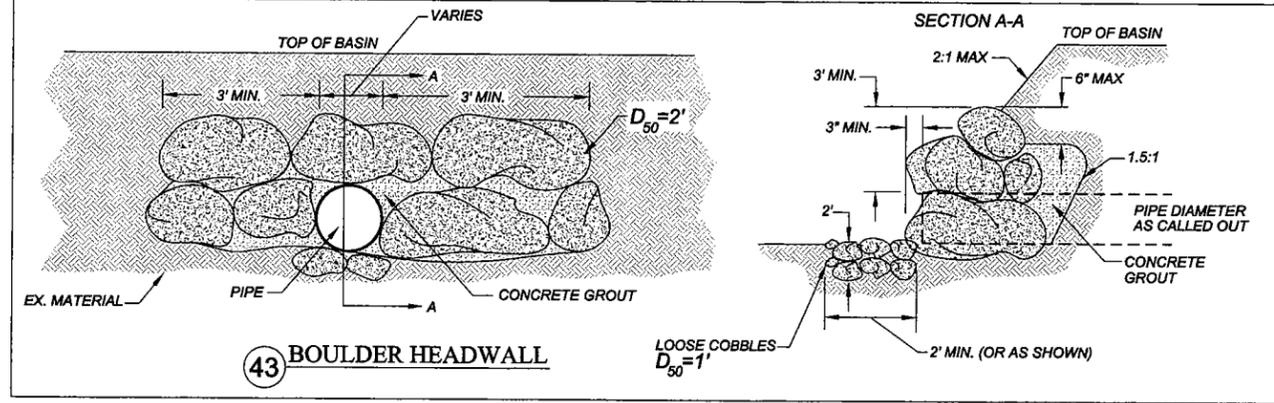
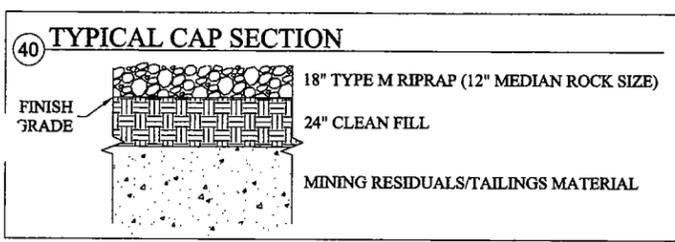
41 18" PVC CULVERT



42 METAL FLARED CULVERT END



46 GABION BASKET

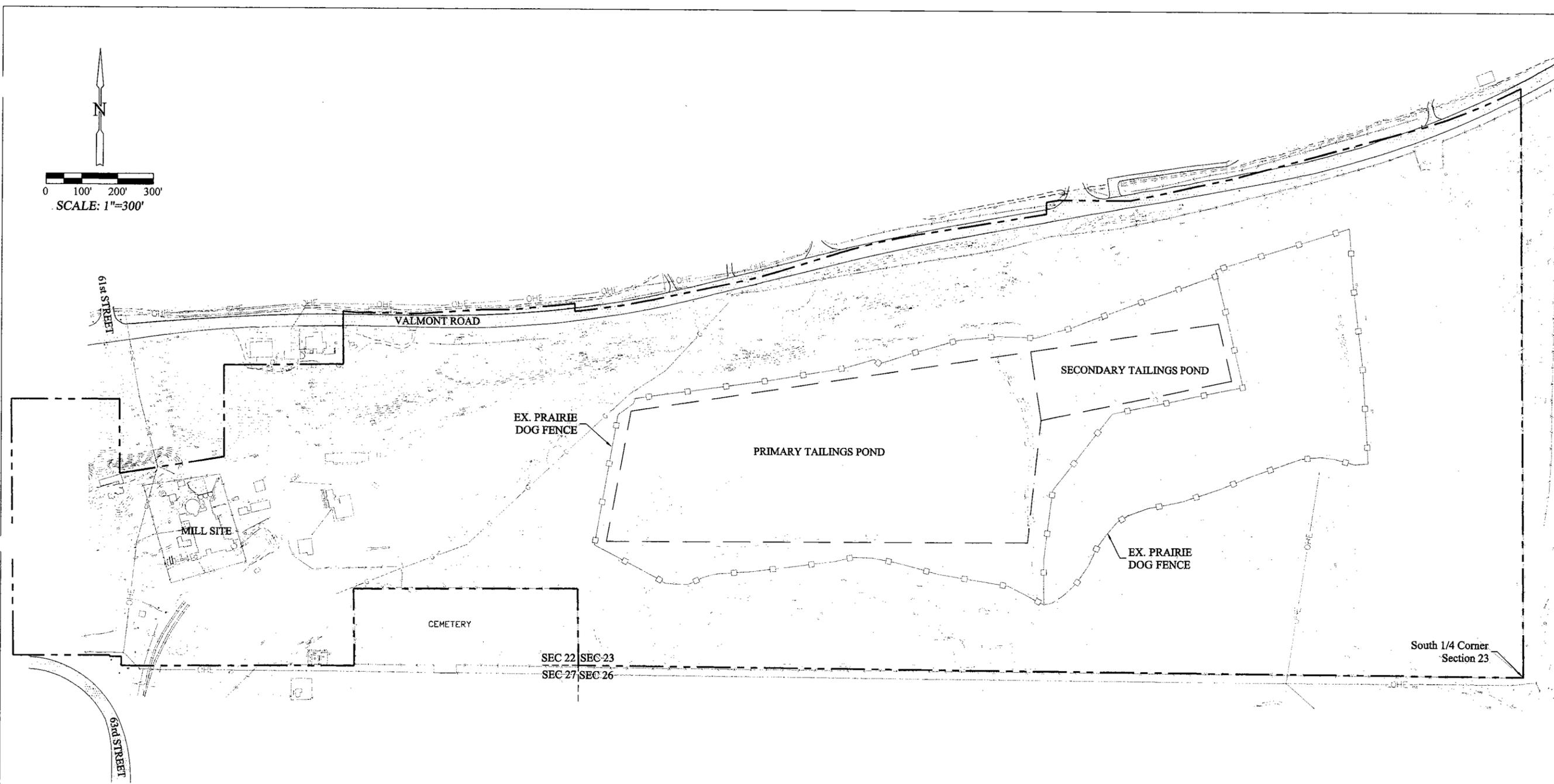
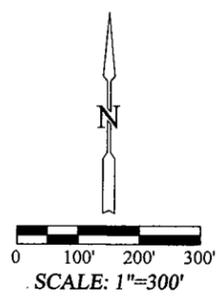


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VALMONT BUTTE
DETAILS
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PROJECT: 021
DATE: 2/11/11
DRAWN: S.R.S.
CHECKED: P.L.C.
SHEET NO: 3



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VALMONT BUTTE
EXISTING SITE LAYOUT
 3000 NORTH 63rd STREET
 BOULDER, COLORADO



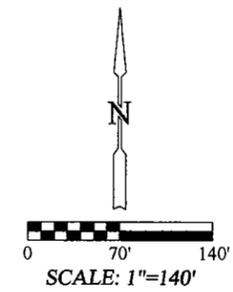
EXISTING SURVEY NOTES:

1. ORIGINAL BASE SURVEY CREATED BY FLATIRONS SURVEYING, INC. PROVIDED BY THE CITY OF BOULDER UNDER THE AMENDMENT TO CONSULTING SERVICES AGREEMENT WITH CASEY RESOURCES, INC. DATED 4/2/2010.
2. BENCHMARK BASED ON GPS OBSERVATIONS USING NGS POINT "X438" PID# LL1137 (NAD 83/92 NORTH ZONE) WITH AN ELEVATION OF 5289.64' (NAVD 88).
3. EXISTING SURFACES GENERATED FROM WORK BY OTHERS.
4. EXISTING TOPOGRAPHIC CONTOURS SHOWN WERE INTERPOLATED USING AERIAL PHOTOGRAMMETRY (DATE OF PHOTOGRAPHY: FEBRUARY 19, 2003). CONTOURS SHOWN MAY NOT BE AN EXACT REPRESENTATION OF CURRENT SITE TOPOGRAPHY.
5. BOUNDARY INFORMATION SHOWN IS BASED ON A LAND SURVEY PLAT PREPARED BY FORESIGHT WEST SURVEYING, INC. DATED AUGUST 10, 2000.
6. IN SOME INSTANCES, THE BASE SURVEY HAS BEEN MODIFIED BY CASEY RESOURCES, INC. TO REFLECT CURRENT CONDITIONS.

COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.

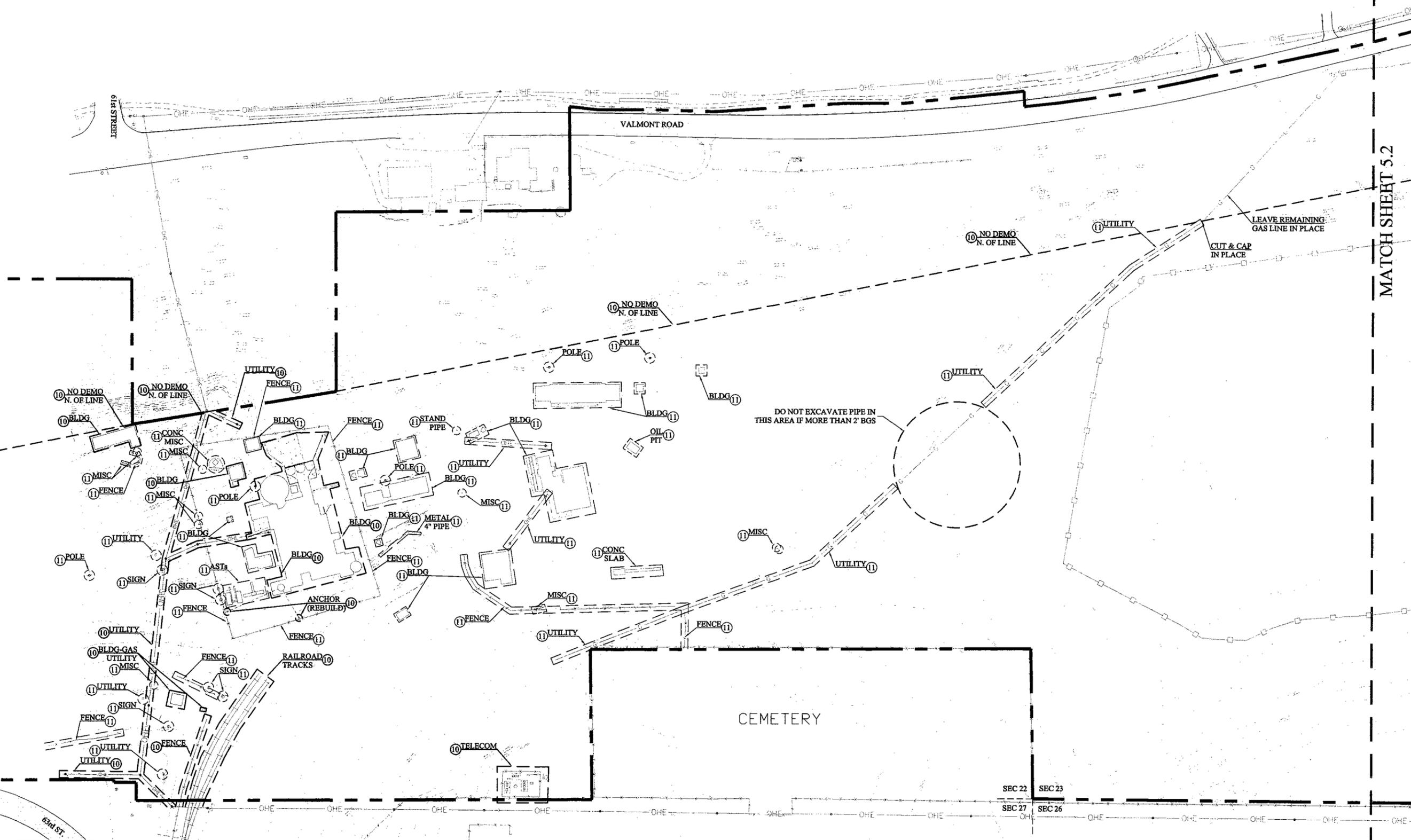
PROJECT: 021
 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 4

- ⑩ EXISTING BUILDING, UTILITY, FENCE, CONCRETE PAD, OR OTHER STRUCTURE TO REMAIN INTACT.
 - ⑪ EXISTING BUILDING, UTILITY, UTILITY POLE, SIGN, FENCE, CONCRETE PAD, OR OTHER STRUCTURE/OBJECT TO BE REMOVED/DEMOLISHED AS SPECIFIED. SUBSEQUENT METAL AND CONCRETE RUBBLE TO BE PLACED IN FILL AREA OF PRIMARY TAILINGS POND. REMAINING RUBBLE TO BE DISPOSED OFFSITE. CONTRACTOR TO VERIFY ALL LOCATIONS.
- COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.



