

**James V. Fitzgerald ASBS Pollution Reduction Program
Upland BMPs: LID Projects
Approved by Selection Committee June 9, 2014**

LID Site #4 – Cooperator ID #: 202.0619.01

Site Information:

This 1 acre property contains a house and garage that drain to Dean Creek (aka Sunshine Valley Creek) near the drainage divide with Montara Creek. This property has a long gravel driveway and stormwater erodes the driveway and runs across the road and into the downhill neighbor's property.

Integrated Project BMPs:

- Install two batteries of three 205 gallon storage tanks to capture and store rainwater from asphalt garage roof (1,720 square feet)
- Construct a 13 x 40 foot rain garden to filter and infiltrate water from storage tanks
- Conduct earthwork to direct flow away from driveway to an underground drain leading to a vegetated swale
- Construct a 150 foot long vegetated swale to capture stormwater from the property and driveway and to reduce erosion
- Install two concrete masonry block overflow weirs at the end of the vegetated swale to sufficiently spread water before it enters the roadside ditch in order to avoid erosion of the ditch bank

Treatment Description:

Roof runoff is directed through new gutters and downspouts to two separate sets of rainwater storage tanks. Overflow from these two tank sets is outlet into a rain garden. The rain garden provides infiltration as primary treatment and will overflow into a drain pipe in the case of a large storm event. The drain pipe collects water from the driveway and outlets to a treatment swale. Treatment swale outlets at property line over two concrete weir spreader beams to reduce concentrated flow and reduce erosion. Irrigation risers allow the tanks to be drained manually or for the stored water to be used for irrigation.

**Stormwater Capture/Treatment:
Rain Garden/Tank/Swale System: 86%**

PROJECT 202.0619.01

WATER QUALITY IMPROVEMENT PLAN

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH FINAL DESIGN DRAWINGS AND ATTACHED SPECIFICATIONS: 03 30 10 CONCRETE, 07 65 00 GUTTERS AND DOWNSPOUTS, 31 00 10 FINE GRADING, 32 30 20 GRAVEL EROSION PROTECTION, 32 30 40 VEGETATED SWALE, 32 30 60 RAIN GARDEN, 33 40 00 STORM DRAINAGE UTILITIES, 33 40 10 RAINWATER CATCHMENT.
2. SAN MATEO RESOURCE CONSERVATION DISTRICT SHALL BE RESPONSIBLE FOR OBTAINING ANY NEEDED PERMITS, EASEMENTS, AND/OR RIGHT-OF-WAYS, AND MEETING ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES AND SHALL CALL NORTHERN CALIFORNIA UNDERGROUND SERVICE ALERT AT '811' AT LEAST 3 DAYS PRIOR TO START OF CONSTRUCTION. SPECIAL SAFETY PRECAUTIONS SHALL BE TAKEN WHEN WORKING IN THE VICINITY OF GAS, OIL, AND ELECTRICAL LINES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING LOCATIONS OF TEMPORARY ACCESS, STAGING AREAS, AND OTHER FACILITIES TO PRECONSTRUCTION CONDITION. DISTURBANCE OF EXISTING STRUCTURES AND VEGETATION MUST BE AVOIDED OR MINIMIZED TO THE FULLEST POSSIBLE EXTENT.
5. LANDOWNER SHALL BE RESPONSIBLE FOR THE SUCCESSFUL ESTABLISHMENT AND MAINTENANCE OF VEGETATION PRACTICES.
6. CONTRACTOR SHALL ENSURE THAT THE USE AND/OR STORAGE OF PETROLEUM POWERED EQUIPMENT SHALL BE ACCOMPLISHED IN A MANNER TO PREVENT THE POTENTIAL RELEASE OF PETROLEUM MATERIALS INTO WATERS OF THE STATE.
7. CAL-OSHA SAFETY REQUIREMENTS SHALL BE IN EFFECT DURING ALL CONSTRUCTION.
8. CONTACT THE SAN MATEO RESOURCE CONSERVATION DISTRICT AT LEAST 7 DAYS PRIOR TO START OF CONSTRUCTION. PHONE: (650) 726-4660.

AS-BUILT NOTES

1. THIS AS-BUILT PLAN REPRESENTS THE STATUS OF THE PROJECT AS INSTALLED IN THE FIELD. IT IS NOT A CERTIFICATION OF THE COMPLETENESS OF THE WORK OR THE CONSISTENCY OF THE WORK WITH THE ORIGINAL DESIGN DOCUMENTS. IN SOME CASES DEVIATIONS FROM THE ORIGINAL DESIGN DOCUMENTS MAY LEAD TO OPERATIONS OR MAINTENANCE ISSUES. THE ENGINEER ACCEPTS NO LIABILITY FOR FAILURES OR PROBLEMS ARISING FROM DEVIATIONS FROM THE ORIGINAL DESIGN DOCUMENTS.

