

Gwen Dall

From: Elizabeth Steffens
Sent: Wednesday, May 12, 2021 12:48 PM
To: Hunyadi - DNR, John
Cc: Gwen Dall
Subject: NOI - Non-Jurisdictional Dam - WWSD Rolling Hills Water Tank Site Water Quality Structure
Attachments: 102.121_NOI_NJ Form w attachments.pdf

John,

Attached is the submittal for a proposed non-jurisdictional structure at the Widefield Water and Sanitation District Rolling Hills Water Tank Site (Address: TBD, Located approx. 2,168 ft southwest of Drennan Road and Mockingbird Lane intersection, Colorado Springs, CO 80908) to serve as a water quality structure and in accordance with Section 37-87-125, C.R.S. I have included the drainage basin plans and sand filter basin sizing calculations in the attachments. Let me know if you have any questions or comments.

Thanks,
Elizabeth

Elizabeth Steffens, P.E.

JDS-HYDRO CONSULTANTS, INC.

[5540 Tech Center Dr., Suite 100](#)

[Colorado Springs, CO 80919](#)

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COLORADO

Division of Water Resources

Department of Natural Resources

dwr.colorado.gov P 303.866.3581

NON-JURISDICTIONAL WATER IMPOUNDMENT STRUCTURE¹

This notice is required per Section 37-87-125, C.R.S. (1998) and must be submitted to the Division Engineer's Office a minimum of 45 days prior to construction.

OWNER INFORMATION

Name: Widefield Water and Sanitation District Telephone/E-Mail: (719) 390-7111 / info@wwsdonline.com

Address: 8495 Fontaine Blvd. Colorado Springs CO 80925
Street / P.O. Box/ Rural Route City State Zip Code

Responsible Person: Robert Bannister, District Engineer Telephone/E-Mail: (719) 390-7111 / rob@wwsdonline.com

Address: 8495 Fontaine Blvd. Colorado Springs CO 80925
Street / P.O. Box/ Rural Route City State Zip Code

Contractor: Preload, LLC / Glacier Construction Telephone/E-Mail: (251) 709-5734 w@cooksey@preload.com

STRUCTURE INFORMATION

Name of Dam: WWSD Rolling Hills Tank SFB Water Division: 2 Water District: 10

Location: (Provide Section, Township, Range, and GPS Point taken at crest of dam above streamline/outlet)

- Section: 1, Township: 15S, Range: 65W, 6th P.M.

- Northing 4292157.94 meters, Easting 532889.32 meters (Datum should be UTM, NAD 83)

Dam Dimensions:

- Vertical Height²: 5 ft., Length: 70 ft., Crest Width: 5 ft., Slopes: U/S: 4 (H:1V), D/S 12.5 (H:1V)

Reservoir:

- Surface Area¹: .072 acres, Capacity¹: 0.048 acre-feet, Drainage Area*: 1.76 acres

*(If drainage area is unknown leave blank and a spillway size will be assigned):

Emergency Spillway: (See Table 1, Spillway Sizing Guidelines)

- Bottom Width: 1 ft., Side Slopes: 4 H:1V, Freeboard³: 1.75 ft

Outlet Conduit Type: RCP, Size: 15 inches, Location: Outlet Structure

Stream Name or Water Source⁴: Site drainage only Proposed Water Use: Water Quality / Sand Filter Basin

Water Court Case or WDID : N/A
(Water District Identification Number)

Robert K Bannister - 5/13/2021
Signature of Owner Date

Office Use Only

DIVISION ENGINEER'S REQUIREMENTS:
[Blank lines for requirements]

Dam I.D. Signature of Division Engineer Date

1 A "Non-Jurisdictional Structure" is a dam creating a reservoir with a capacity of 100 acre-feet or less and a surface area of 20 acres or less and a vertical height (footnote 2) of 10 feet or less. Non-jurisdictional size dams are regulated and subject to the authority of the State Engineer consistent with sections 37-87-102 and 37-87-105 C.R.S.
2 "Vertical Height" is measured from the elevation of the lowest point of the natural surface of the ground or the invert of the outlet conduit (whichever is lower) where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway of the dam.
3 "Freeboard" is the vertical distance from the bottom of spillway to the crest of the dam. Minimum Freeboard is 3 feet.
4 If construction in reservoir intercepts groundwater, a well permit is required. (Well permit applications can be found at dwr.colorado.gov)

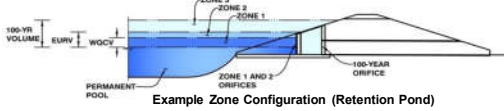
SFB Sizing Calculations

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.00 (December 2019)

Project: Wildfield Water and Sanitation District - Rolling Hills Tank

Basin ID: Subbasin C



Watershed Information

Selected BMP Type =	SF
Watershed Area =	1.76 acres
Watershed Length =	1,000 ft
Watershed Length to Centroid =	650 ft
Watershed Slope =	0.012 ft/ft
Watershed Imperviousness =	36.00% percent
Percentage Hydrologic Soil Group A =	0.0% percent
Percentage Hydrologic Soil Group B =	0.0% percent
Percentage Hydrologic Soil Groups C/D =	100.0% percent
Target WQCV Drain Time =	12.0 hours
Location for 1-hr Rainfall Depths =	User Input

Note: L / W Ratio > 8
L / W Ratio = 13.04

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

Water Quality Capture Volume (WQCV) =	0.020 acre-feet
Excess Urban Runoff Volume (EURV) =	0.058 acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	0.075 acre-feet
5-yr Runoff Volume (P1 = 1.5 in.) =	0.116 acre-feet
10-yr Runoff Volume (P1 = 1.75 in.) =	0.151 acre-feet
25-yr Runoff Volume (P1 = 2 in.) =	0.195 acre-feet
50-yr Runoff Volume (P1 = 2.25 in.) =	0.233 acre-feet
100-yr Runoff Volume (P1 = 2.52 in.) =	0.280 acre-feet
500-yr Runoff Volume (P1 = 3.14 in.) =	0.376 acre-feet
Approximate 2-yr Detention Volume =	0.051 acre-feet
Approximate 5-yr Detention Volume =	0.081 acre-feet
Approximate 10-yr Detention Volume =	0.093 acre-feet
Approximate 25-yr Detention Volume =	0.103 acre-feet
Approximate 50-yr Detention Volume =	0.108 acre-feet
Approximate 100-yr Detention Volume =	0.128 acre-feet

