

CITY OF KIRKLAND



KIRKLAND

NORTH ROSE HILL

STORMWATER INFILTRATION WELLS PROJECT

JOB NO. 31-23-PW  
CIP NO. SDC 1320000

FEBRUARY 2024

FUNDED IN PART BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY

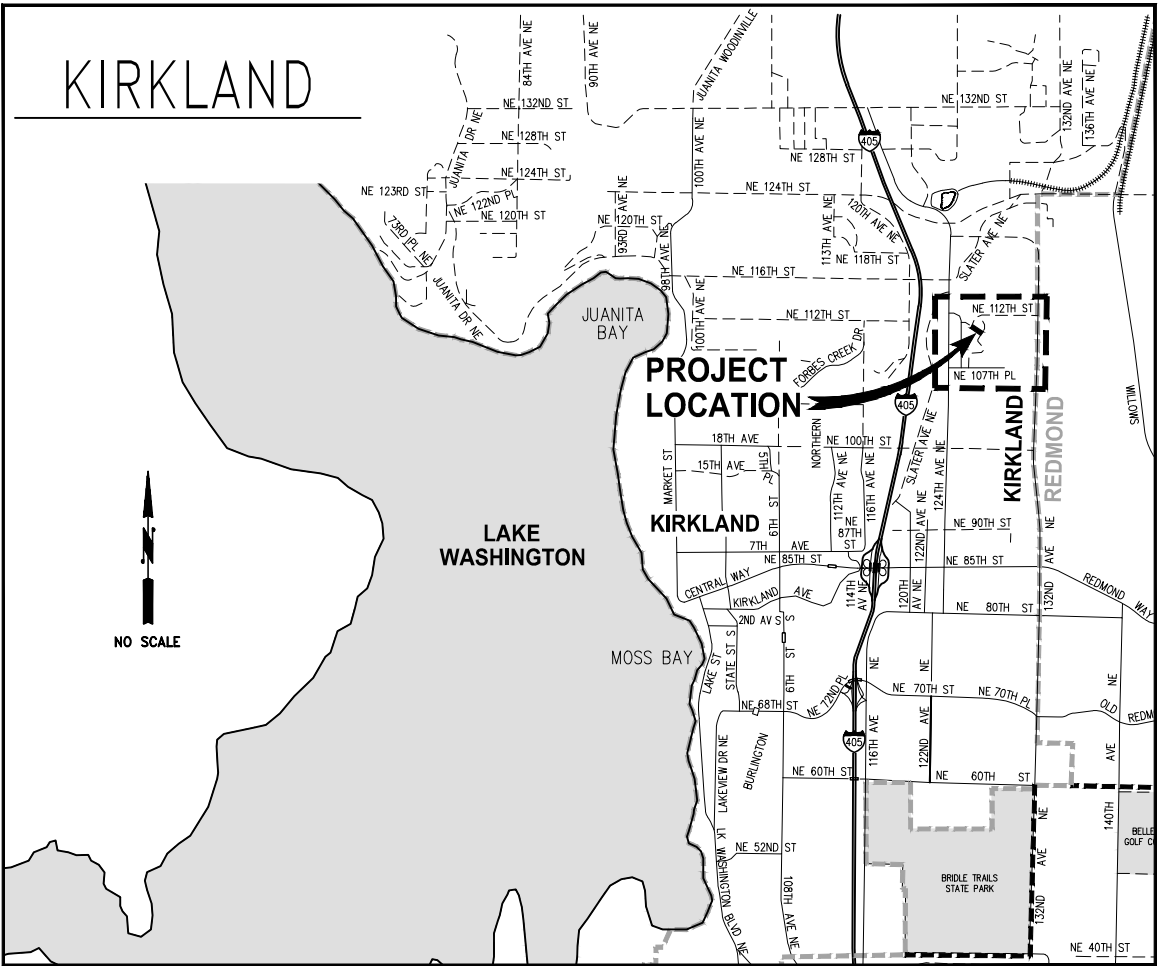


CITY OFFICIALS

PENNY SWEET	MAYOR
JAY ARNOLD	DEPUTY MAYOR
NEAL BLACK	COUNCIL MEMBER
KELLI CURTIS	COUNCIL MEMBER
AMY FALCONE	COUNCIL MEMBER
TOBY NIXON	COUNCIL MEMBER
JON PASCAL	COUNCIL MEMBER
KURT TRIPLETT	CITY MANAGER
JULIE UNDERWOOD	PUBLIC WORKS DIRECTOR
ROD STEITZER, PE	CAPITAL PROJECTS MANAGER