SHEET INDEX

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6. CONSTRUCTION DETAILS

VICINITY MAP

NOT TO SCALE

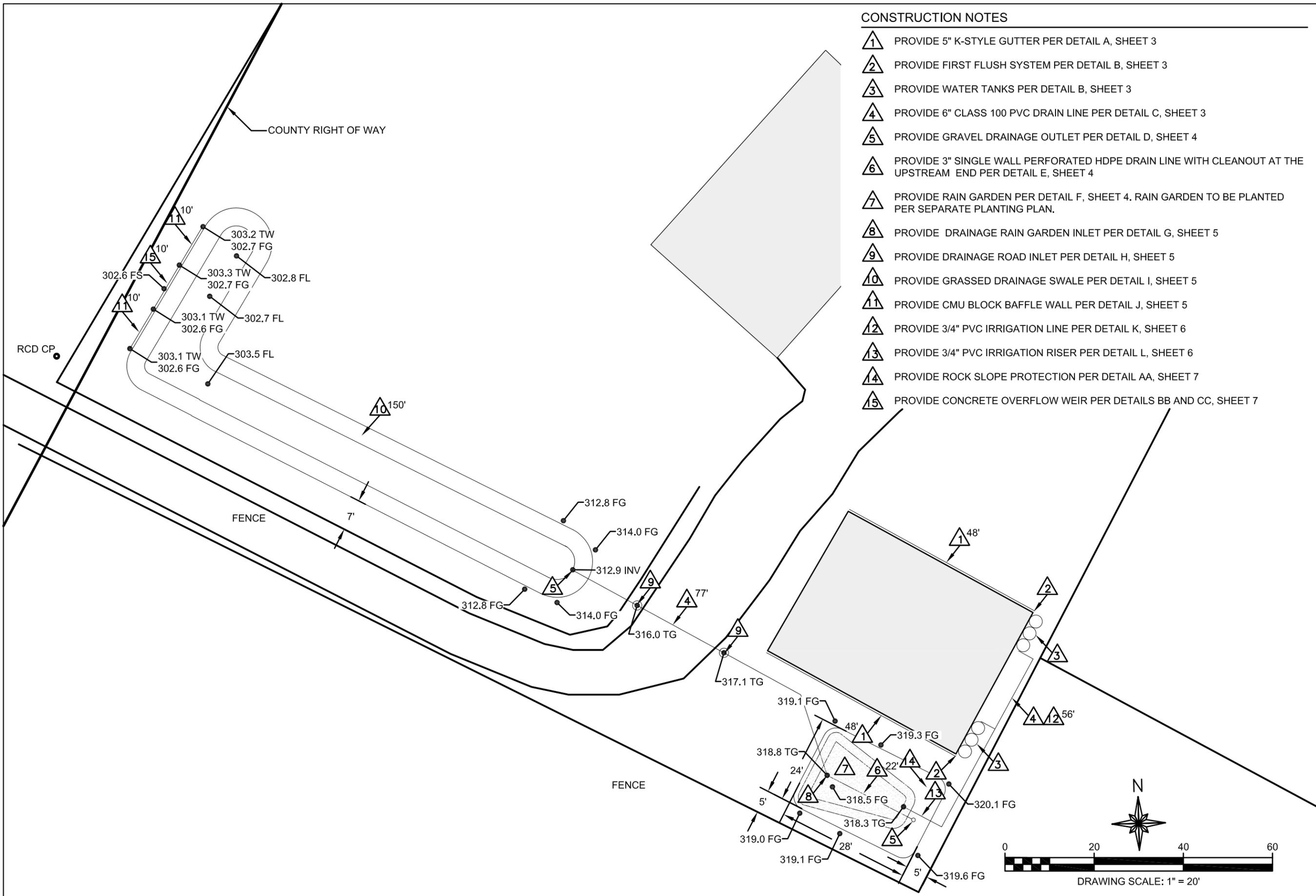


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 DESIGNED BY:
 APPROVED BY:

PROJECT 202.0619.01
 TITLE SHEET & GENERAL NOTES

PLAN DATE
2/26/16

SHEET
01 OF 06



CONSTRUCTION NOTES

- 1 PROVIDE 5" K-STYLE GUTTER PER DETAIL A, SHEET 3
- 2 PROVIDE FIRST FLUSH SYSTEM PER DETAIL B, SHEET 3
- 3 PROVIDE WATER TANKS PER DETAIL B, SHEET 3
- 4 PROVIDE 6" CLASS 100 PVC DRAIN LINE PER DETAIL C, SHEET 3
- 5 PROVIDE GRAVEL DRAINAGE OUTLET PER DETAIL D, SHEET 4
- 6 PROVIDE 3" SINGLE WALL PERFORATED HDPE DRAIN LINE WITH CLEANOUT AT THE UPSTREAM END PER DETAIL E, SHEET 4
- 7 PROVIDE RAIN GARDEN PER DETAIL F, SHEET 4. RAIN GARDEN TO BE PLANTED PER SEPARATE PLANTING PLAN.
- 8 PROVIDE DRAINAGE RAIN GARDEN INLET PER DETAIL G, SHEET 5
- 9 PROVIDE DRAINAGE ROAD INLET PER DETAIL H, SHEET 5
- 10 PROVIDE GRASSED DRAINAGE SWALE PER DETAIL I, SHEET 5
- 11 PROVIDE CMU BLOCK BAFFLE WALL PER DETAIL J, SHEET 5
- 12 PROVIDE 3/4" PVC IRRIGATION LINE PER DETAIL K, SHEET 6
- 13 PROVIDE 3/4" PVC IRRIGATION RISER PER DETAIL L, SHEET 6
- 14 PROVIDE ROCK SLOPE PROTECTION PER DETAIL AA, SHEET 7
- 15 PROVIDE CONCRETE OVERFLOW WEIR PER DETAILS BB AND CC, SHEET 7