Optional User Overrides

acre-feet
acre-feet
inches
inches
inches
inches
inches
inches
inches

Define Zones and Basin Geometry

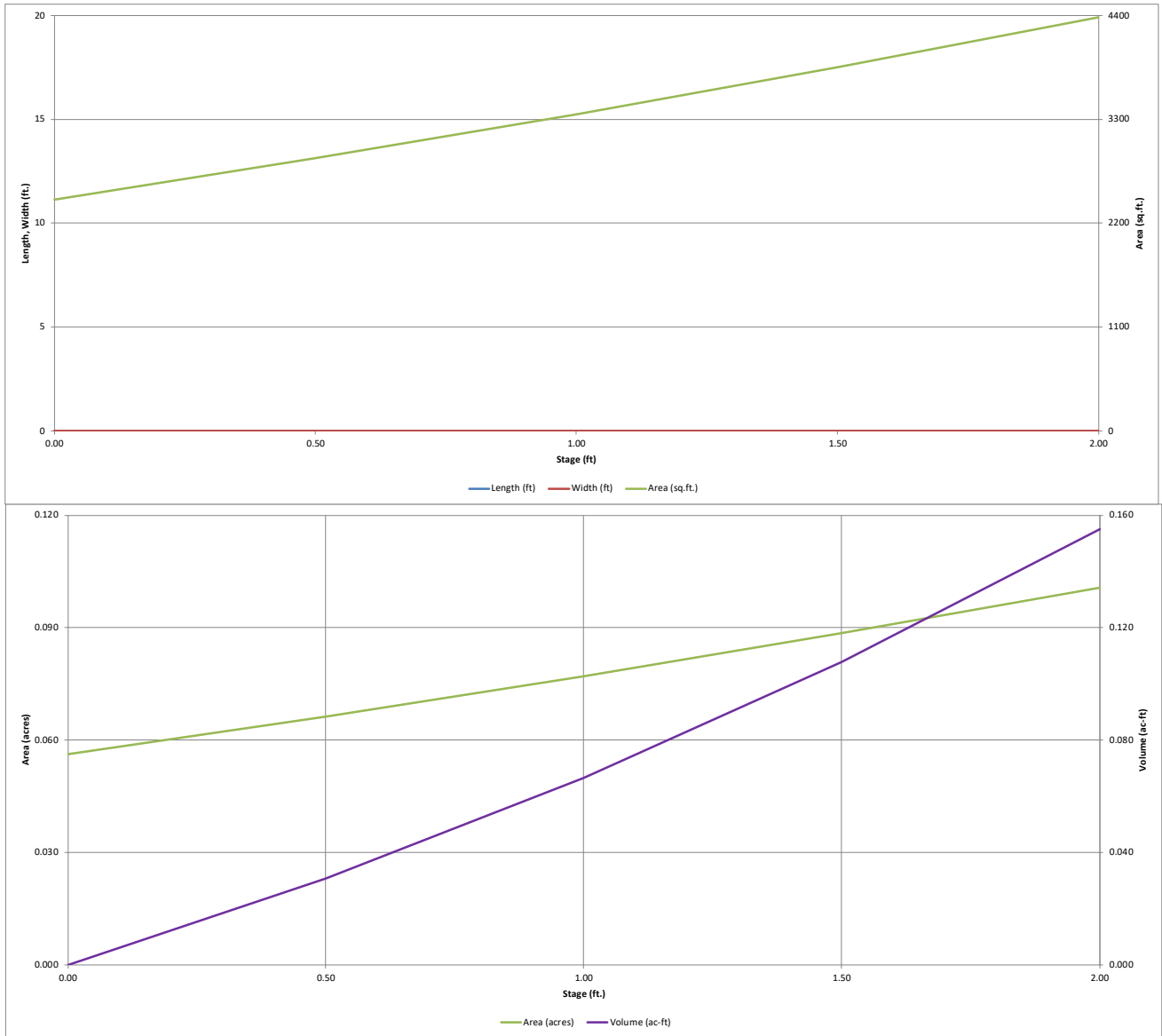
Zone 1 Volume (WQCV) =	0.020 acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.039 acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	0.070 acre-feet
Total Detention Basin Volume =	0.128 acre-feet
Initial Surcharge Volume (ISV) =	N/A ft ³
Initial Surcharge Depth (ISD) =	N/A ft
Total Available Detention Depth (H _{total}) =	user ft
Depth of Trickle Channel (H _{TC}) =	N/A ft
Slope of Trickle Channel (S _{TC}) =	N/A ft/ft
Slopes of Main Basin Sides (S _{main}) =	user H:V
Basin Length-to-Width Ratio (R _{L/W}) =	user
Initial Surcharge Area (A _{ISV}) =	user ft ²
Surcharge Volume Length (L _{ISV}) =	user ft
Surcharge Volume Width (W _{ISV}) =	user ft
Depth of Basin Floor (H _{FLOOR}) =	user ft
Length of Basin Floor (L _{FLOOR}) =	user ft
Width of Basin Floor (W _{FLOOR}) =	user ft
Area of Basin Floor (A _{FLOOR}) =	user ft ²
Volume of Basin Floor (V _{FLOOR}) =	user ft ³
Depth of Main Basin (H _{MAIN}) =	user ft
Length of Main Basin (L _{MAIN}) =	user ft
Width of Main Basin (W _{MAIN}) =	user ft
Area of Main Basin (A _{MAIN}) =	user ft ²
Volume of Main Basin (V _{MAIN}) =	user ft ³
Calculated Total Basin Volume (V _{total}) =	user acre-feet

Depth Increment = 0.50 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft ²)	Optional Override Area (ft ²)	Area (acre)	Volume (ft ³)	Volume (ac-ft)
Media Surface	--	0.00	--	--	--	2,450	0.056		
	--	0.50	--	--	--	2,886	0.066	1,334	0.031
	--	1.00	--	--	--	3,354	0.077	2,894	0.066
	--	1.50	--	--	--	3,854	0.088	4,696	0.108
	--	2.00	--	--	--	4,386	0.101	6,756	0.155

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.00 (December 2019)

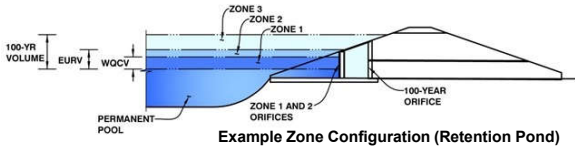


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-*Detention, Version 4.00 (December 2019)*

Project: Widefield Water and Sanitation District - Rolling Hills Tank

Basin ID: Subbasin C



	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.34	0.020	Filtration Media
Zone 2 (EURV)	0.90	0.039	Circular Orifice
Zone 3 (100-year)	1.73	0.070	Weir&Pipe (Circular)
Total (all zones)		0.128	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	1.83	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	0.35	inches

Underdrain Orifice Area =	0.0	ft ²
Underdrain Orifice Centroid =	0.01	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	N/A	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	N/A	inches
Orifice Plate: Orifice Area per Row =	N/A	inches

WQ Orifice Area per Row =	N/A	ft ²
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft ²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Orifice Area (sq. inches)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

User Input: Vertical Orifice (Circular or Rectangular)

	Zone 2 Circular	Not Selected	
Invert of Vertical Orifice =	0.05	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	0.50	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	1.50	N/A	inches

	Zone 2 Circular	Not Selected	
Vertical Orifice Area =	0.01	N/A	ft ²
Vertical Orifice Centroid =	0.06	N/A	feet

User Input: Overflow Weir (Dropbox with Flat or Sloped Gate and Outlet Pipe OR Rectangular/Trapezoidal Weir (and No Outlet Pipe).

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, H _o =	0.30	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	4.00	N/A	feet
Overflow Weir Gate Slope =	3.00	N/A	H:V
Horiz. Length of Weir Sides =	4.00	N/A	feet
Overflow Gate Open Area % =	70%	N/A	%, gate open area/total area
Debris Clogging % =	0%	N/A	%

	Zone 3 Weir	Not Selected	
Height of Gate Upper Edge, H _t =	1.63	N/A	feet
Overflow Weir Slope Length =	4.22	N/A	feet
Grate Open Area / 100-yr Orifice Area =	153.92	N/A	
Overflow Gate Open Area w/o Debris =	11.81	N/A	ft ²
Overflow Gate Open Area w/ Debris =	11.81	N/A	ft ²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Circular	Not Selected	
Depth to Invert of Outlet Pipe =	1.92	N/A	ft (distance below basin bottom at Stage = 0 ft)
Circular Orifice Diameter =	3.75	N/A	inches

	Zone 3 Circular	Not Selected	
Outlet Orifice Area =	0.08	N/A	ft ²
Outlet Orifice Centroid =	0.16	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	N/A	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage =	0.75	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	1.00	feet
Spillway End Slopes =	4.00	H:V
Freeboard above Max Water Surface =	1.00	feet

Spillway Design Flow Depth =	0.36	feet
Stage at Top of Freeboard =	2.11	feet
Basin Area at Top of Freeboard =	0.10	acres
Basin Volume at Top of Freeboard =	0.16	acre-ft