CONTACT PERSONNEL

NAME	AGENCY	PHONE
SCOTT GONSAR, PE	COK PROJECT ENGINEER	425.587.3830
STEVE HOOPES	COK FIELD REPRESENTATIVE	425.623.5086
RIK MAYER	COK FIELD REPRESENTATIVE	206.496.4265
RYAN FOWLER	COK STREETS & GROUNDS DEPT	425.587.3909
CHUCH SAUNDERS	COK IT	425.587.3086
JASON OSBORN	COK SURFACE WATER M&O	425.587.3901
JEANNE COLEMAN	PUGET SOUND ENERGY	425.449.7410
KIARA SKYE	PUGET SOUND ENERGY	425.213.9205
BIANCA CRAWFORD	COMCAST CABLE	253.303.2723
MICAH COMER	ZIPLY (CONTRACTOR)	830.513.2366
EMERGENCY	NORCOM	911
POLICE MAIN LINE	COK	425.587.3400
FIRE MAIN LINE	COK	425.864.3650
SPILL RESPONSE HOTLINE	COK	425.587.3900
UTILITY LOCATE	ONE CALL	800.424.5555



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December 19, 2023 - 12:45 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156\LEGABBRV.DWG - Layout Name: LEGEND & ABBREVIATIONS

EXISTING LEGEND

	MONITORING WELL		GAS LINE
	GAS VALVE		POWER LINE
	POWER HAND HOLD		STORM LINE
	STREET LIGHT		SEWER LINE
	UTILITY VAULT		WATER LINE
	GUY ANCHOR		CURB & GUTTER
	POWER POLE		ROLLED OR EXTRUDED CURB
	POWER UTILITY VAULT		FENCE
	SANITARY SEWER MANHOLE		EDGE OF PAVEMENT
	STORM DRAIN MANHOLE		PROPERTY LINE
	STORM DRAIN CATCH BASIN		CONTOUR LINE
	TELEPHONE RISER		
	TELEPHONE HAND HOLD		
	FIRE HYDRANT		
	WATER METER		
	WATER VALVE		
	BOLLARD		
	WOOD POST		
	MAIL BOX		
	SURVEY CONTROL		
	RETAINING WALL		
	ROCK RETAINING WALL		
	ROCK/BOULDER		
	SIGN		
	VEGETATION		
	SHRUB		
	STUMP		
	CONIFEROUS TREE		
	DECIDUOUS TREE		
	STOP BAR		
	BIKE SYMBOL		

PROPOSED LEGEND

	MODIFIED CATCH BASIN TYPE 2 OR CDS HYDRONIC SEPARATOR		HMA CL 1/2 PG 58H-22
	CATCH BASIN TYPE 1 OR 1L		REMOVE CEMENT CONC SIDEWALK
	GATE VALVE / BALL VALVE		CEMENT CONC SIDEWALK
	INLET PROTECTION		
	PROPERTY LINE		
	RIGHT OF WAY LINE		
	REMOVE ROLLED CURB AND GUTTER		
	REMOVE EXISTING PIPE		
	FULL DEPTH SAWCUT		
	ROLLED CURB AND GUTTER		
	STORM DRAIN PIPE		