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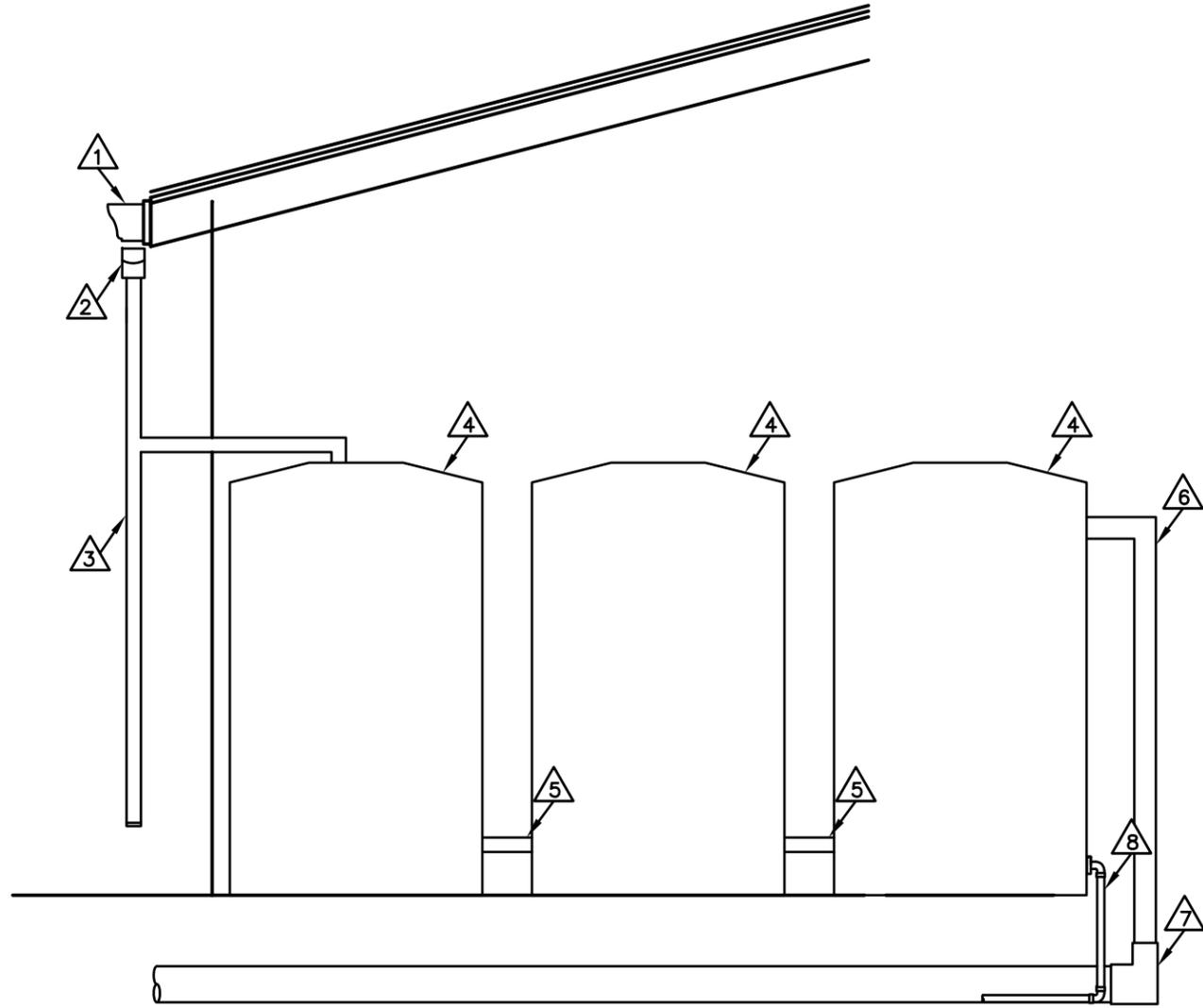
PROJECT 202.0619.01
 LAYOUT PLAN

PLAN DATE
 2/26/16
 SHEET
 02 OF 06

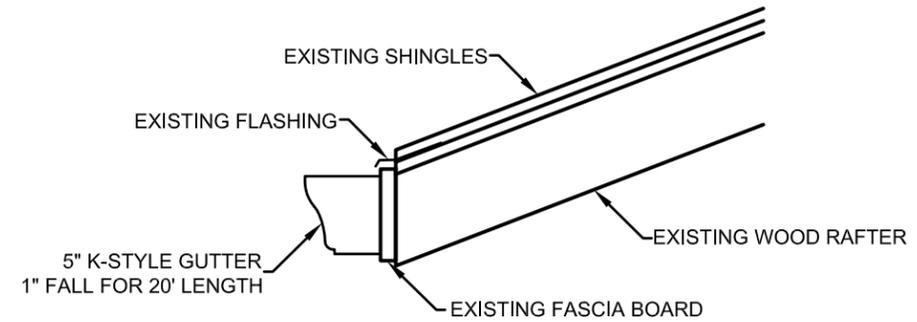
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PROJECT 202.0619.01
 CONSTRUCTION DETAILS