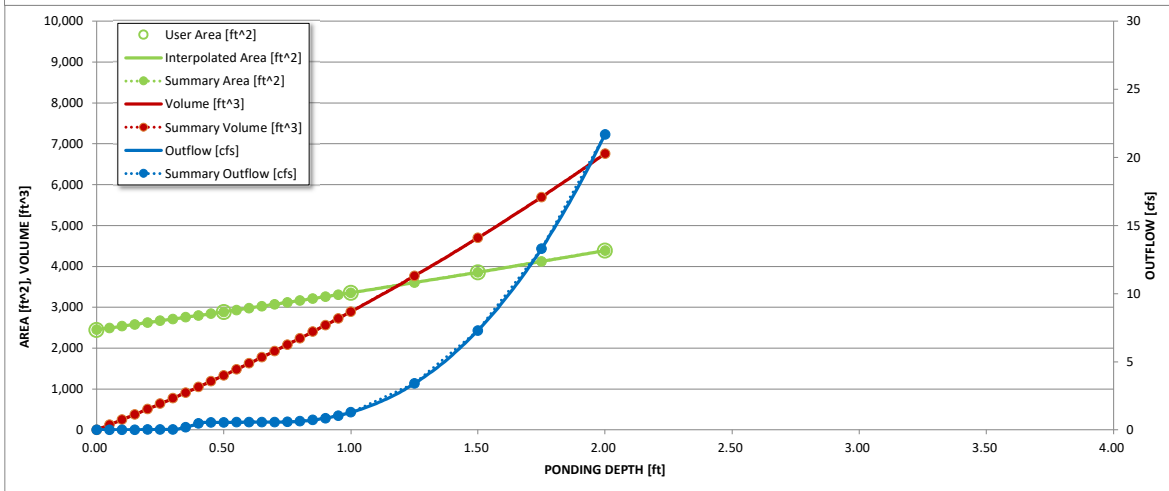
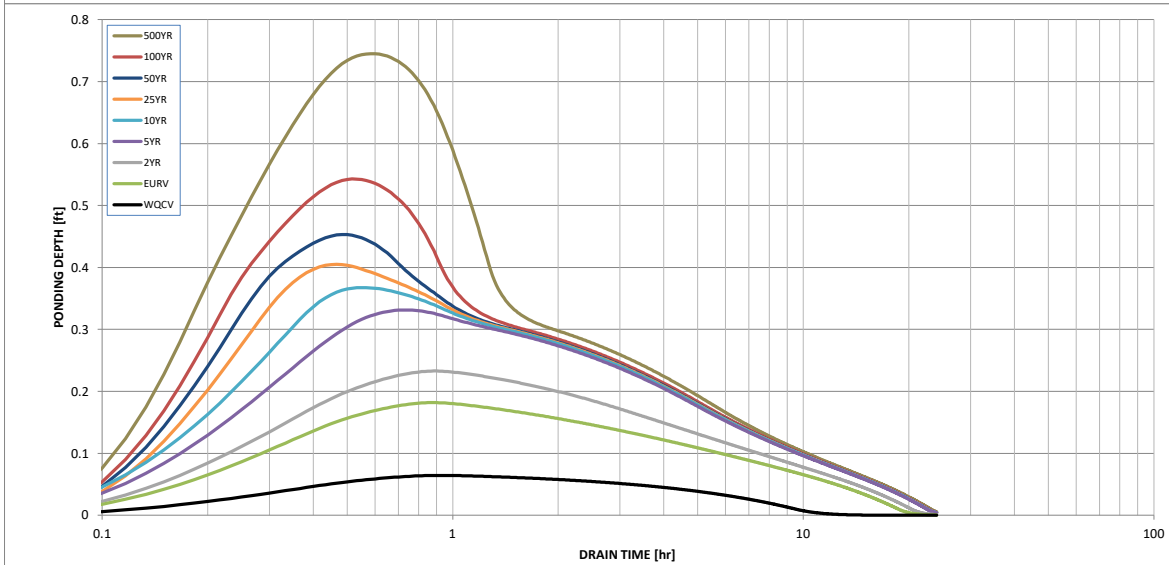
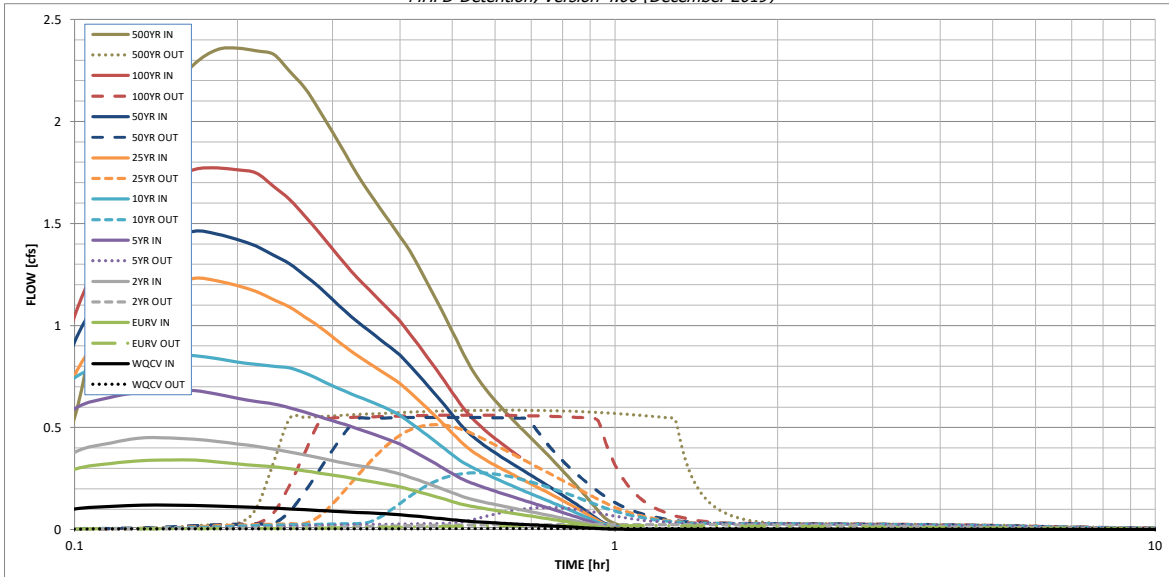
Routed Hydrograph Results

The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =									
One-Hour Rainfall Depth (in) =	0.53	1.07	1.19	1.50	1.75	2.00	2.25	2.52	3.14
CUHP Runoff Volume (acre-ft) =	0.020	0.058	0.075	0.116	0.151	0.195	0.233	0.280	0.376
Inflow Hydrograph Volume (acre-ft) =	0.004	0.012	0.015	0.023	0.030	0.039	0.047	0.056	0.075
CUHP Predevelopment Peak Q (cfs) =	0.0	0.0	0.1	0.3	0.4	0.7	0.8	1.1	1.5
OPTIONAL Override Predevelopment Peak Q (cfs) =	0.0	0.0							
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.08	0.17	0.24	0.38	0.47	0.62	0.86
Peak Inflow Q (cfs) =	0.1	0.3	0.4	0.7	0.9	1.2	1.5	1.8	2.4
Peak Outflow Q (cfs) =	0.005	0.020	0.0	0.1	0.278	0.5	0.5	0.561	0.6
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.4	0.7	0.8	0.7	0.5	0.4
Structure Controlling Flow =	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Gate 1 (fps) =	N/A	N/A	N/A	0.0	0.0	0.0	0.0	0.0	0.0
Max Velocity through Gate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	12	19	21	22	22	21	20	20	18
Time to Drain 99% of Inflow Volume (hours) =	14	21	22	24	24	23	23	23	23
Maximum Ponding Depth (ft) =	0.06	0.18	0.23	0.33	0.37	0.41	0.45	0.54	0.75
Area at Maximum Ponding Depth (acres) =	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07
Maximum Volume Stored (acre-ft) =	0.003	0.010	0.013	0.020	0.022	0.024	0.027	0.033	0.047

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.00 (December 2019)



S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

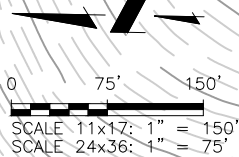
Drainage Plans

LEGEND

- EX CONTOURS—MAJOR
- - - EX CONTOURS—MINOR
- PP CONTOURS—MAJOR
- - - PP CONTOURS—MINOR
- PP FENCE
- PP WATER LINE ALIGNMENT
- ||||| FLOW PATH

