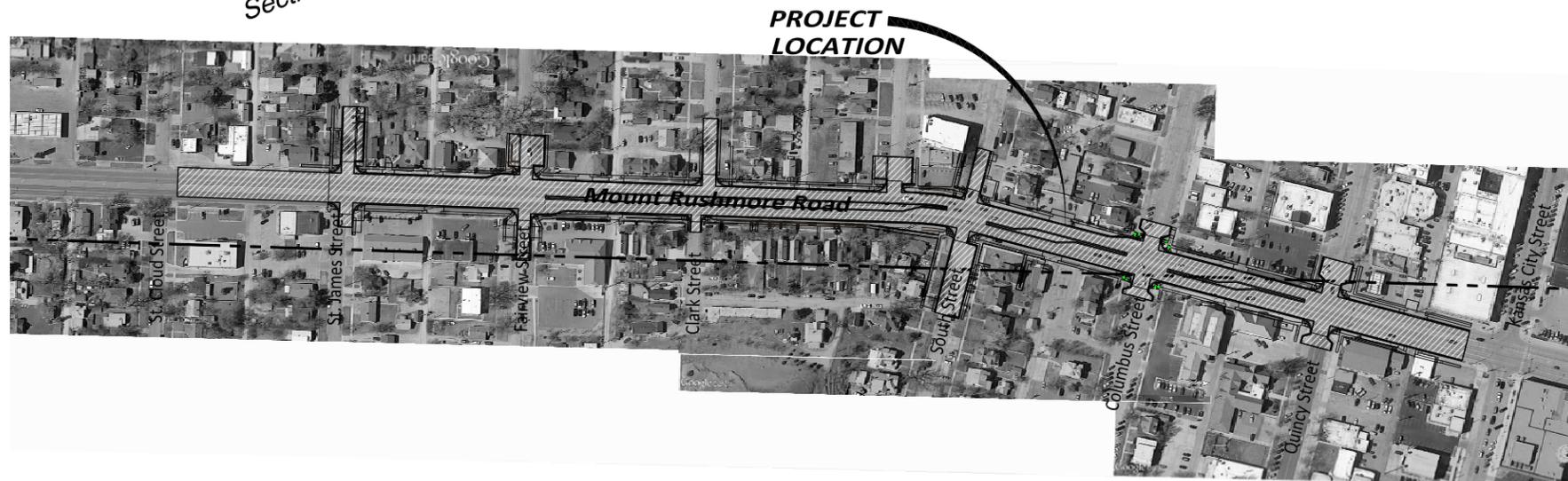


SECTION H LANDSCAPING PLANS

Section 2



PROJECT LOCATION MAP

INDEX OF SHEETS

| SHEET NUMBER | DESCRIPTION |
|--------------|---|
| H1.0 | TITLE SHEET |
| H1.1 | LANDSCAPE SPECIFICATIONS |
| H1.2 | LEGEND AND NOTES |
| H1.3 - H1.6 | PLANTING PLANS |
| H1.7 - H1.9 | LANDSCAPE DETAILS |
| H1.10 | RAIN GARDEN SECTIONS |
| H2.1 | IRRIGATION SPECIFICATIONS |
| H2.2 | IRRIGATION SPECIFICATIONS |
| H2.3 | IRRIGATION SCHEDULE & NOTES |
| H2.4 - H2.7 | IRRIGATION PLANS |
| H2.8 - H2.9 | IRRIGATION DETAILS |
| H2.10-H2.11 | MONUMENT SIGN FOUNDATION PLAN & SECTION |



Wyss Associates, Inc.
 Landscape Architecture Land Planning
 Golf Course Architecture Historic Preservation
 Parks & Recreation Design Corridor and Streetscape
 728 Sixth Street - Rapid City, South Dakota 57701-3670
 Ph. 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Print Date: 12/01/2015

Plans Prepared For

Public Works Department



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

The locations of all existing utilities are shown in an approximate location. The Contractor is responsible for coordination and location of all existing utilities. Contractor is fully responsible for any and all damages resulting from the Contractor's failure to exactly locate and preserve any and all existing utilities.



Engineering Services

ESTIMATE OF QUANTITIES:

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 120E0010 | Unclassified Excavation | 432 | CuYd |
| 230E0020 | Placing Contractor Furnished Topsoil | 238 | CuYd |
| 260E1010 | Base Course | 128 | Ton |
| 380E2574 | 4" Barrier Type Colored & Patterned Median PCC Pavement | 416 | SqYd |
| 451E4901 | Type 1 Bedding Material | 57 | Ton |
| 651E0750 | 5" Reinforced Colored Concrete Sidewalk | 990 | SqFt |
| 680E0240 | 4" Corrugated Polyethylene Drainage Tubing | 579 | Ft |
| 680E0440 | 4" Slotted Corrugated Polyethylene Drainage Tubing | 243 | Ft |
| 735E0110 | 1 Gallon Perennial Plant, Furnish and Plant | 579 | Each |
| 735E1510 | 1 Gallon Coniferous Shrub, Furnish and Plant | 294 | Each |
| 735E5010 | 1 Gallon Ornamental Grass, Furnish and Plant | 94 | Each |
| 735E1205 | 1 Gallon Deciduous Shrub, Furnish and Plant | 56 | Each |
| 900E5156 | 3" Depth Shredded Bark Mulch | 713 | SqYd |
| 900E5160 | Planter | 18 | Each |
| 900E5430 | Irrigation System | 1 | LS |
| 900E6005 | Concrete Foundation | 1 | Each |
| 900E6010 | Precast Concrete Welcome Sign, Furnish | 2 | Each |
| 900E6011 | Precast Concrete Welcome Sign, Install | 2 | Each |

SPECIFICATIONS FOR PLANTING TREES & SHRUBS

This work consists of furnishing & planting trees, shrubs, or perennials of the species & size specified along with furnishing and placing planting soil.

- A. Planting seasons shall be from April 15 to June 15 & from September 1 to November 1, unless otherwise coordinated. exceptions shall be coordinated with the owner.
- B. Contractor shall locate and protect all existing & new utilities. Contractor to repair or replace any damaged utilities at no cost to owner. Landscape Contractor shall coordinate with General Contractor prior to digging to verify safe digging locations. Trees to maintain a minimum of 10 feet from root ball to any utility.
- C. Plants furnished shall have been grown in western South Dakota or states located within the boundaries of Hardiness Zones 2, 3, or 4, as established by the United States Department of Agriculture. Submit to Owner proof of source of all plant material.
- D. All shrub locations shall be staked by contractor and approved by owner.
- E. Contractor is responsible for maintaining health of all plant material through final acceptance of project and the establishment period. Contractor shall take care as to not damage or disturb areas outside of the work limits. Any damage to these areas will be repaired at the expense of the contractor.
- F. Remove all surplus soil and waste material, including excess subsoil, unsuitable soil, trash, debris and legally dispose of these items off of the owner's property.
- G. Contractor will need to hand water at time of planting through establishment period to assure that all plant material is provided sufficient water.

MATERIALS

- A. Plant Materials (Nursery Stock) - Limitations on Source of Material - Plants furnished shall have been grown in a certified nursery located within western South Dakota or state located within the boundaries of Hardiness Zones 2, 3, or 4, as established by the USDA.
 1. Notification of Source of Supply & Verification of Origin as soon as possible & before any planting, the Contractor shall furnish written notification of the location of the proposed source for each item of plant materials. Contractor shall furnish written verification from the supplier and grower to establish the origin of plant materials, seed, or vegetative material. The source of supply & origin of plant materials will be subject to approval.
 2. Names of Plants
Plant materials furnished shall be of the genus, species, and variety specified and shall follow standard names of plant materials as adopted by the American Joint Committee on Horticultural Nomenclature and as this standard nomenclature is referred to in the current edition of Standardized Plant Names. Substitutions will not be permitted without the written consent of the Engineer.

Prepared By:

Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
 Public Works Department

 Engineering Services

Scales: N/A

Designed By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4

Drawn By: CHW
 Print Date: 12-04-2015

Surveyed By: SDDOT
 Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

| | |
|-------------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H1.1 |
| ESTIMATE OF QUANTITIES | of |
| PLANTING SPECIFICATIONS | 22 |

3. Form, Shape, and Condition of Plants
 Trees furnished shall have been at least twice transplanted or root pruned, shall be well branched with an appropriate according to species or variety, and uniformly straight-trunked meeting or exceeding ANSI Z60.1-2004. Shrubs shall have been at least twice transplanted or root pruned and is heavily caned. Shrubs and perennials shall be number one (1), heavy-grade, nursery-grown stock, strong, healthy, clean, well-grown, free from insects, disease, rodents, mechanical injuries, disfiguring knots, sunscald, frost cracks, broken bark, broken or dead branches, broken roots, stubs, or any other objectionable features and shall possess a healthy, normal root system of sufficient size to permit successful establishment and good growth and shall be typical of the species or variety specified. All shrubs and perennials shall meet or exceed ANSI Z60.1-2004. Evergreen plants delivered to the project with new growth in an advanced stage of candling out will be rejected.
4. Size of Plants
 Plants shall be of uniform height and diameter meeting ANSI Z60.1-2004. The figures shown on the plans indicate the minimum height of the plants called for. When such figures are used in connection with spread, they indicate the minimum and maximum spread of the plant to be furnished. The height of each species or variety of plant shall be the vertical measurement of the plant from the ground upward as it stands in its natural position in the nursery without straightening branches or leaders. The measurements shall not include the fine or slender terminal leader, twig or branch growth, but shall stop where the main part of the plant ends. The spread of each species or variety shall be the horizontal measurement of the plant as it stands in its natural position in the nursery without straightening its branches. The measurements shall not include the fine or slender terminal shoots. Each plant shall be measured both in its smallest and greatest dimension and averaged.
5. Nursery Stock
 Plant materials shall be nursery grown unless otherwise specified, shall have been subjected to proper transplanting during growth in the nursery, shall bear evidence of proper top & root pruning, & shall be thrifty, well-grown, and hardy northern stock, grown under the same climatic conditions as exist at the location to be planted. Plants shall meet the standards as set forth in South Dakota Nursery Laws & in the edition of the American Standard for Nursery Stock. In all cases where grades are indicated in these standards, No. 1 or top grade will be required.
6. Labeling
 Legible labels must be attached to all specimens and or containers indicating the genus, species, size, grade, or age of each species or variety & the quantity contained.
7. Inspection, Certificates, and Rejection of Plants
 Before removal from the nursery, plant materials, must be inspected by authorized Federal or State authorities. Plants must be declared and certified free of diseases and insects, and necessary inspection certificates to this effect must accompany each shipment, invoice, or order of plants. Plants not approved by the Plant Industry Representative or Nursery Inspector or otherwise not meeting these specifications will be rejected. Rejected plants shall immediately be removed and disposed of by the Contractor and replaced with approved nursery stock of like variety, size, and age at no additional cost.
8. Planting Soil Placement shall conform to the requirements of Section 17 of CORC Standard Specifications. Contractors have 2 (two) options in regards to planting soil media. Contractor shall provide one of the following for planting media for the quantity listed on the estimate of quantities for the item Placing Contractor Furnished Topsoil to a depth indicated on the plans and details. Contractor shall indicate topsoil option selected along with supporting documentation or tests within the required landscape submittals. Depending on soil selected by contractor, additional information may be requested from owner and or landscape architect for review of topsoil. Contractor shall prepare the subsoil and remove all deleterious material, inorganic material and debris and all gravel, rocks and roots larger than 2" and loosen up the top 6" of subsoil. Contractor shall notify Landscape Architect and or Owner's Representative to observe planting pit prior to placement of planting soil media. Contractor shall finish the subsoil preparation by raking the area smooth and compact the subsoil not to exceed 65 percent compaction.

"Placing Contractor Furnished Topsoil" Options:
Option 1: "Topsoil Blend" planter mix (see plans and details for depth) as produced by Waupaca Northwoods in Spearfish, SD. Contact Jane Damrau 715-258-1319 or jdamaur@waupacanorthwoods.com
Option 2: Contractor provided, screened organic topsoil mixed with masonry sand and hardwood mulch by volume. Blended media shall be uniformly blended at a mix of 50% screened topsoil (meeting specifications below), 20% hardwood mulch by volume and 30% washed masonry sand. Mechanically screen soil media at a location approved by owner and delivered to site. Screened soil is subject to soil testing for organic matter. Soil shall be tested prior to blending. Contractor to coordinate the soil sampling and testing with Landscape Architect. The pH shall be based on the specific plant requirements but must be within the range of 5.5-6.5. Soluble salts shall not exceed 4mmhos/cm, Calcium levels shall not exceed 2,000 parts per million. Organic Matter shall be greater than five percent. Screened organic soil shall be sandy loam topsoil free of roots, clods, and stones larger than 2" with 99% passing through a 1" screen. RC landfill compost or Wood Mulch is not permitted. Mechanically mix soil during topsoil screening process or via portable blender - do not mix in the planting pit. Washed masonry sand shall be 95% sand and meet the following sieve Very Coarse(1.0): 12.9, Coarse (0.5): 34.5, Medium (0.25): 31.8, Fine (0.15): 11.4, Very Fine (0.05): 4.7. Hard wood mulch shall be pine bark mulch nuggets that have aged (stockpiled) at least one year. Contractor shall submit 1 gal samples of screened soil, washed masonry sand and hardwood mulch. Landscape Architect to review samples.

CONSTRUCTION REQUIREMENTS

1. General
 The digging, transporting, storing, layout, planting, pruning, watering, mulching, wrapping, staking, maintenance, & replacement of plants shall be performed by a qualified nurseryman, landscape specialist or by experienced crews under the direct supervision of a qualified nurseryman or landscape specialist.
2. Staking and Layout of Planting
 Planting holes shall not be dug until all plant locations have been staked. Plan-shown locations, spacings, and quantities may be adjusted by the Engineer to suit field conditions.
3. Planting - General Requirements
 1. Notify the Engineer one week in advance of the beginning of the planting operation.
 2. The Contractor shall provide necessary safeguards to prevent accidents during the time the plant holes are open.
 3. Planting holes shall have vertical sides and flat bottoms. The holes shall be of sufficient diameter to provide for not less than 6 inches of topsoil backfill around the plant root ball. The hole shall be no deeper than the root ball is tall. Set the root ball on firm soil so that the top of the root ball will sit slightly higher than the final grade.
 4. Mixing Backfill Soil
 Planting Beds: Mixing, Preparation and installation of the topsoil shall be included in the "Placing Contractor Furnished Topsoil" bid item as this work is incidental to the "Placing Contractor Furnished Topsoil" bid item.

REGISTERED LANDSCAPE ARCHITECT

REG. NO.
 4938
 PATRICK H.
 WYSS
 SOUTH
 DAKOTA

Patrick H. Wyss
 12/4/2015

3. Care of Plants Prior to Planting

When plants are taken from storage to the planting site, roots of plants shall be immersed in water immediately upon opening the bundle and kept in water until planted. The Contractor shall have sufficient tanks and pails to keep roots of plants from opened bundles in water until planted.

4. In transferring plants from the site of temporary storage to the planting site, only plants that can be planted in that day shall be transferred. Material not planted the day it is taken from storage shall be rewrapped in the approved manner or the roots kept immersed in water at the storage site until planted.

Bare roots shall not lie exposed to the sun or air.

5. Potted Plants

Potted plant holes shall be dug as described in 74.3. All plants shall be removed from containers in a manner, which does not damage the root ball.

a. Holes shall be backfilled in not less than two (2) lifts, the first lift shall not exceed one half (1/2) total hole depth. Each lift shall be heel tamped.

6. Cultivation

Shrub beds are to be cultivated as a unit two (2) feet on each side of rows before planting and the plants placed separately.

7. Watering

All plants shall be thoroughly watered within four hours of planting & every seven days thereafter until a letter of acceptance for the project is received from the Engineer. Each plant shall receive the gal. equivalent on the size of the root ball planted, at each watering.

8. Mulching

Mulch shall be placed between and around the plants within forty-eight (48) hours after planting and shall be applied uniformly to cover the cultivated areas inside dikes to a depth of three (3) inches. Mulch shall be pulled back a minimum of (1) foot from trunks and canes.

9. Cleanup

When planting is complete, all debris shall be removed from the jobsite. All excess earth materials shall be graded or otherwise removed, damaged turf reseeded, & the area left in a neat, orderly condition.

10. Establishment Period

An establishment period shall begin immediately after original planting is made and shall continue for one year. The plants shall be guaranteed during this period against defects, including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse, or damage by others, or unusual phenomena or incidents, which are beyond, landscape installer's control. Contractor shall be responsible for watering all plants until a letter of acceptance for the project is received from the Engineer.

11. Warranty

The contractor shall provide a two (2) year warranty for all plant material including replacements within the warranty period. Warranty period commences at the substantial completion date. Warranty covers death, unsatisfactory growth (except for defects due to lack of adequate maintenance, neglect or abuse by owner, abnormal weather conditions, unusual for warranty period, or incidents such as damage due to vandalism, hail, fire, owner neglect or other circumstances that are out of the contractors control.) Warranted replacement plants shall be of same species and size.

12. Replacement of Plants

The Contractor shall remove and replace trees, shrubs, or other plants found to be dead or in unhealthy condition during establishment period. The Contractor shall also plant missing trees, shrubs, and plants, make replacements during growing season following end of establishment period, and furnish and plant replacements which comply with requirements shown and specified. The Contractor shall also replace trees and shrubs, which are in doubtful condition at end of the establishment period, unless, in the opinion of the Engineer, it is advisable to extend the establishment period for a full growing season. The Engineer will make another inspection at the end of the extended establishment period to determine acceptance or rejection. Only one (1) replacement will be required at the end of the establishment period, except for losses or replacements due to failure to comply with specified requirements.

METHOD OF MEASUREMENT

Quantities of each species or variety of trees, shrubs, and vines will be determined from count of each.

BASIS OF PAYMENT

Upon satisfactory completion of planting, payment will be made at the contract unit price per tree, shrub, or vine. Payment will constitute full compensation for furnishing, transporting, handling, storing, planting, wrapping, pruning, watering, necessary excavation, disposal of surplus materials, and labor, equipment, tools, and necessary incidentals.

Prepared By:  **Wyss Associates, Inc.**
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For: Public Works Department

 Engineering Services

Scales: AS NOTED

Designed By: PHW
 Drawn By: PHW
 Design Date: December 2015
 Print Date: 12-01-2015

Internal Job No: 11104.4
 Surveyed By: SDDOT
 Survey Date: 2012-2013

Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

MOUNT RUSHMORE ROAD
UTILITY RECONSTRUCTION

| | |
|------------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H1.2 |
| PLANTING LEGEND | of |
| NOTES & SPECIFICATIONS | 22 |

PRECAST RAIN GARDEN SPECIFICATIONS

Refer to South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions for further coordination.

GENERAL NOTES

The plan shows quantities of the Precast Rain Gardens. Costs for furnishing and installing Precast Rain Gardens shall be included in the bid item 900E5160 - Planter. If additions or reductions to the number of Precast Rain Gardens are ordered by the Engineer, compensation for the Precast Rain Gardens required to furnish and install or to delete Precast Rain Gardens will be made at the contract unit prices for the bid item 900E5160 - Planter unit price. Costs included in each 900E5160 - Planter shall include: Fabrication (including steel reinforcing) Furnishing, transporting, installing, doweling reinforcing bar for adjacent sidewalk & boulevard, installation of skate prohibitors, notching precast concrete, coring of precast for drainage piping and final clean up.

Each Rain Garden shall have 12" depth Type 1 Bedding Material placed at the bottom of the planter. Refer to the Precast Rain Garden Details and Sections for further information. If additions or reductions to the number of Precast Rain Gardens are ordered by the Engineer, compensation for the Type 1 Bedding Material required to furnish and install or to delete Precast Rain Gardens will be made at the contract unit prices for bid item 451E4901 - Type 1 Bedding Material unit price. Unit price includes furnishing and installation of Type 1 Bedding Material.

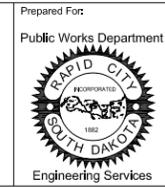
Each Rain Garden shall have 4" Slotted Corrugated Polyethylene Drainage Tubing placed within the Type 1 Bedding Material (drainage layer). To compensate for high flow events, the planter shall be installed with a 4" Corrugated Polyethylene Drainage Tubing to carry water to the adjacent storm sewer inlets. If additions or reductions to the number of Precast Rain Gardens are ordered by the Engineer, compensation for the 4" Slotted Corrugated Polyethylene Drainage Tubing and 4" Corrugated Polyethylene Drainage Tubing required to furnish and install or to delete Precast Rain Gardens will be made at the contract unit prices for the bid item 680E0240 & 680E0440 unit prices. Unit price includes furnishing and installation of 4" Slotted Corrugated Polyethylene Drainage Tubing and 4" Corrugated Polyethylene Drainage Tubing. Care shall be taken to ensure positive drainage to the storm sewer inlets.