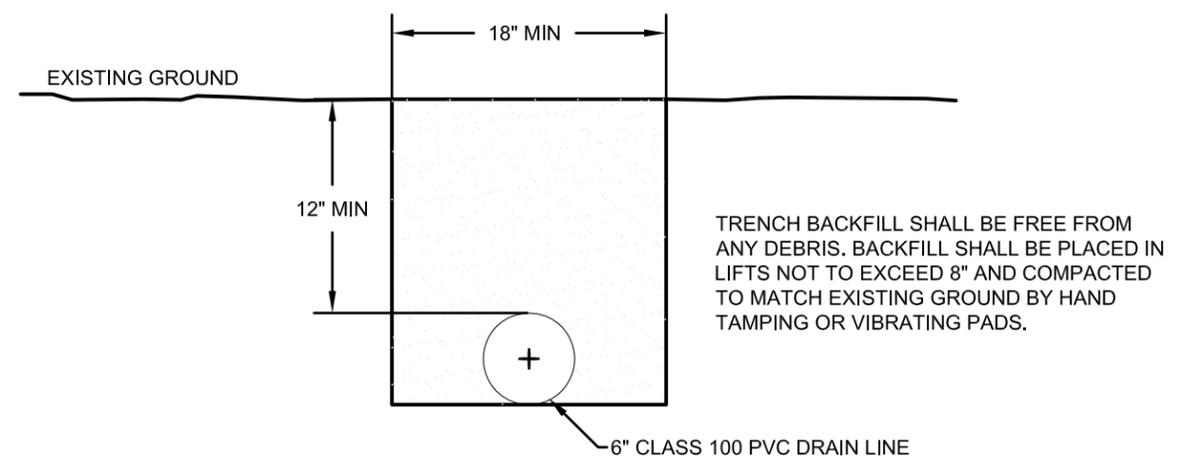
PLAN DATE
 2/26/16
 SHEET
 03 OF 06



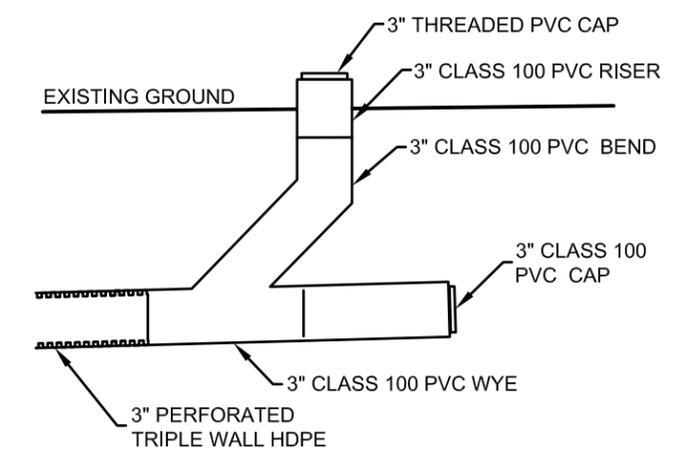
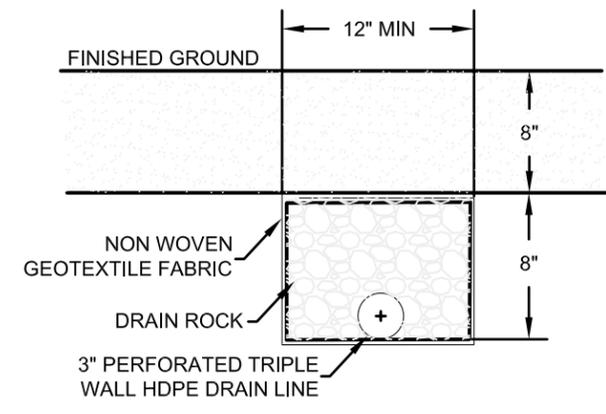
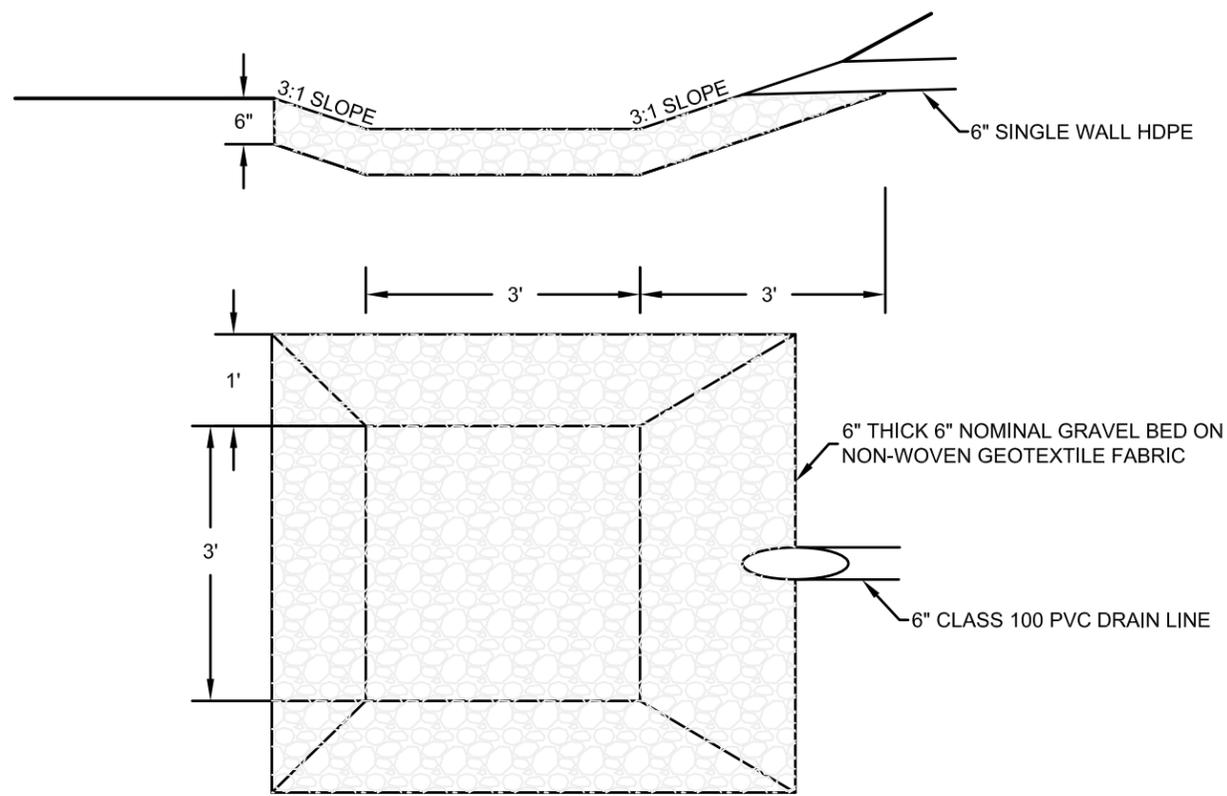
- 1 PROPOSED 5" K-STYLE GUTTER
- 2 PROVIDE 2" SQUARE GUTTER OUTLET WITH SLOPED SCREEN INLET
- 3 PROVIDE BUSHMAN FIRST FLUSH SYSTEM OR APPROVED EQUAL
- 4 PROVIDE BUSHMAN 205 GALLON TANK OR APPROVED EQUAL
- 5 PROVIDE 1" CONNECTION PIPELINE
- 6 PROVIDE 3" OVERFLOW PIPELINE
- 7 PROVIDE 3"x5" PVC BEND
- 8 PROVIDE 3/4" IRRIGATION PIPELINE