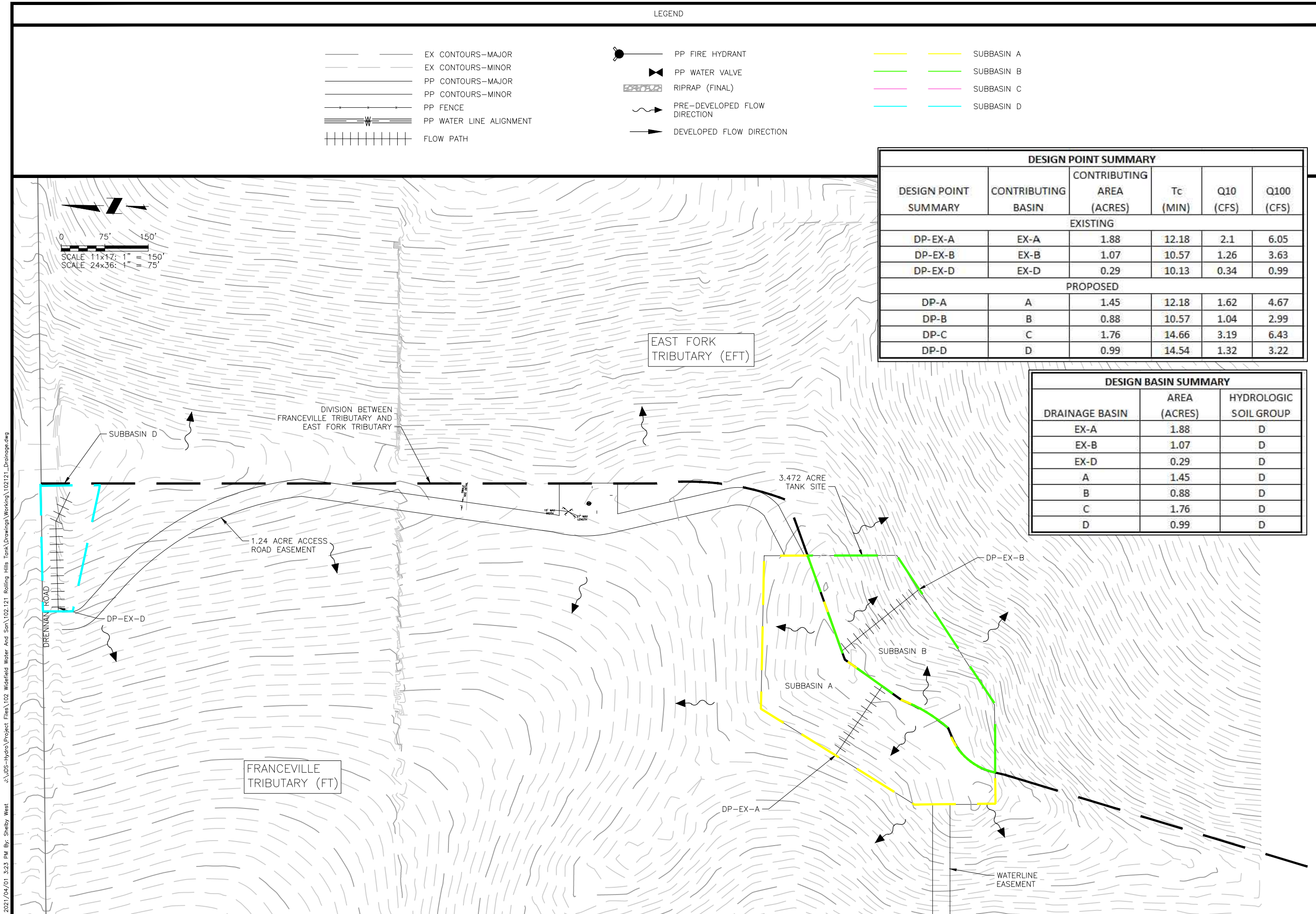
- PP FIRE HYDRANT
- ⊕ PP WATER VALVE
- ▨ RIPRAP (FINAL)
- ~ PRE-DEVELOPED FLOW DIRECTION
- DEVELOPED FLOW DIRECTION

- SUBBASIN A
- SUBBASIN B
- SUBBASIN C
- SUBBASIN D



DESIGN POINT SUMMARY					
DESIGN POINT SUMMARY	CONTRIBUTING BASIN	CONTRIBUTING AREA (ACRES)	Tc (MIN)	Q10 (CFS)	Q100 (CFS)
EXISTING					
DP-EX-A	EX-A	1.88	12.18	2.1	6.05
DP-EX-B	EX-B	1.07	10.57	1.26	3.63
DP-EX-D	EX-D	0.29	10.13	0.34	0.99
PROPOSED					
DP-A	A	1.45	12.18	1.62	4.67
DP-B	B	0.88	10.57	1.04	2.99
DP-C	C	1.76	14.66	3.19	6.43
DP-D	D	0.99	14.54	1.32	3.22

DESIGN BASIN SUMMARY		
DRAINAGE BASIN	AREA (ACRES)	HYDROLOGIC SOIL GROUP
EX-A	1.88	D
EX-B	1.07	D
EX-D	0.29	D
A	1.45	D
B	0.88	D
C	1.76	D
D	0.99	D



JDS-HYDRO CONSULTANTS, INC.
 5540 TECH CENTER DR., SUITE 100
 COLORADO SPRINGS, COLORADO 80919
 (719) 227-0072

WIDEFIELD WATER AND SANITATION DISTRICT
 ROLLING HILLS 2MG POTABLE WATER TANK AND INLET PIPELINE
 SITE DEVELOPMENT PLAN
 EXISTING SITE DRAINAGE

NO.	DESCRIPTION	BY	APP.	DATE
1				
2				
3				
4				
5				
6				
7				

EXHIBIT

Project No.: 102.121
 Date: 07/30/20
 Design: GJD
 Drawn: SNW
 Check: JPM

SHEET --- OF ---

2021/04/01 3:23 PM By: Shelby West J:\JDS-Hydro\Project Files\102 Widefield Water And San\102.121 Rolling Hills Tank Drawings\Working\102121_Drainage.dwg

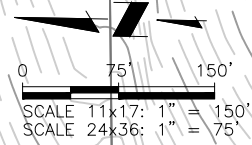
LEGEND

- EX CONTOURS—MAJOR
- - - EX CONTOURS—MINOR
- PP CONTOURS—MAJOR
- - - PP CONTOURS—MINOR
- PP FENCE
- PP WATER LINE ALIGNMENT
- FLOW LINE

- PP FIRE HYDRANT
- ⊗ PP WATER VALVE
- ▨ RIPRAP (FINAL)
- ~ PRE-DEVELOPED FLOW DIRECTION
- DEVELOPED FLOW DIRECTION

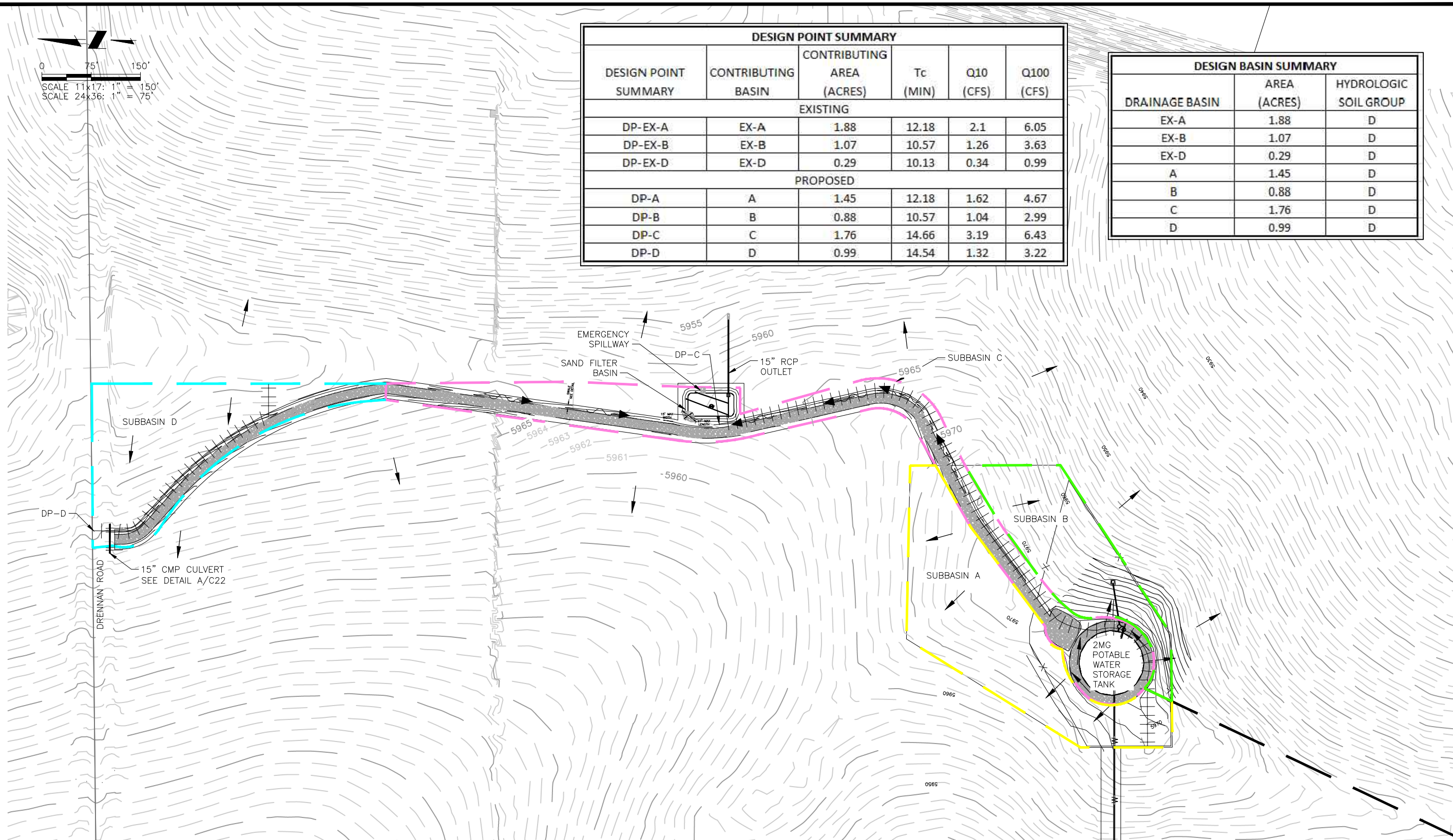
- SUBBASIN A
- SUBBASIN B
- SUBBASIN C
- SUBBASIN D