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VALMONT BUTTE
DEMOLITION
PLAN - WEST
 3000 NORTH 63rd STREET
 BOULDER, COLORADO



MATCH SHEET 5.2



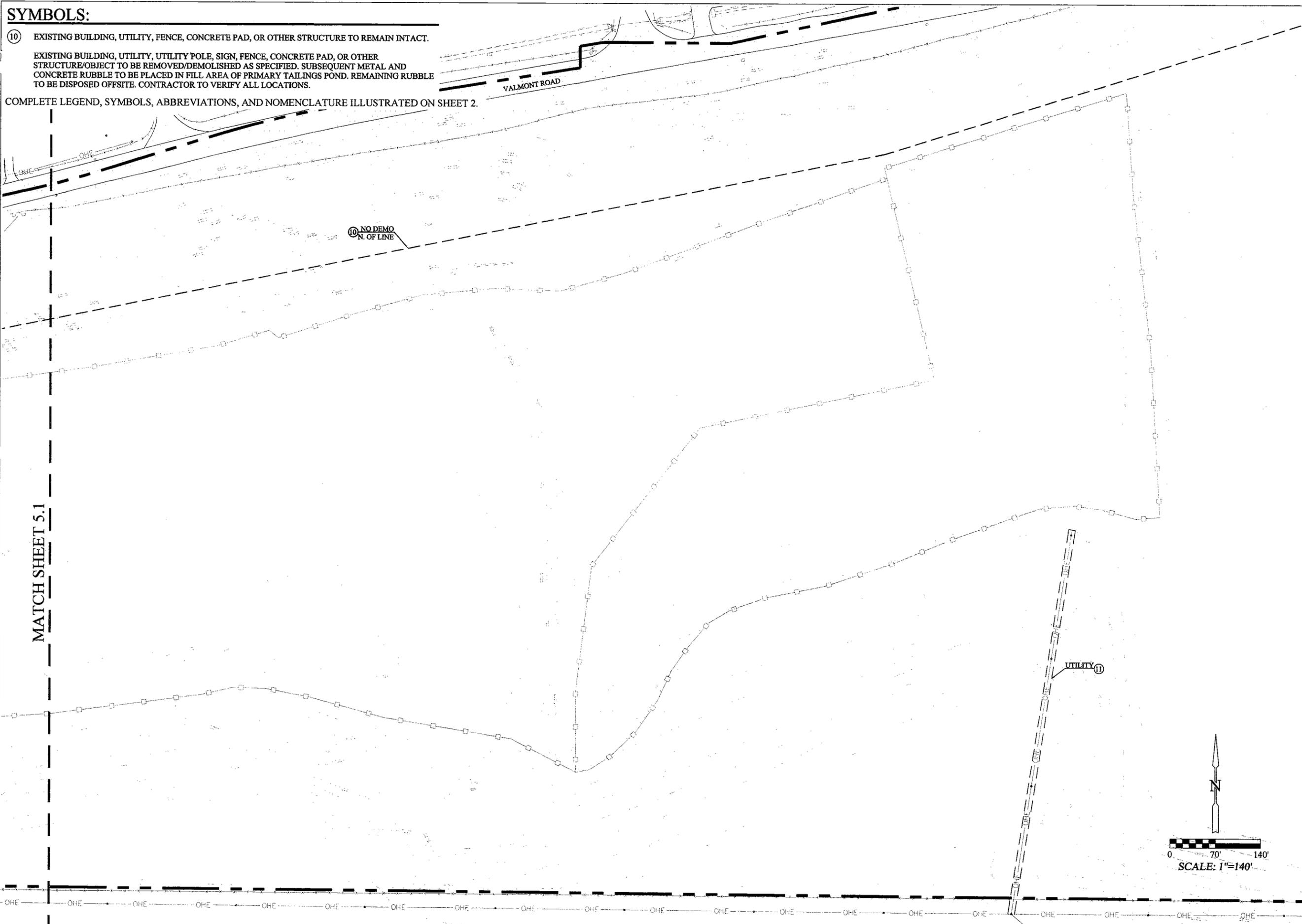
PROJECT: 021
 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 5.1

SYMBOLS:

⑩ EXISTING BUILDING, UTILITY, FENCE, CONCRETE PAD, OR OTHER STRUCTURE TO REMAIN INTACT.

EXISTING BUILDING, UTILITY, UTILITY POLE, SIGN, FENCE, CONCRETE PAD, OR OTHER STRUCTURE/OBJECT TO BE REMOVED/DEMOLISHED AS SPECIFIED. SUBSEQUENT METAL AND CONCRETE RUBBLE TO BE PLACED IN FILL AREA OF PRIMARY TAILINGS POND. REMAINING RUBBLE TO BE DISPOSED OFFSITE. CONTRACTOR TO VERIFY ALL LOCATIONS.

COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.

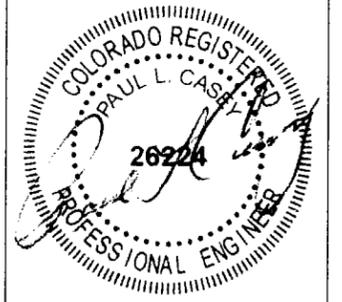


MATCH SHEET 5.1



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VALMONT BUTTE
DEMOLITION
PLAN - EAST
3000 NORTH 63rd STREET
BOULDER, COLORADO



PROJECT: 021
DATE: 2/11/11
DRAWN: S.R.S.
CHECKED: P.L.C.
SHEET NO: 5.2

Estimated Volume of Mining Residuals Requiring Long Term Management

* DESCRIPTION:	MINIMUM DEPTH OF EXCAVATION BELOW EXISTING GROUND SURFACE:	ESTIMATED VOLUME TO BE REMOVED (C.Y.):
A NEAR FORMER OFFICE AND LAB BUILDINGS.	0.5 ft.	93
AA NORTH OF HISTORIC CEMETERY. WEST HALF.	1.5 ft.	3,249
B NORTH OF HISTORIC CEMETERY. EAST HALF.	0.5 ft.	168
BB NEAR CULTURALLY SENSITIVE AREA. DO NOT DISTURB SOUTH OF ACCESS ROAD.	0.5 ft.	1,301
C ADJACENT TO EAST SIDE OF R.R. TRACKS. ³	4 ft.	13,417
D NORTH OF FORMER MILL BUILDING. ^{1,2}	1.5 ft.	511
E SOUTHWEST CORNER OF PROPERTY. NEAR 63rd STREET. ³	4 ft.	1,531
F NEAR FORMER LAB BUILDING/WOOD SHOP. ¹	1 ft.	627
G NORTHEAST OF MILL BUILDING. ^{1,3}	4 ft.	1,548
I CENTRAL ADJACENT TO SOUTH PROPERTY LINE.	0.5 ft.	188
J NORTH PORTION OF SECONDARY TAILINGS DAM. INCLUDES AREA CC FROM CRI REPORTS.	1 ft.	1,031
Me EAST OF FORMER MILL BUILDING. ^{1,2,3}	4 ft.	464
Ms SOUTH OF FORMER MILL BUILDING. ^{2,3}	4 ft.	459
Mw WEST OF FORMER MILL BUILDING. ^{1,2,3}	4 ft.	1,257
ST SECONDARY TAILINGS POND. ^{1,4}	7 ft.	41,607

* EXCAVATION AREA NOMENCLATURE REFERS TO AREA OF METALS (PRIMARILY LEAD) CONTAMINATED SOIL AS PER PREVIOUS ENVIRONMENTAL REPORTS BY CASEY RESOURCES, INC.

- 1 RADIATION AND METALS IMPACTED SOIL.
- ² MILL BUILDING TO BE PRESERVED. SOIL DISTURBING ACTIVITIES NEAR BUILDING TO BE CONDUCTED IN A MANNER THAT WILL NOT DAMAGE BUILDING OR COMPROMISE FOUNDATION.
- ³ WHERE THE DEPTH OF SOIL IMPACT IS IDENTIFIED AS GREATER THAN 2 FEET, IT IS ASSUMED THAT CLEAN SOIL (LEAD CONCENTRATION LESS THAN 800mg/kg) WOULD BE ENCOUNTERED WITHIN 4 FEET.
- 4 ESTIMATED DEPTH OF IMPACTED SOILS DETERMINED BY OTHERS.

SYMBOLS:

- A EXCAVATION AREA IDENTIFIER. EXCAVATE MINING RESIDUALS/TAILINGS TO SPECIFIED DEPTH. PLACE EXCAVATION CUTTINGS IN PRIMARY TAILINGS POND FILL AREA AND GRADE ACCORDING TO PLAN.
- 21 MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED.
- 22 AREA OF NO DISTURBANCE. SOILS MEET PROJECT ACTION LEVELS.
- 23 CONSOLIDATE, GRADE, AND CAP MINING RESIDUALS/TAILINGS AND IMPORTED FILL PER TYPICAL CAP SECTION (SEE SHEET 3).

LEGEND:

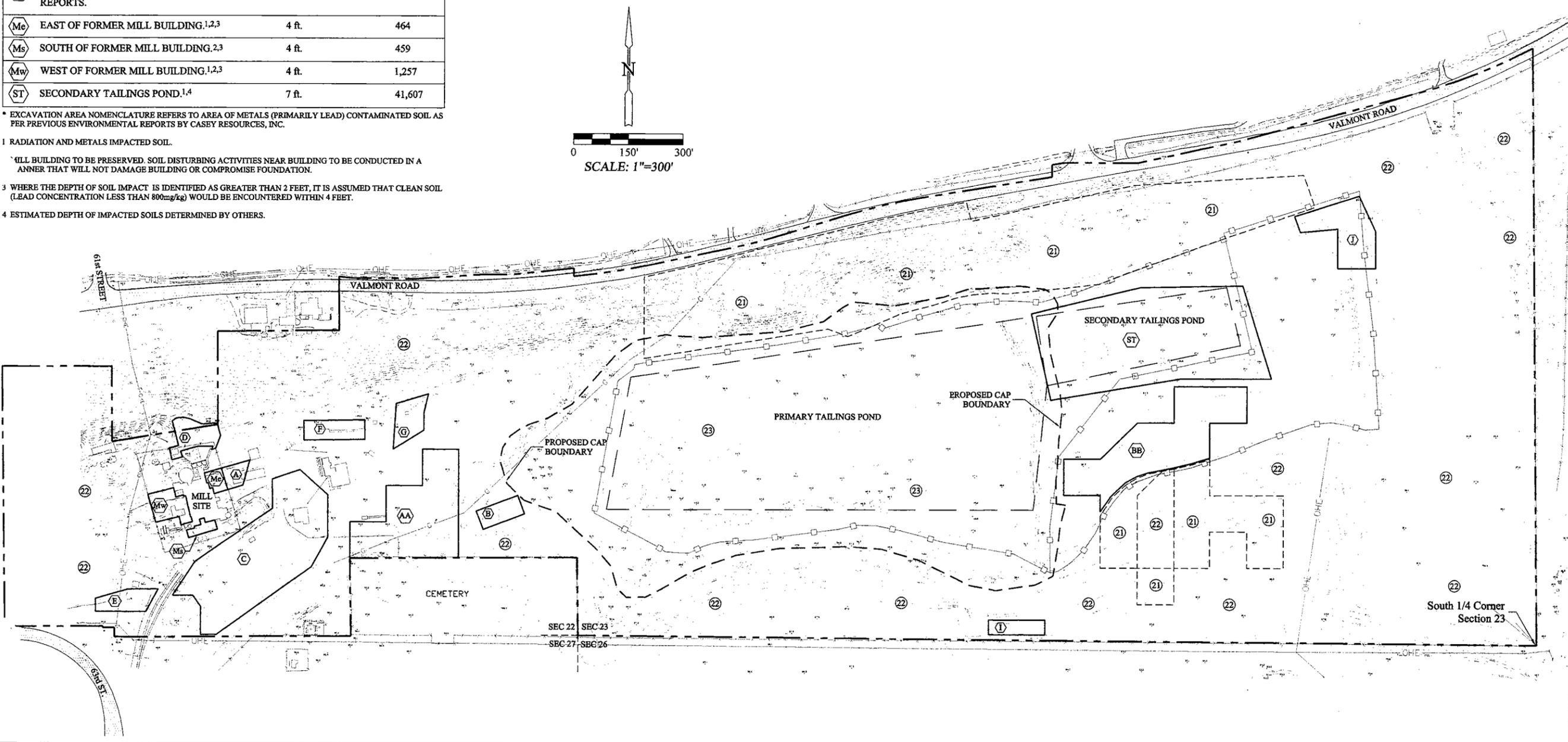
- PROPERTY BOUNDARY
- REPRESENTS BOTTOM OF EXCAVATION. REMOVE CONTAMINATED SOIL IN THIS AREA TO SPECIFIED DEPTH AND SLOPE SIDEWALLS 1:1 MAX TO MATCH EXISTING GRADE.

COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.

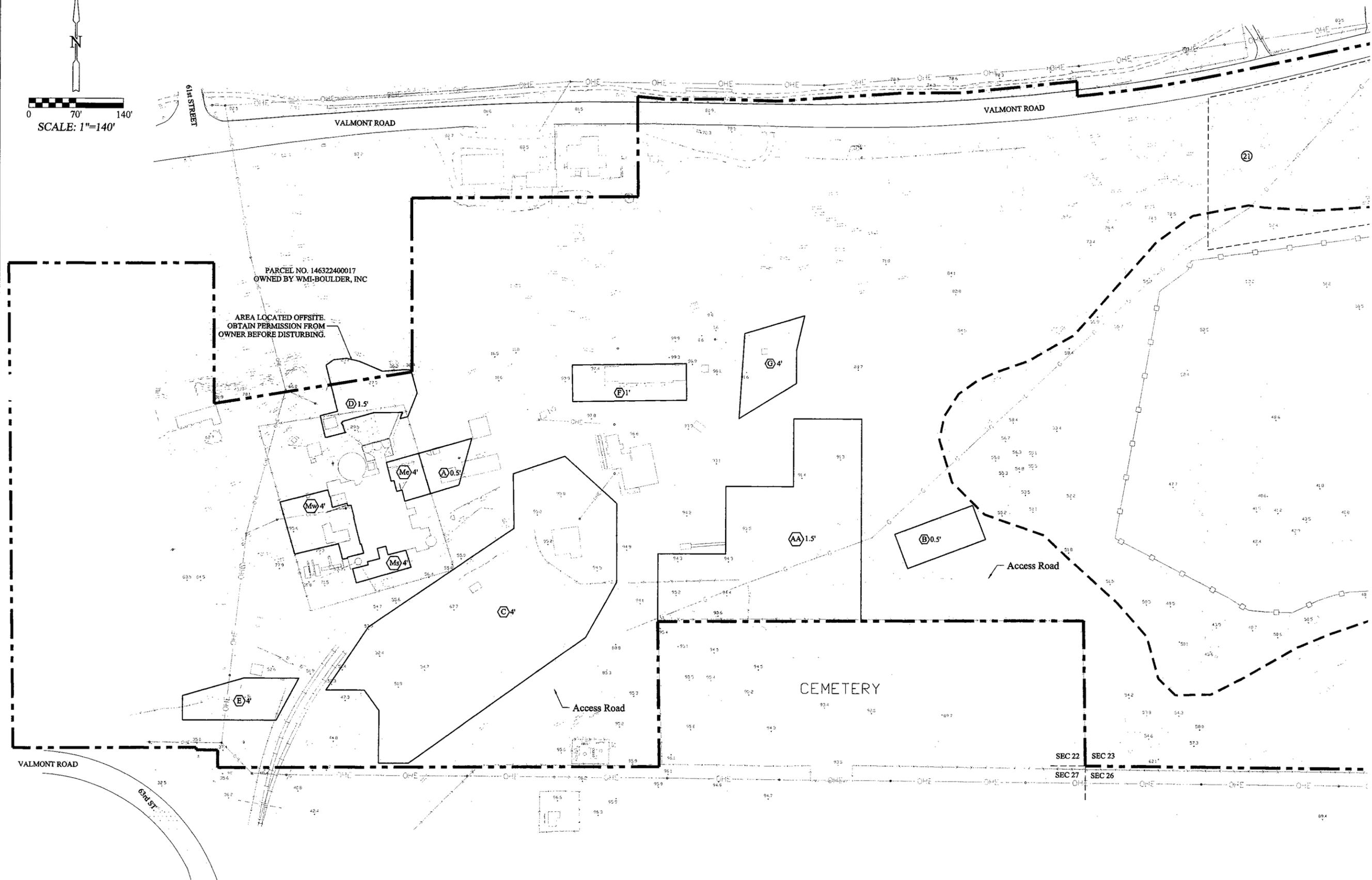
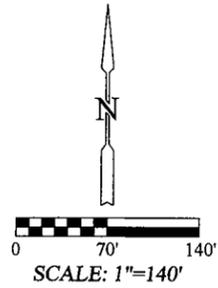


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VALMONT BUTTE
EXCAVATION PLAN -
OVERVIEW
3000 NORTH 63rd STREET
BOULDER, COLORADO

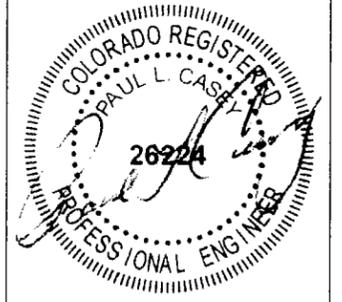


PROJECT: 021
 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 6.1



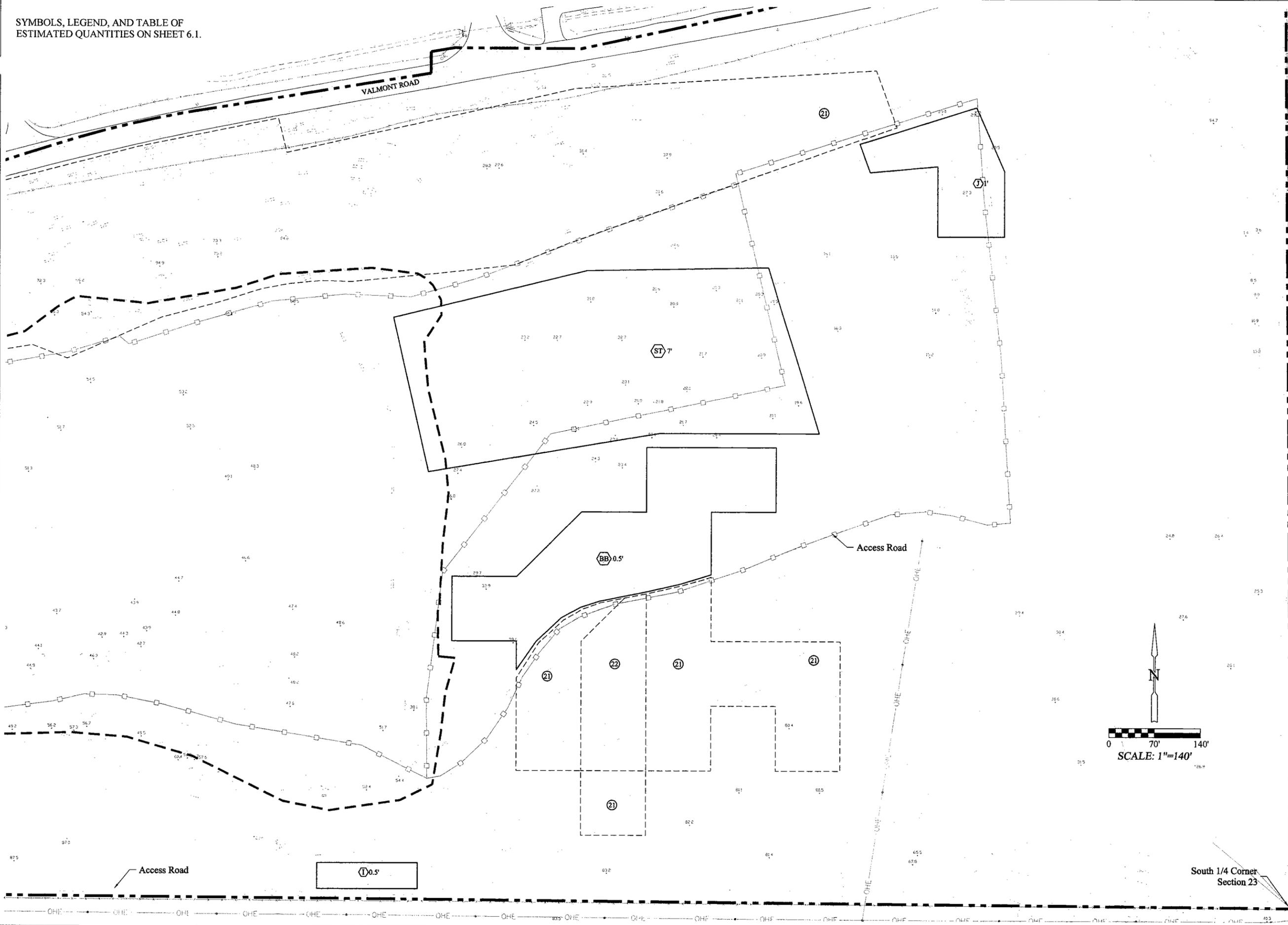
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**VALMONT BUTTE
 EXCAVATION PLAN -
 WEST
 3000 NORTH 63rd STREET
 BOULDER, COLORADO**



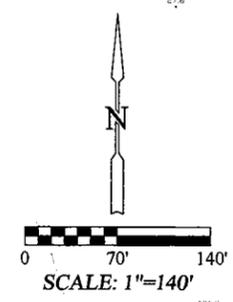
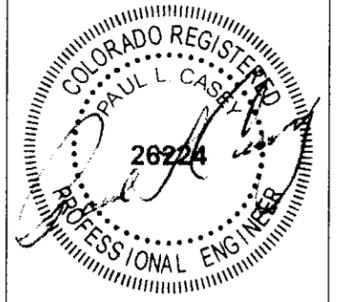
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 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 6.2

SYMBOLS, LEGEND, AND TABLE OF ESTIMATED QUANTITIES ON SHEET 6.1.



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VALMONT BUTTE
EXCAVATION
PLAN - EAST
 3000 NORTH 63rd STREET
 BOULDER, COLORADO

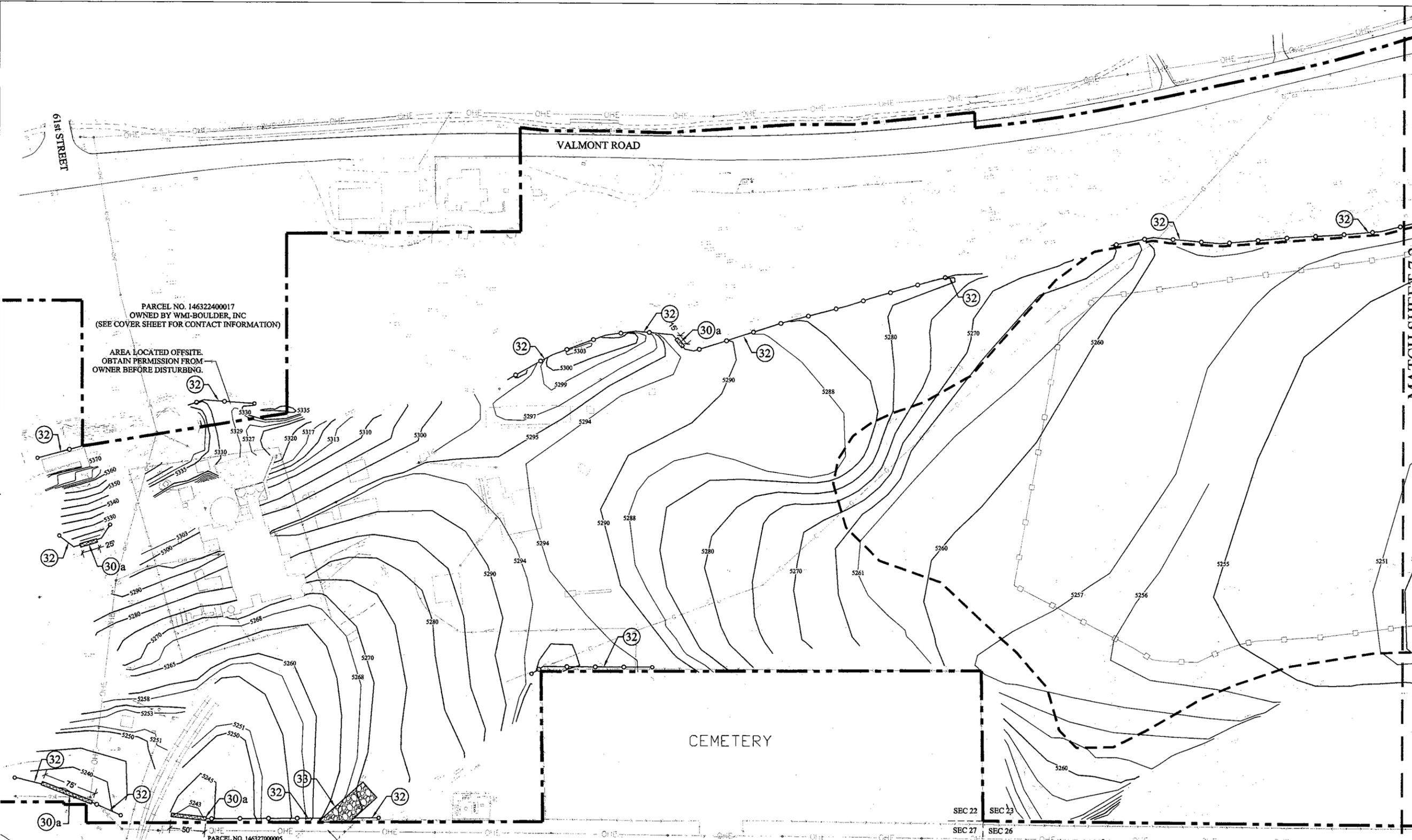
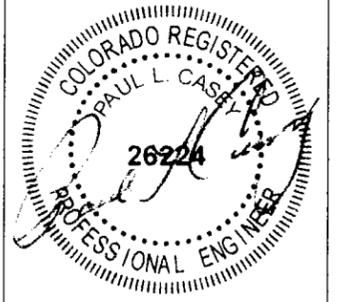