SCALE	TYPICAL GUTTER DETAIL	DETAIL A
1" = 1'		SHEET 2



SCALE	WATER STORAGE TANK DETAIL	DETAIL B	SCALE	TYPICAL DRAIN PIPE SECTION	DETAIL C
NTS		SHEET 2	1" = 1'		SHEET 2



SCALE
1" = 1'

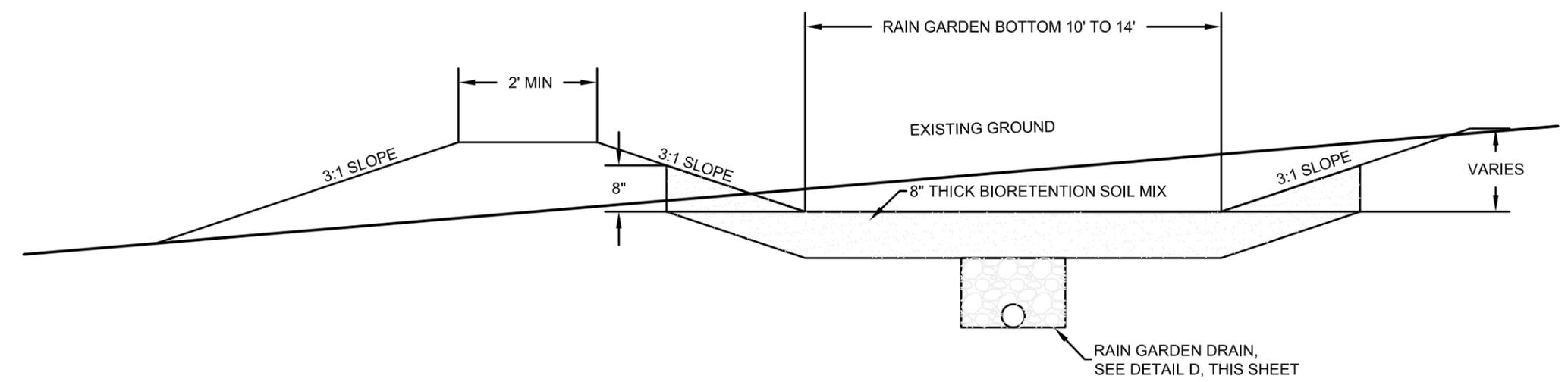
GRAVEL DRAIN OUTLET DETAIL

DETAIL D
SHEET 2

SCALE
1" = 1'

PERFORATED DRAIN LINE TYPICAL TRENCH SECTION

DETAIL E
SHEET 2



SCALE
1" = 2'

TYPICAL RAIN GARDEN DETAIL

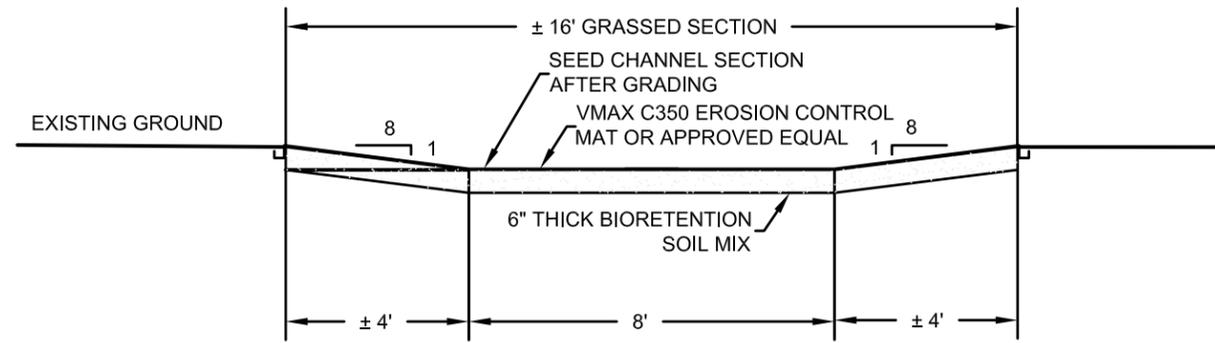
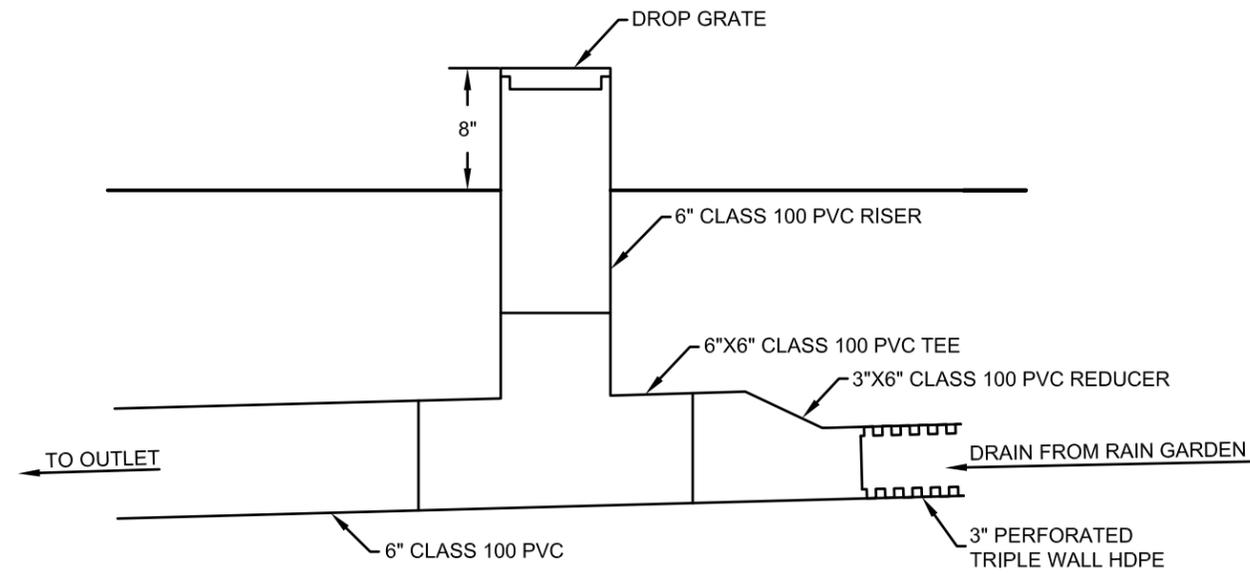
DETAIL F
SHEET 2