ABBREVIATIONS

AC	ASPHALT/CONCRETE	MH	MANHOLE
ACP	ASPHALT CONCRETE PAVEMENT	MIC	MONUMENT IN CASE
ADA	AMERICANS WITH DISABILITIES ACT	MJ	MECHANICAL JOINT
AP	ANGLE POINT	MON	MONUMENT
APPROX	APPROXIMATE	N	NORTH OR NORTHING
BOV	BOTTOM OF VAULT	NAVD	NORTH AMERICAN VERTICAL DATUM
BLDG	BUILDING	NB	NORTHBOUND
CB	CATCH BASIN	NO	NUMBER
CCP	CEMENT CONCRETE PAVEMENT	NTS	NOT TO SCALE
CDF	CONTROLLED DENSITY FILL	OC	ON CENTER
CHLK	CHAINLINK	OD	OUTSIDE DIAMETER
C	CENTERLINE	PC	POINT OF CURVE
CL	CLASS	PCC	POINT OF COMPOUND CURVATURE
CO	CLEANOUT	PCCP	PERVIOUS CEMENT CONCRETE PAVEMENT
COK	CITY OF KIRKLAND	PI	POINT OF INTERSECTION
COL	COLUMN	POB	POINT OF BEGINNING
CONC	CONCRETE	POE	POINT OF ENDING
CSBC	CRUSHED SURFACING BASE COURSE	PRC	POINT OF REVERSE CURVATURE
CSTC	CRUSHED SURFACING TOP COURSE	PT	POINT OF TANGENT
DI	DUCTILE IRON	PVC	POLYVINYL CHLORIDE OR POINT OF VERTICAL CURVATURE
DIA	DIAMETER	PVT	POINT OF VERTICAL TANGENT
DW	DRIVEWAY	PVI	POINT OF VERTICAL INTERSECTION
E	EAST OR EASTING	R	RADIUS
EA	EACH	ROW	RIGHT OF WAY
ELEV	ELEVATION	RT	RIGHT
EOP	EDGE OF PAVEMENT	S	SLOPE OR SOUTH
EW	EACH WAY	SB	SOUTHBOUND
EX	EXISTING	SD	STORM DRAIN
EXIST	EXISTING	SDMH	STORM DRAIN MANHOLE
FF	FINISHED FLOOR	SDR	STANDARD DIMENSIONAL RATIO
FL	FLOW LINE	SE	SOUTHEAST
FO	FIBER OPTIC	SHT	SHEET
FOC	FACE OF CURB	SQ	SQUARE
GPM	GALLONS PER MINUTE	SS	SANITARY SEWER
HMA	HOT MIX ASPHALT	SSMH	SANITARY SEWER MANHOLE
HORIZ	HORIZONTAL	ST	STREET
HP	HIGH POINT	STA	STATION
ID	INSIDE DIAMETER	STD	STANDARD
IE	INVERT ELEVATION	STCR	STRUCTURE
IN	INCH/INCHES	SW	SOUTHWEST
JB	JUNCTION BOX	TYP	TYPICAL
L	LENGTH	TOC	TOP OF CURB
LT	LEFT	UIC	UNDERGROUND INJECTION CONTROL
LF	LINEAR FEET	UG	UNDERGROUND
LP	LOW POINT	VERT	VERTICAL
MAX	MAXIMUM	W	WEST
MIN	MINIMUM	YD	YARD DRAIN

GENERAL NOTE

PROTECTION OF THE ENVIRONMENT; NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW A DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

DATE	NO.	REVISION	BY		



UPI NO.:		FED. AID PROJ. NO.:	
SURVEY NO.:		FIELD BOOK(S):	
HORZ. DATUM:	WSPCS, N ZONE, NAD 83/11	VERT. DATUM:	NAVD 88
DESIGNED BY:	DTG 12/2023	DRAWN BY:	VS 12/2023