PROJECT:	021
DATE:	2/11/11
DRAWN:	S.R.S.
CHECKED:	P.L.C.
SHEET NO:	6.3

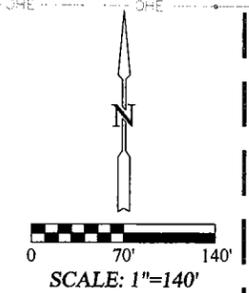


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VALMONT BUTTE
STORM WATER
MANAGEMENT PLAN -
WEST
3000 NORTH 63rd STREET
BOULDER, COLORADO



- SYMBOLS:**
- ③0 INSTALL TEMPORARY STRAW BALE CHECK DAM PER CITY OF BOULDER DRAWING NO. 7.24 (SEE SHEET 3). DIMENSIONS AS SPECIFIED.
 - a. INSTALL PRIOR TO BEGINNING OF CONSTRUCTION.
 - b. INSTALL IMMEDIATELY FOLLOWING INSTALLATION OF PROPOSED FEATURE.
 - ③1 INSTALL TEMPORARY STRAW BALE(S) PER CITY OF BOULDER DRAWING NO. 7.25 (SEE SHEET 3) IMMEDIATELY FOLLOWING INSTALLATION OF PROPOSED FEATURE.
 - ③2 INSTALL TEMPORARY SILT FENCE PER CITY OF BOULDER DRAWING NO. 7.26 (SEE SHEET 3) PRIOR TO BEGINNING OF SOIL DISTURBING ACTIVITIES.
 - ③3 INSTALL TEMPORARY VEHICLE TRACKING PAD PER CITY OF BOULDER DRAWING NO. 7.30 (SEE SHEET 3) PRIOR TO BEGINNING OF SOIL DISTURBING ACTIVITIES. 30' WIDE x 60' LONG.



COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.

PROJECT: 021
 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 7.1

PARCEL NO. 146322400017
 OWNED BY WMI-BOULDER, INC
 (SEE COVER SHEET FOR CONTACT INFORMATION)

AREA LOCATED OFFSITE.
 OBTAIN PERMISSION FROM
 OWNER BEFORE DISTURBING.

PARCEL NO. 146327000005
 BNSF RAILWAY COMPANY
 (SEE COVER SHEET FOR
 CONTACT INFORMATION)

ROAD LOCATED OFFSITE.
 OBTAIN PERMISSION FROM
 OWNER BEFORE DISTURBING.

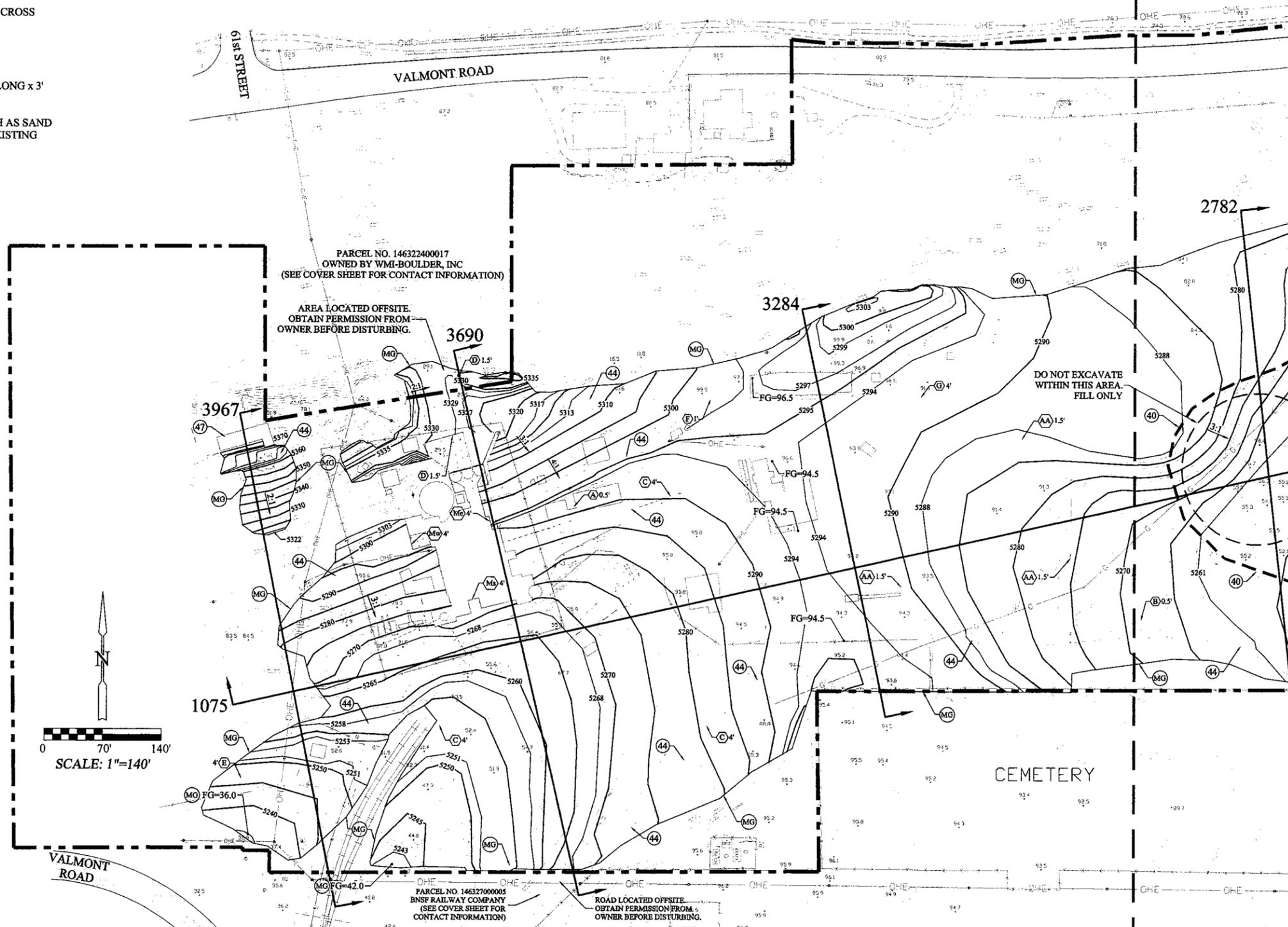
ROAD LOCATED OFFSITE.
 OBTAIN PERMISSION
 FROM OWNER BEFORE
 DISTURBING.

MATCH SHEET 7.2

SYMBOLS:

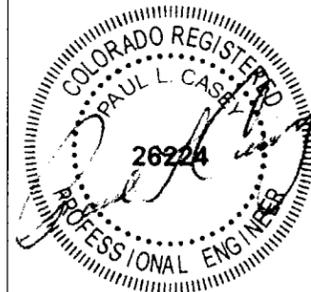
- (MG) MATCH EXISTING GRADE.
- ⎓ EXCAVATION AREA IDENTIFIER. AREA EXCAVATED PER EXCAVATION PLAN TO SPECIFIED DEPTH.
- (21) MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED.
- (22) AREA OF NO DISTURBANCE. SOILS MEET PROJECT ACTION LEVELS.
- (40) CONSTRUCT CAP PER TYPICAL CAP SECTION (SEE SHEET 3).
- (41) INSTALL 18" DIAMETER CIRCULAR POLYVINYL CHLORIDE (PVC) CULVERT PER CDOT STANDARD PLAN NO. M-603-5 (SEE SHEET 3).
- (42) CONSTRUCT METAL FLARED END SECTION PER BOULDER COUNTY STANDARD DETAIL 9, MODIFIED FOR PVC PIPE AND WITH RIP RAP ARMORING (SEE SHEET 3).
- (43) INSTALL BOULDER HEADWALL PER DETAIL SHEET 3.
- (44) CONSTRUCT UNIMPROVED ACCESS ROAD. 15% MAX GRADE, 7% MAX CROSS SLOPE.
- (45) INSTALL RIVER RUN ROCK ARMORING 20' WIDE WITHIN SWALE. D₅₀=4" MEDIAN ROCK DIAMETER.
- (46) INSTALL GABION BASKET(S) FLUSH WITH TOP OF CAP, MINIMUM 18' LONG x 3' WIDE x 1' DEEP PER DETAIL SHEET 3 OR EQUIVALENT.
- (47) CISTERN STRUCTURE TO REMAIN. FILL WITH INERT MATERIAL, SUCH AS SAND OR CONCRETE AND CAP WITH 6 INCHES OF CONCRETE. PRESERVE EXISTING ROOF STRUCTURE.

COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.



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**VALMONT BUTTE
 GRADING & DRAINAGE
 PLAN - WEST
 (PROPOSED SITE LAYOUT)
 3000 NORTH 63rd STREET
 BOULDER, COLORADO**

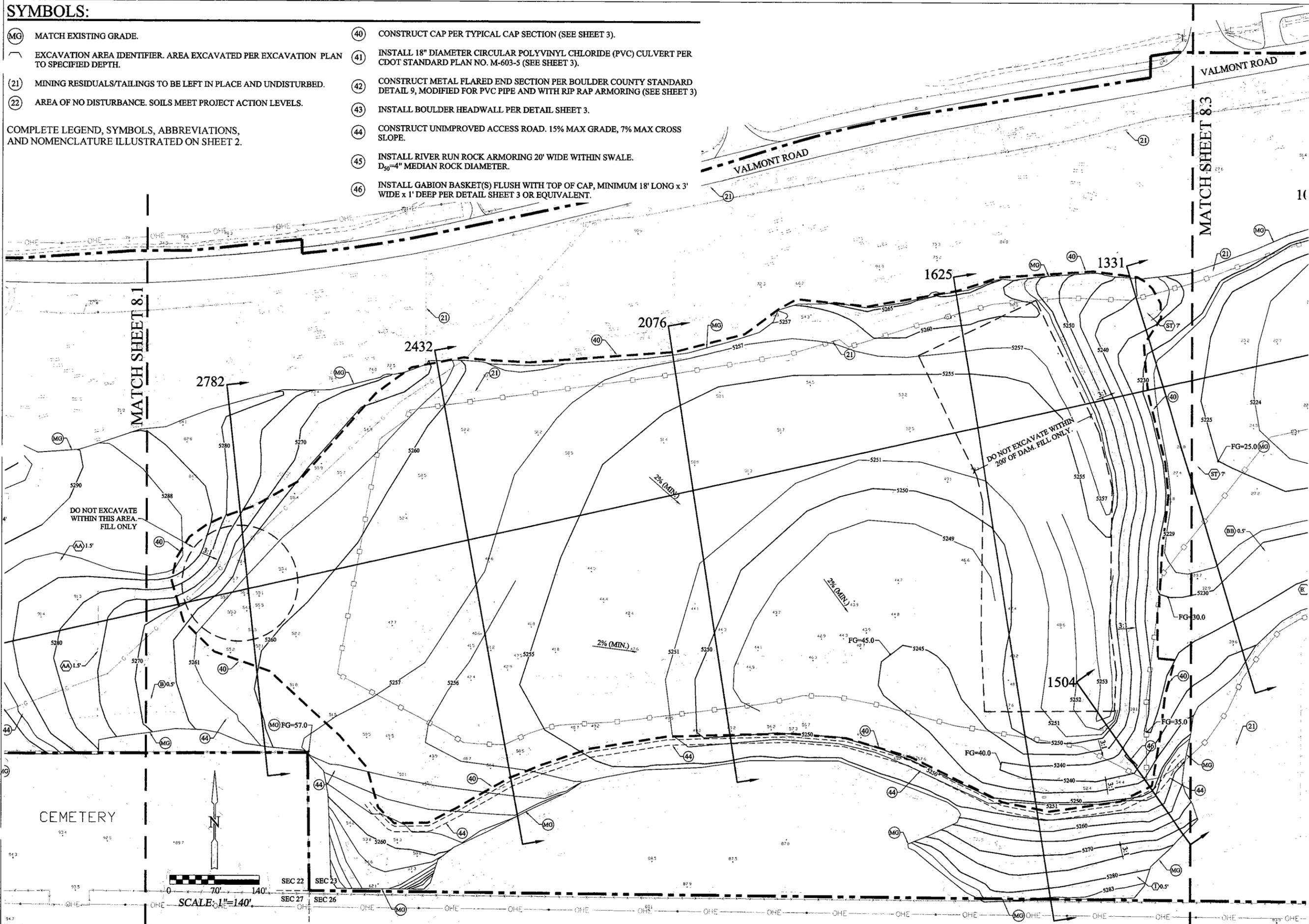


PROJECT: 021
 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 8.1

SYMBOLS:

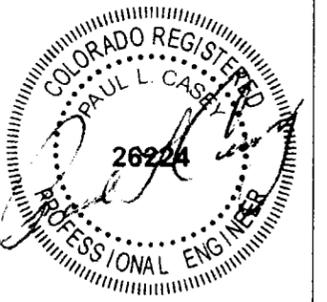
- (MG) MATCH EXISTING GRADE.
- EXCAVATION AREA IDENTIFIER. AREA EXCAVATED PER EXCAVATION PLAN TO SPECIFIED DEPTH.
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- (40) CONSTRUCT CAP PER TYPICAL CAP SECTION (SEE SHEET 3).
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COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.



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**VALMONT BUTTE
 GRADING & DRAINAGE
 PLAN - CENTRAL
 (PROPOSED SITE LAYOUT)
 3000 NORTH 63rd STREET
 BOULDER, COLORADO**



PROJECT: 021
 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 8.2



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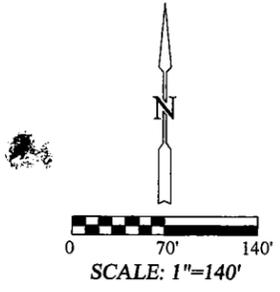
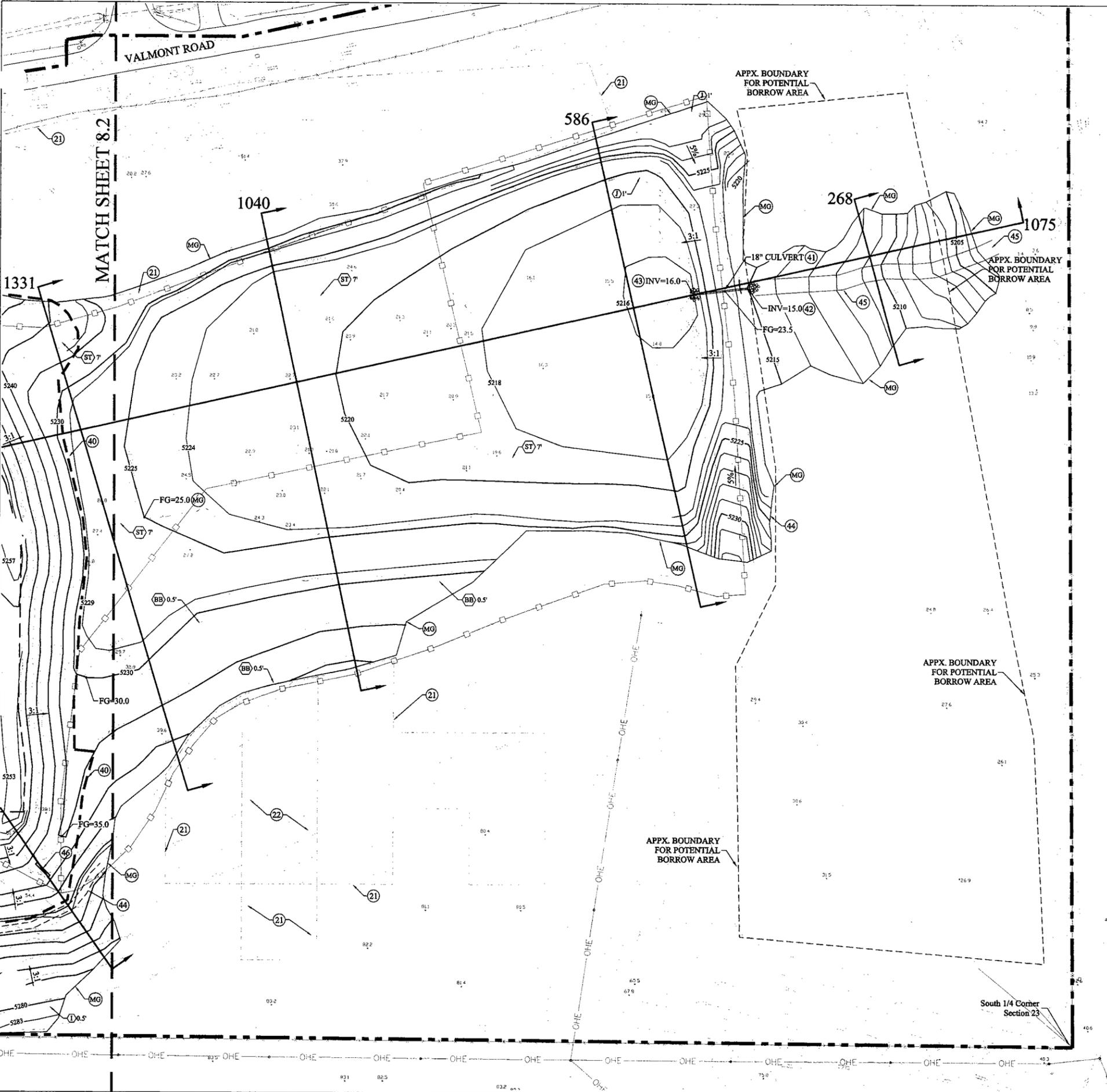
**VALMONT BUTTE
 GRADING & DRAINAGE
 PLAN - EAST
 (PROPOSED SITE LAYOUT)
 3000 NORTH 63rd STREET
 BOULDER, COLORADO**

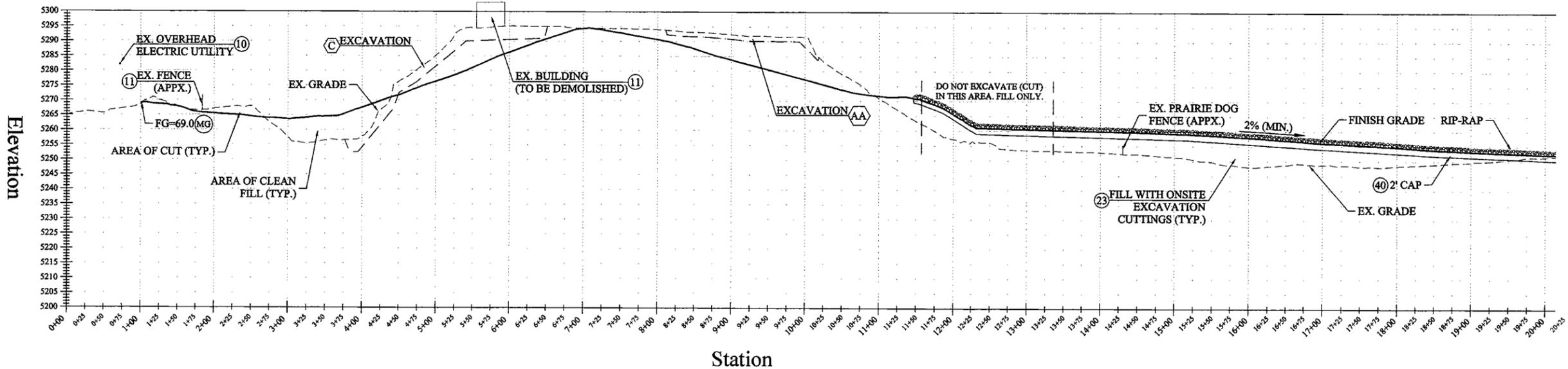


PROJECT: 021
 DATE: 2/11/11
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 CHECKED: P.L.C.
 SHEET NO: 8.3

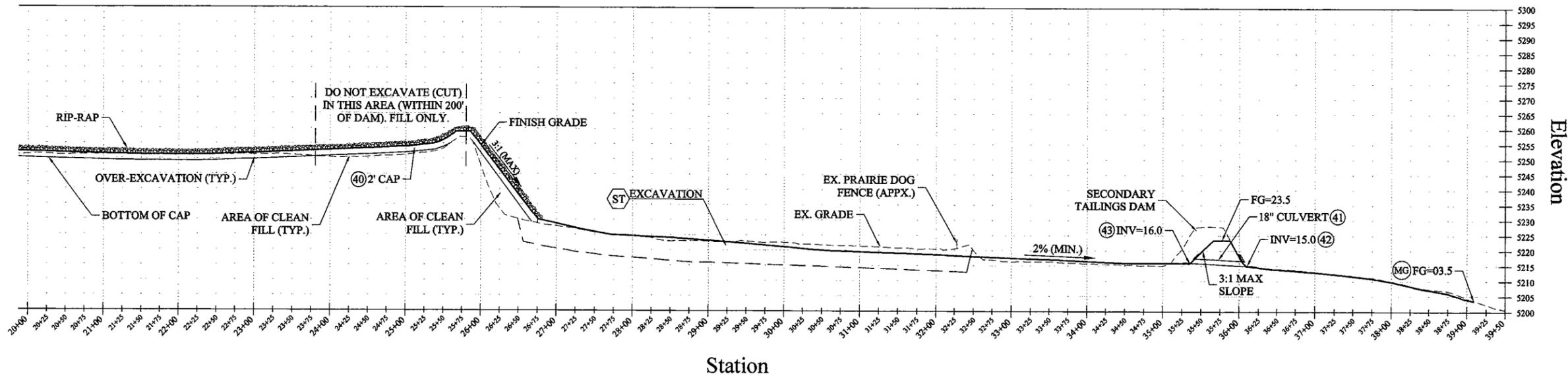
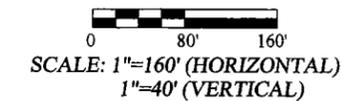
SYMBOLS:

- (MG) MATCH EXISTING GRADE.
 - (A) EXCAVATION AREA IDENTIFIER. AREA EXCAVATED PER EXCAVATION PLAN TO SPECIFIED DEPTH.
 - (21) MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED.
 - (22) AREA OF NO DISTURBANCE. SOILS MEET PROJECT ACTION LEVELS.
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 - (43) INSTALL BOULDER HEADWALL PER DETAIL SHEET 3.
 - (44) CONSTRUCT UNIMPROVED ACCESS ROAD. 15% MAX GRADE, 7% MAX CROSS SLOPE.
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- COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.