Each Rain Garden shall have 3" depth Shredded Bark Mulch placed on the finish soil of the planter. Refer to the Precast Rain Garden Details and Sections for further information. If additions or reductions to the number of Precast Rain Gardens are ordered by the Engineer, compensation for the 3" depth Shredded Bark Mulch required to furnish and install or to delete Precast Rain Gardens will be made at the contract unit prices for the bid item 900E5156 - 3" depth Shredded Bark Mulch unit price. Unit price includes furnishing and installation of 3" depth Shredded Bark Mulch.

| PLANT SCHEDULE | | | | |
|---|---------|---|-------|-----|
| SHRUBS | CODE | BOTANICAL NAME / COMMON NAME | SIZE | QTY |
|  | DEL RED | Delosperma dyeri 'Red Mountain' / Red Mountain Iceplant | 1 gal | 234 |
|  | ECH BA5 | Echinacea purpurea Balscanery / Purple Coneflower | 1 gal | 46 |
|  | FES EL2 | Festuca glauca 'Elijah Blue' / Blue Fescue | 1 gal | 35 |
|  | HEM PAR | Hemerocallis x 'Pardon Me' / Pardon Me Daylily | 1 gal | 25 |
|  | JUN ICE | Juniperus horizontalis 'Icee Blue' TM / Icee Blue Juniper | 1 gal | 294 |
|  | NEP WAL | Nepeta x faassenii 'Walkers Low' / Walkers Low Catmint | 1 gal | 18 |
|  | PAR RED | Parthenocissus quinquefolia 'Red Wall' TM / Virginia Creeper | 1 gal | 36 |
|  | POT SET | Potentilla fruticosa Setting Sun / Shrubby Cinquefoil | 1 gal | 21 |
|  | ROS F43 | Rosa x 'Noare' / Flower Carpet Red Groundcover Rose | 1 gal | 35 |
|  | RUD SUL | Rudbeckia fulgida sullivantii 'Little Goldstar' / Coneflower | 1 gal | 63 |
|  | RUD SUM | Rudbeckia hirta 'Indian Summer' / Gloriosa Daisy | 1 gal | 24 |
|  | SCH PRA | Schizachyrium scoparium 'Prairie Blues' / Little Bluestem Grass | 1 gal | 59 |
|  | SED DA6 | Sedum x 'Dazzleberry' / Dazzleberry Stonecrop | 1 gal | 133 |



Prepared By:
Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com



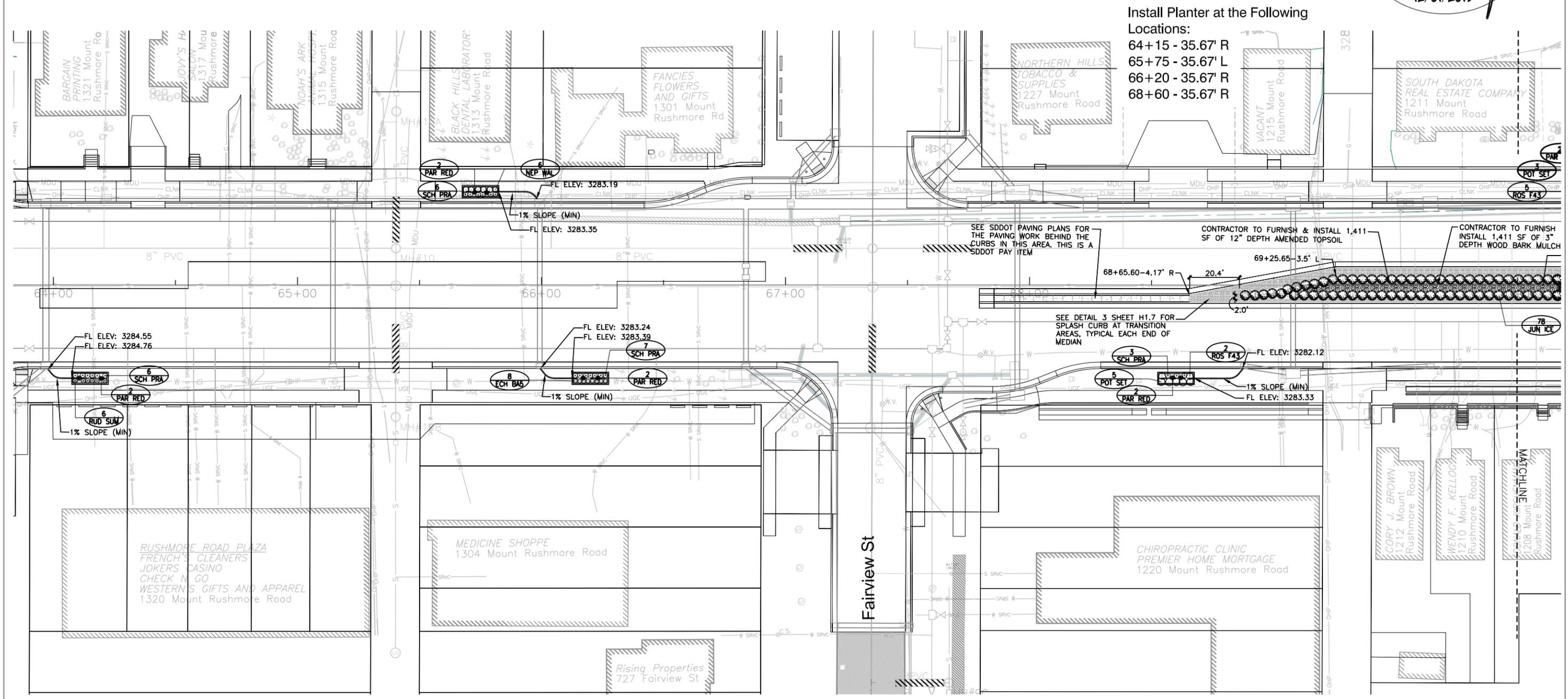
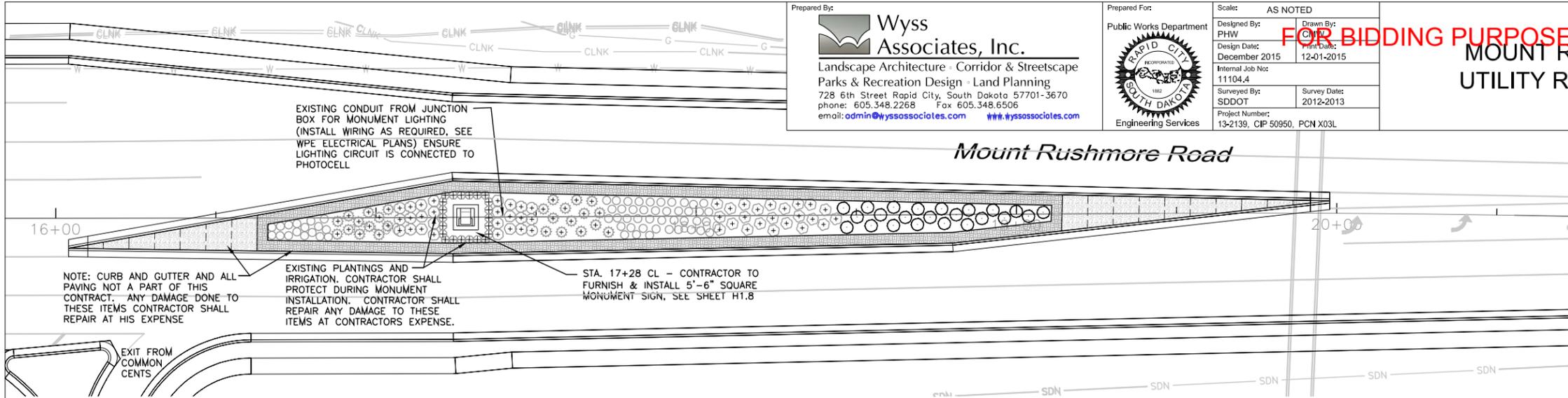
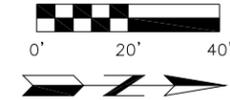
Scales: AS NOTED
 Designed By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4
 Surveyed By: SDDOT
 Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

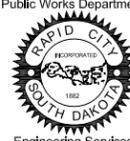
**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

| | |
|--------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H1.3 |
| LANDSCAPE PLAN | of |
| STA 64+00 to 70+00 | 22 |

Mount Rushmore Road



Prepared By:
Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
 Public Works Department

 Engineering Services

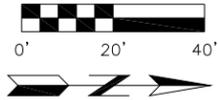
Scales: AS NOTED
 Designed By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4
 Surveyed By: SDDOT
 Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

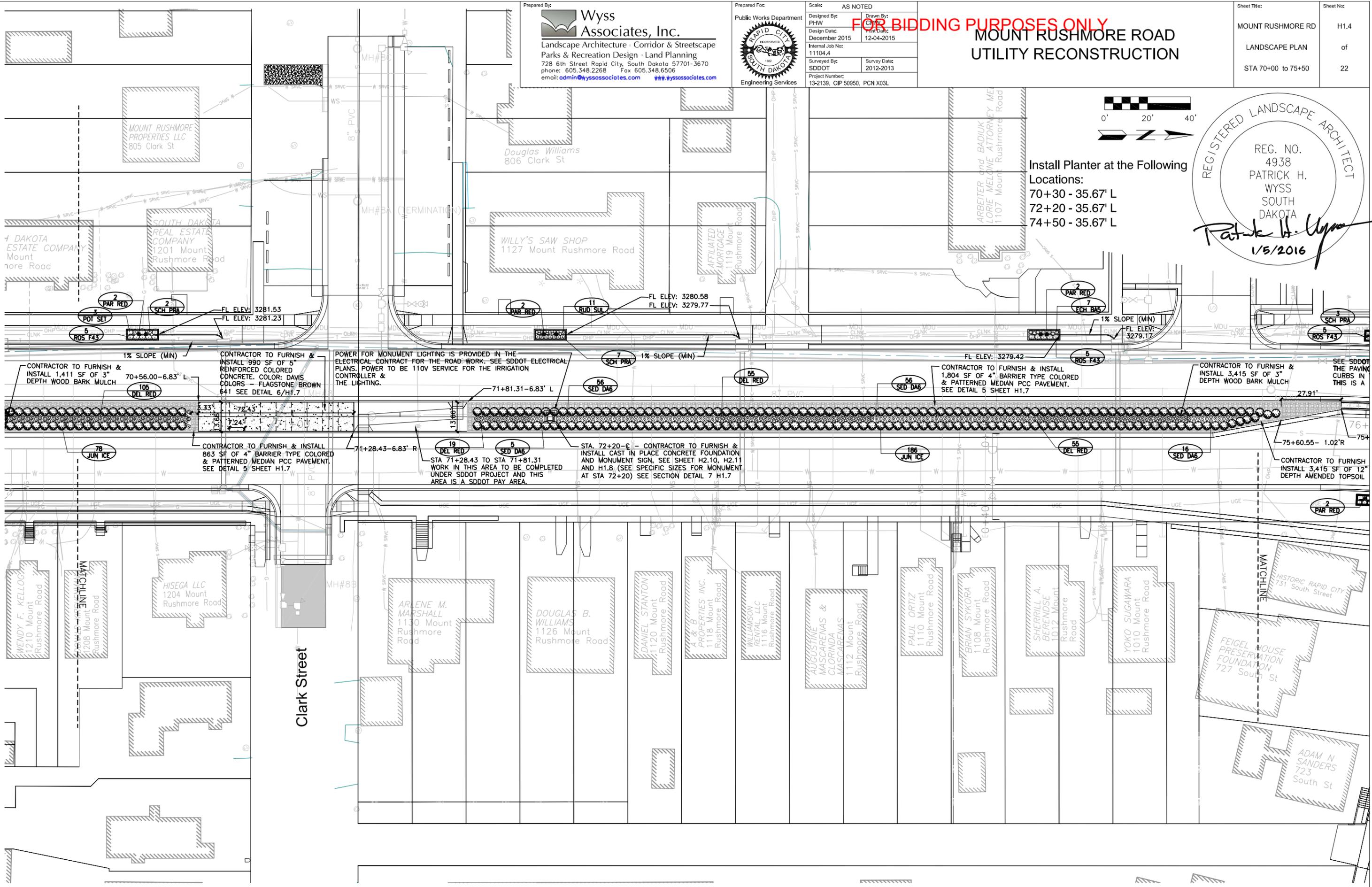
Sheet Title:
 MOUNT RUSHMORE RD
 LANDSCAPE PLAN
 STA 70+00 to 75+50

Sheet No:
 H1.4
 of
 22



REGISTERED LANDSCAPE ARCHITECT
 REG. NO.
 4938
 PATRICK H. WYSS
 SOUTH DAKOTA
Patrick H. Wyss
 1/5/2016

Install Planter at the Following Locations:
 70+30 - 35.67' L
 72+20 - 35.67' L
 74+50 - 35.67' L



CONTRACTOR TO FURNISH & INSTALL 1,411 SF OF 3\"/>

CONTRACTOR TO FURNISH & INSTALL 990 SF OF 5\"/>

POWER FOR MONUMENT LIGHTING IS PROVIDED IN THE ELECTRICAL CONTRACT FOR THE ROAD WORK. SEE SDDOT ELECTRICAL PLANS. POWER TO BE 110V SERVICE FOR THE IRRIGATION CONTROLLER & THE LIGHTING.

CONTRACTOR TO FURNISH & INSTALL 1,804 SF OF 4\"/>

CONTRACTOR TO FURNISH & INSTALL 3,415 SF OF 3\"/>

CONTRACTOR TO FURNISH & INSTALL 863 SF OF 4\"/>

STA 71+28.43 TO STA 71+81.31 WORK IN THIS AREA TO BE COMPLETED UNDER SDDOT PROJECT AND THIS AREA IS A SDDOT PAY AREA.

STA. 72+20-C - CONTRACTOR TO FURNISH & INSTALL CAST IN PLACE CONCRETE FOUNDATION AND MONUMENT SIGN, SEE SHEET H2.10, H2.11 AND H1.8 (SEE SPECIFIC SIZES FOR MONUMENT AT STA 72+20) SEE SECTION DETAIL 7 H1.7

CONTRACTOR TO FURNISH & INSTALL 3,415 SF OF 12\"/>

Clark Street

ADAM N SANDERS
 723 South St

Prepared By:
Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
 Public Works Department
RAPID CITY SOUTH DAKOTA
 Engineering Services

Scales: AS NOTED

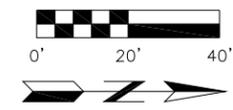
Designed By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4
 Surveyed By: SDDOT
 Project Number: 13-2139, CIP 50950, PCN X03L

Drawn By: CHW
 Print Date: 12-01-2015
 Survey Date: 2012-2013

FOR BIDDING PURPOSES ONLY
**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

Sheet Title: MOUNT RUSHMORE RD
 LANDSCAPE PLAN
 STA 75+50 to 81+50

Sheet No: H1.5
 of
 22

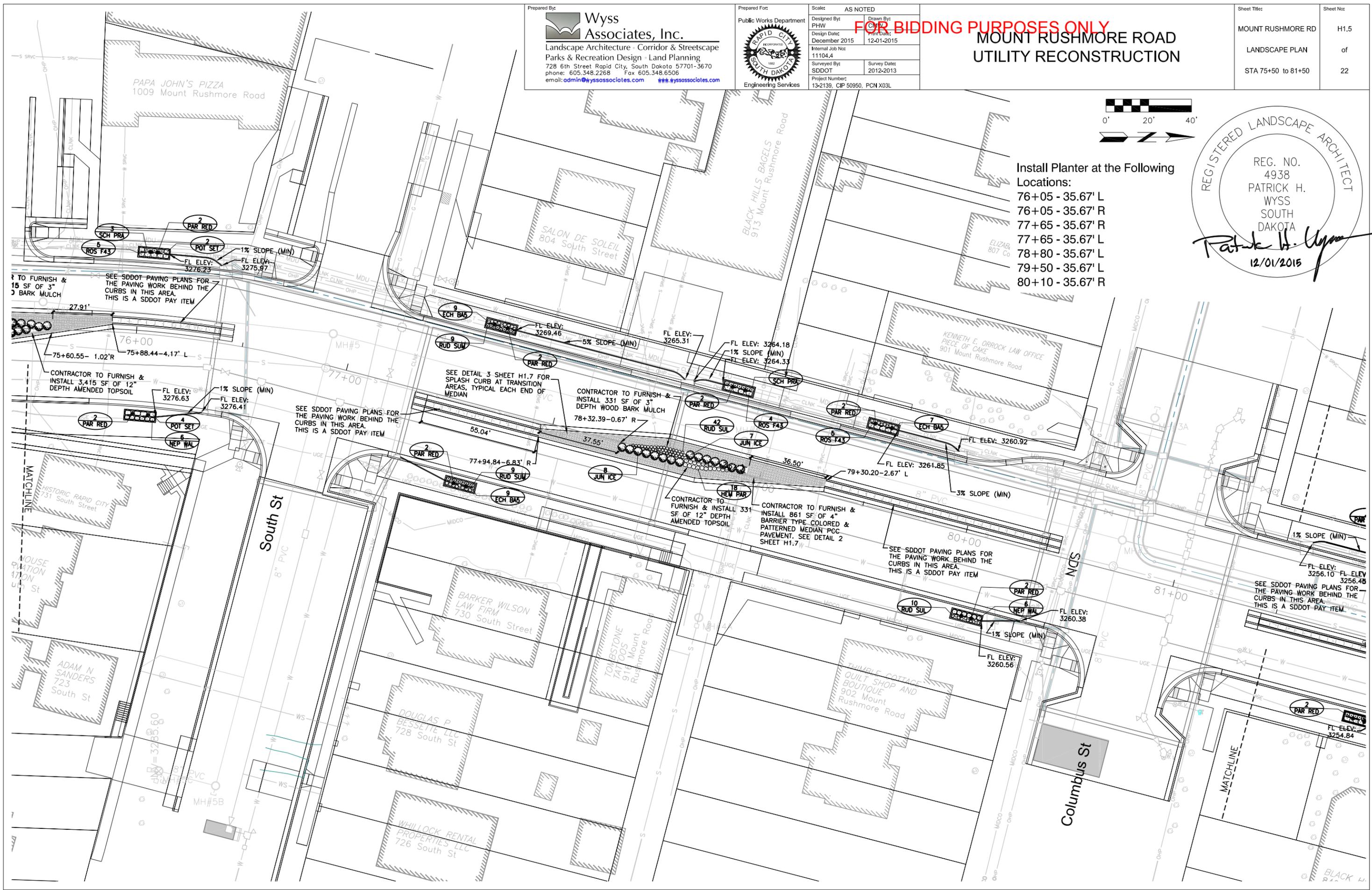


REGISTERED LANDSCAPE ARCHITECT

REG. NO.
 4938
 PATRICK H. WYSS
 SOUTH DAKOTA

Patrick H. Wyss
 12/01/2015

- Install Planter at the Following Locations:
- 76+05 - 35.67' L
 - 76+05 - 35.67' R
 - 77+65 - 35.67' R
 - 77+65 - 35.67' L
 - 78+80 - 35.67' L
 - 79+50 - 35.67' L
 - 80+10 - 35.67' R



Prepared By:
Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
 Public Works Department
 Engineering Services

Scales: AS NOTED

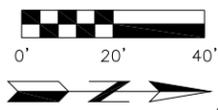
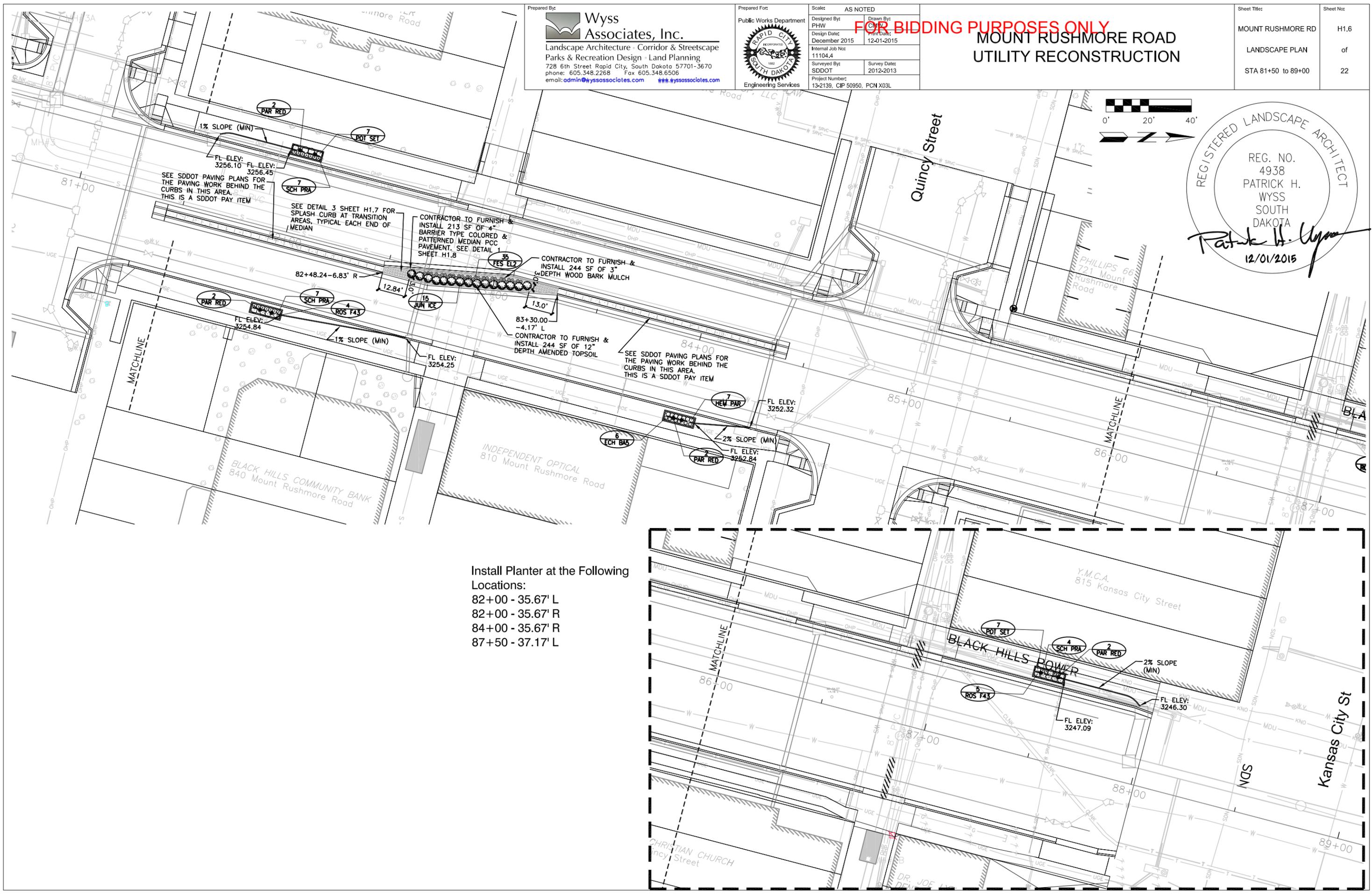
Designed By: PHW
 Drawn By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4
 Surveyed By: SDDOT
 Survey Date: 2012-2013
 Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