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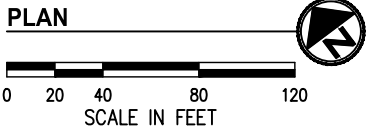
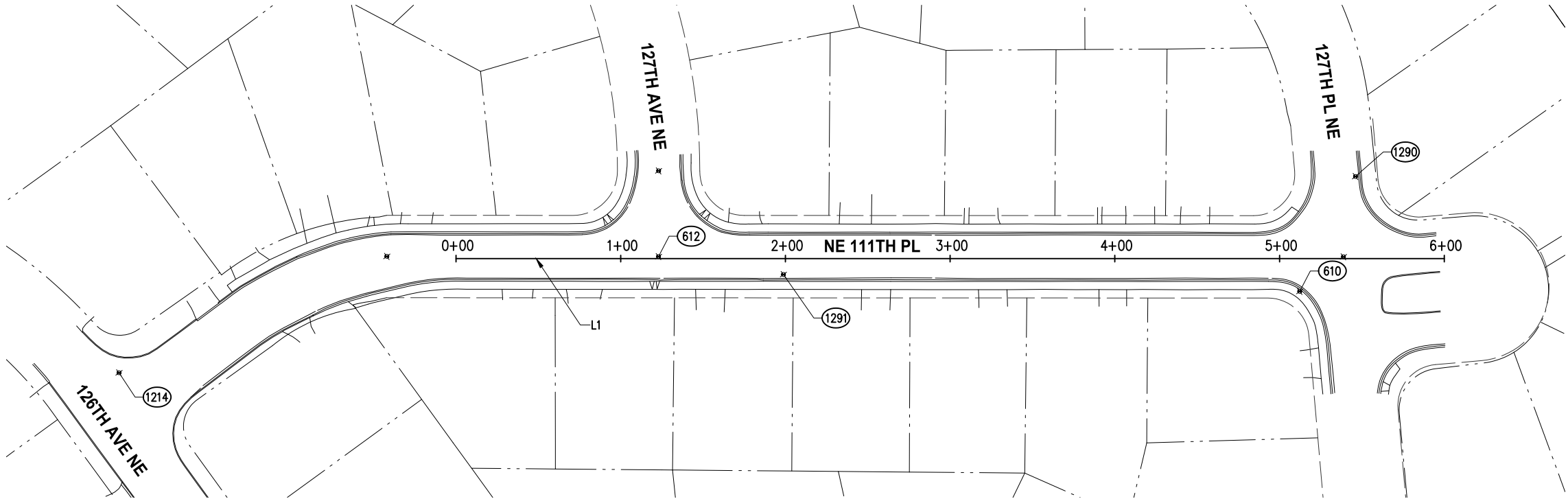
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NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT

LEGEND & ABBREVIATIONS

REFERENCE SHEET NO.
SHEET 2 OF 15 SHEETS

December 19, 2023 - 12:45 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156\SURV\CTRL.DWG - Layout Name: 01 ALIGNMENT & SURVEY CONTROL



**SURVEY NOTES**

BASIS OF BEARING

1. RTK GPS DERIVED BETWEEN LIN AND ASSOCIATES CONTROL POINTS 610 AND 612  
N 49°57'18" W

**HORIZONTAL DATUM**

PROJECT GRID COORDINATES BASED UPON WASHINGTON STATE PLANE COORDINATE SYSTEM NAD 83/2011 NORTH ZONE, US SURVEY FOOT. OBSERVED BY RTK GPS OBSERVATIONS FROM THE WASHINGTON STATE REFERENCE NETWORK (WSRN).  
SCALE FACTOR = 1, WHERE GRID = GROUND MEASUREMENTS FOR PROJECT LIMITS.

**VERTICAL DATUM**

THE VERTICAL DATUM IS NAVD88 US SURVEY FOOT, DERIVED BY RTK GPS ELEVATIONS FROM THE WASHINGTON STATE REFERENCE NETWORK (WSRN) FOR PRIMARY CONTROL POINTS.  
ADDITIONAL SECONDARY CONTROL POINTS DERIVED BY CONVENTIONAL TOTAL STATION TRAVERSE TRIGONOMETRIC OBSERVATIONS.

POINT TABLE				
PT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
610	257988.8489	1311020.9470	318.697	SET MAGNAIL & WASHER
612	258239.6913	1310722.4800	304.892	FND MON IN CASE
1214	258380.1904	1310418.2780	285.102	SET MAGNAIL & WASHER
1290	258024.2256	1311089.9130	320.359	SET MAGNAIL & WASHER
1291	258185.4170	1310776.5770	307.525	SET MAGNAIL & WASHER

NE 111TH PL					
NUMBER	START STA	NORTHING	EASTING	LENGTH	BRNG/DELTA
L1	0+00.00	258312.64	1310623.52	600.00'	S 53°03'31" E

DATE	NO.	REVISION		BY	



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DESIGNED BY: DTG 12/2023	DRAWN BY: DTG 12/2023