CROSS SECTION 1075 (SITE - WEST)



CROSS SECTION 1075 (SITE - EAST)

ABBREVIATIONS:

APPX	APPROXIMATE
BGS	BELOW GROUND SURFACE
BLDG	BUILDING
D ₅₀	MEDIAN ROCK DIAMETER
FG	FINISH GRADE ELEVATION
FT.	FEET
MAX	MAXIMUM
MIN	MINIMUM

EXISTING FEATURES:

	CONCRETE SURFACE
	CHAIN LINK FENCE
	PRAIRIE DOG FENCE (APPROXIMATE LOCATION)
	PROPERTY BOUNDARY

PROPOSED FEATURES:

	SLOPE: 3 HORIZONTAL TO 1 VERTICAL
	SLOPE: PERCENT GRADE

SYMBOLS:

- (MG) MATCH EXISTING GRADE.
- (A) EXCAVATION AREA IDENTIFIER. EXCAVATE MINING RESIDUALS/TAILINGS TO SPECIFIED DEPTH. PLACE EXCAVATION CUTTINGS IN PRIMARY TAILINGS POND FILL AREA AND GRADE ACCORDING TO PLAN.
- (10) EXISTING BUILDING, UTILITY, FENCE, CONCRETE PAD, OR OTHER STRUCTURE TO REMAIN INTACT.
- (11) EXISTING BUILDING, UTILITY, UTILITY POLE, SIGN, FENCE, CONCRETE PAD, OR OTHER STRUCTURE/OBJECT TO BE REMOVED/DEMOLISHED AS SPECIFIED. SUBSEQUENT METAL AND CONCRETE RUBBLE TO BE PLACED IN FILL AREA OF PRIMARY TAILINGS POND. REMAINING RUBBLE TO BE DISPOSED OFFSITE. CONTRACTOR TO VERIFY ALL LOCATIONS.
- (21) MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED.
- (23) CONSOLIDATE, GRADE, AND CAP MINING RESIDUALS/TAILINGS AND IMPORTED FILL PER TYPICAL CAP SECTION (SEE SHEET 3).
- (40) CONSTRUCT CAP PER TYPICAL CAP SECTION (SEE SHEET 3).

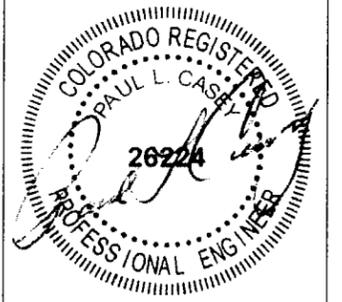
- (41) INSTALL 18" DIAMETER CIRCULAR POLYVINYL CHLORIDE (PVC) CULVERT PER CDOT STANDARD PLAN NO. M-603-5 (SEE SHEET 3).
- (42) CONSTRUCT METAL FLARED END SECTION PER BOULDER COUNTY STANDARD DETAIL 9, MODIFIED FOR PVC PIPE AND WITH RIP RAP ARMORING (SEE SHEET 3).
- (43) INSTALL BOULDER HEADWALL PER DETAIL SHEET 3.
- (44) CONSTRUCT UNIMPROVED ACCESS ROAD. 15% MAX GRADE, 7% MAX CROSS SLOPE.
- (45) INSTALL RIVER RUN ROCK ARMORING 20' WIDE WITHIN SWALE. D₅₀=4" MEDIAN ROCK DIAMETER.
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- (47) CISTERN STRUCTURE TO REMAIN. FILL WITH INERT MATERIAL, SUCH AS SAND OR CONCRETE AND CAP WITH 6 INCHES OF CONCRETE. PRESERVE EXISTING ROOF STRUCTURE.

COMPLETE LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 2.



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VALMONT BUTTE
GRADING & DRAINAGE
PLAN - CROSS SECTIONS
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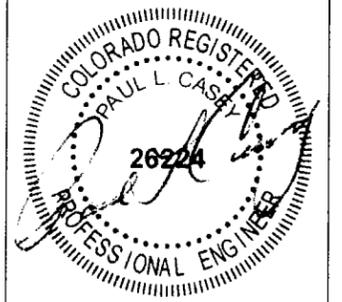


PROJECT: 021
DATE: 2/11/11
DRAWN: S.R.S.
CHECKED: P.L.C.
SHEET NO: 8.4

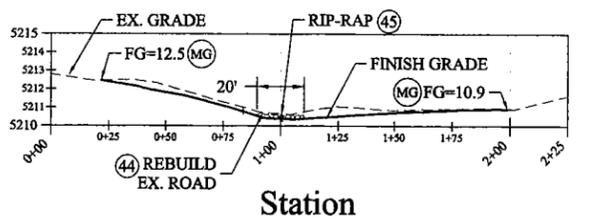


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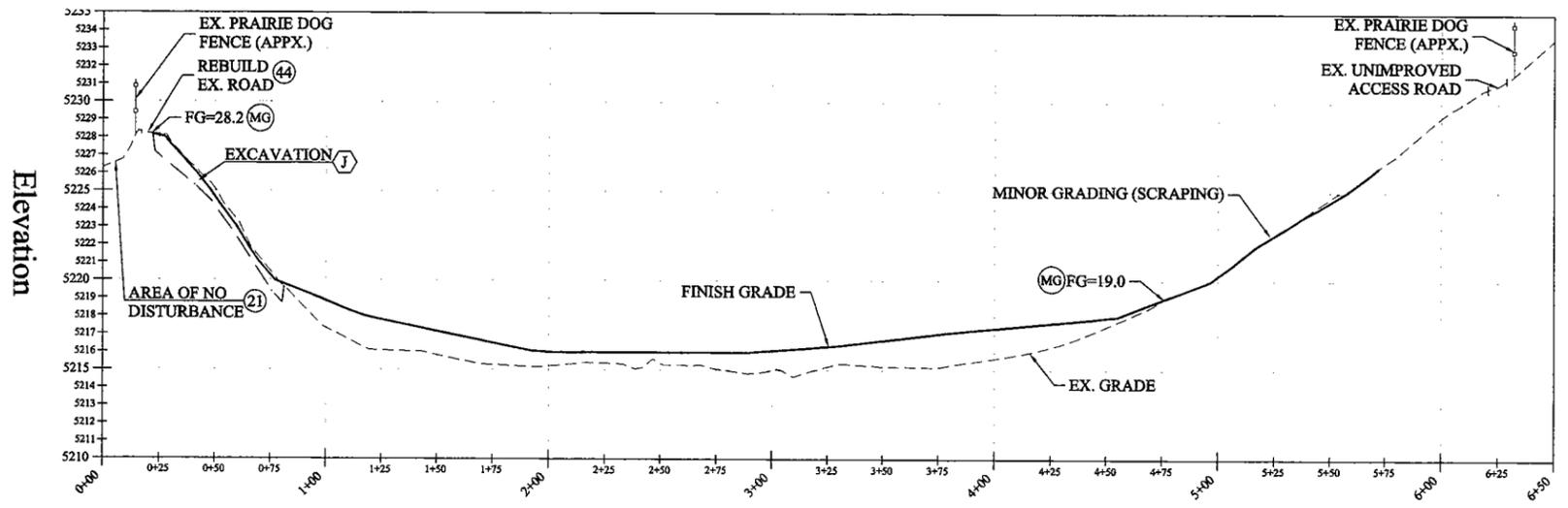
VALMONT BUTTE
GRADING & DRAINAGE
PLAN - CROSS SECTIONS
 3000 NORTH 63rd STREET
 BOULDER, COLORADO



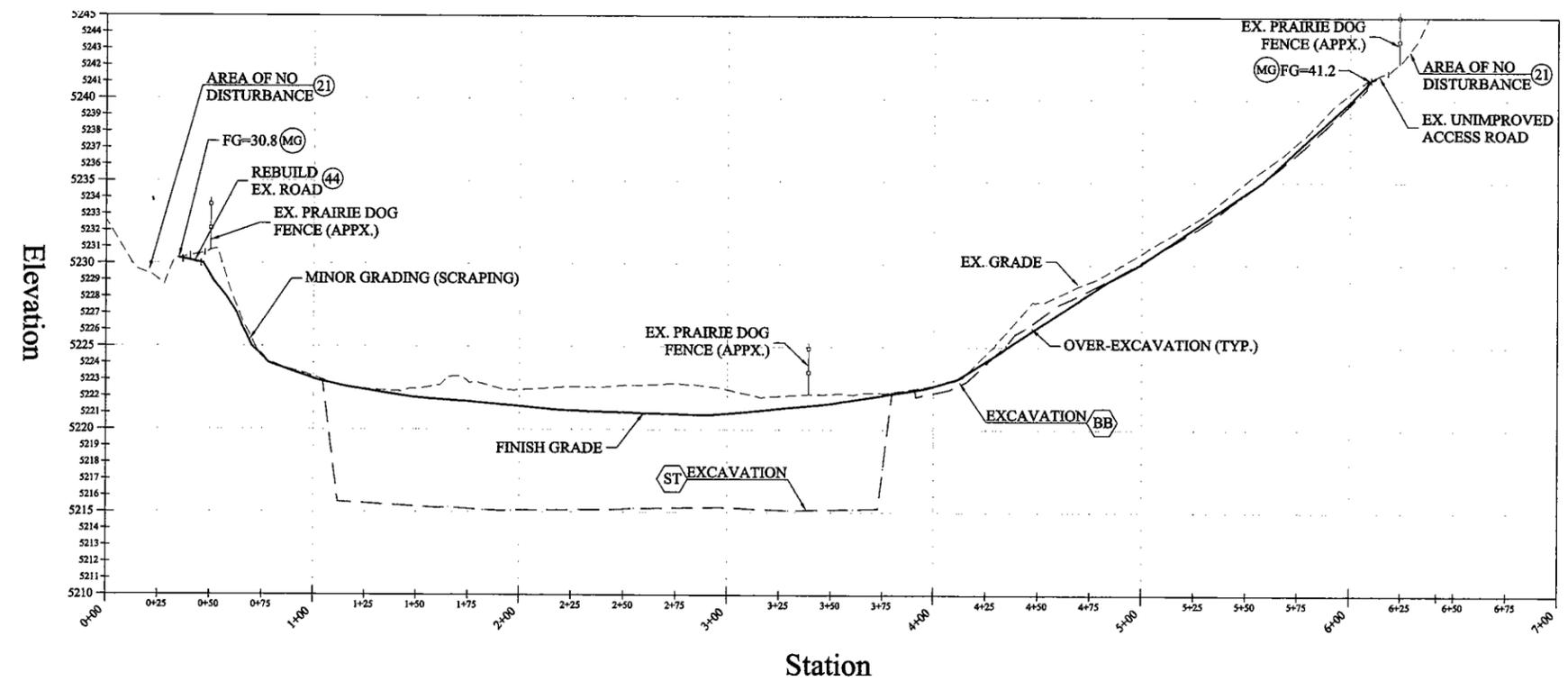
PROJECT: 021
 DATE: 2/11/11
 DRAWN: S.R.S.
 CHECKED: P.L.C.
 SHEET NO: 8.5



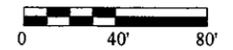
CROSS SECTION 268 (EAST DRAINAGE SWALE)



CROSS SECTION 586 (SECONDARY TAILINGS POND-EAST)

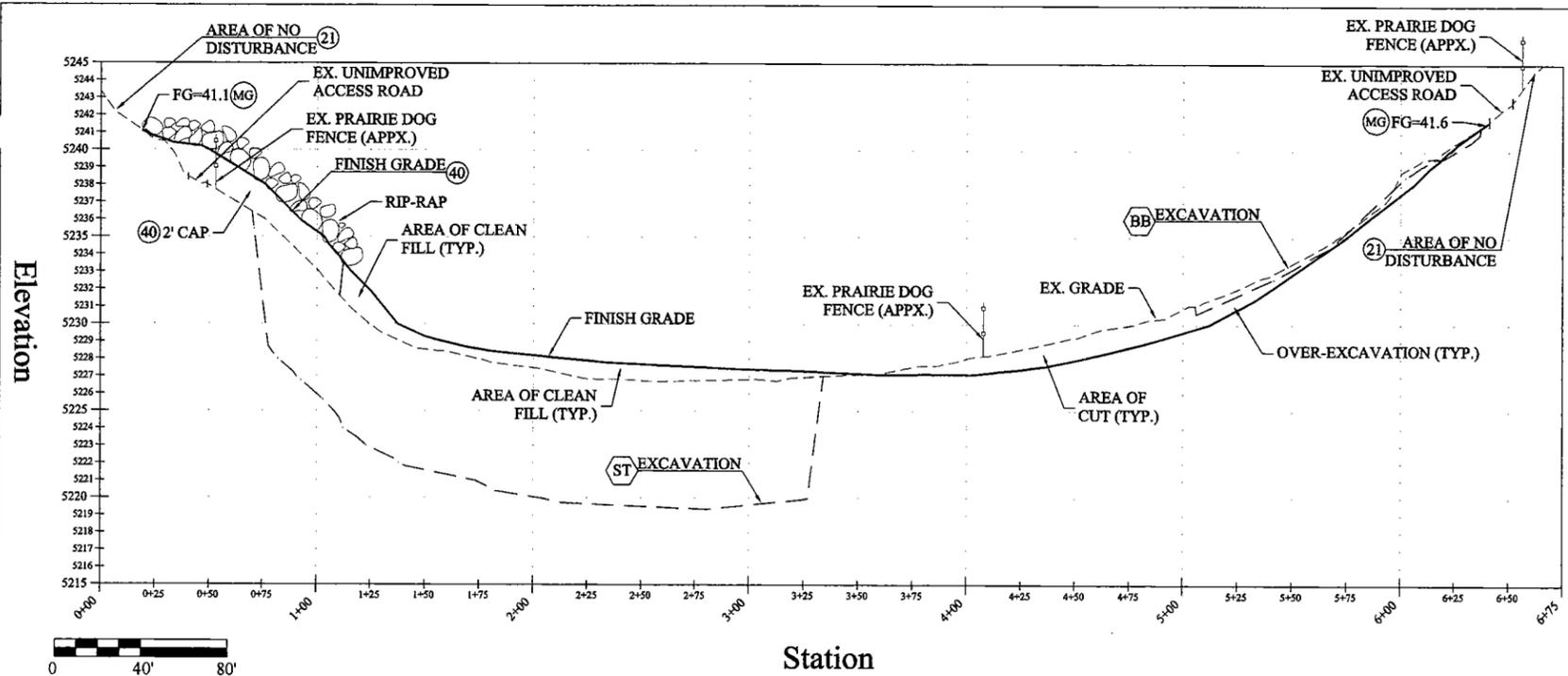


CROSS SECTION 1040 (SECONDARY TAILINGS POND-CENTRAL)