AS-BUILT

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CONSTRUCTION DETAILS

PLAN DATE
2/26/16
SHEET
04 OF 06



SCALE
1" = 1'

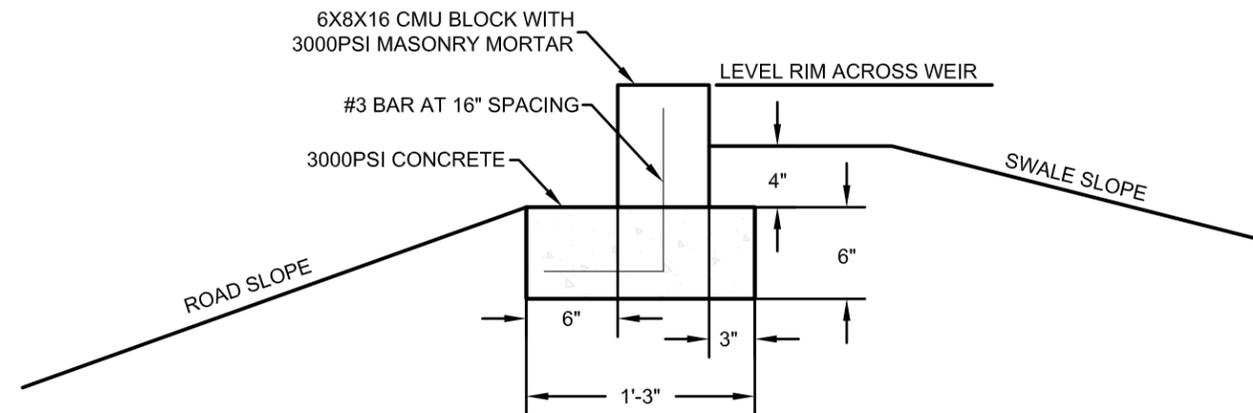
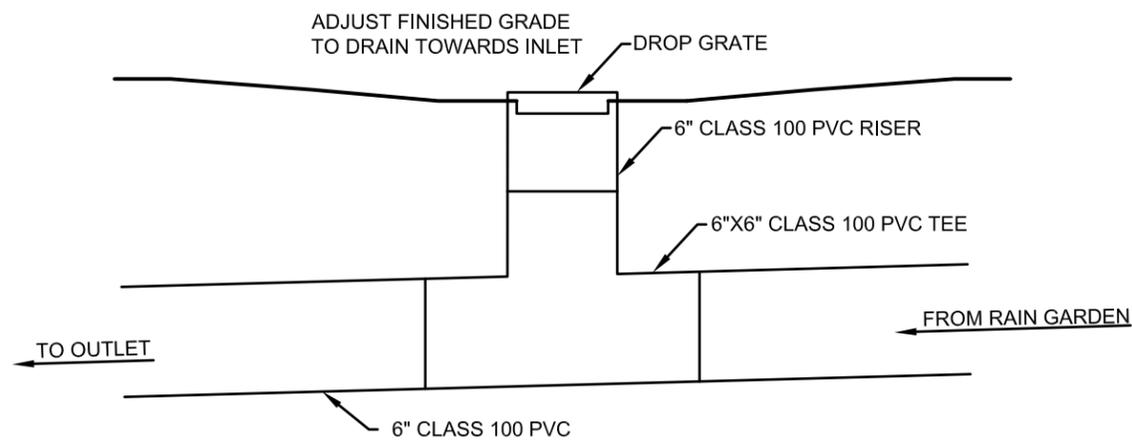
DRAINAGE RAIN GARDEN INLET DETAIL

DETAIL G
SHEET 2

SCALE
1" = 4'

TYPICAL DRAINAGE SWALE DETAIL

DETAIL I
SHEET 2



SCALE
1" = 1'

DRAINAGE ROAD INLET DETAIL

DETAIL H
SHEET 2

SCALE
1" = 1'