- ▨ GRAVEL ROAD
- ▨ RIPRAP



DESIGN POINT SUMMARY					
DESIGN POINT SUMMARY	CONTRIBUTING BASIN	CONTRIBUTING AREA (ACRES)	Tc (MIN)	Q10 (CFS)	Q100 (CFS)
EXISTING					
DP-EX-A	EX-A	1.88	12.18	2.1	6.05
DP-EX-B	EX-B	1.07	10.57	1.26	3.63
DP-EX-D	EX-D	0.29	10.13	0.34	0.99
PROPOSED					
DP-A	A	1.45	12.18	1.62	4.67
DP-B	B	0.88	10.57	1.04	2.99
DP-C	C	1.76	14.66	3.19	6.43
DP-D	D	0.99	14.54	1.32	3.22

DESIGN BASIN SUMMARY		
DRAINAGE BASIN	AREA (ACRES)	HYDROLOGIC SOIL GROUP
EX-A	1.88	D
EX-B	1.07	D
EX-D	0.29	D
A	1.45	D
B	0.88	D
C	1.76	D
D	0.99	D



JDS-HYDRO CONSULTANTS, INC.
 5540 TECH CENTER DR., SUITE 100
 COLORADO SPRINGS, COLORADO 80919
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DISCLAIMER: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. ANY ERRORS OR OMISSIONS ARE THE CONTRACTOR'S RESPONSIBILITY. JDS-HYDRO ASSUMES NO LIABILITY FOR UNAUTHORIZED CHANGES AND/OR REVISIONS MADE TO PLANS.

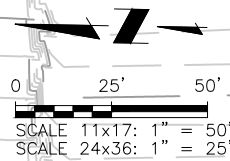
WIDEFIELD WATER AND SANITATION DISTRICT
 ROLLING HILLS 2MG POTABLE WATER TANK AND INLET PIPELINE
 SITE DEVELOPMENT PLAN
 PROPOSED SITE DRAINAGE

NO.	DESCRIPTION	BY	APP.	DATE
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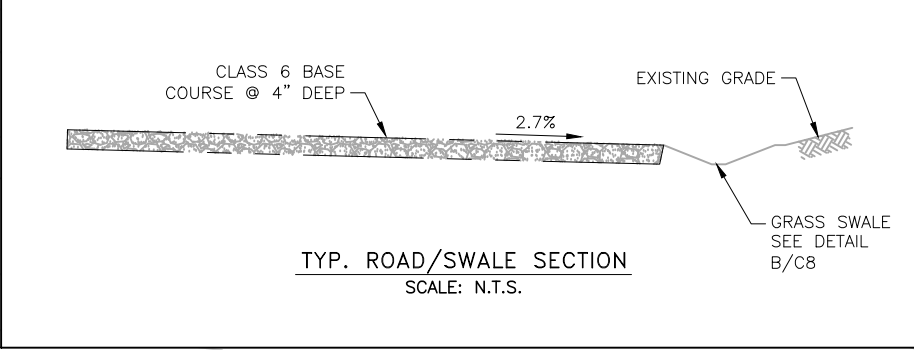
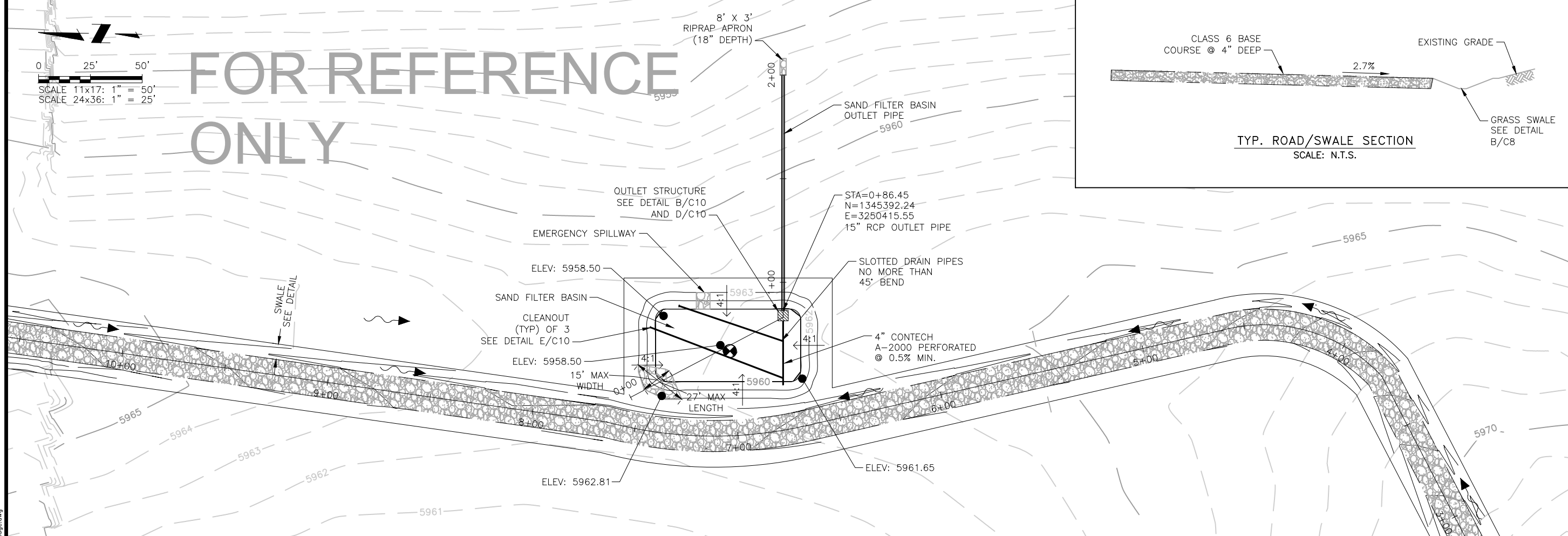
EXHIBIT