Sheet Title:
 MOUNT RUSHMORE RD
 LANDSCAPE PLAN
 STA 81+50 to 89+00

Sheet No:
 H1.6
 of
 22



REGISTERED LANDSCAPE ARCHITECT

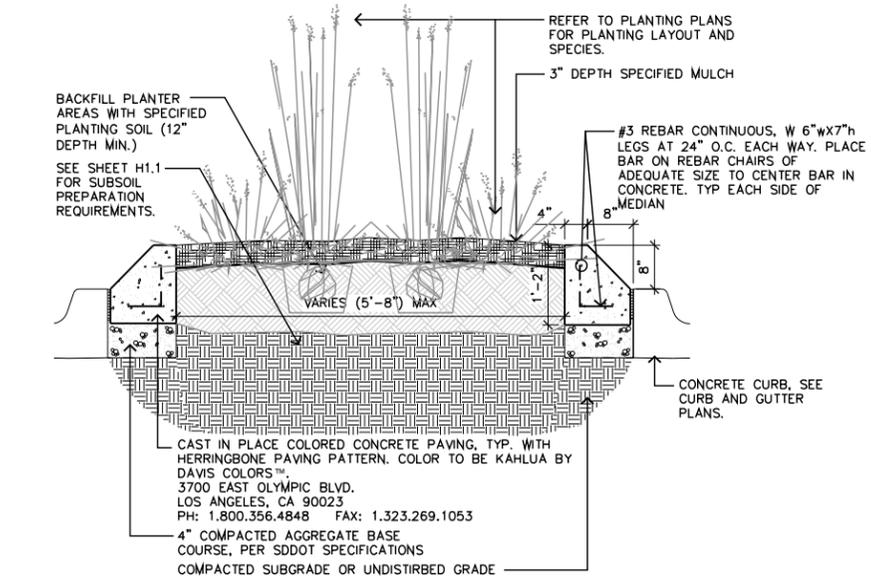
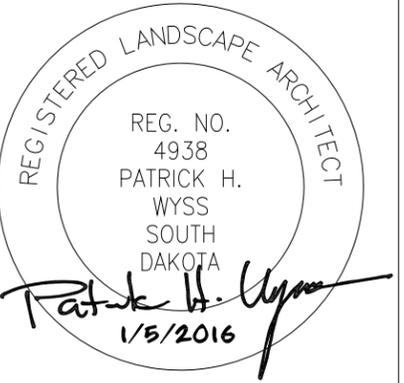
REG. NO.
 4938
 PATRICK H.
 WYSS
 SOUTH
 DAKOTA

Patrick H. Wyss
 12/01/2015

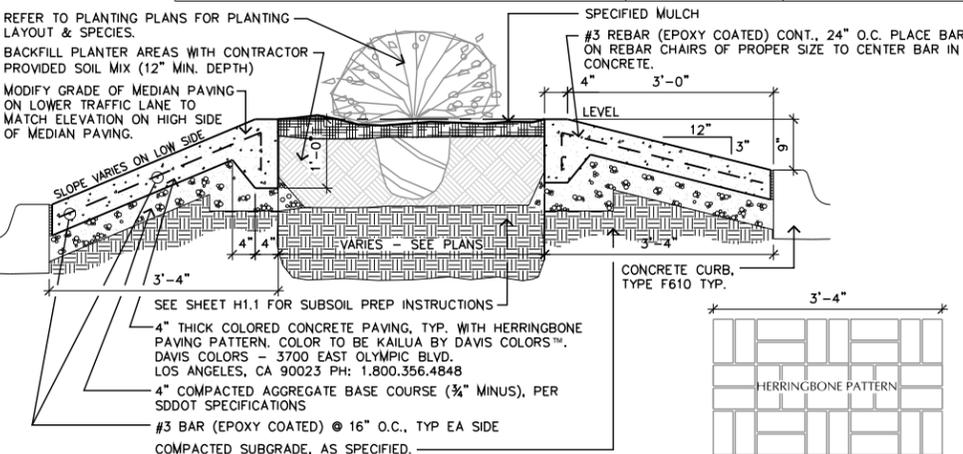
Install Planter at the Following Locations:
 82+00 - 35.67' L
 82+00 - 35.67' R
 84+00 - 35.67' R
 87+50 - 37.17' L

FOR BIDDING PURPOSES ONLY
MOUNT RUSHMORE ROAD
UTILITY RECONSTRUCTION

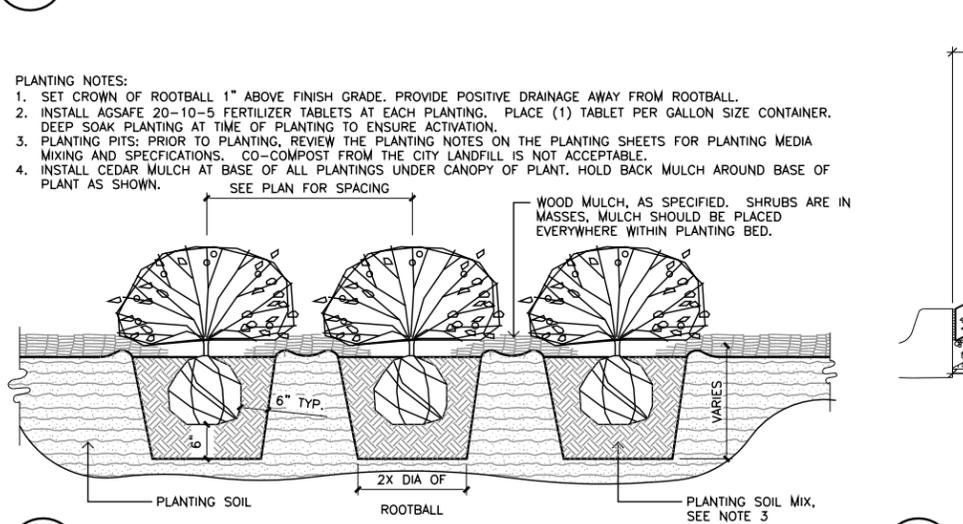
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|-------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H1.7 |
| LANDSCAPE | of |
| DETAILS | 22 |



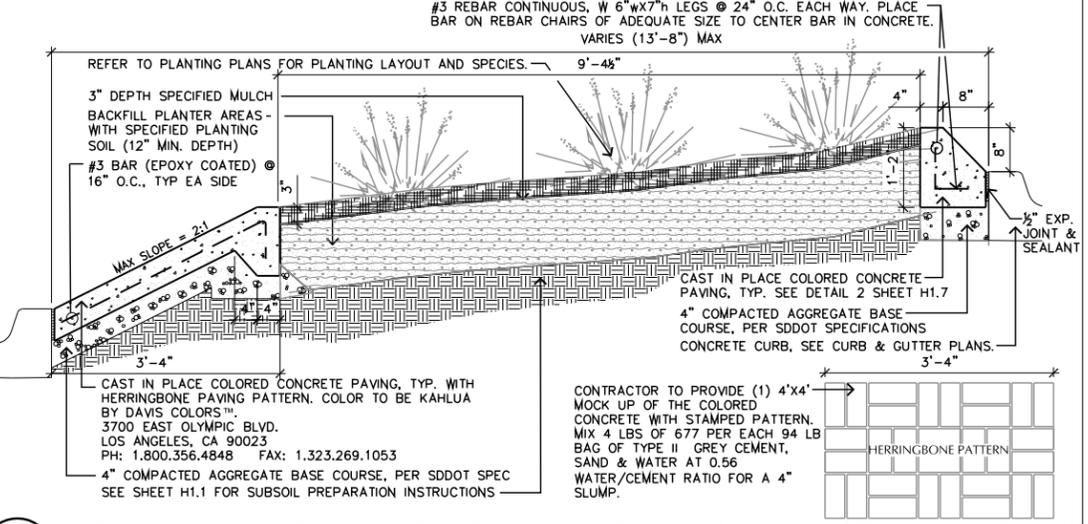
1 DETAIL: CONCRETE PAVING & PLANTER AT NARROW MEDIAN
 H1.7 SCALE: 3/4" = 1'-0"



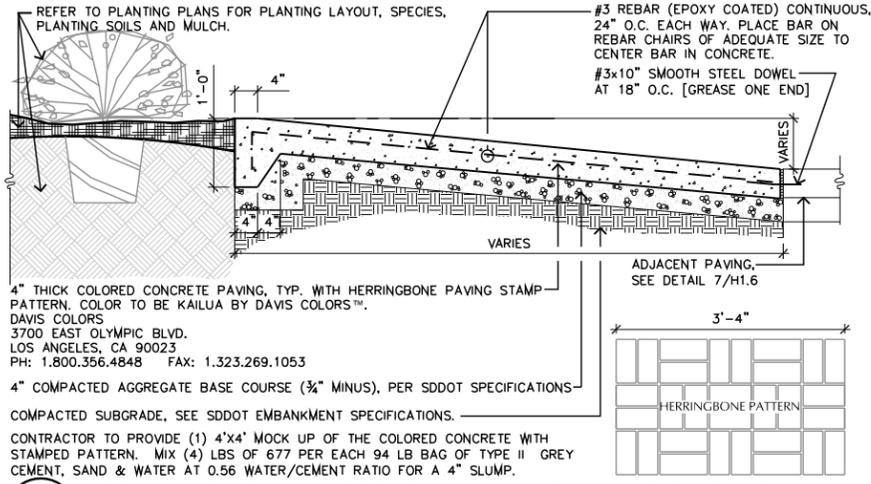
2 DETAIL: DECORATIVE CONCRETE PAVING PLANTER AT MEDIAN
 H1.7 SCALE: 3/4" = 1'-0"



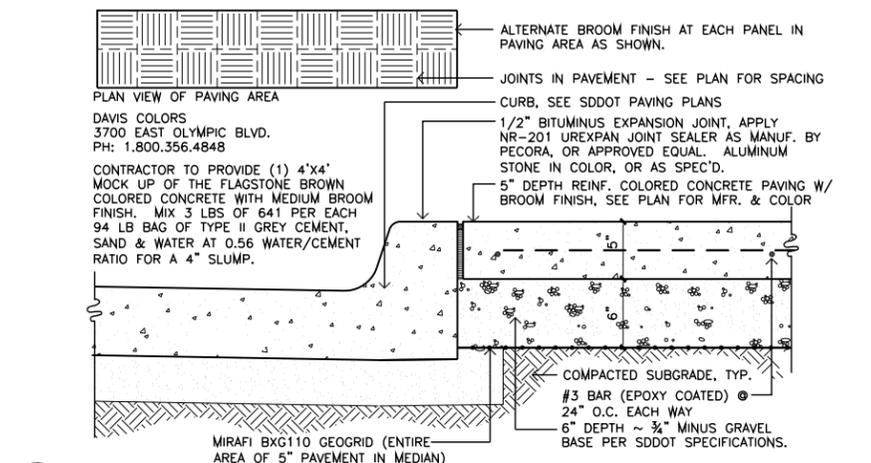
4 SECTION: TYPICAL SHRUB PLANTING BED
 H1.7 NO SCALE



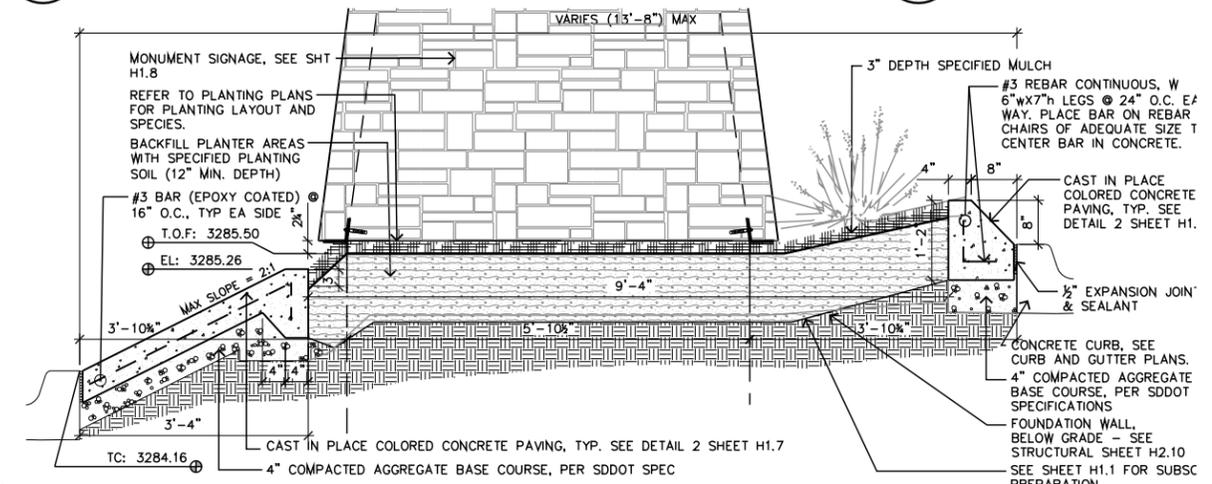
5 DETAIL: LANDSCAPE PLANTER MEDIAN AT TRANSITION AREAS (STA 68+65 - 76+00)
 H1.7 SCALE: 3/4" = 1'-0"



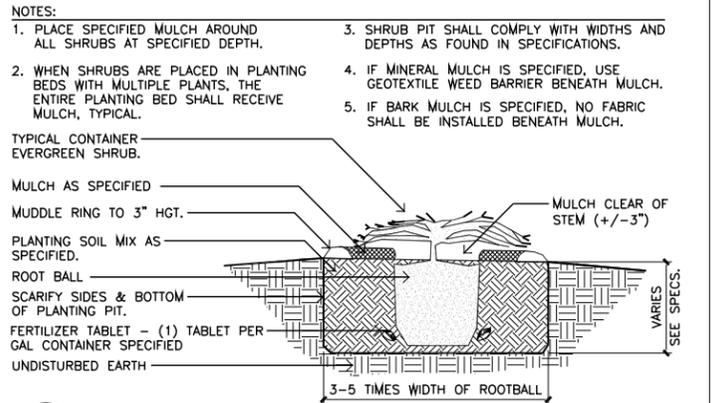
3 DECORATIVE CONCRETE PAVING AND PLANTER AT MEDIAN
 H1.7 SCALE: 3/4" = 1'-0"



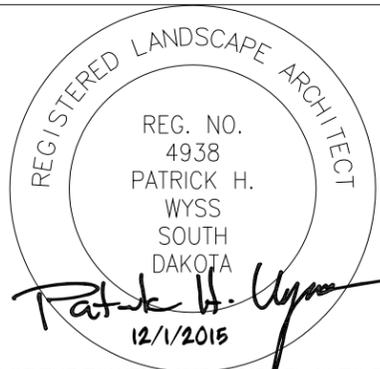
6 SECTION: MEDIAN PAVING AT R.O.W. CURB
 H1.7 SCALE: 1 1/2" = 1'-0"



7 DETAIL: SECTION IN MEDIAN AT MONUMENT @ STA 72+20 - CL
 H1.7 SCALE: 3/4" = 1'-0"



8 SECTION: CONTAINER CONIFEROUS SHRUB
 H1.7 NO SCALE



Prepared By:
Wyss Associates, Inc.
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Prepared For:
 Public Works Department
RAPID CITY SOUTH DAKOTA
 Engineering Services

Scales: AS NOTED

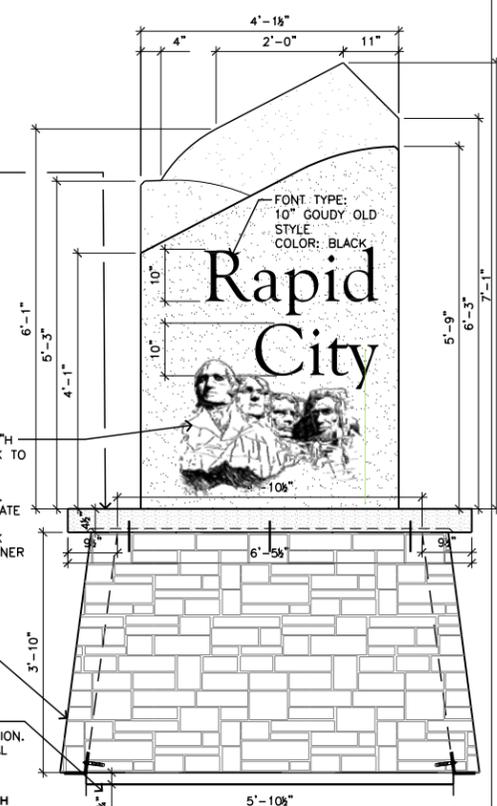
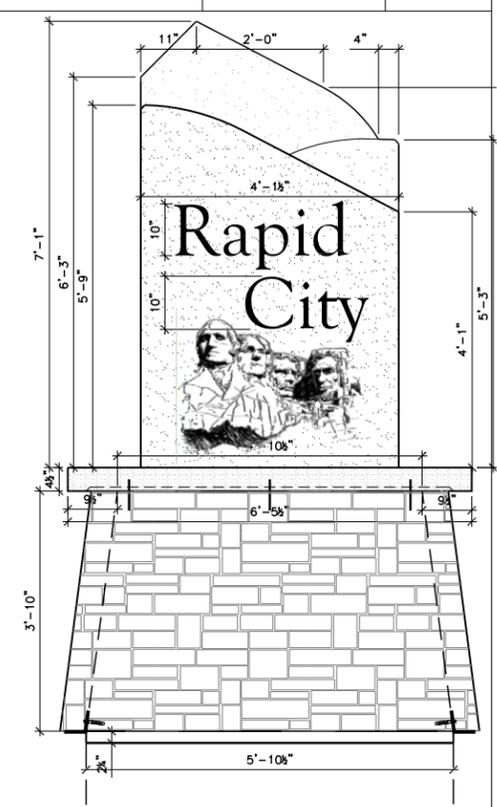
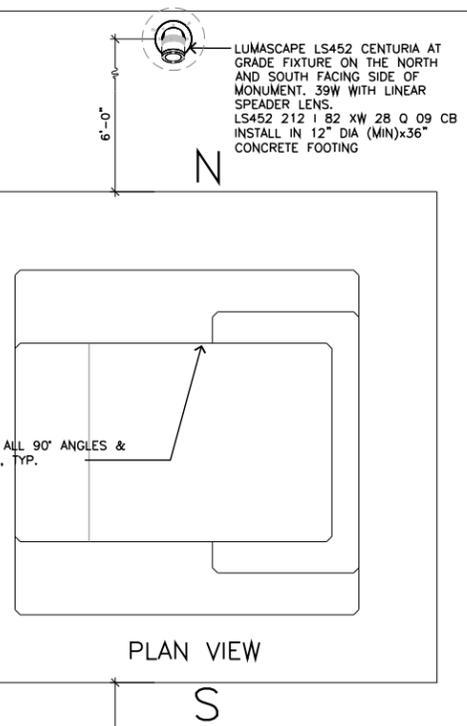
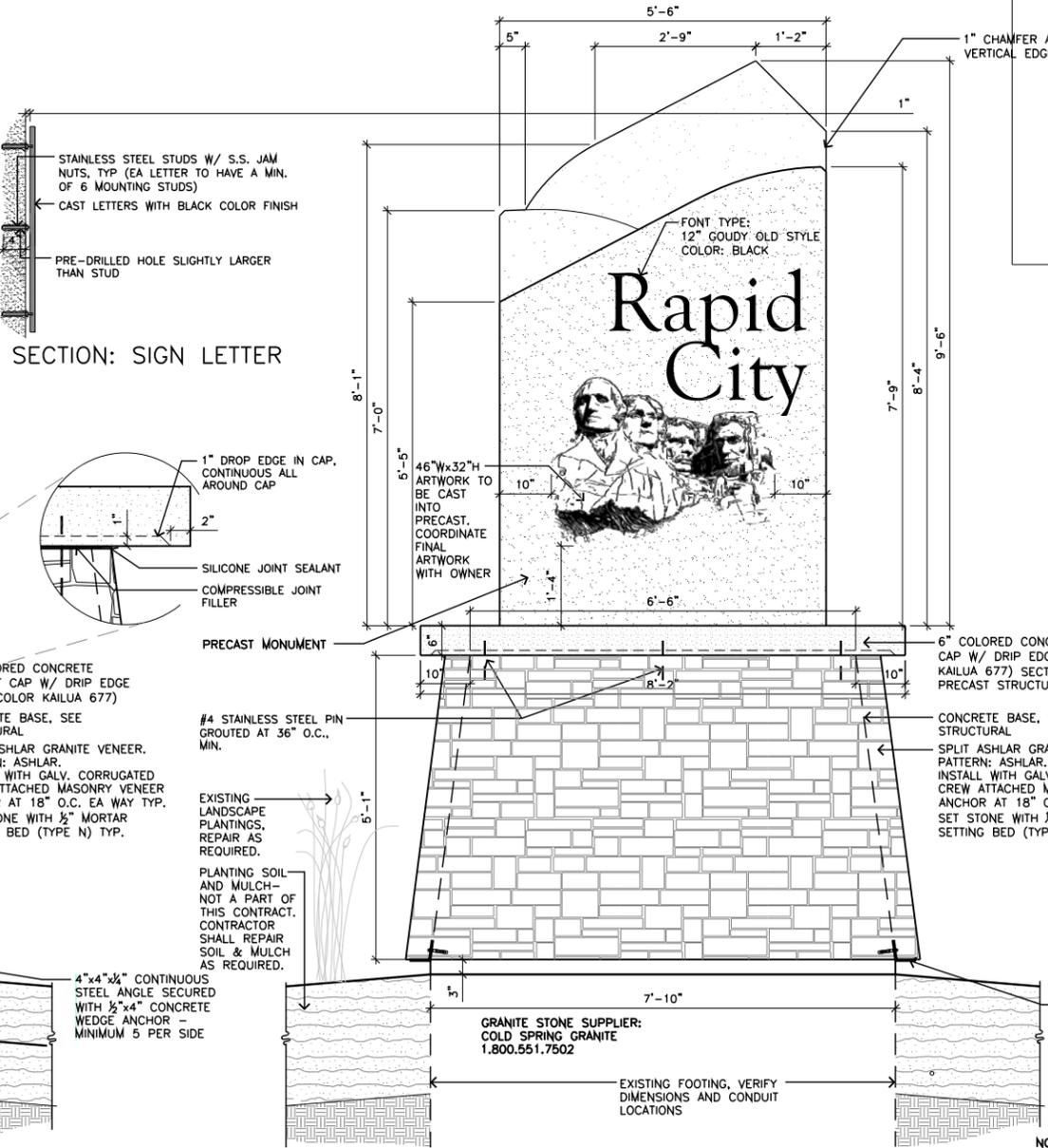
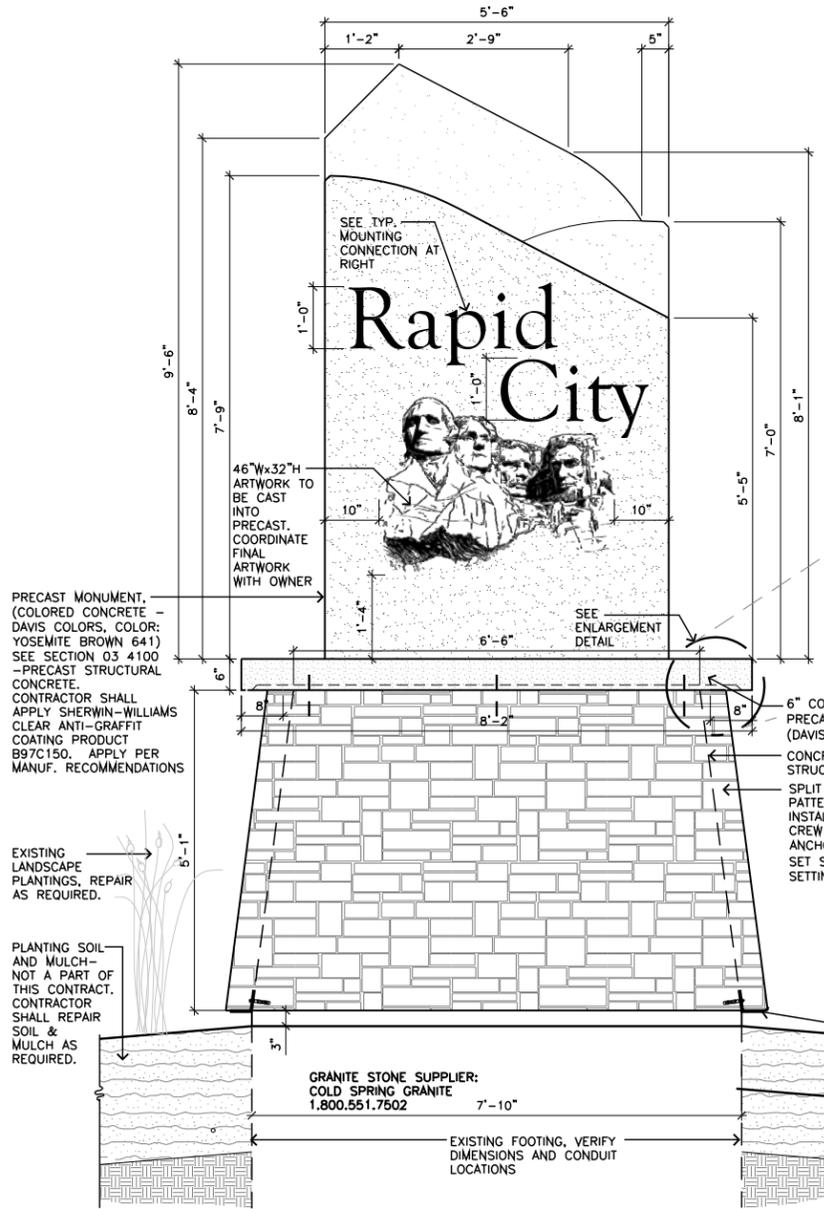
Designed By: PHW
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 Internal Job No: 11104.4
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 Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY
**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

| | |
|-------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H1.8 |
| LANDSCAPE | of |
| DETAILS | 22 |