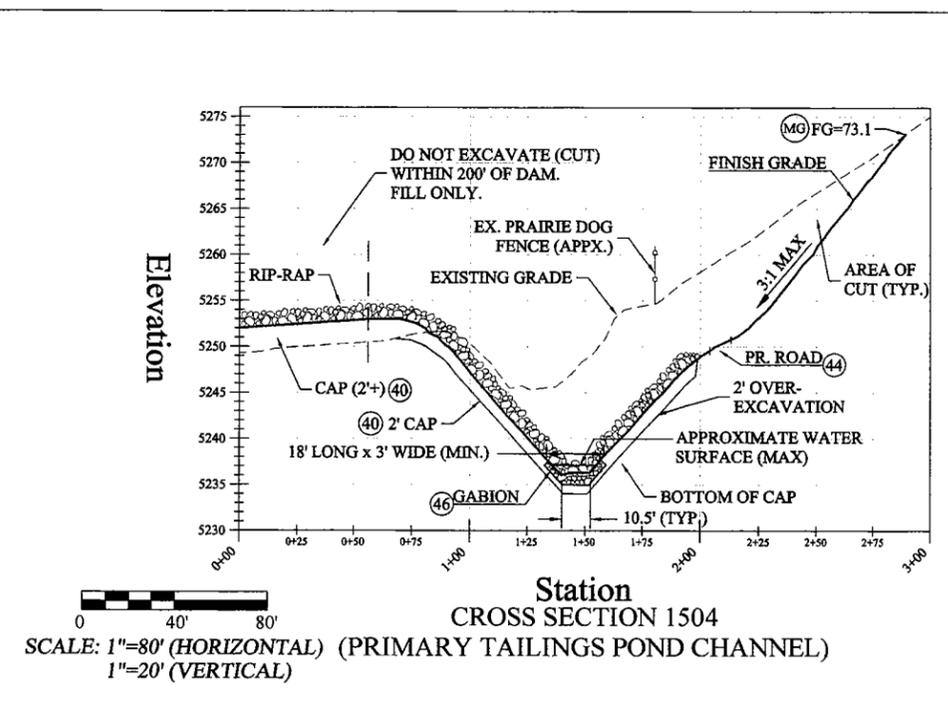


SCALE: 1"=80' (HORIZONTAL)
 1"=10' (VERTICAL)

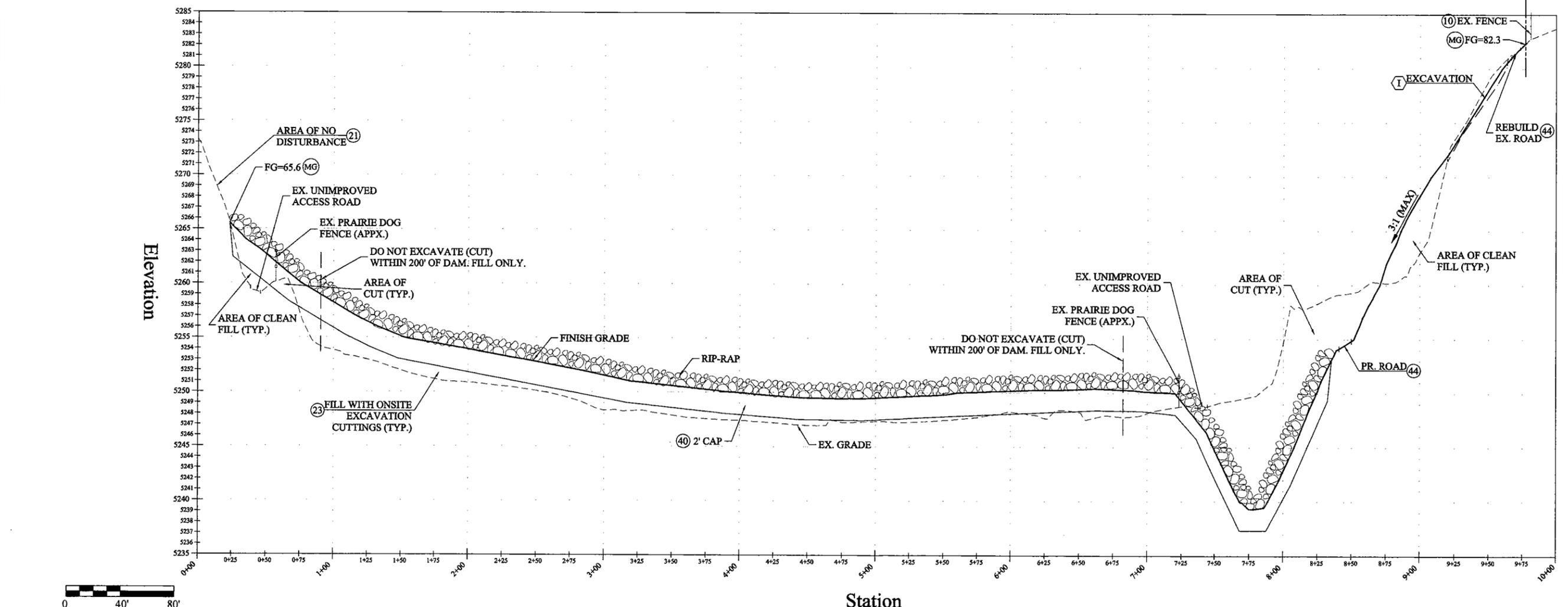
LEGEND, SYMBOLS, ABBREVIATIONS, AND
 NOMENCLATURE ILLUSTRATED ON SHEET 8.4



CROSS SECTION 1331 (SECONDARY TAILINGS POND-WEST)



CROSS SECTION 1504 (PRIMARY TAILINGS POND CHANNEL)



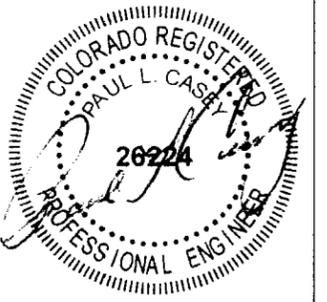
CROSS SECTION 1625 (PRIMARY TAILINGS POND-EAST)

LEGEND, SYMBOLS, ABBREVIATIONS, AND NOMENCLATURE ILLUSTRATED ON SHEET 8.4

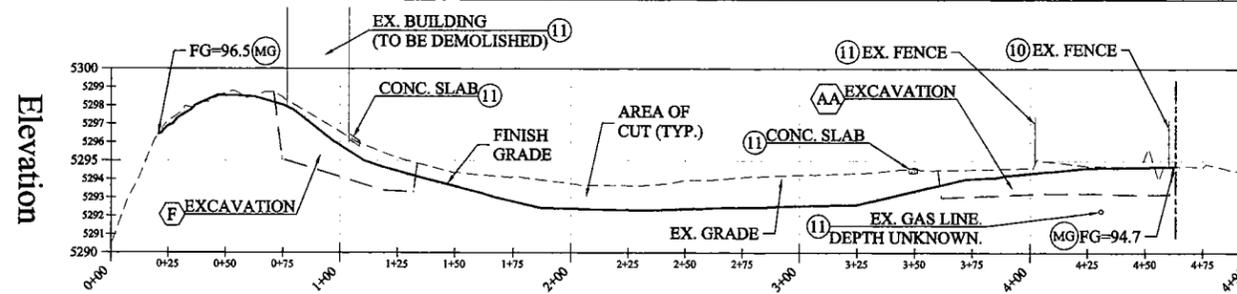


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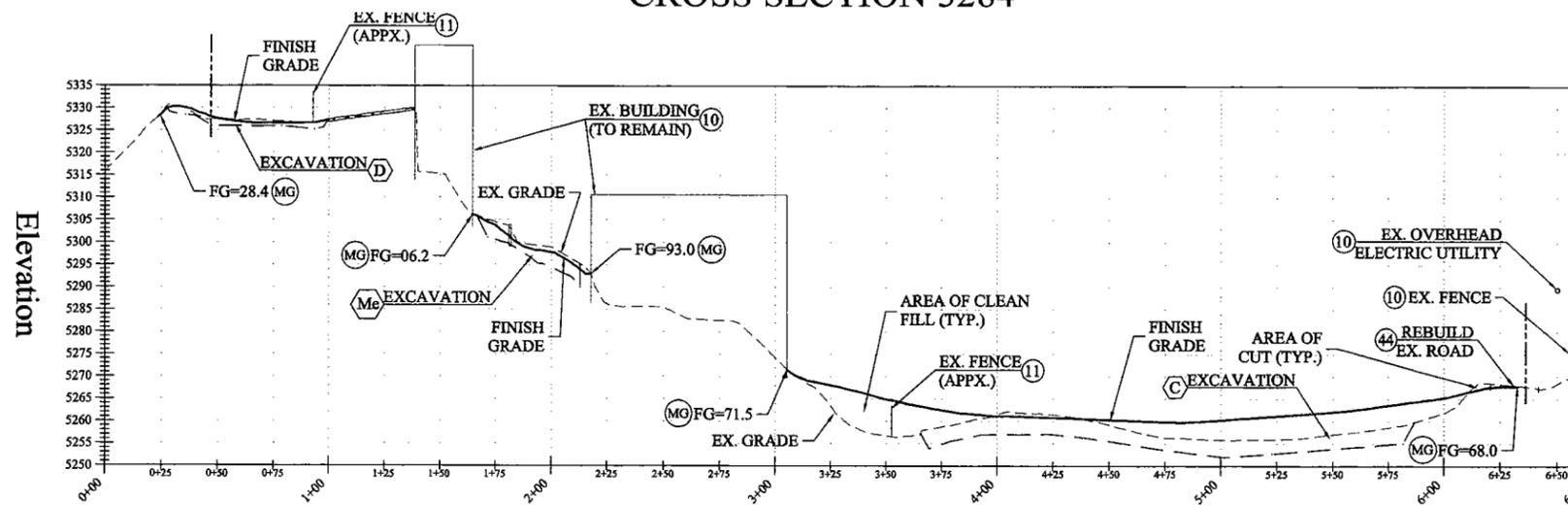
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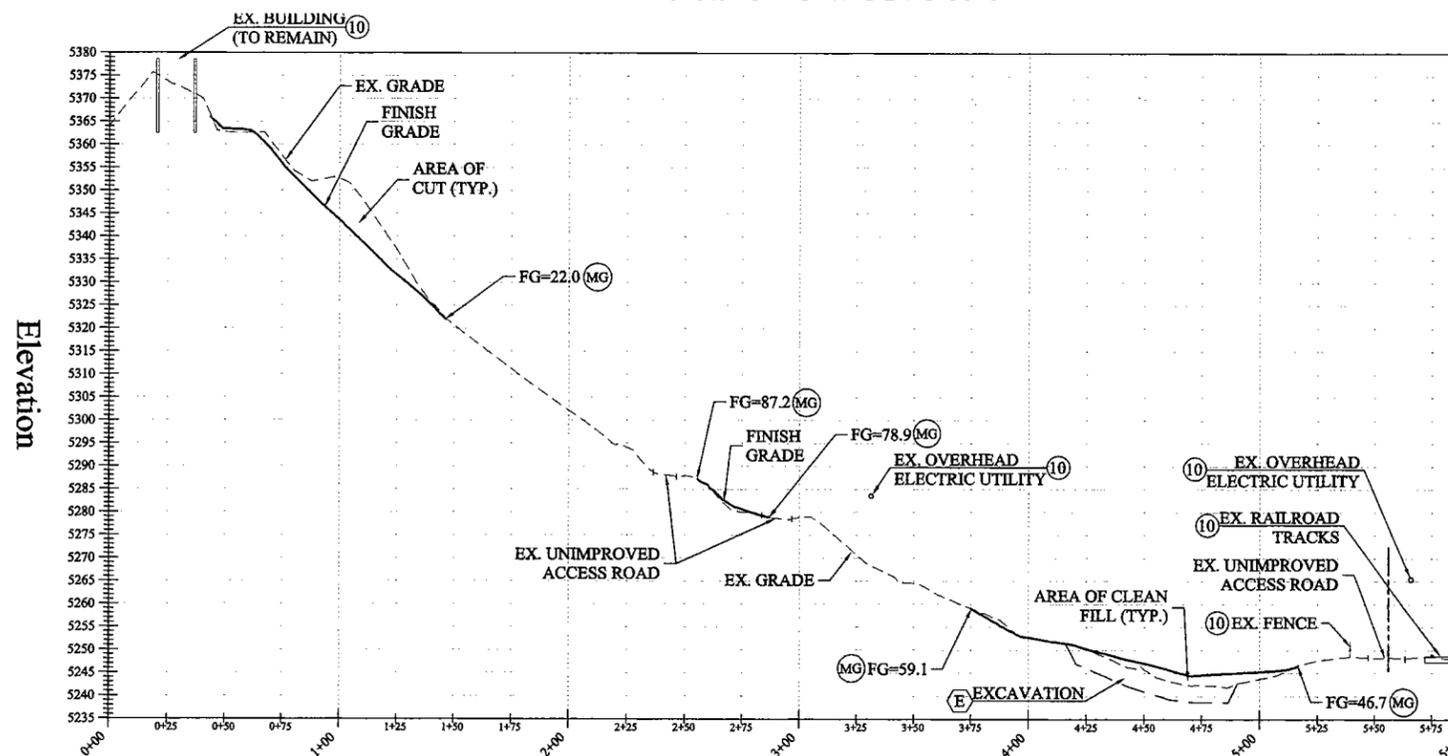
PROJECT:	021
DATE:	2/11/11
DRAWN:	S.R.S.
CHECKED:	P.L.C.
SHEET NO:	8.6