Project No.: 102.121
 Date: 07/30/20
 Design: GJD
 Drawn: SNW
 Check: JPM

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FOR REFERENCE ONLY

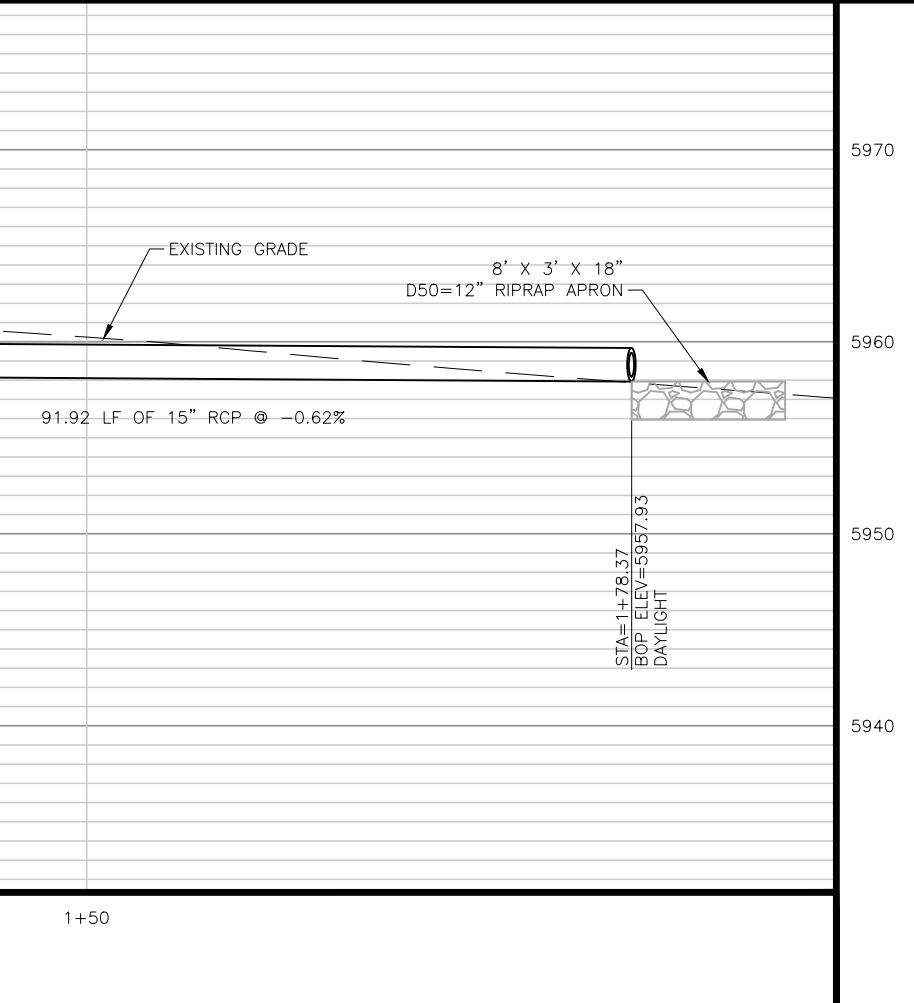
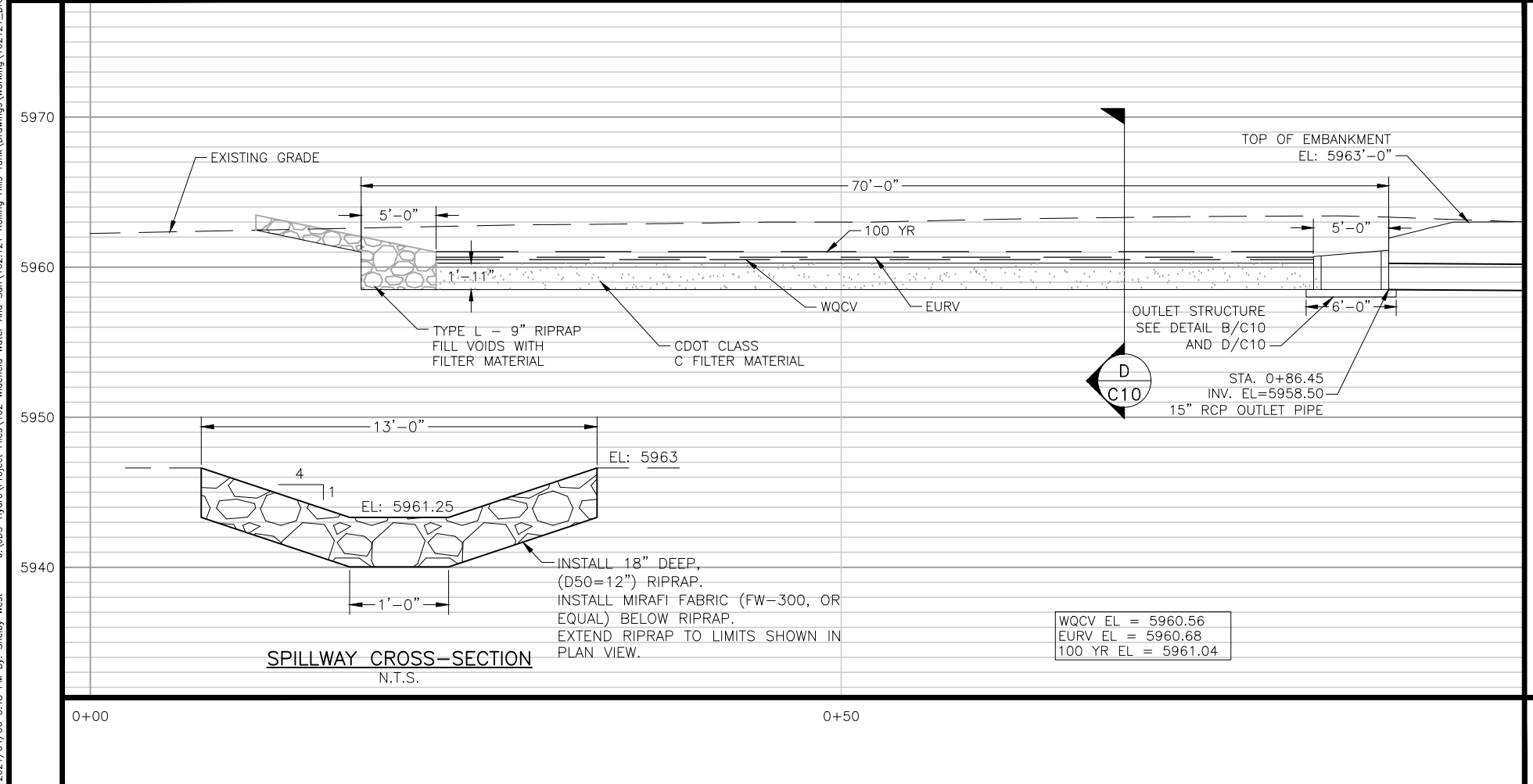


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WIDEFIELD WATER AND SANITATION DISTRICT
 ROLLING HILLS 2MG POTABLE WATER TANK AND INLET PIPELINE
 DRAINAGE BASIN PLAN & PROFILE

2021/04/06 3:48 PM By: Shelby West J:\JDS-Hydro\Project Files\102 Widefield Water And San\102.121 Rolling Hills Tank Drawings\Working\102121_Drainage.dwg



NO.	DESCRIPTION	BY	APP.	DATE
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7				

EXHIBIT

Project No.: 102.121
 Date: 07/30/20
 Design: GJD
 Drawn: SNW
 Check: JPM

SHEET --- OF ---

2021/04/06 3:29 PM By: Shelby West J:\JDS-Hydro\Project Files\102 Widfield Water And San\102.121 Rolling Hills Tank\Drawings\Working\102121_Civil_Details.dwg

JDS-HYDRO CONSULTANTS, INC.
 5540 TECH CENTER DR., SUITE 100
 COLORADO SPRINGS, COLORADO 80919
 (719) 227-0072
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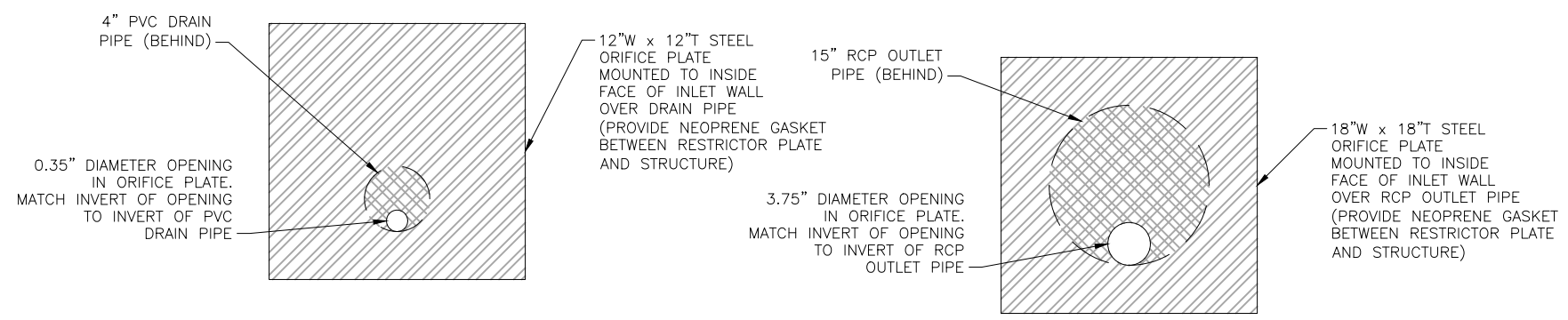
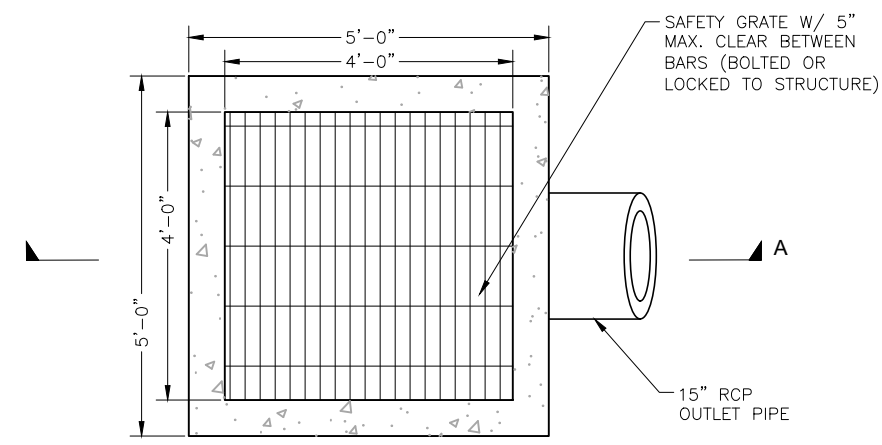
WIDFIELD WATER AND SANITATION DISTRICT
 ROLLING HILLS 2MG POTABLE WATER TANK
 DRAINAGE BASIN CIVIL DETAILS