- NOTE:
1. THE 5'-6" SQ MONUMENT SIGN AT STA 17+28.00 (LOCATED NORTH OF THE TOWER ROAD BRIDGE) IS TO BE INSTALLED ON AN EXISTING CONCRETE BASE. NO FOUNDATION WORK IS REQUIRED AT 17+28.00 AS THE FOUNDATION AT THAT LOCATION WAS INSTALLED UNDER A SEPARATE CONTRACT. ALL ITEMS ABOVE THE GRADE, INCLUDING LIGHTING, THE PRECAST MONUMENT AND THE ARTWORK ARE TO BE INSTALLED AS PART OF THIS CONTRACT AT 17+28+00
 2. THE MONUMENT LOCATION AT STA. 72+20 THE COMPLETE FOUNDATION AND MONUMENT SIGN INCLUDING LIGHTING IS PART OF THIS CONTRACT.
 3. LIGHTING FIXTURES, WIRING & REQUIRED ELECTRICAL EQUIPMENT ARE INCIDENTAL TO THE MONUMENT SIGN AND ALL COSTS ASSOCIATES WITH THE ELECTRICAL & LIGHTING WORK SHOULD BE INCLUDED IN THE 'PRECAST CONCRETE WELCOME SIGN' BID ITEM. SEE SDDOT ELECTRICAL SHEETS FOR LIMITS OF SCOPE UNDER THAT CONTRACT
 4. CONNECTION OF THE PRECAST MONUMENT SIGN TO THE CAST-IN-PLACE CONCRETE SHALL BE DESIGNED AND PROVIDED BY THE PRECAST MANUFACTURER.



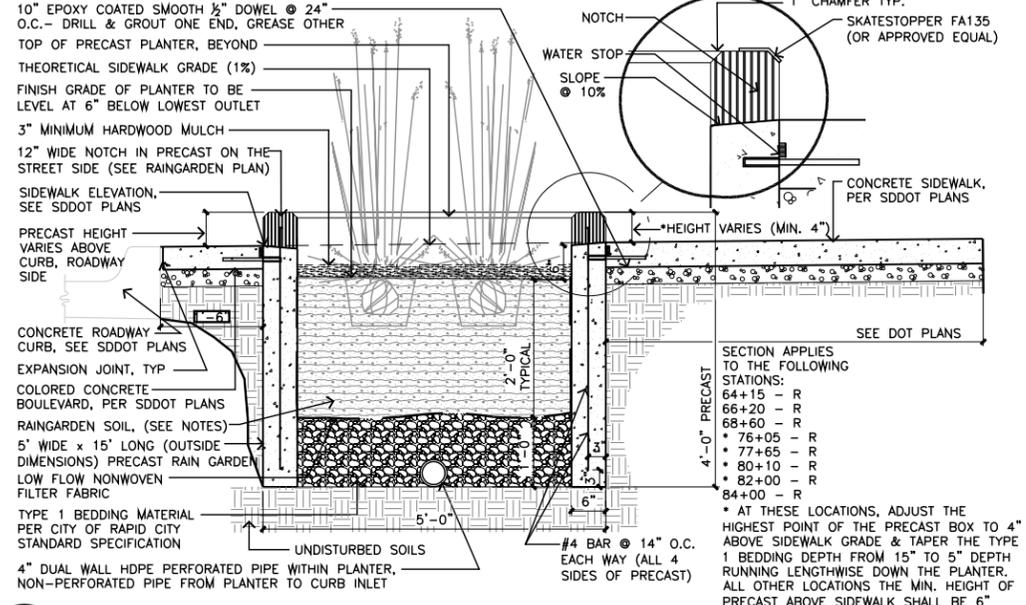
STA 17+28.00 - CL - SOUTH FACING ELEVATION (FACING TOWER BRIDGE)
 SECTION: CAST-IN-PLACE CONCRETE BASE W/ VENEER FOR PRECAST MONUMENT

STA 17+28.00 - CL - NORTH FACING ELEVATION (FACING DOWNTOWN)

MONUMENT SIGN & FOUNDATION FOR STA 72+20

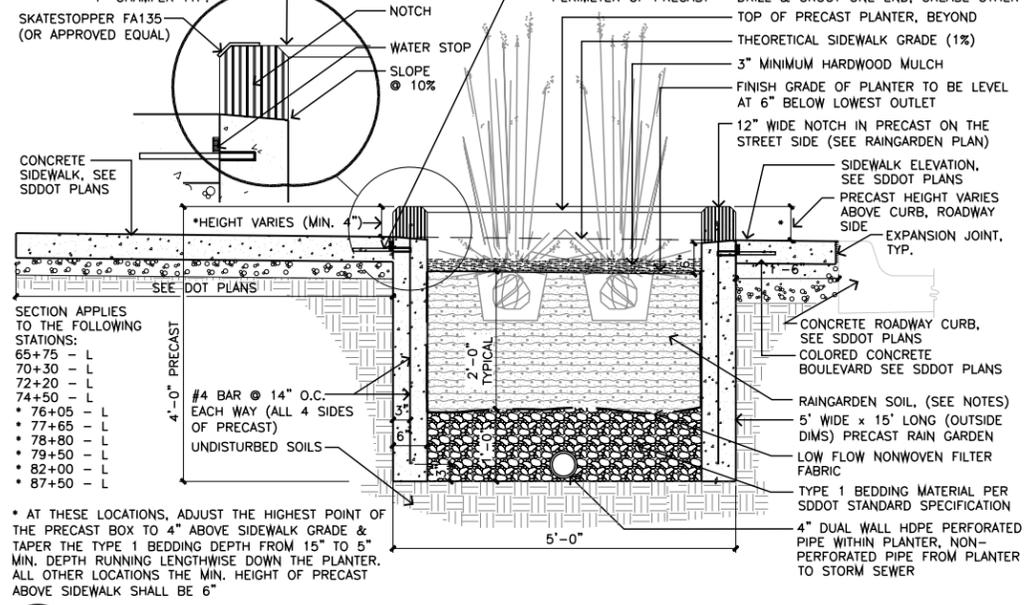
FOR BIDDING PURPOSES ONLY
MOUNT RUSHMORE ROAD
UTILITY RECONSTRUCTION

- NOTES:
1. CONCRETE FOR PRECAST SHALL BE CLASS M6 CONCRETE.
 2. REINFORCING STEEL FOR PRECAST SHALL CONFORM TO ASTM A615 GRADE 60.
 3. WATERSTOP TO BE HYDROTITE GREENSTREAK CJ-0725-3K-ADH (OR APPROVED EQUAL) CONTINUOUSLY APPLIED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH LEAKMASTER LV-1 WATER-SWELLING SEALANT AT ALL JOINTS, BENDS AND SPLICES. GREENSTREAK, 3400 TREE COURT INDUSTRIAL BLVD., ST. LOUIS, MO 63122-6614, 1-800-325-9504, [HTTP://WWW.GREENSTREAK.COM/](http://www.greenstreak.com/)
 4. PROVIDE AND INSTALL SKATE DETERRENTS ON ALL PRECAST EDGES ADJACENT TO CONCRETE WALKWAYS (SEE PLAN OF RAINGARDEN)
 5. EACH PLANTER SHALL HAVE 4.15 CY OF RAINGARDEN SOIL (BID ITEM: CONTRACTOR FURNISHED TOPSOIL). 24" DEPTH CONTRACTOR PROVIDED RAIN GARDEN SOIL SHALL CONSIST OF 50% SCREENED TOPSOIL, 20% HARDWOOD MULCH & 30% WASHED MASONRY SAND. REFER TO LANDSCAPE SPECIFICATIONS SHEET H1.1
 6. CONTRACTOR SHALL INSTALL EXPANSION JOINT WITHIN 5 FEET OF PRECAST BOX ON NORTH SIDE OR SOUTH SIDE OF THE RAIN GARDEN. EXPANSION JOINT AND SIDEWALK PAVING PER SDDOT SPECIFICATIONS.



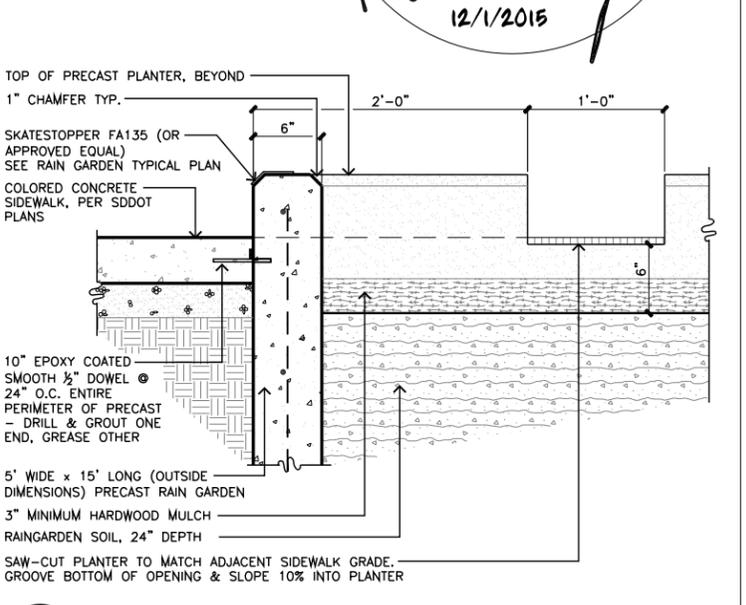
1 SECTION: TYPICAL RAIN GARDEN PLANTER - RIGHT SIDE OF MT RUSHMORE ROAD
 H1.9 SCALE: 3/4" = 1'-0"

- NOTES:
1. CONCRETE FOR PRECAST SHALL BE CLASS M6 CONCRETE.
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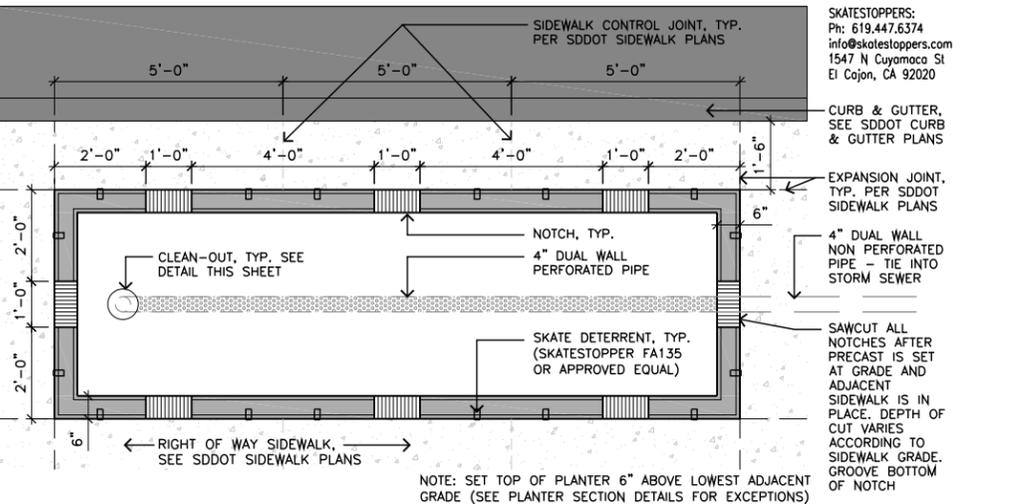


2 SECTION: TYPICAL RAIN GARDEN PLANTER - LEFT SIDE OF MT RUSHMORE ROAD
 H1.9 SCALE: 3/4" = 1'-0"

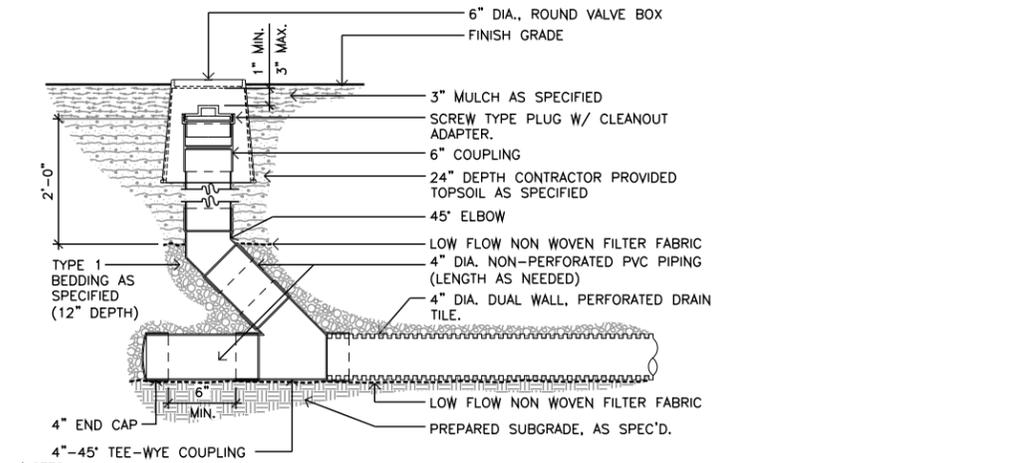
- NOTES:
1. CONCRETE FOR PRECAST SHALL BE CLASS M6 CONCRETE.
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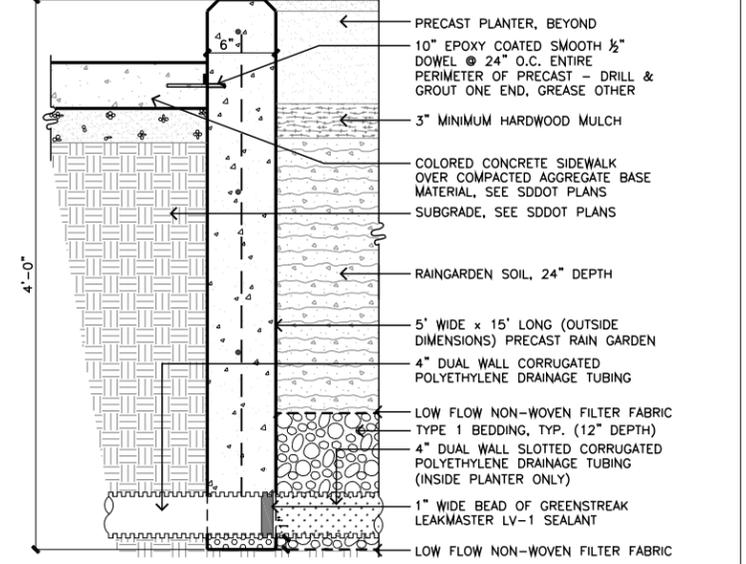
3 SECTION: CORNER OF RAINGARDEN
 H1.9 SCALE: 1 1/2" = 1'-0"



4 PLAN: RAIN GARDEN PLANTER
 H1.9 SCALE: 1/2" = 1'-0"



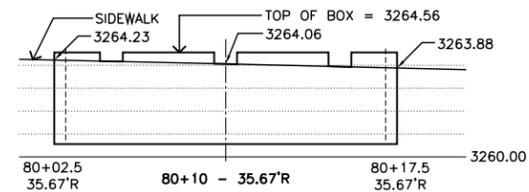
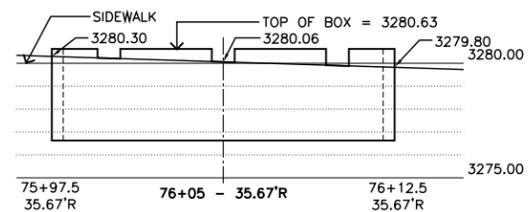
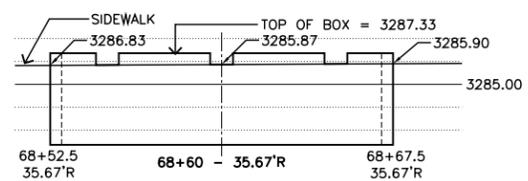
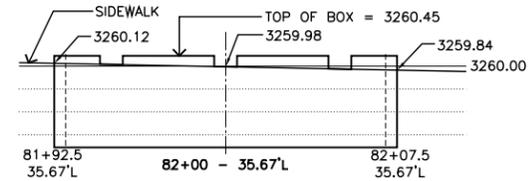
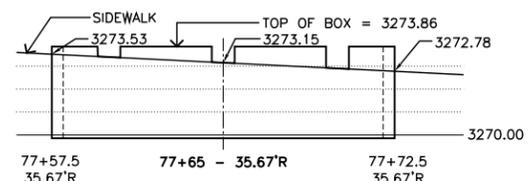
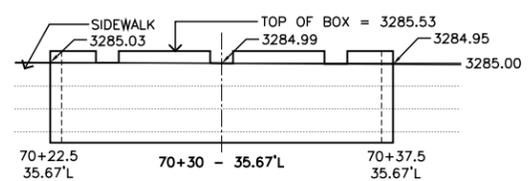
5 SECTION: CLEAN-OUT FOR PERFORATED DRAINLINE
 H1.9 SCALE: 1 1/2" = 1'-0"



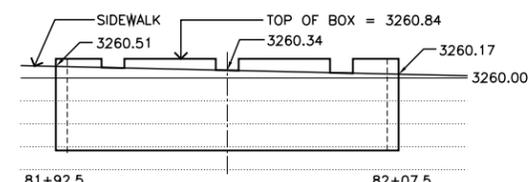
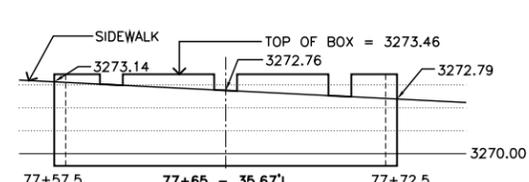
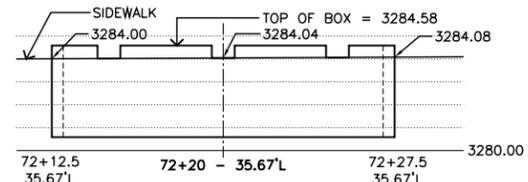
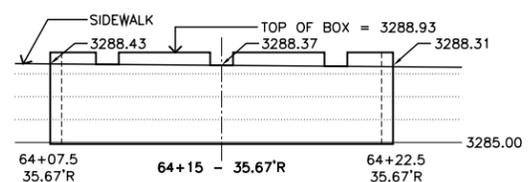
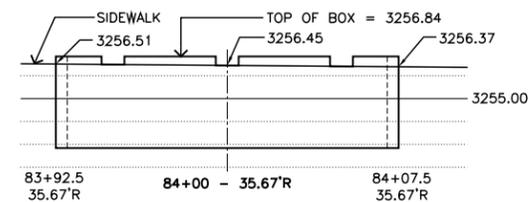
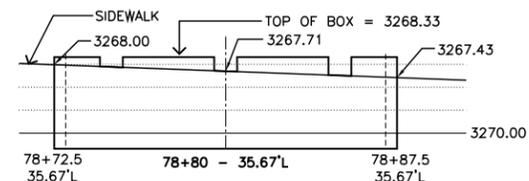
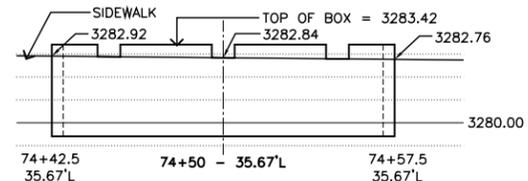
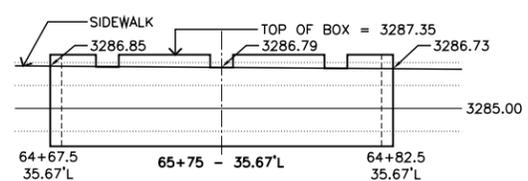
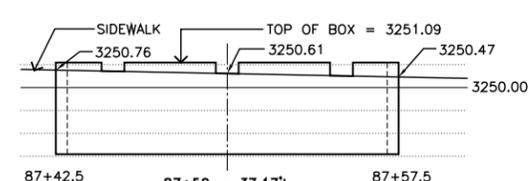
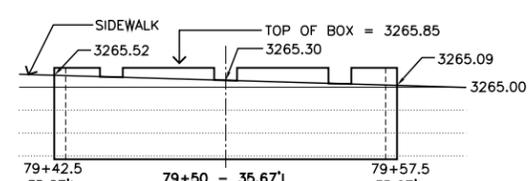
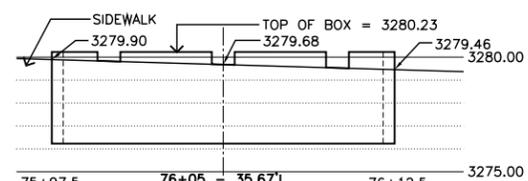
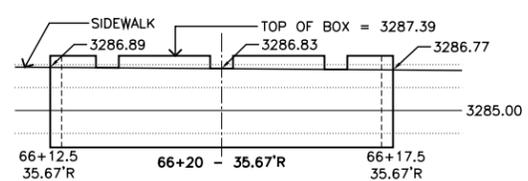
6 SECTION: PIPE PENETRATION AT RAIN GARDEN
 H1.9 SCALE: 1 1/2" = 1'-0"



FOR BIDDING PURPOSES ONLY
**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**



GENERAL NOTES:
 1. GRADES SHOWN ARE FOR GRADE AT BOULEVARD & PRECAST INTERFACE ON THE CURB AND GUTTER SIDE OF THE PRECAST RAIN GARDEN.