Station
CROSS SECTION 3284



Station
CROSS SECTION 3690



Station
CROSS SECTION 3967 (WEST)

SCALE: 1"=80' (HORIZONTAL)
1"=40' (VERTICAL)

LEGEND, SYMBOLS, ABBREVIATIONS, AND
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PROJECT: 021
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CHECKED: P.L.C.
SHEET NO: 8.8

VEGETATION NOTES:

GRADING AREAS (COMPLETE REVEGETATION):

OIL PREPARATION AND AMENDMENTS

1. AFTER GROUNDWORK IS COMPLETE, INSURE SURFACE OF SOIL IS LOOSE, NOT COMPACTED, AND LEFT ROUGHENED TO PROVIDE MICROCLIMATE FOR WIND PROTECTION AND WATER CATCHMENT.
2. SOIL NUTRIENT ANALYSIS FOR BASIC PLANT NUTRIENT LEVELS SHALL BE PERFORMED IN A LABORATORY PRIOR TO SEEDING. FOLLOW LAB-RECOMMENDED SOIL NUTRIENT ADDITIVE LEVELS FOR A RANGELAND YIELD OF 2000 LBS/ACRE. FERTILIZER SHALL BE FROM AN ORGANIC SOURCE.
3. IT IS RECOMMENDED THAT SOIL MYCORRHIZAE INOCULANT (AT LEAST 4 ENDO TYPES) BE ADDED WITH THE SEEDING.

SEEDING INSTRUCTIONS

1. IT IS HIGHLY RECOMMENDED THAT A NURSERY CROP BE PLANTED FOR ONE GROWING SEASON PRIOR TO PLANTING THE NATIVE SEED MIX. THE NURSERY CROP CAN BE ANNUAL MILLET, LONG-SEASON SORGHUM, OR TRITICALE. THE COVER CROP CAN BE PLANTED:
 - A. LATE SPRING (JUNE), MOWED IN LATE FALL (SEPTEMBER - OCTOBER) AFTER IT DIES AND THE NATIVE SEED MIX IS DRILLED INTO THE STUBBLE BETWEEN DECEMBER AND MARCH; OR
 - B. FALL (AUGUST), WHEN IT WILL GERMINATE OVER WINTER, AND THEN GROW IN EARLY SPRING. WHEN YOUNG PLANTS ARE SEVERAL INCHES TALL (FIRST OF APRIL), KILL WITH ROUNDUP OR SIMILAR HERBICIDE AND DRILL SEED THE NATIVE SEED MIX WITHIN ONE WEEK.
2. PLANT RECOMMENDED FOOTHILLS NATIVE GRASS AND NATIVE PRAIRIE WILDFLOWER MIX BY DRILL SEEDING AT A RATE OF 10-12 LBS/ACRE FOR GRASS MIX, AND 6-8 LBS/ACRE FOR WILDFLOWER MIX. IF THE WILDFLOWER MIX IS NOT INCLUDED, INCREASE GRASS MIX TO 18-20 LBS/ACRE.

RECOMMENDED SEED MIX:

FOOTHILLS NATIVE GRASS MIX	NATIVE PRAIRIE WILDFLOWER MIX
(10%) ARIZONA FESCUE	(21%) ANNUAL SUNFLOWER
(10%) BLUE GRAMA	(10%) ANNUAL GAILLARDIA
(10%) BUFFALO GRASS	(10%) GAYFEATHER
(10%) GREEN NEEDLEGRASS	(10%) LANCE-LEAVED COREOPSIS
(10%) INDIANGRASS	(10%) PERENNIAL GAILLARDIA
(10%) INDIAN RICEGRASS	(10%) THICKSPIKE GAYFEATHER
(10%) LITTLE BLUESTEM	(8%) PURPLE PRAIRIE CLOVER
(10%) SIDEOATS GRAMA	(5%) MAXIMILLAN SUNFLOWER
(10%) WESTERN WHEATGRASS	(5%) WHITE PRAIRIE CLOVER
5% SANDBERG BLUEGRASS	(3%) GREYHEADED CONEFLOWER
5% SPIKE MUHLY	(3%) MEXICAN HAT
	(3%) UPRIGHT PRAIRIE CONEFLOWER
	(2%) PLAINS COREOPSIS
FOOTHILLS NATIVE GRASS MIX	
(50%) BITTERBRUSH	
(50%) RUBBER RABBITBRUSH	

AREAS OF NO EARTHWORK (OVERSEED VEGETATION):

PREPARATION AND AMENDMENTS

1. THESE AREAS SHOULD BE EVALUATED BEFORE FOLLOWING THESE PROCEDURES. AREAS WITH EXCESSIVE INVASIVE SPECIES AND PREVIOUS GROUND DISTURBANCE SHOULD BE CONSIDERED FOR SURFACE SCRAPING TO REMOVE WEEDS, RIPPING OF COMPACTED SOIL, AND AUGMENTATION OF POOR SOILS, EXCEPT IN AREAS DESIGNATED AS "MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED" AS SPECIFIED IN THE EXCAVATION AND GRADING & DRAINAGE PLANS.
2. IF EXISTING VEGETATION IS THICK, MOW WITH A BRUSH HOG TO A HEIGHT OF 2" (OR MORE AS EQUIPMENT CAN MANAGE), EXCEPT IN AREAS DESIGNATED AS "MINING RESIDUALS/TAILINGS TO BE LEFT IN PLACE AND UNDISTURBED" AS SPECIFIED IN THE EXCAVATION AND GRADING & DRAINAGE PLANS.

SEEDING INSTRUCTIONS

1. DRILL SEED THE RECOMMENDED SEED MIX AT A RATE OF 33.53 POUNDS PER ACRE INTO SPARSE EXISTING OR MOWN VEGETATION IN LATE FALL THROUGH EARLY SPRING (BEST BETWEEN EARLY NOVEMBER TO EARLY MARCH AS WEATHER PERMITS).
2. EXECUTE MULTIPLE PASSES OVER EACH AREA, OFFSETTING THE DRILL LINES SO THAT THEY WILL BE CLOSER TOGETHER THAN STANDARD.

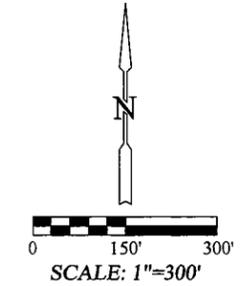
RECOMMENDED SEED MIX:

GRASS MIX	APPLICATION RATE (lbs/acre)
(40%) BLUE GRAMA	1.90
(25%) BUFFALO GRASS	17.50
(25%) SIDEOATS GRAMA	5.13
(10%) WESTERN WHEATGRASS	9.00
TOTAL	33.53

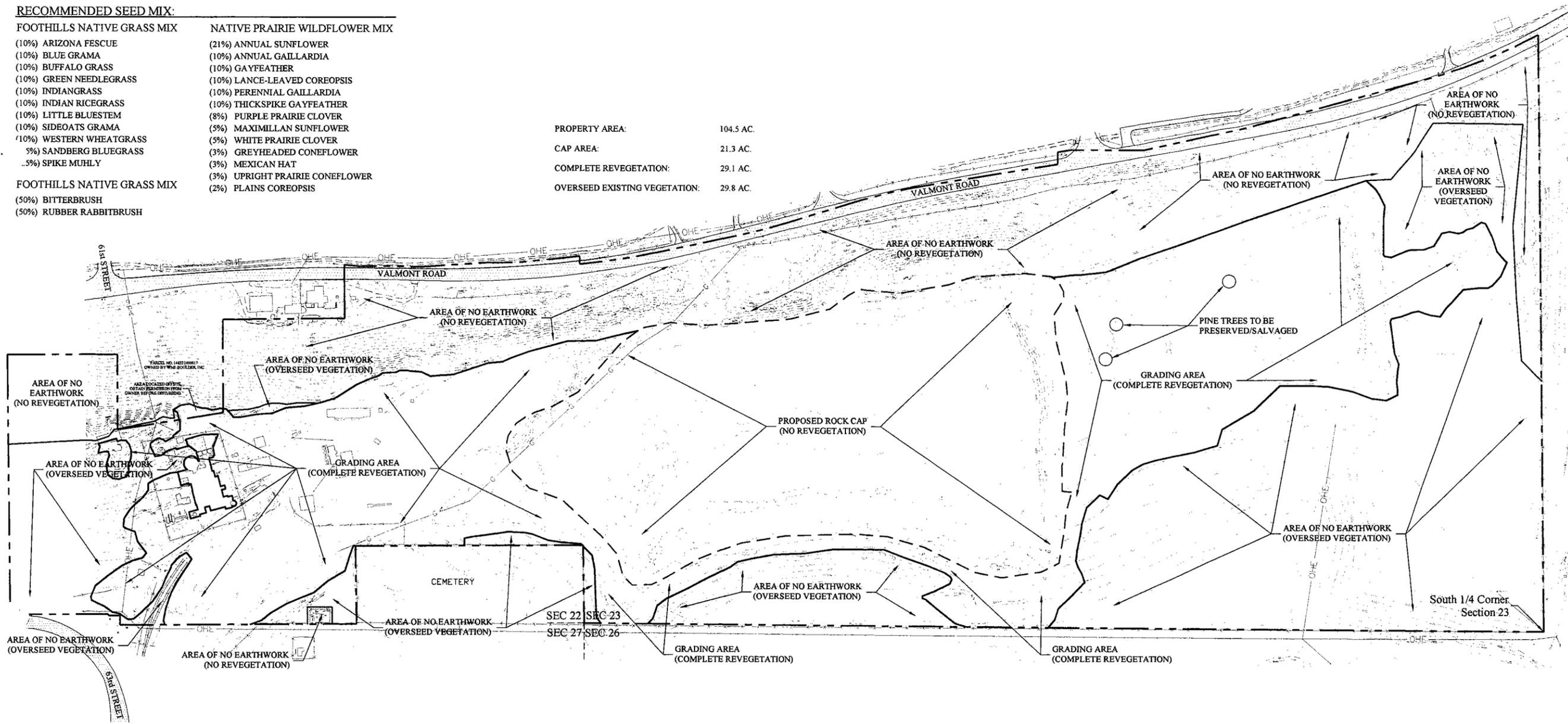
PROPERTY AREA:	104.5 AC.
CAP AREA:	21.3 AC.
COMPLETE REVEGETATION:	29.1 AC.
OVERSEED EXISTING VEGETATION:	29.8 AC.



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PROJECT: 021
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