NO.	DESCRIPTION	BY	APP.	DATE
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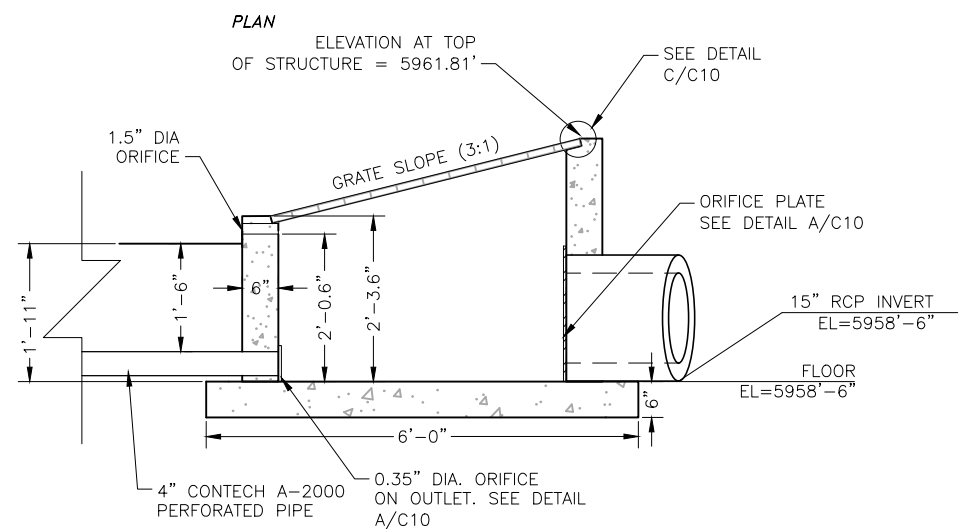
TO BID

Project No.: 102.121
 Date: 02/22/21
 Design: GJD
 Drawn: SNW
 Check: JPM

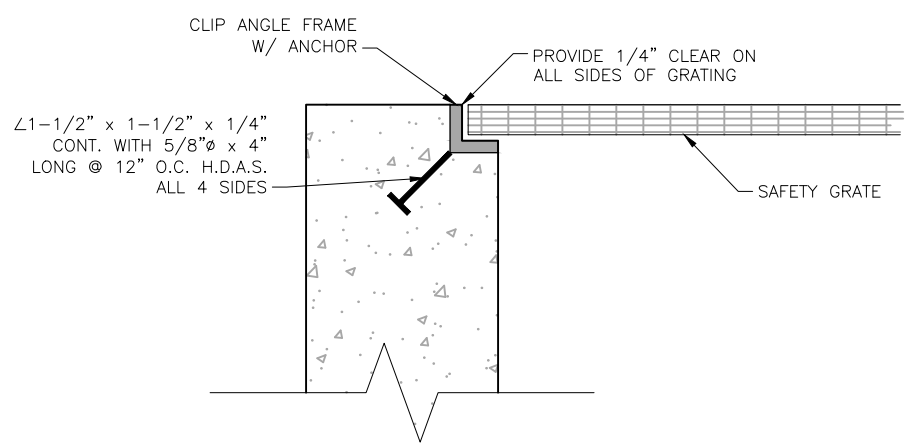
C10
 SHEET 13 OF 32



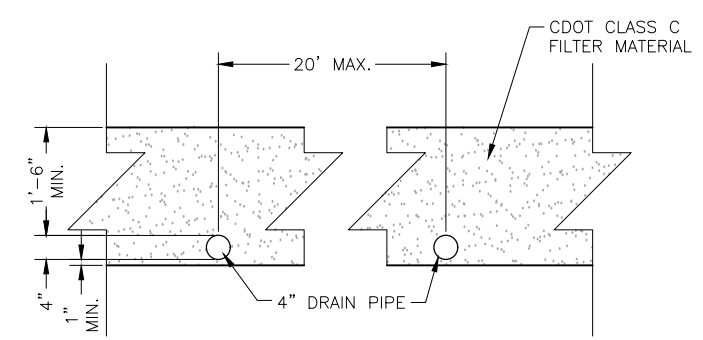
A ORIFICE PLATES
 SCALE: N.T.S.



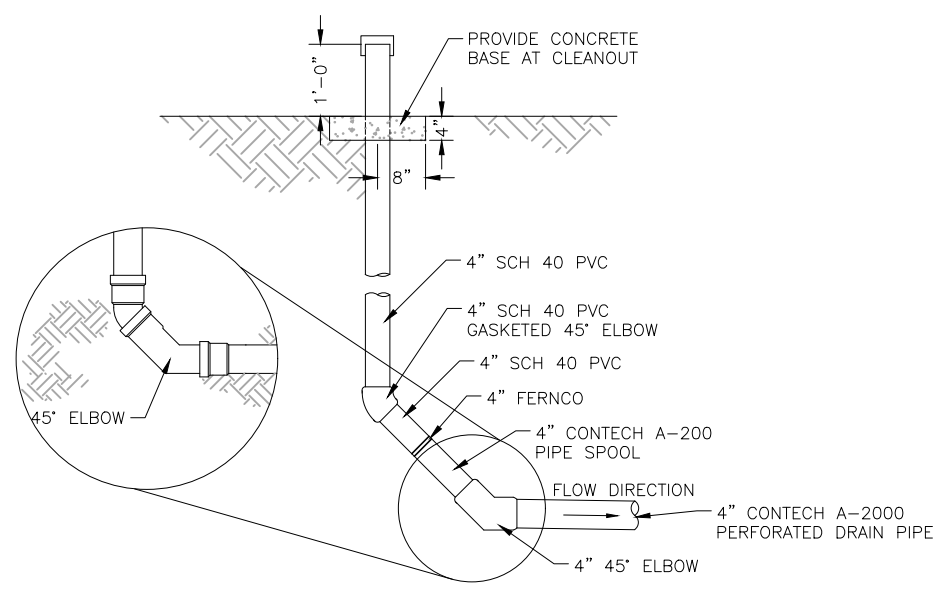
B OUTLET STRUCTURE
 SCALE: 3/8" = 1'-0"



C GRATING DETAIL
 SCALE: N.T.S.