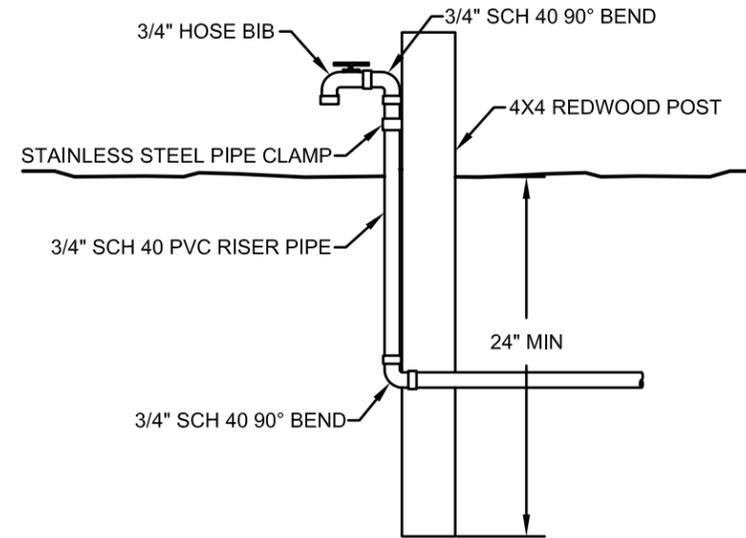
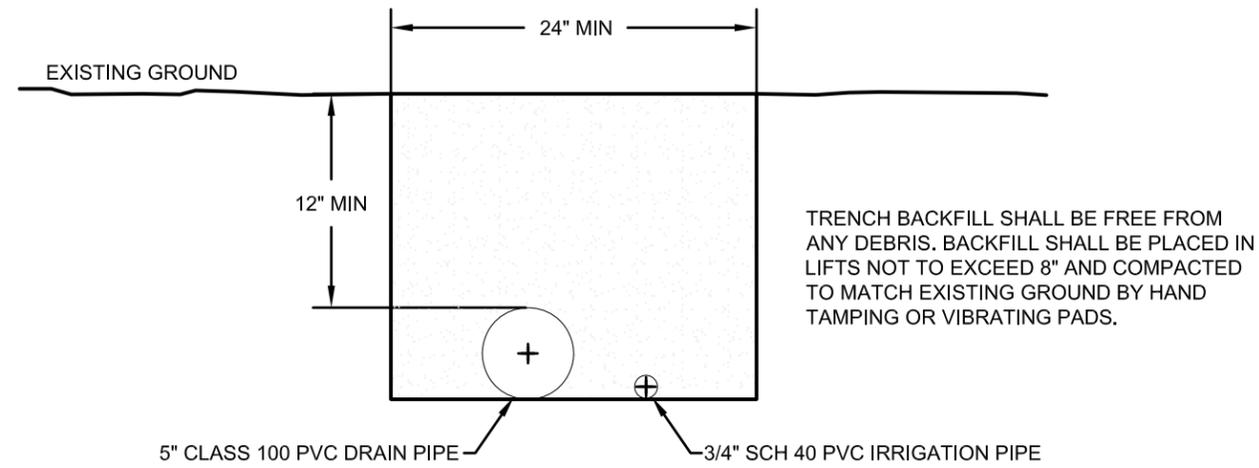
CONCRETE MASONRY UNIT BAFFLE WALL DETAIL