 SECTION: RAIN GARDEN LONGITUDINAL SECTIONS
 SCALE: 1" = 4'

IRRIGATION SPECIFICATIONS

PART 1: GENERAL

This is a decoder based irrigation control system that has the ability to communicate with the City of RC Central Control System in the future.

1.00 This system is designed based on a minimum static operating pressure of 60 psi at the point of connection to the water main. Contractor shall verify pressure prior to construction & coordinate with owner if there is a discrepancy in the pressure.

1.01 SCOPE: Furnish all labor, materials, supplies, equipment, tools, transportation, & perform all operation in connection with & reasonably incidental to the complete installation of the irrigation system, & guarantee/ warranty as shown on the drawings, the installation details, & as specified herein. Items of work specifically included are:

- I. Procurement of all applicable licenses, permits, and fees.
II. Coordination of Utility Locates – One Call of South Dakota (1.800.781.7474).
III. Preparation of Record Drawings.
IV. Winterization and Spring Start-up.
V. Maintenance period.

1.02 SUBMITTALS

I. Deliver four (4) copies of all submittals to the Project Manager within 10 working days from the date of Notice to Proceed. Provide information in a 3-ring binder with table of contents and index sheet. Provide sections that are indexed for different components and labeled with the specification section numbered and the name of the component. Submittals must be made for all the components on the material list. Indicate which items are being supplied on the catalog cut sheets when multiple items are shown on one sheet. Submittal package must be complete prior to being reviewed by the Project Manager. Incomplete submittals will be returned without review.

II. Materials List: Include sleeving, pipe, fittings, mainline components, sprinkler heads, valves, shop drawings and all other components shown on the drawings and installation details or described herein. Components such as pipe sealant, wire, wire connectors, ID tags, etc. must be included. Quantities of materials need not be included.

III. Manufactures' Data: Submit manufactures' catalog cuts, specifications, and operating instructions for equipment shown on the materials list.

IV. Shop Drawings: If Required, Submit shop drawings called for in the installation details. Show products required for proper installation, their relative locations, and critical dimensions. Note modifications to the installation detail.

1.03 RULES AND REGULATIONS

I. Work and materials shall be in accordance with the latest edition of the National Electric Code, the Uniform Plumbing Code as published by the Western Plumbing Officials Association, City of Rapid City and Construction Specifications, and applicable laws and regulation of the governing authorities.

II. When the contract documents call for materials or construction of a better quality or larger size than required by the above-mentioned rules and regulations, provide the quality and size required by the contract documents.

III. If quantities are provided either in these specifications or on the drawings, these quantities are provided for information only, it is the Contractor's responsibility to determine the actual quantities of all material, equipment, and supplies required by the project and to complete an independent estimate of quantities and wastage.

IV. Notify Project Manager in writing prior to construction about discrepancies between contract documents and existing site conditions or manufacturer's specific recommendations for use or their product.

V. Contractor is responsible for damage to site amenities during construction. Replace damaged items with identical materials of equal value to match existing conditions. Make replacements at no additional cost to contract price. Penalty for specific damage: as valued by an independent auditor or as mutually agreed to by Owner and Contractor.

1.04 QUALITY ASSURANCE

I. Engage an experienced Installer who has completed irrigation work similar in materials, design, and extent to that indicated for this project and with a record of successful irrigation installations.

II. Installer's Field Supervision: Installer shall have their onsite supervisor, a person with minimum of three years' experience doing projects of similar scope and size. This person shall be on the project site full time when irrigation installation is in progress.

1.05 TESTING

I. Notify the Project Manager three days in advance of testing.

II. Pipelines jointed with rubber gaskets or threaded connection may be subjected to a pressure test at any time after partial completion of backfill. Pipelines jointed with solvent-welded PVC joints shall be allowed to cure at least 24 hours before testing.

Wyss Associates, Inc. Landscape Architecture - Corridor & Streetscape Parks & Recreation Design - Land Planning. 728 6th Street Rapid City, South Dakota 57701-3670 phone: 605.348.2268 Fax 605.348.6506 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For: Public Works Department. Design Date: December 2015. Internal Job No: 11104.4. Surveyed By: SDDOT. Project Number: 13-2139, CIP 50950, PCN X03L.

or continue MOUNT RUSHMORE ROAD UTILITY RECONSTRUCTION

Table with 2 columns: Sheet Title, Sheet No. Row 1: MOUNT RUSHMORE RD, H2.1. Row 2: IRRIGATION, of. Row 3: SPECIFICATIONS, 22.

III. Subsections of mainline pipe may be tested independently, subject to the review of the Project Manager.

IV. Furnish clean, clear water, pumps, labor, fittings, and equipment necessary to conduct test or retests.

V. All costs, including travel expenses for site visits by the Project Manager or Consultant, for any re-inspection that may be required due to non-compliance with the Construction Documents shall be the sole responsibility of the Contractor.

- VI. Hydrostatic Pressure Test (Solvent Weld Mainline Pipe)
1. Backfill to prevent pipe from moving under pressure. Expose couplings and fittings.
2. Expose all remote control valves their riser pipe and service tee fittings.
3. Purge air from mainline pipe before test. Attach pressure gauge to mainline pipe in test section.

- 4. Subject mainline pipe to a hydrostatic pressure equal to 140 PSI for two hours. Test with mainline components installed.
5. Observe pressure loss on pressure gauge. If pressure loss is greater than 5 PSI, identify reason for pressure loss. Visually inspect irrigation pipe for leakage and replace defective pipe, fitting, joint, valve, or appurtenance. Repeat test until pressure loss is equal to or less than 5 PSI.
6. Cement or caulking to seal leaks is prohibited.

VII. Volumetric Leakage Test (Mainline Pipe with Rubber Gaskets)

- 1. Backfill to prevent pipe from moving under pressure. Expose couplings and fittings.
2. Purge air from pipeline before tests.
3. Provide all necessary pumps, bypass piping, storage tanks, meters, 3-inch test gauge, supply piping and fittings in order to properly perform testing.
4. Subject mainline pipe to 140 PSI for two hours. Maintain constant pressure.
5. Testing pump must provide a continuous 140 PSI to the mainline. Allowable deviation in test pressure is 5 PSI during test period. Restore test pressure to 140 PSI at end of test.
6. Water added to mainline pipe must be measured to the nearest 0.10 gallons.
7. Use the following table to determine maximum allowable volume lost during test:

Table with 2 columns: Pipe Size (INCHES), Test Pressure (PSI). Rows for 2" & 3" with values for 60, 70, 80, 90, 100, 110, 120, 130, 140 PSI.

VIII. Operational Test

- 1. Activate each remote control valve in sequence from controller. The Project Manager will visually observe operation, water application patterns, and leakage.
2. Replace defective remote control valves, solenoids, wiring, or appurtenance to correct operational deficiencies.
3. Replace, adjust, or move water emission devices to correct operational or coverage deficiencies.
4. Replace defective pipe, fittings, joint, valves, sprinkler, or appurtenance to correct leakage problems. Cement or caulking to seal leaks is prohibited.
5. Repeat test(s) until each lateral passes all tests. Repeat tests, replace components, and correct deficiencies at no additional cost to the Owner.

IX. Control System Acceptance Test

- 1. Upon completion of construction, a System Acceptance Test must be performed with Owner's representative present.
2. Following construction completion and a Review by the Project Manager, the Maintenance Period period will begin. After 30 days of continuous service without major system problems, the system will be accepted and the guarantee/warranty period will begin. If at any time during the 30 day evaluation period, a major system problem occurs, the source of the problem will be determined and corrected and the 30 day Maintenance period will start again. Equipment will not be accepted until such time as the System Acceptance Test is passed.
3. If successful completion of the System Acceptance Test is not attained within 90 days following commencement of the evaluation period, the Project Manager has the option to request replacement of equipment, terminate the order, or portions thereof,

with the System Acceptance Test. These options will remain in effect until such time as a successful completion of the System Acceptance Test.

4. Final payment will be made after successful completion of the System Test.

- X. Sensor Cable
1. Test for leaks to ground per manufacturer's recommendations. Test results must meet or exceed manufacturer's guidelines for acceptance.
2. Test cable for continuity if cable is being installed for future expansion of the irrigation system.
3. Replace defective wire, underground splices, or appurtenances. Repeat test until manufacturer's guidelines are met.

- XI. Control System Grounding
1. Test for proper grounding of control system per manufacturer's requirements. Test results must meet manufacturer's guidelines for acceptance.
2. Replace defective wire, grounding rod, or appurtenances. Repeat the test until the manufacturer's guidelines are met.

- XII. Mainline Pipe Tracing Wire
1. Test mainline pipe tracing wire for continuity.
2. Testing shall be conducted in the presence of the OWNER REP. Repair or replace defective tracing wire.
3. Testing shall be documented by the contractor & approved by the OWNERS REPRESENTATIVE.

- XIII. Testing Review
1. Failure of initial testing review will require additional review.

1.06 CONSTRUCTION REVIEW:

I. The purpose of on-site reviews by the Project manager is to periodically observe the work in progress, the Contractor's interpretation of the construction documents, and to address question with regard to the installation.

II. Scheduled reviews such as those for irrigation system layout or testing must be scheduled with the Project Manager as required by these specifications.

III. Impromptu reviews may occur at any time during the project.
IV. A review will occur at the completion of the irrigation system installation and Project Record Drawing submittal.

1.07 COORDINATION AND SCHEDULING

I. The irrigation construction schedule is to be provided at the Pre-Construction meeting listing the dates the various stages of the project will start & when they will be completed.

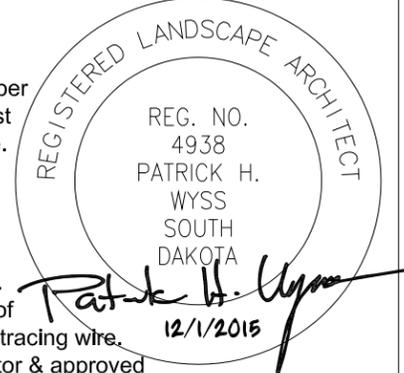
1.08 GUARANTEE/WARRANTY AND REPLACEMENT:

- I. The purpose of this guarantee/warranty is to insure that the Owner receives irrigation materials of prime quality, installed and maintained in a thorough and careful manner.
II. For a period of two years from the commencement of the formal maintenance period, guarantee/warranty irrigation materials, equipment, and workmanship against defects. Fill and repair depressions. Restore landscape or structural features damaged by the settlement of irrigation trenches or excavations. Repair damage to the premises caused by defective item. Make repairs within seven days of notification from the Project Manager.
III. Contract documents govern replacements identically as with new work. Make replacements at no additional cost to the contract price.
IV. Guarantee/warranty applies to originally installed materials and equipment and replacements made during the guarantee/warranty period.

PART 2: MATERIALS

2.01 QUALITY: Use materials that are new and without flaws or defects of any type and which are the best of their class and kind.

- 2.02 SUBSTITUTIONS
I. Alternative product must be submitted and approved by the Owner prior to bidding. The Contractor is responsible for making changes to the design to accommodate approved alternate product(s).
II. Pipe sizes referenced in the construction documents are minimum sizes, and may be increased at the option of the Contractor and approval with the Owner.



FOR BIDDING PURPOSES ONLY

2.03 PIPE AND FITTINGS

I. Mainline Pipe and Fittings

1. PVC compounds used in the extrusion of this pipe shall meet or exceed the requirements of ASTM D1784 cell class 12454. Gaskets shall conform to ASTM F477. Joint design shall meet the requirements of ASTM D3139.
2. Use Class 200, SDR-21, rated 200 PSI, conforming to the dimensions and tolerances established by ASTM Standard D2241. Use PVC pipe rated at higher pressures than Class 200 in the case of small nominal diameters that are not manufactured in Class 200.
3. Use rubber-gasketed pipe equipped with factory installed reinforced gaskets for mainline pipe with nominal diameter greater than or equal to 2-inches. Use Gasketed pipe joints conforming to "Laboratory Qualifying Tests" section of ASTM D3139. Use gasket material conforming to ASTM F477.
4. All main lines 2" and larger shall be PVC Class 200, SDR-21 gasket pipe with ductile iron fittings with joint restraint harnesses for IPS-size PVC pipe. Use Harco gasketed Ductile Iron Fittings or approved equal.
5. Mainline pipe within sleeves: Use heat fused HDPE PE4710 DR 9 (250 psi) High Density Polyethylene Irrigation Pipe with D.I. knuckle restraints at end of mainline at sleeve ends. See details. Provide restrained casing spacers within sleeve.
6. All decoder wire shall be installed within 3/4" (min.) schedule 80 conduit.

II. Lateral Pipe and Fittings

1. Use rigid, unplasticized polyvinyl chloride (PVC) 1120, 1220 National Sanitation Foundation (NSF) approved pipe, extruded from material meeting the requirements of Cell Classification 12454-A or 12454-B, ASTM Standard D1784, with and integral belled end suitable for solvent welding.
2. Use Class 200, SDR-21, rated at 200 PSI, conforming to the dimensions and tolerances established by ASTM Standard D2241. Specialized Pipe and Fittings
3. Assemblies calling for flanged connections shall utilize stainless steel studs and nuts and rubber gaskets.
4. Assemblies calling for threaded pipe connections shall utilize PVC Schedule 80 and 40 threaded fittings pre-manufactured swing-joint assemblies. Use PVC Schedule 80 nipples.
5. Joint sealant, use non-hardening, nontoxic pipe thread sealant formulated for use on threaded connections and approved by the pipe fitting and valve manufacturer. Where directed by valve manufactures, use threaded tape for threaded connections at valves and instead of thread paste.
6. Water Service to Backflow Prevention Device: Copper pipe, use Type "K" rigid pipe conforming to ASTM Standard B88. Use wrought copper or cast bronze fittings, soldered, flared mechanical, or treaded joint per installation details or local code. Use a 95 – percent tin and 5 – percent antimony solder.

III. Thrust Blocks

1. No thrust blocks needed with DI fittings

2.04 MAINLINE COMPONENTS

I. Isolation Gate Valve Assembly

1. As presented in the installation details or approved equal.

II. Quick Coupling Valve Assembly

1. As presented in the installation details or approved equal.

2.05 SPRINKLER IRRIGATION COMPONENTS

I. Remote control valves (RCV) Assembly for Sprinkler Laterals

1. As presented in the installation details.
2. Use wire connectors & waterproofing sealant to join control wires & latching solenoid valves.
3. Use standard Christy I.D. tags with black letters on a yellow background.
4. Install a separate valve box over a 3-inch depth of 3/4"-inch gravel for each assembly.
5. Provide PRS-D Pressure Regulating Modules at all spray and rotor sprinkler remote control valves.

II. Sprinkler Assembly

1. As presented in the installation details.
2. Sprinkler Pressure Test Kit
3. Provide one assembly per project. Assembly shall include one Rain Bird PHG and one Rain Bird Pitot Tube (part no. 41017), for use in pressure adjustment for spray and rotor sprinklers.

III. Two Wire Decoder Wire and Decoder

1. Control Wire: Communication between satellite controller(s) and the decoders & valves shall be accomplished by a twisted pair of #14 AWG decoder cables for direct

Prepared By:

Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
 Public Works Department

 Engineering Services

Scales: N/A

Designed By: PHW
 Drawn By: C. M. W. R.
 Design Date: December 2015
 Issue Date: 12-01-2015

Internal Job No: 11104.4
 Surveyed By: SDDOT
 Survey Date: 2012-2013

Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

MOUNT RUSHMORE ROAD
UTILITY RECONSTRUCTION

| | |
|-------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H2.2 |
| IRRIGATION | of |
| SPECIFICATIONS | 22 |

burial within a red HDPE outer jacket. The communication cable shall be manufactured by Paige Electric model #P7350D, or equal. Decoders (preferably just 1-station configuration with ability to operate one or two solenoids) shall have 'Integrated Surge Protection'. Each decoder is pre-addressed with an address, and can be reassigned. The decoders send DC signals to DC-latching solenoids up to 300 feet through #14 wire DTS cables. All splices shall be made in accordance with National Electrical Code® Articles 300.5 (Underground Installations) and 110.14 (Electrical Connections) using 3M DBY-6 or DBR-6 connectors, which are UL listed under "UL 486D-Direct Burial", for wet or damp locations, 600 volts. The decoders shall have 'Integrated Surge Protection' rated to 40 V, 1.5 kW transil.

2. Conduit: All decoder cable shall be located within 3/4" schedule 40 conduit.
3. Splices: Use 3M DBY-6 or 3M DBR-6.
4. Warning tape: Insert plastic film highly resistant to alkalis, acids, or other destructive chemical components likely to be encountered in soils. Three inches wide, colored yellow, and imprinted with "CAUTION: BURIED ELECTRIC LINE BELOW"
5. Include tracing wire as shown in the Irrigation Trench Detail. Wire shall conform to City of Rapid City Utility Construction Specifications.

PART 3: EXECUTION

3.01 WATER SUPPLY

1. Supply to expanded irrigation system shall be from new or existing water mains, as shown on the irrigation plans. Contractor is responsible for making the connections to the existing mainline stub out / gate valve, and extending the irrigation main to supply the irrigation network piping.
2. Lay out work as closely as possible to the drawings. The drawings, though carefully drawn, are generally diagrammatic to the extent that all offsets and fittings are not necessarily shown as they will exist on site.
3. The Contractor shall be responsible for full and complete coverage of irrigated areas as to spacing and precipitation rates being matched and shall make any necessary adjustments to the system at no additional charge to the Owner. Head spacing as shown on the drawings is predicated on the water pressure being 30 psi at the spray head. Head spacing shall not exceed 55 percent of manufacturer's stated diameter. Contractor shall verify existing working pressure before commencing work. Revisions to the irrigation system must be submitted to the engineer in written form for approval.

3.02 INSPECTIONS AND REVIEWS

I. Site Inspections

1. Verify construction site conditions and note irregularities affecting work of this section. Report irregularities to the Project Manager prior to beginning work.
2. Beginning work of this section implies acceptance of existing conditions.

II. Utility Locates – One Call of South Dakota(1.800.781.7474)

1. Arrange for & coordinate with local authorities the location of all underground utilities.
2. Repair any underground utilities damaged during irrigation work. Make repairs at no additional cost to the contract price.

3.03 LAYOUT OF WORK

I. Stake out the irrigation system. Items to be staked include:

1. Backflow device; control valves; sleeving; mainline and lateral pipe; decoders; quick coupling valves; isolation valves; controller assembly; and sprinklers.
2. Irrigation System Layout Review: Irrigation system layout review will occur after the staking has been completed. Notify the Project Manager one week in advance of review. Modifications will be identified by the Project Manager at this review.
3. Install all mainline pipe and mainline components inside of project property lines.

3.04 EXCAVATION, TRENCHING, AND BACKFILLING

I. Excavate to permit the pipes to be laid at the intended elevations and to permit work space for installing connections and fittings.

1. Minimum cover (distance from top of pipe to roadway subgrade)
2. 24-inches over mainline pipe and over electrical conduit.
3. 28-inches over control wire and sensor cable.

4. 18-inches over lateral pipe to sprinklers.
5. Maintain at least 10-feet clearance from the centerline of any tree.
6. Backfill only after lines have been reviewed and tested.
7. Excavated material is generally satisfactory for backfill. Backfill shall be free from rubbish, vegetative matter and stones larger than 2-inches in maximum dimension. Frozen material will not be allowed. Remove material not suitable for backfill. Backfill placed next to pipe shall be free of sharp objects that may damage the pipe.
8. Backfill un-sleeved pipe in either of the following manners:
 - a. Backfill and puddle the lower half of the trench. Allow to dry 24 hours. Backfill the remainder of the trench in 6-inch layers. Compact to density of surrounding soil.
 - b. Backfill the trench by depositing the backfill material equally on both sides of the pipe in 6-inch layers and compacting to the density of surrounding soil.
9. Enclose pipe & wiring beneath roadways, walks, & curbs in sleeves. Minimum compaction of backfill for sleeves shall be 95% Standard Proctor Density, ASTM D698-78. Use of water for compaction around sleeves, will not be permitted.
10. Dress backfilled areas to original grade. Incorporate excess backfill into existing site grades.
11. Where utilities conflict with irrigation trenching and pipe work, contact the Project Manager for trench depth adjustments.