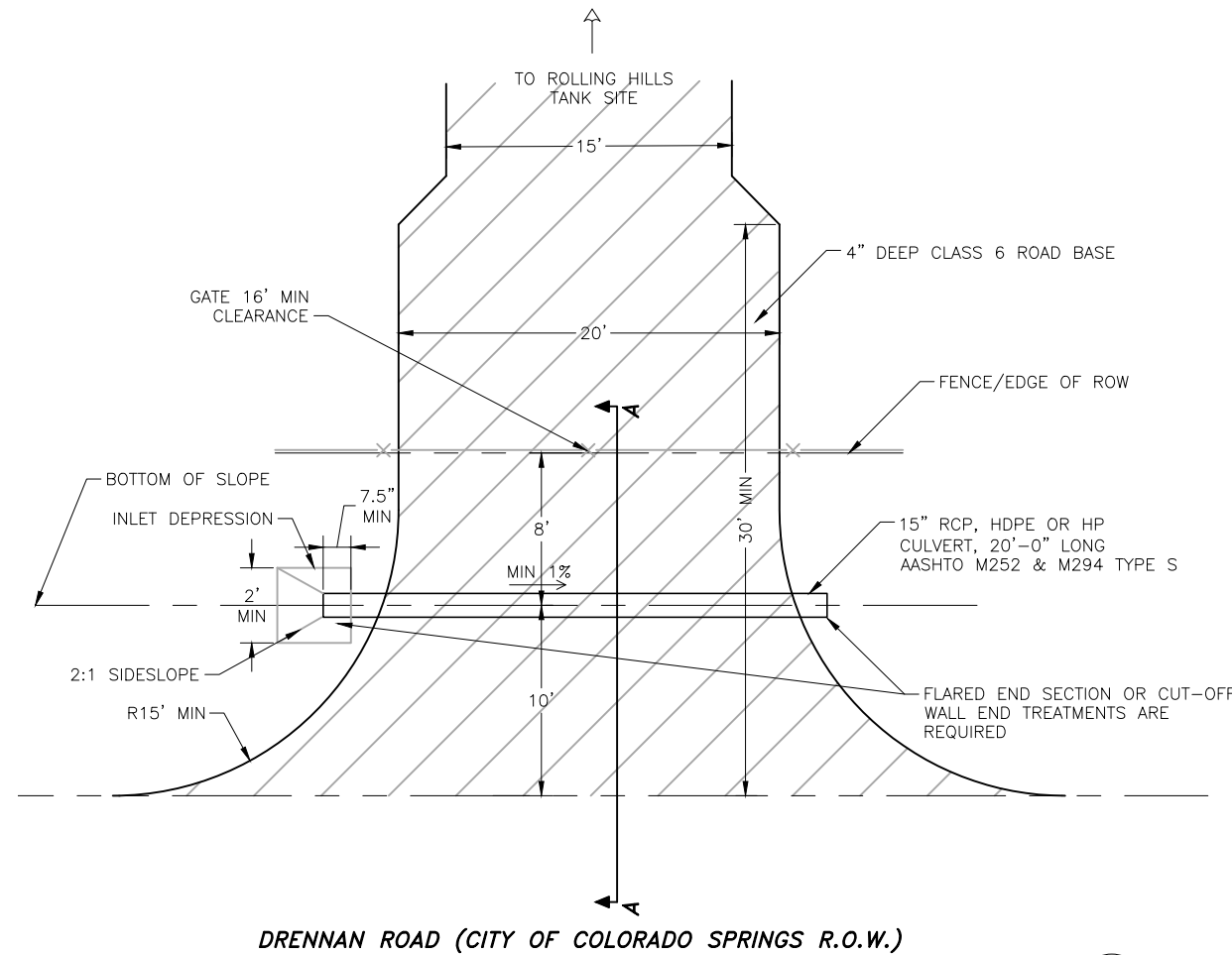
D DRAINAGE BASIN SECTION (SEE SHEET C9)
 SCALE: 3/8" = 1'-0"



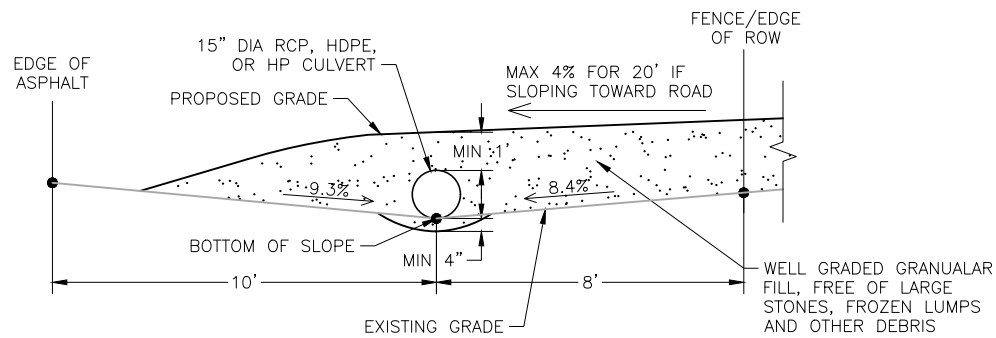
E CLEANOUT
 SCALE: N.T.S.

FOR REFERENCE ONLY

2021/04/01 3:31 PM By: Shelby West j:\JDS-Hydro\Project Files\102 Widefield Water And San\102.121 Rolling Hills Tank\Drawings\Working\102121_Civil_Details.dwg

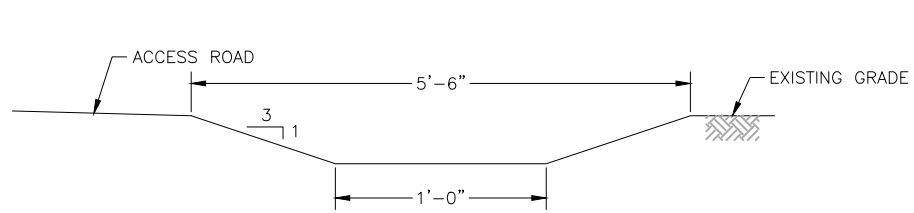


A DRIVEWAY ACCESS ROAD
C8 SCALE: N.T.S.

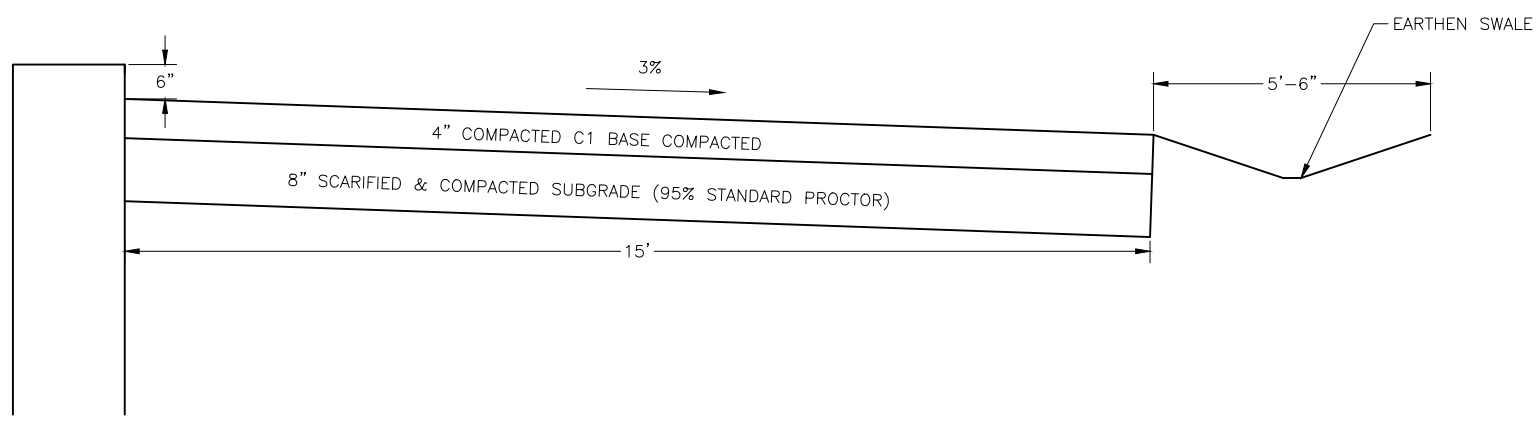


SECTION A-A
SCALE: N.T.S.

- NOTES:**
1. SURFACE TREATMENT OF DRIVEWAY TO BE CLASS 6 ROAD BASE AT 4" DEEP.
 2. DRAIN PIPE TO BE 15" DIAMETER MINIMUM.
 3. PIPE SLOPE TO BE CONSISTANT WITH FLOW LINE OF DITCH, MINIMUM OF 1%.
 4. BACKFILL TO BE PLACED IN 6" LAYERS, DEPOSITED AND COMPACTED ON ALTERNATING SIDES OF THE PIPE.
 5. MEASUREMENTS ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO COMMENCING CONSTRUCTION.



B TYPICAL GRASS SWALE SECTION
C8 SCALE: N.T.S.



C TANK MAINTENANCE ROAD
C8 SCALE: N.T.S.

FOR REFERENCE ONLY

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WIDEFIELD WATER AND SANITATION DISTRICT
ROLLING HILLS 2MG POTABLE WATER TANK
ACCESS ROAD CIVIL DETAILS

NO.	DESCRIPTION	BY	APP.	DATE
1				
2				
3				
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5				
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TO BID

Project No.: 102.121
Date: 02/22/21
Design: GJD
Drawn: SNW
Check: JPM

C8

SHEET 11 OF 32