DETAIL J
SHEET 2

DRAWN BY: _____
 DESIGNED BY: _____
 APPROVED BY: _____

PROJECT 202.0619.01
 CONSTRUCTION DETAILS

PLAN DATE
2/26/16
 SHEET
05 OF 06



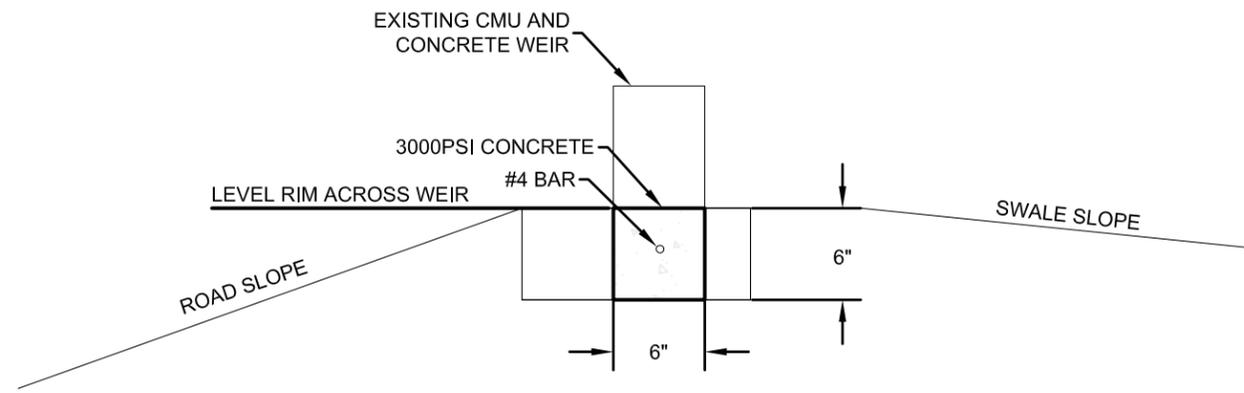
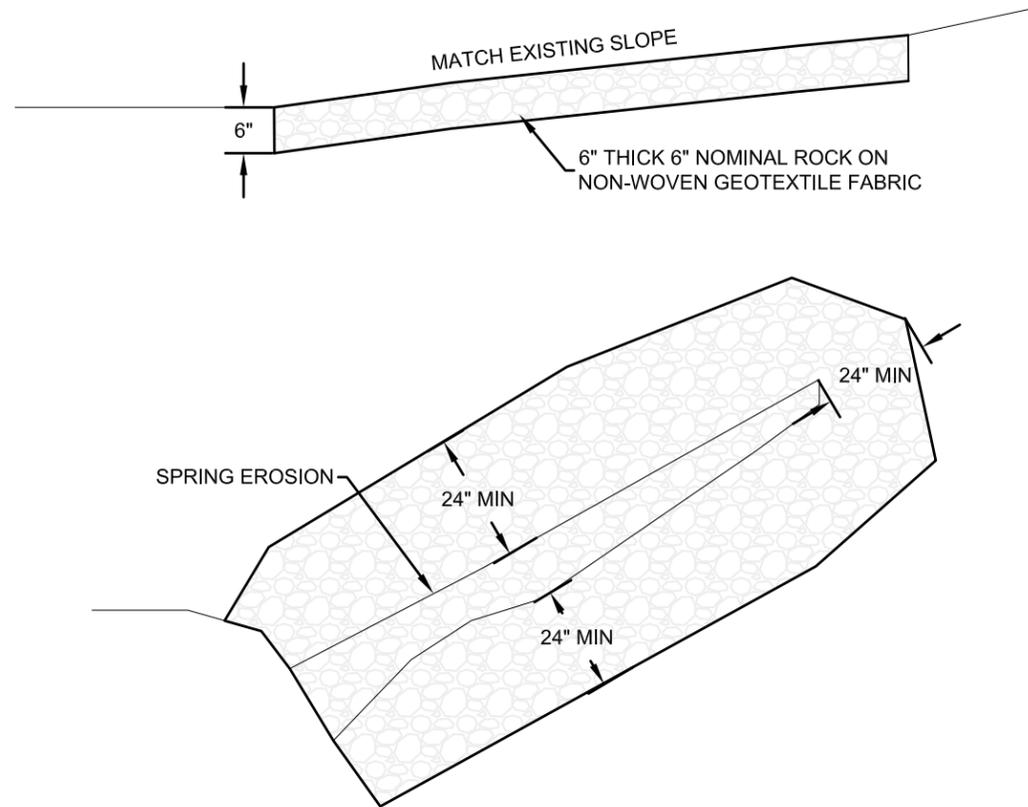
SCALE 1" = 1'	TYPICAL DRAIN / IRRIGATION PIPE SECTION	DETAIL K SHEET 2	SCALE 1" = 1'	IRRIGATION RISER	DETAIL L SHEET 2
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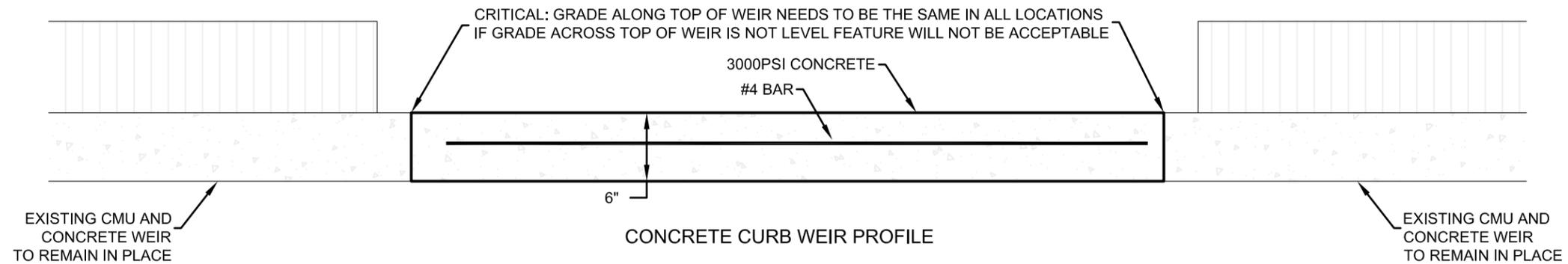
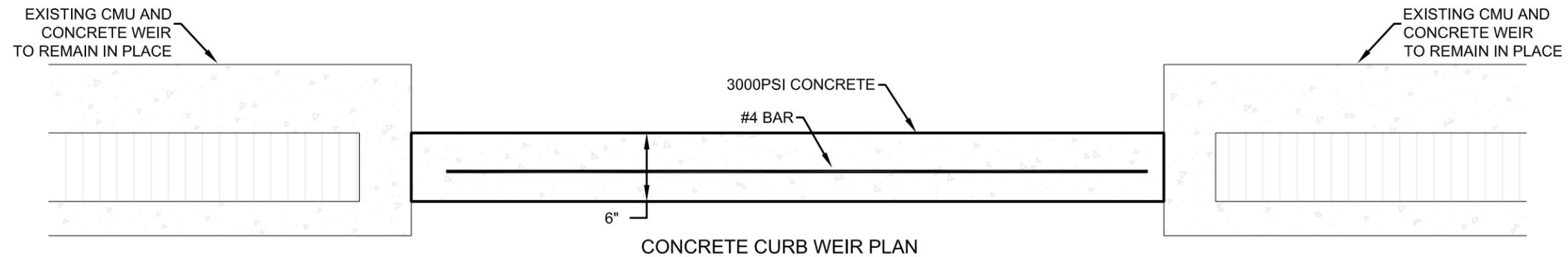
PROJECT 202.0619.01
 CONSTRUCTION DETAILS

PLAN DATE
 2/26/16
 SHEET
 06 OF 06

AS-BUILT



SCALE 1" = 1'	SPRING ARMORING DETAIL	DETAIL AA SHEET 2	SCALE 1" = 1'	CONCRETE CURB WEIR DETAIL	DETAIL BB SHEET 2
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SCALE 1" = 1'	CONCRETE CURB WEIR PLAN AND PROFILE	DETAIL CC SHEET 2
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PLAN DATE
 2/26/16
 SHEET
 07 OF 06