3.05 ASSEMBLING PIPE AND FITTINGS

I. General

1. Keep pipe free from dirt and pipe scale. Cut pipe ends square and debur. Clean pipe ends.
2. Keep ends of assembled pipe capped. Remove caps only when necessary to continue assembly.
3. Trenches may be curved to change direction or avoid obstructions within the limits of the curvature of the pipe. Minimum radius of curvature and offset per 20-foot length of pipe by pipe size are shown in the following table. All curvatures results from the bending of the pipe lengths. No deflection will be allowed at a pipe joint.

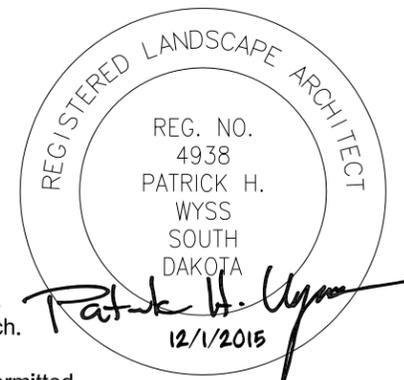
| SIZE | RADIUS | OFFSET PER 20' LENGTH |
|--------|--------|-----------------------|
| 1 1/2" | 25' | 7'-8" |
| 2" | 25' | 7'-8" |
| 2 1/2" | 100' | 1'-11" |

II. Mainline Pipe and Fittings

1. Use only strap-type friction wrenches for threaded plastic pipe.
2. PVC Rubber-Gasketed Pipe
 - a. Use pipe lubricant. Join pipe in the manner recommended by manufacturer.
3. Snake pipe from side to side within the trench.
4. Fittings
 - a. The use of cross type fittings is not permitted.
 - b. Only Ductile Iron fittings are allowed on mainline pipe.

III. Lateral Pipe and Fittings

1. Use only strap-type friction wrenches for threaded plastic pipe.
2. PVC Solvent Weld Pipe
 - a. Use primer and solvent cement. Join pipe in the manner recommended by the manufacturer and in accordance with accepted industry practices.
 - b. Cure for 30 minutes before handling and 24 hours before allowing water in the pipe.
3. Snake pipe from side to side within the trench.
4. Fittings: The use of cross type fittings is not permitted.



IV. Specialized Pipe and Fittings

1. Flanged connections: Install stainless steel studs and nuts and rubber gaskets per manufacture's recommendations.
2. PVC Threaded Connections
 - a. Use only factory-formed threads. Field-cut threads are not permitted.
 - b. Use only non-hardening, nontoxic thread sealant. Apply thread sealant in a manner recommended by component, pipe and sealant manufacturers and in accordance with accepted industry practices.
3. When connection is plastic-to-metal, the plastic component shall have male threads and the metal component shall have female threads.
4. Make metal-to-metal, threaded connection with non-hardening, nontoxic pipe sealant applied to the male threads only.

V. Copper Pipe

1. Use flux and solder. Join pipe in manner recommended by manufacturer & in accordance with local codes and accepted industry practices.
2. Solder so that continuous bead show around the joint circumference.

3.06 INSTALLATION OF MAINLINE COMPONENTS

I. Isolation Gate Valve Assembly

1. Provide per installation details where indicated on the drawings. Install as indicated on the irrigation details.
2. Brand "GV" on valve box lid in 2-inch high letters.

II. Quick Coupling Valve Assembly

1. Provide per installation details where indicated on drawings.
2. Brand "QC" on valve box lid in 2-inch high letters.

III. Master Valve and Flow Meter

1. Provide & Install per installation details where indicated on drawings.
2. Brand "MV" on valve box lid with 2" high letters.

3.07 INSTALLATION OF SPRINKLER IRRIGATION COMPONENTS

I. Remote Control Valve (RCV) Assembly for Sprinkler Laterals

1. Flush mainline before installation of RCV Assembly.
2. Provide per installation details as shown on drawings. Use wire connector and waterproof to connect control wires to remote control valve wires. Use 3M DBY-6 or DBR-6 connectors & sealant per manufacturer's Recommendations.
3. Provide only one RCV to a valve box. Locate valve box at least 12-inches from and align with nearby walls or edges of paved areas. Group RCV assemblies together where practical. Arrange grouped valve boxes in rectangular patterns. Allow at least 12-inches between valve boxes.
4. Adjust RCV assembly to regulate downstream operating pressure.
5. Attach ID tag with controller station number on control wiring.
6. Brand controller ID & station number on valve box lid in 2" high numbers.

III. Sprinkler Assembly

1. Flush lateral pipe before installing sprinkler assembly.
2. Provide per installation details at location shown on drawings.
3. Locate spray sprinklers 3-inches from adjacent walls, fences, or edges of paved areas.
4. Install sprinklers perpendicular to finish grade.
5. Supply appropriate nozzle and/or adjust arc of coverage and/or radius of throw of each sprinkler for best performance and uniform coverage.

III. Sprinkler Pressure Test Kit

1. Use a pitot tube and pressure gauge at the worst-case rotor sprinkler assembly, from the respective remote control valve. Adjust PRS-Dial at each rotor remote control valve, to provide the design operating pressure at the worst-case rotor sprinkler head. Typically the worst-case sprinkler is the sprinkler furthest from the remote control valve. Complete pressure adjustments for every rotor remote control valve.
2. Using pressure gauge and necessary fittings, place pressure gauge on worst-case spray sprinkler, from the respective remote control valve. Adjust PRS-dial at each spray remote control valve to provide an operation pressure of 30 PSI at the worst-case spray sprinkler head. Typically the worst-case sprinkler is the sprinkler furthest from the remote control valve. Complete pressure adjustment for each spray remote control valve. Turn over pitot tube & pressure gauge to the owners representative at completion of construction.

3.08 INSTALLATION OF CONTROL SYSTEM COMPONENTS

I. Satellite Control Assemblies

1. Coordinate the Electrical Service with the GC. See SDDOT Electrical Plans.
2. All control wire to be installed in schedule 40 PVC conduit.

3. Attach wire markers to the ends of control wires inside the controller unit housing. Label wires with the ID number (see drawings) of the remote control valve to which the control wire is connected.
4. Connect control wires to the corresponding controller terminal.
5. Connect power to the power pedestal. Coordinate this work with the General Contractor (See Site Electrical Plans)

II. Sentinel Controller

1. Sentinel Controller shall be configured during assembly to be programmed to communicate with the RC Parks central control irrigation system's radio frequency. Sentinel Controller specified shall have the ability to communicate in the future to the City's Central Control System. Contractor is responsible for configuring the
2. Sentinel Controller to function as a stand alone irrigation controller to communicate only with the irrigation valves within this project. At the completion of the maintenance period & acceptance by the RC Parks Dept, the owner may chose to establish communications to the City Central Control Irrigation System. During maintenance period, contractor shall only water the landscape plantings via the Sentinel Controller using a contractor determined watering program. Contractor shall not manually water the landscape plant material by manually operation of the remote control valves.

III. Decoder Cable

1. Provide a 18-inch length of wire in an 8-inch diameter loop at each conduit transition, at valve boxes, and at all splices
2. If a decoder wire must be spiced, make spice with wire connectors & waterproof sealant, installed per the manufacturer's instructions. Locate splice in a valve box that contains an irrigation valve assembly, or in a separate 12-inch standard valve box. Use same procedure for connection to valves as for in-line splices.
3. The decoders and two-wire path must be properly surge protected and grounded. All decoder sand modules must have a maximum grounding resistance of 10 ohms, or less. Provide grounding per Toro recommendations.
4. Unless noted on plans, install wire parallel with and below PVC mainline pipe.

3.09 PROJECT RECORD DRAWINGS and OPERATIONS MANUAL

1. The Contractor is responsible for documenting changes to the design. Maintain on-site & separate from documents used for construction, one complete set of contract documents as Project Documents. Keep documents current. Do not permanently cover work until as-built information is recorded. Turn over the "Record Drawings" to the Owner. Completion of the Record Drawings will be a prerequisite for the Review at the completion of irrigation system installation. Provide 2 full size prints of the as-builts

3.11 OPERATIONS AND MAINTENANCE

1. Provide 2 O&M Manuals in separate binders with tabbed items of all components of the irrigation system. Included in the binder shall be an 11x17 set of plans (including as-built modifications). Set shall be folded in the binder.
2. Each binder shall include instructions covering full operation, care & maintenance of system & controls. Also provide manufacturers' parts catalogs.

3.12 WINTERIZATION AND SPRING START-UP

1. Contractor shall Winterize the irrigation system in the fall after the installation, & start-up the irrigation system the following spring. Repair any damage resulting from improper winterization at no additional cost to the Owner. Coordinate winterization & start-up with Parks Dept.

3.13 MAINTENANCE

1. Upon completion of construction & review by the Owner, maintain irrigation system during the "Maintenance Period". Contractor shall make periodic visits to project & adjust system components to achieve the most appropriate application of water.
2. At the completion of the Contractor's maintenance period, the Owner will be responsible for maintaining system in working order during the remainder of the guarantee/warranty period, for performing necessary minor maintenance, for trimming around sprinklers, for protecting against vandalism, & preventing damage after the landscape maintenance operation.
3. Maintenance includes, in addition to initial start-up, (1) winterization & (1) spring startup the following year after final acceptance of the project. Maintenance includes re-setting of heads twice, as directed, if necessary.

Prepared By: **Wyss Associates, Inc.**
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For: **Public Works Department**

 Engineering Services

Scales: N/A
 Designed By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4
 Surveyed By: SDDOT
 Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
UTILITY RECONSTRUCTION**

| | |
|-------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H2.3 |
| IRRIGATION | of |
| SCHEDULE & NOTES | 22 |

3.14 TRAINING

1. Contractor shall be responsible for the training of as many personnel as the Owner shall deem necessary. Schedule training with City of Rapid City Parks Dept.

3.15 CLEANUP

1. Upon completion of work, remove from the site all machinery, tools, excess materials & rubbish.

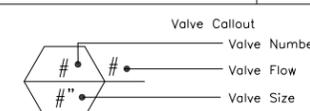
END OF SECTION

IRRIGATION SCHEDULE

| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION | QTY | PSI | DETAIL |
|--|---|------------|-----|---|
|  | Rain Bird 1806-PRS 5 Series MPR Shrub Spray 6" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device. | 10 | 30 |  |
|  | Rain Bird 1806-PRS 15 Strip Series Shrub Spray 6" Pop-Up Sprinkler with Co-Molded Wiper Seal. Side and Bottom Inlet. 1/2" NPT Female Threaded Inlet. With Pressure Regulating Device. | 66 | 30 |  |
| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION | QTY | | DETAIL |
|  | Rain Bird PEB-PRS-D 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration. With Pressure Regulator Module. 24 AC Solenoid. Include Baseline Bi-Coder Decoders. | 6 | |  |
|  | Rain Bird 44-RC 1" Brass Quick-Coupling Valve, with Corrosion-Resistant Stainless Steel Spring, Thermoplastic Rubber Cover, and 2-Piece Body. | 7 | |  |
|  | Watts WGV-X Brass Cross-Handle Gate Valve, 1/2" to 3". They feature brass body construction with NPT female threaded connections, brass non-rising stem and gland, PTFE packing, brass threaded bonnet, solid wedge disc, and cast iron, cross-handle handwheel. Maximum Pressure: 200psi | 5 | |  |
|  | Netafim Photo Diode Register 1-1/2 1-1/2" 1-1/2" Master Valve/Flow Sensor with Water Meter and Hydraulic Valve in a Single Unit. Cast Iron with Baked Powder-Coated Finish, Minimum Working Pressure 14 psi. Male Pipe Thread Connection, Photo Diode Register, High Frequency. | 1 | |  |
|  | Febco 860 1" Reduced Pressure Backflow Preventer, Maintenance Blow-Offs (Quick Couplers) and Water Meter Assembly | 1 | |  |
|  | Toro TS-12-PS1 Toro SBD-PS1-U12 Sentinel Two-Wire Contoller. Remote and Flow Sensor Ready, with ET-based run times. Enclosure: Stainless Steel Pedestal Mount. Provide (1) SHHR Handheld Remote | 1 | |  |
|  | Irrigation Lateral Line: PVC Class 200 SDR 21 PVC Class 200 irrigation pipe. Only lateral transition pipe sizes 1 1/4" and above are indicated on the plan, with all others being 1" in size. | 644.2 l.f. | |  |
|  | Irrigation Mainline: PVC Class 200 SDR 21 PVC Class 200 irrigation pipe. (Include control wire as shown in the trench detail) | 903.4 l.f. | |  |
|  | Irrigation Mainline: HDPE PE4710 DR 9 (250psi) High-Density Polyethylene Irrigation Pipe, heat fusion installation as per manufacturer's recommendation. (include control wire as shown in the trench detail) | 817.2 l.f. | |  |
|  | Pipe Sleeve: HDPE PE4710 DR 11 (200psi) Direct bore fused smooth wall conduit sized 2 times the carrying mainline piping | 718.0 l.f. | | |

REGISTERED LANDSCAPE ARCHITECT
 REG. NO. 4938
 PATRICK H. WYSS
 SOUTH DAKOTA

 12/1/2015



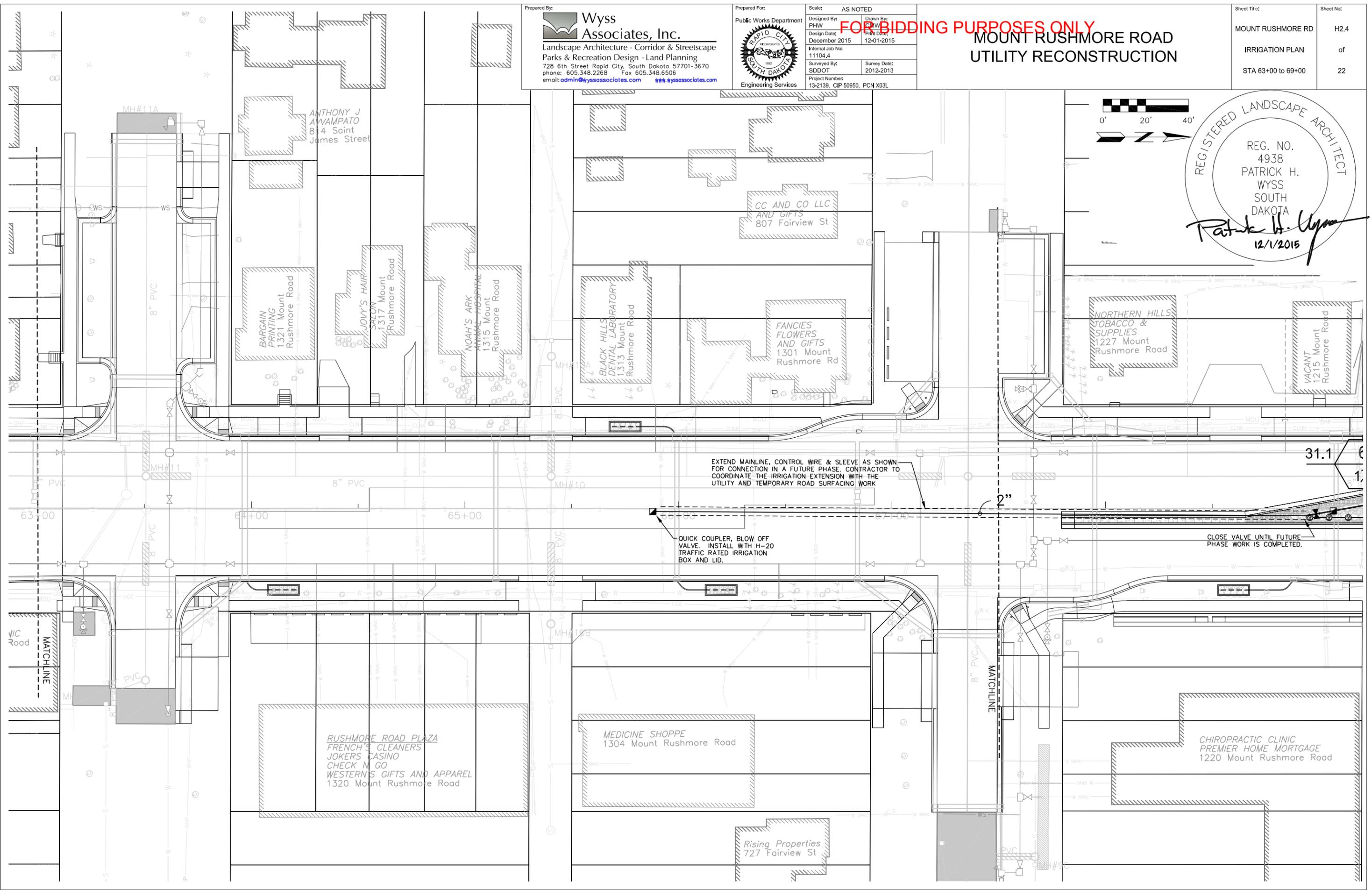
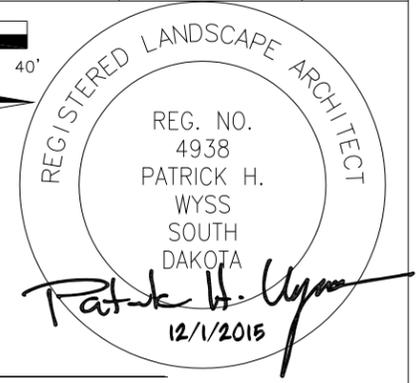
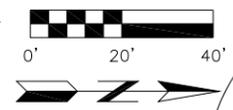
Prepared By: **Wyss Associates, Inc.**
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 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
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FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

| | |
|--------------------|-----------|
| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H2.4 |
| IRRIGATION PLAN | of |
| STA 63+00 to 69+00 | 22 |

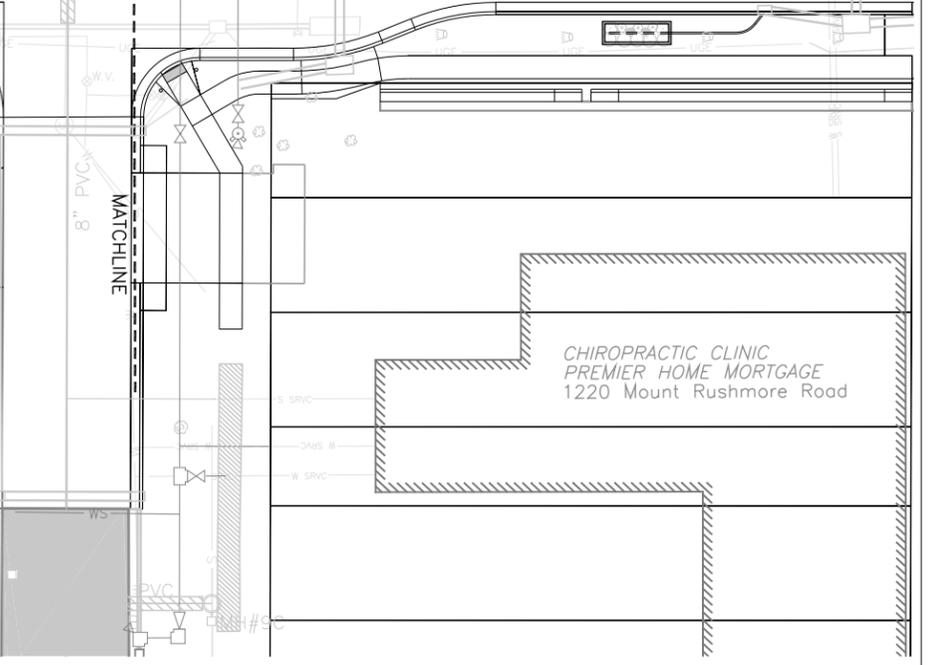
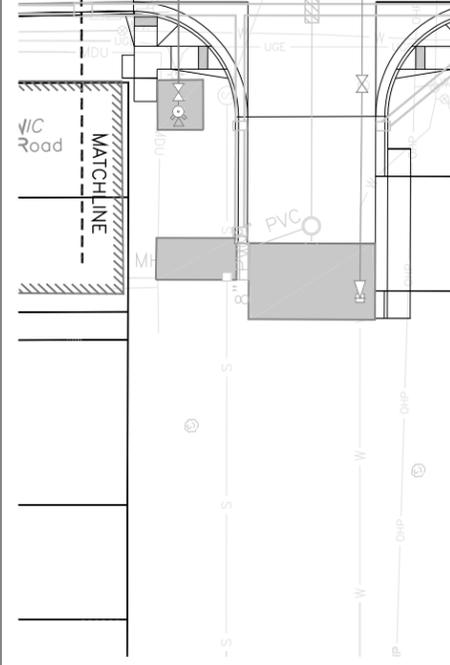


EXTEND MAINLINE, CONTROL WIRE & SLEEVE AS SHOWN FOR CONNECTION IN A FUTURE PHASE. CONTRACTOR TO COORDINATE THE IRRIGATION EXTENSION WITH THE UTILITY AND TEMPORARY ROAD SURFACING WORK

QUICK COUPLER, BLOW OFF VALVE. INSTALL WITH H-20 TRAFFIC RATED IRRIGATION BOX AND LID.

CLOSE VALVE UNTIL FUTURE PHASE WORK IS COMPLETED.

31.1



ANTHONY J AVAMPATO
 814 Saint James Street

BARGAIN PRINTING
 1321 Mount Rushmore Road

JOVY'S HAIR SALON
 1317 Mount Rushmore Road

NOAH'S ARK ANIMAL HOSPITAL
 1315 Mount Rushmore Road

BLACK HILLS DENTAL LABORATORY
 1313 Mount Rushmore Road

CC AND CO LLC AND GIFTS
 807 Fairview St

FANCIES FLOWERS AND GIFTS
 1301 Mount Rushmore Rd

NORTHERN HILLS TOBACCO & SUPPLIES
 1227 Mount Rushmore Road

VACANT
 1215 Mount Rushmore Road

RUSHMORE ROAD PLAZA
 FRENCH'S CLEANERS
 JOKERS CASINO
 CHECK N GO
 WESTERN'S GIFTS AND APPAREL
 1320 Mount Rushmore Road

MEDICINE SHOPPE
 1304 Mount Rushmore Road

CHIROPRACTIC CLINIC
 PREMIER HOME MORTGAGE
 1220 Mount Rushmore Road

Rising Properties
 727 Fairview St

Prepared By:
Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
 Public Works Department
 Rapid City
 South Dakota

Scale: AS NOTED

Designed By: PHW
 Drawn By: PHW
 Design Date: December 2015
 Print Date: 12-01-2015

Internal Job No: 11104.4
 Surveyed By: SDDOT
 Survey Date: 2012-2013

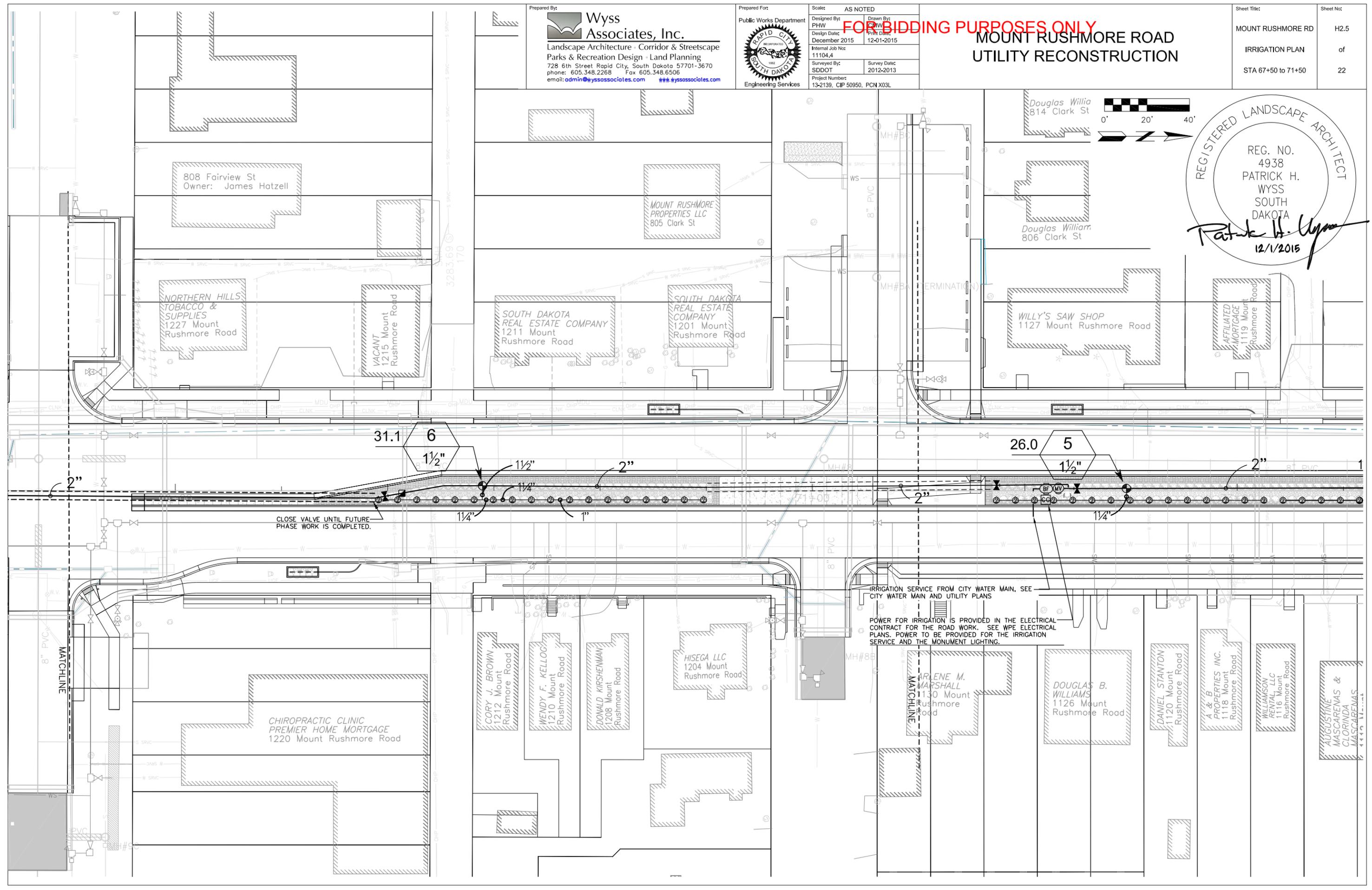
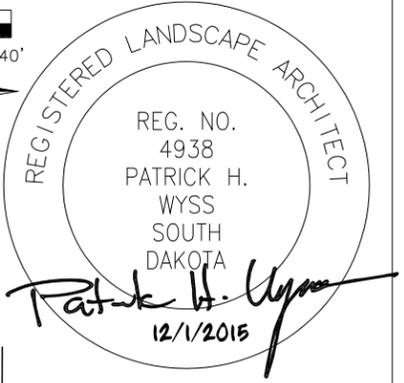
Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

Sheet Title:
 MOUNT RUSHMORE RD
 IRRIGATION PLAN
 STA 67+50 to 71+50

Sheet No:
 H2.5
 of
 22



CLOSE VALVE UNTIL FUTURE PHASE WORK IS COMPLETED.

IRRIGATION SERVICE FROM CITY WATER MAIN, SEE CITY WATER MAIN AND UTILITY PLANS

POWER FOR IRRIGATION IS PROVIDED IN THE ELECTRICAL CONTRACT FOR THE ROAD WORK. SEE WPE ELECTRICAL PLANS. POWER TO BE PROVIDED FOR THE IRRIGATION SERVICE AND THE MONUMENT LIGHTING.

808 Fairview St
 Owner: James Hatzell

MOUNT RUSHMORE PROPERTIES LLC
 805 Clark St

Douglas William
 814 Clark St

Douglas William
 806 Clark St

NORTHERN HILLS TOBACCO & SUPPLIES
 1227 Mount Rushmore Road

VACANT
 1215 Mount Rushmore Road

SOUTH DAKOTA REAL ESTATE COMPANY
 1211 Mount Rushmore Road

SOUTH DAKOTA REAL ESTATE COMPANY
 1201 Mount Rushmore Road

WILLY'S SAW SHOP
 1127 Mount Rushmore Road

AFFILIATED MORTGAGE
 1119 Mount Rushmore Road

CHIROPRACTIC CLINIC
 PREMIER HOME MORTGAGE
 1220 Mount Rushmore Road

CORY J. BROWN
 1212 Mount Rushmore Road

WENDY F. KELLOGG
 1210 Mount Rushmore Road

DONALD KIRSHENMAN
 1208 Mount Rushmore Road

HISEGA LLC
 1204 Mount Rushmore Road

MARLENE M. MARSHALL
 1130 Mount Rushmore Road

DOUGLAS B. WILLIAMS
 1126 Mount Rushmore Road

DANIEL STANTON
 1120 Mount Rushmore Road

A & B PROPERTIES INC.
 1118 Mount Rushmore Road

WILLIAMSON RENTAL, LLC
 1116 Mount Rushmore Road

AUGUSTINE MASCARENAS & CLORINDA MASCARENAS
 1112 Mount Rushmore Road

Prepared By:
Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
 phone: 605.348.2268 Fax 605.348.6506
 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
Rapid City
 Public Works Department
 Engineering Services

Scale: AS NOTED

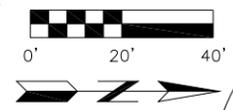
Designed By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4
 Surveyed By: SDDOT
 Project Number: 13-2139, CIP 50950, PCN X03L

Drawn By: PHW
 Print Date: 12-01-2015
 Survey Date: 2012-2013

FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

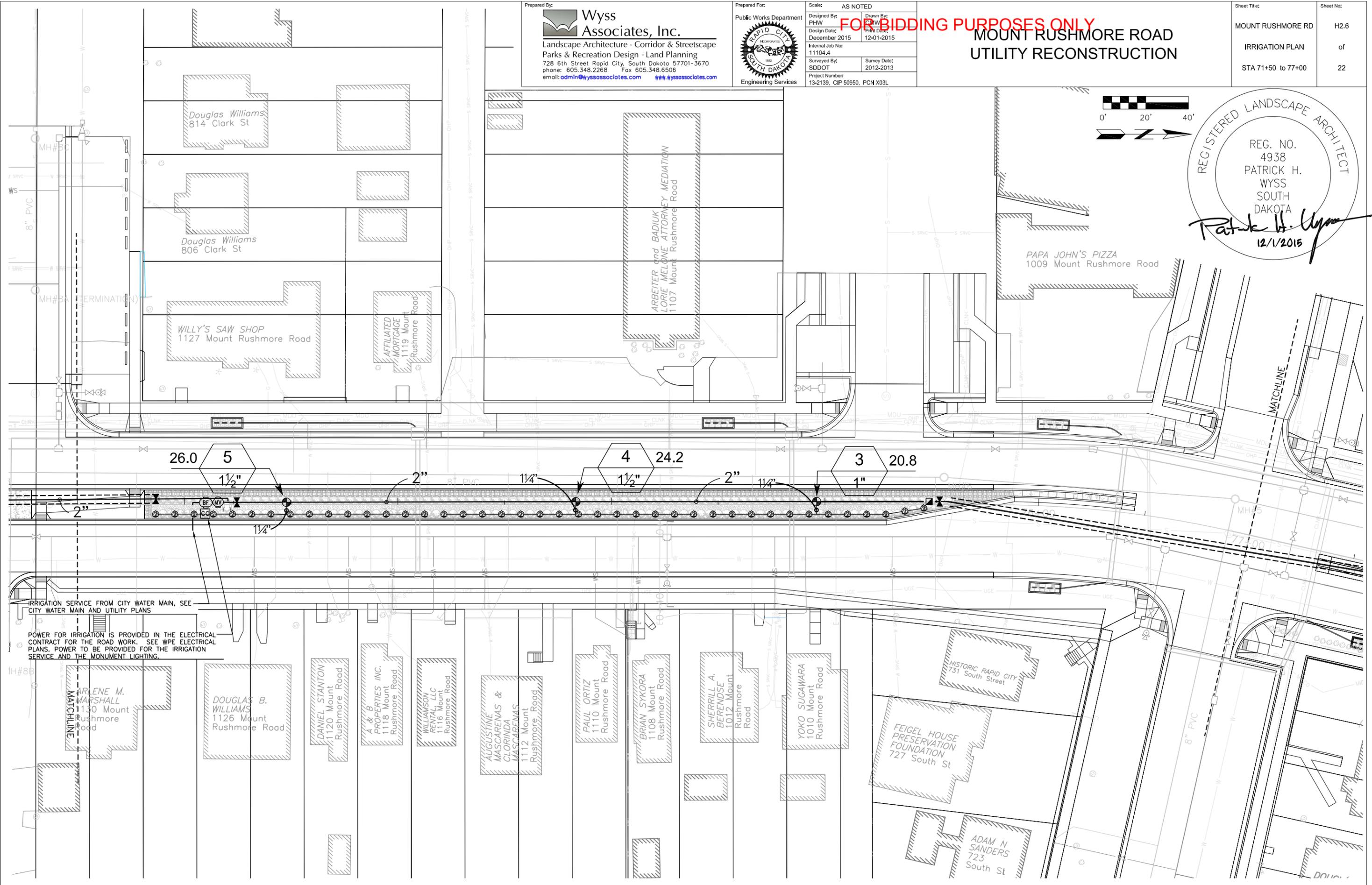
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| Sheet Title: | Sheet No: |
| MOUNT RUSHMORE RD | H2.6 |
| IRRIGATION PLAN | of |
| STA 71+50 to 77+00 | 22 |



REGISTERED LANDSCAPE ARCHITECT

REG. NO.
 4938
 PATRICK H.
 WYSS
 SOUTH
 DAKOTA

Patrick H. Wyss
 12/1/2015



IRRIGATION SERVICE FROM CITY WATER MAIN, SEE CITY WATER MAIN AND UTILITY PLANS

POWER FOR IRRIGATION IS PROVIDED IN THE ELECTRICAL CONTRACT FOR THE ROAD WORK. SEE WPE ELECTRICAL PLANS. POWER TO BE PROVIDED FOR THE IRRIGATION SERVICE AND THE MONUMENT LIGHTING.

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Wyss Associates, Inc.
 Landscape Architecture - Corridor & Streetscape
 Parks & Recreation Design - Land Planning
 728 6th Street Rapid City, South Dakota 57701-3670
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 email: admin@wyssassociates.com www.wyssassociates.com

Prepared For:
 Public Works Department

 Engineering Services

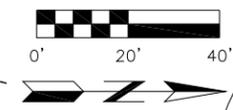
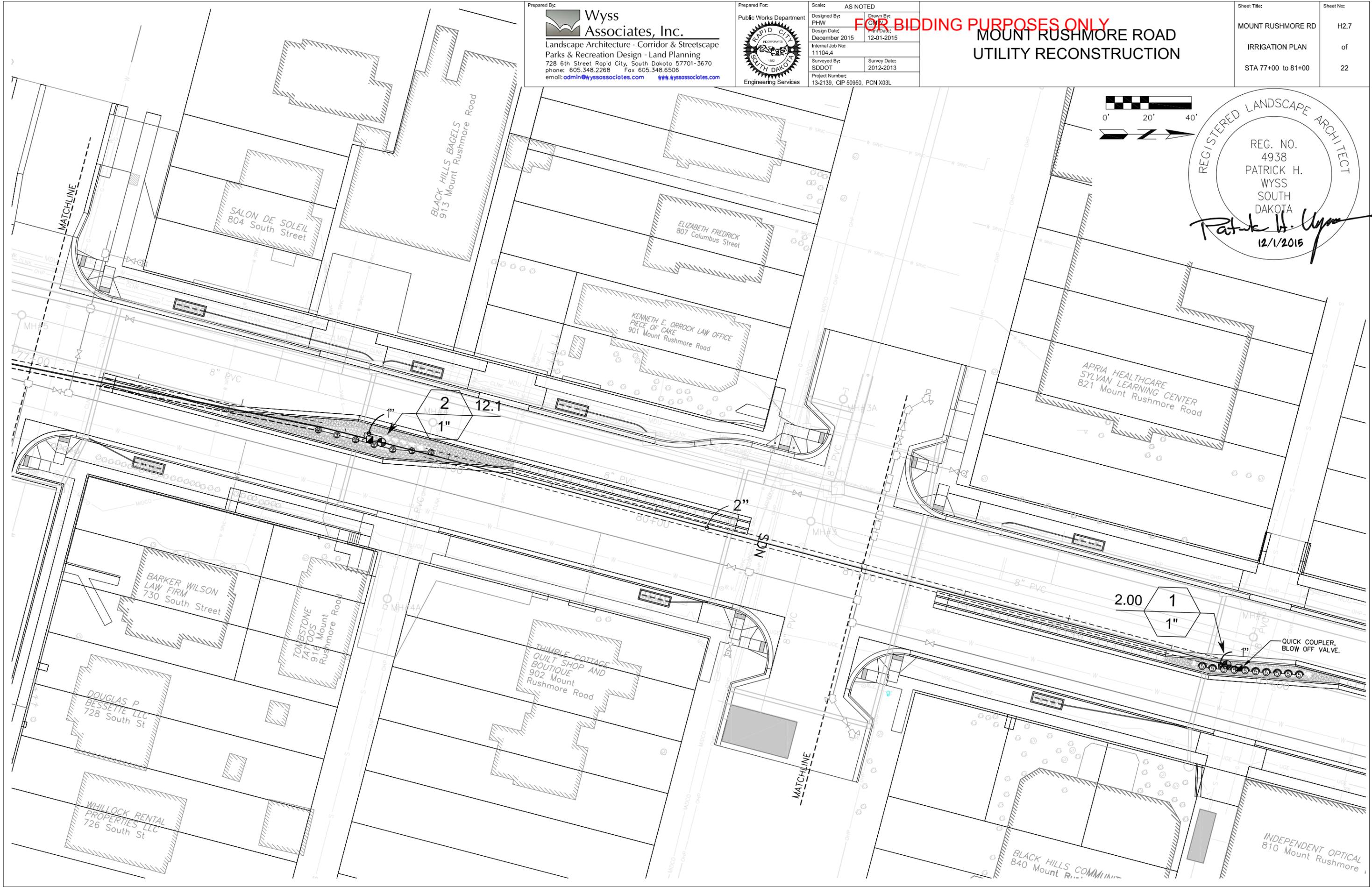
Scales: AS NOTED
 Designed By: PHW
 Design Date: December 2015
 Internal Job No: 11104.4
 Surveyed By: SDDOT
 Project Number: 13-2139, CIP 50950, PCN X03L

FOR BIDDING PURPOSES ONLY

**MOUNT RUSHMORE ROAD
 UTILITY RECONSTRUCTION**

Sheet Title:
 MOUNT RUSHMORE RD
 IRRIGATION PLAN
 STA 77+00 to 81+00

Sheet No:
 H2.7
 of
 22



REGISTERED LANDSCAPE ARCHITECT
 REG. NO. 4938
 PATRICK H. WYSS
 SOUTH DAKOTA
Patrick H. Wyss
 12/1/2015

BARKER WILSON
 LAW FIRM
 730 South Street

TOMBSTONE
 TATTOOS
 918 Mount
 Rushmore Road

THIMBLE COTTAGE
 QUILT SHOP AND
 BOUTIQUE
 902
 Rushmore Road

DOUGLAS P
 BESSETTE LLC
 728 South St

WHILLOCK RENTAL
 PROPERTIES LLC
 726 South St

SALON DE SOLEIL
 804 South Street

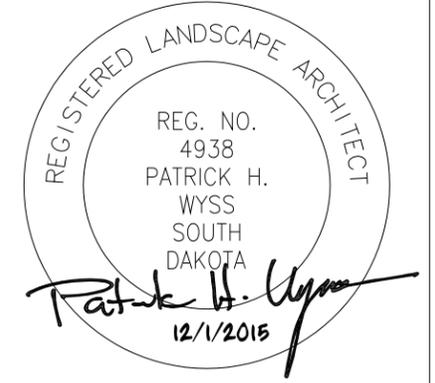
BLACK HILLS BAGELS
 913 Mount Rushmore Road

ELIZABETH FREDRICK
 807 Columbus Street

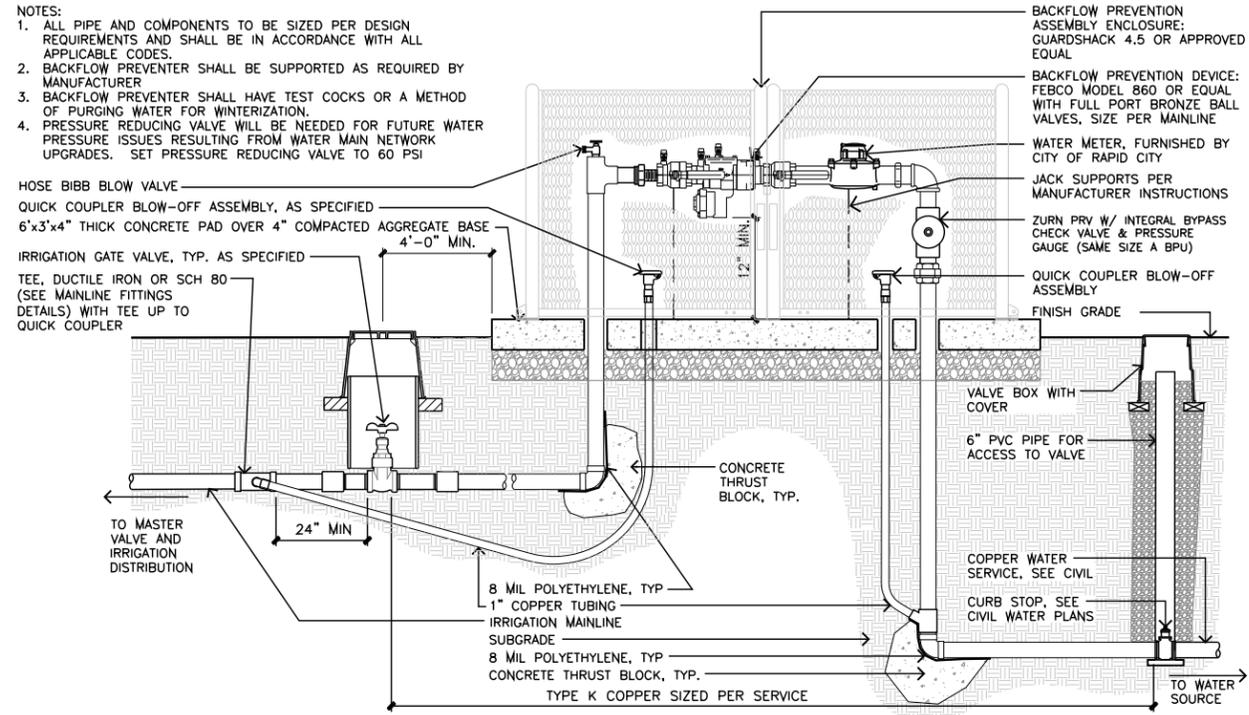
KENNETH E. ORROCK LAW OFFICE
 PIECE OF CAKE
 901 Mount Rushmore Road

APRIA HEALTHCARE
 SYLVAN LEARNING CENTER
 821 Mount Rushmore Road

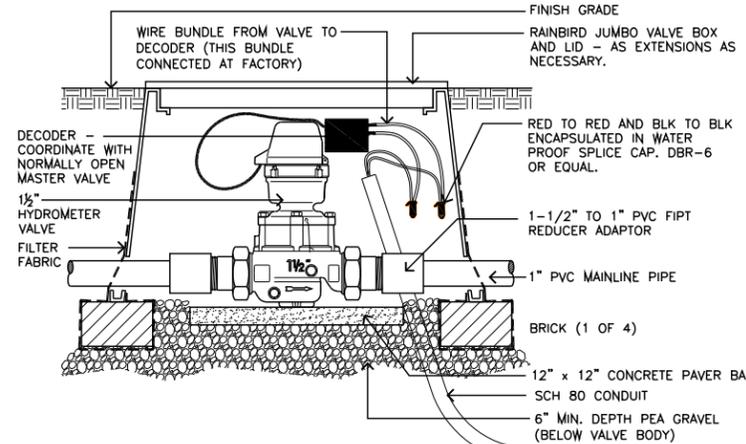
INDEPENDENT OPTICAL
 810 Mount Rushmore



- NOTES:
 1. ALL PIPE AND COMPONENTS TO BE SIZED PER DESIGN REQUIREMENTS AND SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES.
 2. BACKFLOW PREVENTER SHALL BE SUPPORTED AS REQUIRED BY MANUFACTURER.
 3. BACKFLOW PREVENTER SHALL HAVE TEST COCKS OR A METHOD OF PURGING WATER FOR WINTERIZATION.
 4. PRESSURE REDUCING VALVE WILL BE NEEDED FOR FUTURE WATER PRESSURE ISSUES RESULTING FROM WATER MAIN NETWORK UPGRADES. SET PRESSURE REDUCING VALVE TO 60 PSI

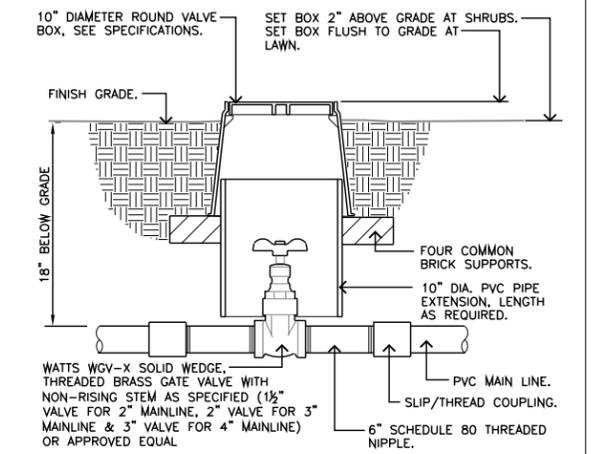


1 SECTION: WATER SERVICE & METER ASSEMBLY TO BACKFLOW ENCLOSURE
 H2.8 SCALE: 1" = 1'-0"



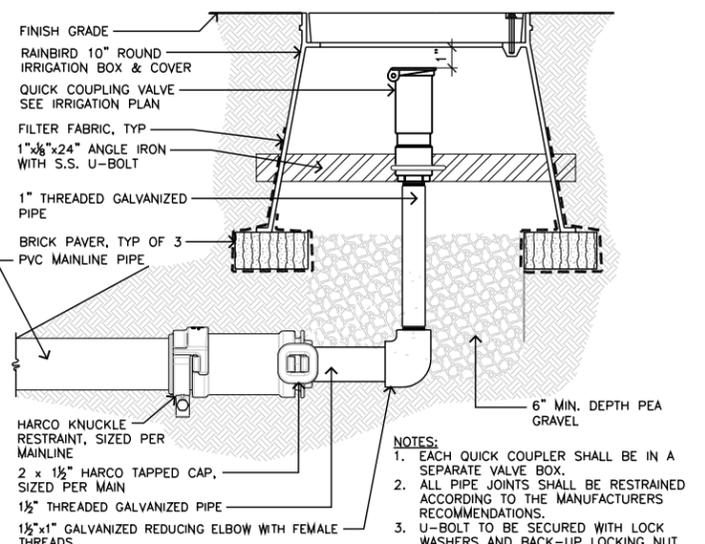
- NOTES:
 1. MAINTAIN 2" MIN. - 4" MAX. DISTANCE BETWEEN TOP OF CONTROL VALVE AND BOTTOM OF BOX LID
 2. INSTALL FILTER FABRIC AT EXTERIOR OF VALVE BOX. USE DUCT TAPE TO SECURE FABRIC TO PIPE & VALVE BOX.
 3. NO STRAIGHT PIPE UPSTREAM OR DOWNSTREAM OF THE HYDROMETER IS REQUIRED.
 4. INSTALL ISOLATION VALVE UPSTREAM OF HYDROMETER (SEE PLAN)
 5. WIRES FROM THE DECODER TO THE VALVE REGISTER ARE CONNECTED AT THE FACTORY AND ARE SHIPPED WITH THE VALVE.

2 DETAIL: IRRIGATION MASTER VALVE & FLOW METER INSTALLATION
 H2.8 SCALE: 3" = 1'-0"

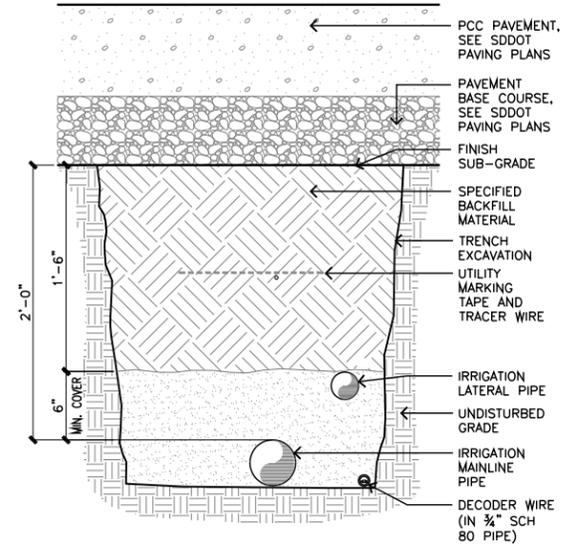


- NOTES:
 1. WATTS WGV-X SOLID WEDGE, THREADED BRASS GATE VALVE WITH NON-RISING STEM AS SPECIFIED (1 1/2" VALVE FOR 2" MAINLINE, 2" VALVE FOR 3" MAINLINE & 3" VALVE FOR 4" MAINLINE) OR APPROVED EQUAL
 2. SET BOX 2" ABOVE GRADE AT SHRUBS. SET BOX FLUSH TO GRADE AT LAWN.

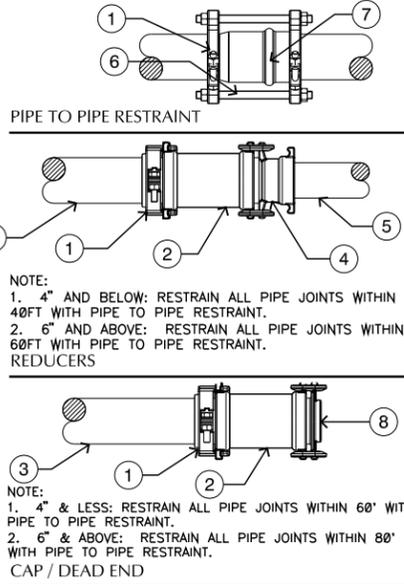
3 DETAIL: MANUAL BRONZE GATE VALVE
 H2.8 SCALE: 1 1/2" = 1'-0"



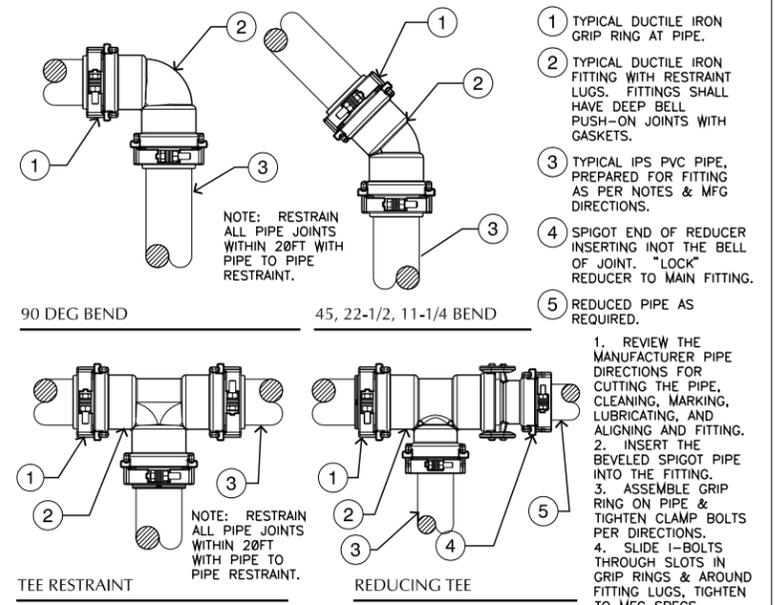
4 DETAIL: IRRIGATION MAINLINE BLOWOUT ASSEMBLY
 H2.8 SCALE: 3" = 1'-0"



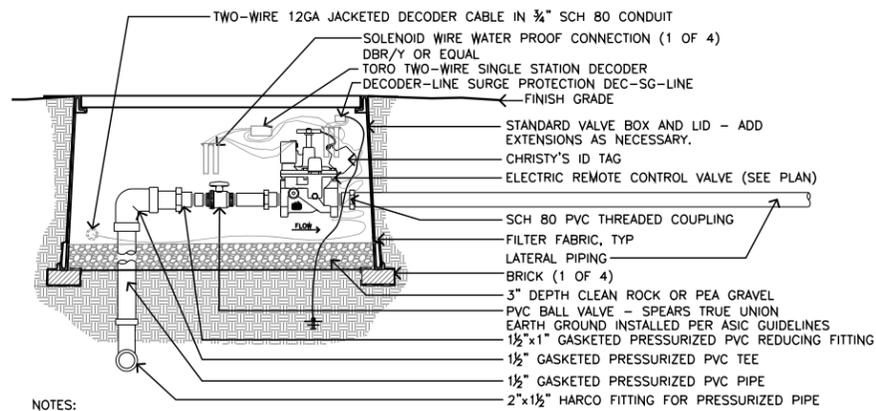
5 DETAIL: IRRIGATION TRENCHING
 H2.8 SCALE: 1 1/2" = 1'-0"



6 DETAIL: HARCO PIPE TO PIPE JT. RESTRAINT SYSTEM
 H2.8 SCALE: 1 1/2" = 1'-0"

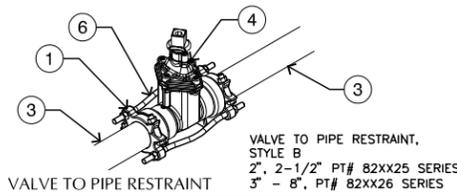


7 DETAIL: HARCO FITTING TO PIPE JOINT RESTRAINTS
 H2.8 SCALE: 1 1/2" = 1'-0"

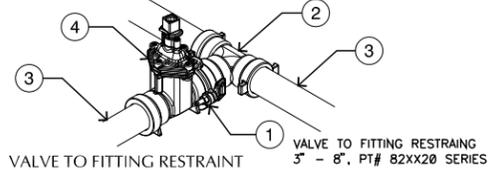
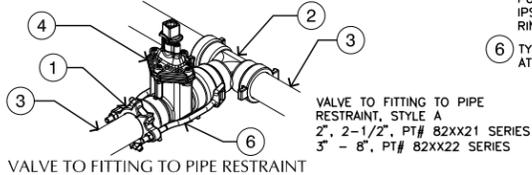


- NOTES:
1. INSTALL VALVE ID TAG WITH CONTROLLER IDENTIFICATION AND STATION NUMBER.
 2. MAINTAIN 2" MIN. - 4" MAX. DISTANCE BETWEEN TOP OF CONTROL VALVE AND BOTTOM OF BOX LID
 3. INSTALL DC LATCHING SOLENOIDS W/ DC CONTROLLERS.
 4. INSTALL FILTER FABRIC AROUND EXTERIOR OF VALVE BOX. USE DUCT TAPE TO SECURE FABRIC TO PIPE & VALVE BOX.
 5. ALL DECODER WIRE TO BE PLACED IN CONDUIT BETWEEN CONNECTIONS AND VALVES
 6. PROVIDE 18" MIN. SLACK WIRE COIL AT EACH CONDUIT TRANSITION AT ALL VALVE BOXES AND SPLICES.

1 **DETAIL: IRRIGATION REMOTE CONTROL VALVE**
SCALE: 1 1/2" = 1'-0"

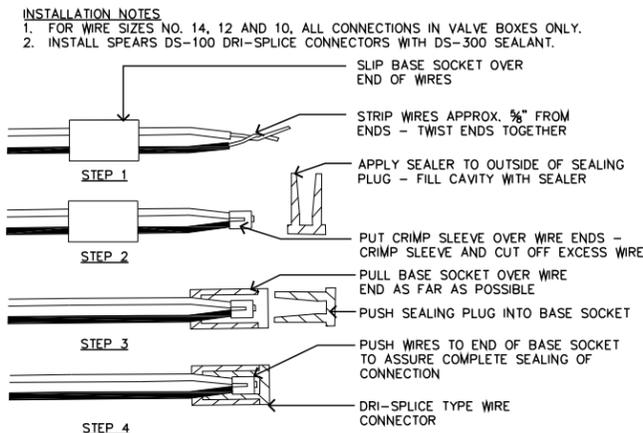


- 1 TYPICAL DUCTILE IRON GRIP RING AT PIPE.
- 2 TYPICAL DUCTILE IRON FITTING WITH RESTRAINT LUGS. FITTINGS SHALL HAVE DEEP BELL PUSH-ON JOINTS WITH GASKETS.
- 3 TYPICAL IPS PVC PIPE, PREPARED FOR FITTING AS PER NOTES AND MFG DIRECTIONS.
- 4 DUCTILE IRON ISOLATION VALVE, PUSH-ON TYPE FOR USE WITH IPS PVC PIPE, WITH RESTRAINING RINGS.
- 6 TYPICAL RESTRAINT BOLT ATTACHED TO EACH GRIP RING.

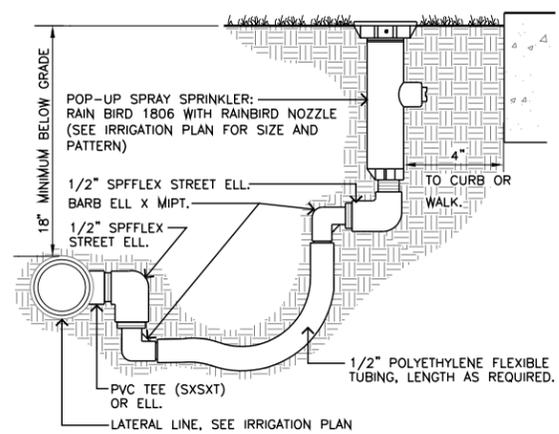


1. HARCO FITTINGS JOINT RESTRAINTS, PH (434) 845-7094. REVIEW THE MANUFACTURER PIPE PREPARATION DIRECTIONS FOR CUTTING THE PIPE, CLEANING, MARKING, LUBRICATING, AND ALIGNING AND FITTING.

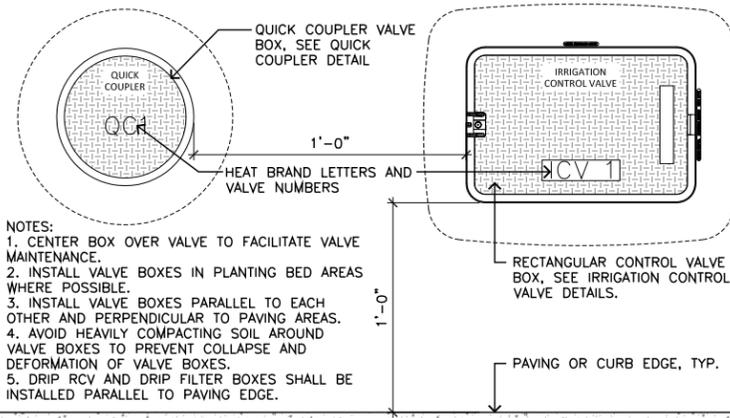
2 **DETAIL: HARCO VALVE TO FITTING RESTRAINT SYSTEM**
SCALE: 1 1/2" = 1'-0"



7 **DETAIL: TYPICAL WIRE CONNECTIONS**
SCALE: 1 1/2" = 1'-0"

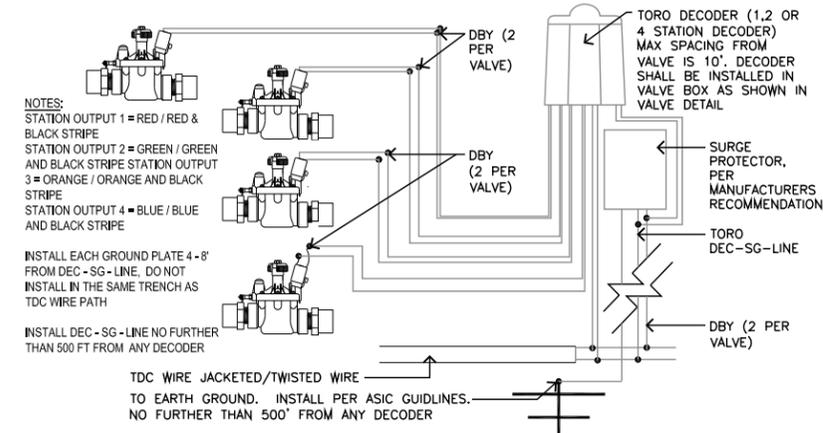


3 **1806 POP-UP SPRAY SPRINKLER**
SCALE: 3" = 1'-0"



- NOTES:
1. CENTER BOX OVER VALVE TO FACILITATE VALVE MAINTENANCE.
 2. INSTALL VALVE BOXES IN PLANTING BED AREAS WHERE POSSIBLE.
 3. INSTALL VALVE BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO PAVING AREAS.
 4. AVOID HEAVILY COMPACTING SOIL AROUND VALVE BOXES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOXES.
 5. DRIP RCV AND DRIP FILTER BOXES SHALL BE INSTALLED PARALLEL TO PAVING EDGE.

5 **PLAN: IRRIGATION VALVE BOXES**
SCALE: 3" = 1'-0"



8 **DETAIL: TORO DECODER LAYOUT**
SCALE: 1" = 1'-0"

Prepared By: **Wyss Associates, Inc.**
Landscape Architecture - Corridor & Streetscape
Parks & Recreation Design - Land Planning
728 8th Street Rapid City, South Dakota 57701-3670
phone: 605.348.2268 Fax 605.348.6506
email: admin@wyssassociates.com www.wyssassociates.com

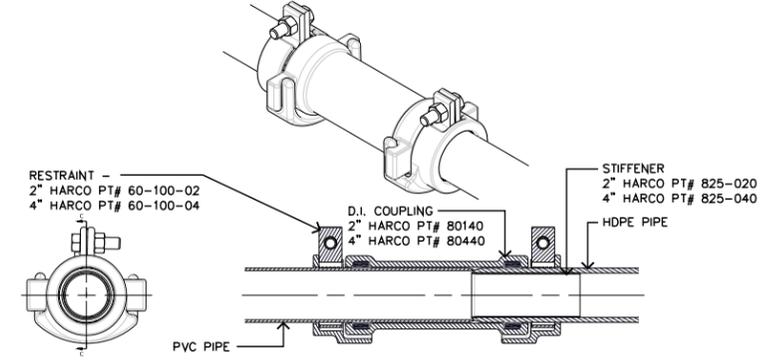
Prepared For: **Public Works Department**
Scales: AS NOTED
Designed By: PHW
Design Date: December 2015
Internal Job No: 11104.4
Surveyed By: SDDOT
Project Number: 13-2139, CIP 50950, PCN X03L

Drawn By: [Signature]
Date: 12-01-2015

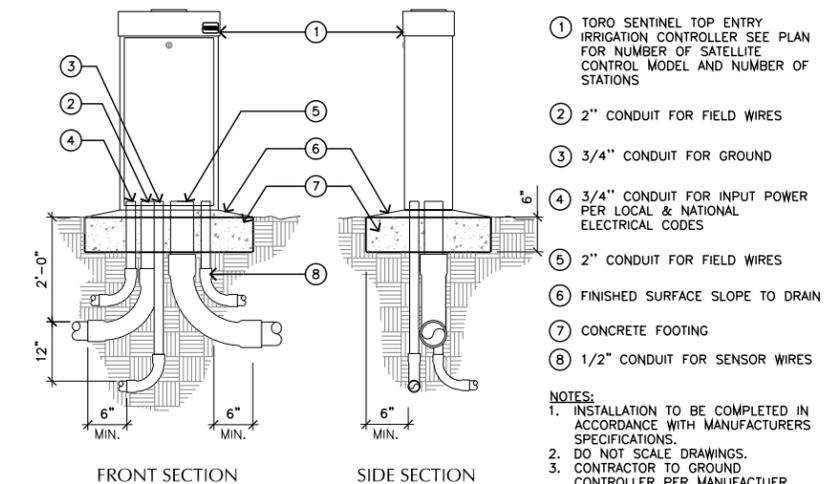
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MOUNT RUSHMORE ROAD
UTILITY RECONSTRUCTION

| | | | |
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| Sheet Title: | Mount Rushmore Rd | Sheet No: | H2.9 |
| | IRRIGATION DETAILS | of | 22 |

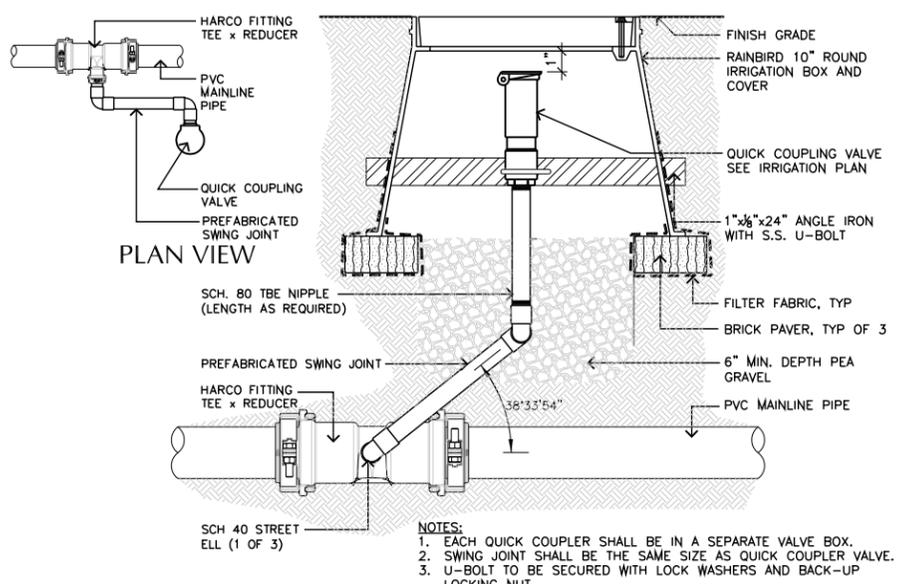
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REG. NO. 4938
PATRICK H. WYSS
SOUTH DAKOTA
12/1/2015



4 **DETAIL: 2" & 4" PVC TO HDPE TRANSITION FOR PRESSURIZED PIPE**
SCALE: 3" = 1'-0"



6 **DETAILS: TORO IRRIGATION CONTROLLER**
SCALE: 3/4" = 1'-0"



9 **DETAIL: QUICK COUPLER**
SCALE: 3" = 1'-0"