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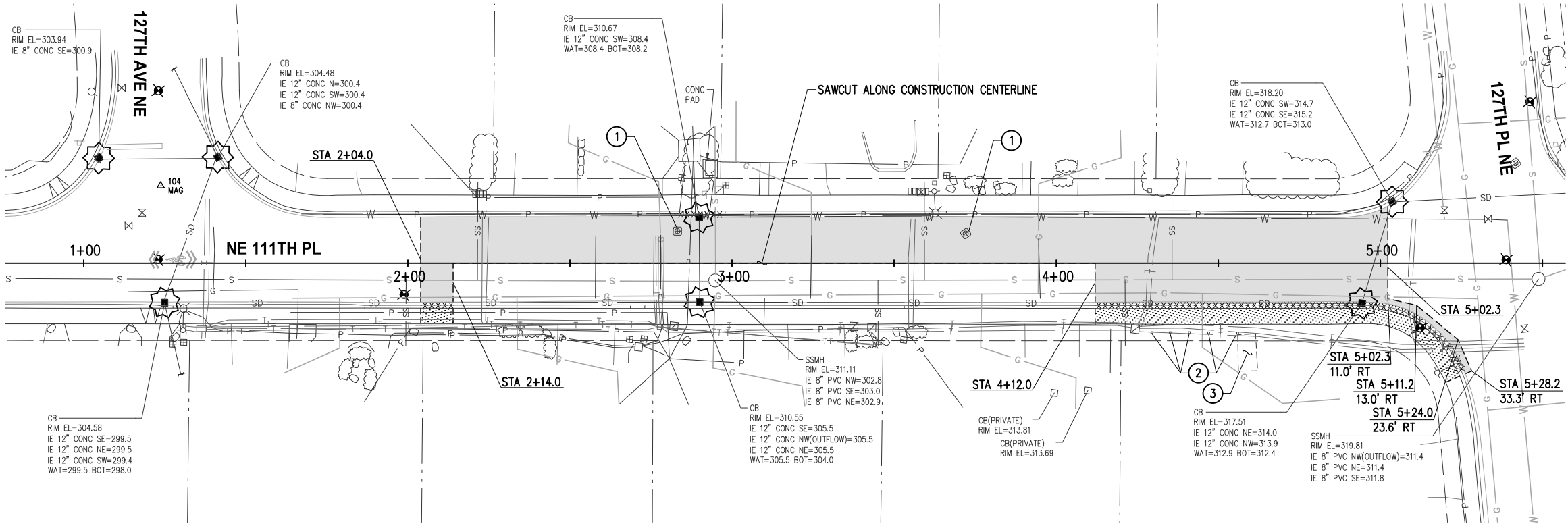
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**NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT**

**ALIGNMENT & SURVEY CONTROL**

REFERENCE SHEET NO.
SHEET 3 OF 15 SHEETS

December 19, 2023 - 12:45 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156SP.DWG - Layout Name: SP 01 STA 1+00 TO STA 5+50



### GENERAL NOTES

- PRESERVE AND PROTECT ALL UTILITIES, STRUCTURES, VEGETATION, CURB, SIDEWALK, AND MONUMENTS NOT CALLED OUT FOR REMOVAL.
- ASPHALT/CONC. REMOVAL LIMITS SHOWN ARE APPROXIMATE. ACTUAL LIMITS SHALL BE MARKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO ANY DEMOLITION ACTIVITIES. SIDEWALK REMOVAL SHALL BE TO THE NEAREST JOINT BEYOND LIMITS SHOWN UNLESS NOTED OTHERWISE. ADJUST SAWCUT LINES TO AVOID STRUCTURES.
- PROVIDE INLET PROTECTION FOR ALL EXISTING AND PROPOSED CATCH BASINS, AND AS DIRECTED BY THE ENGINEER.
- FOR TREATMENT OF EXISTING ITEMS NOT NOTED IN THE SITE PREP PLANS, REFER TO THE OTHER SUBSETS PROVIDED HEREIN.
- PROTECTION OF THE ENVIRONMENT:** NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW A DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

### CONSTRUCTION NOTES

- PROTECT EXISTING WELL AND CASING.
- REMOVE WOODEN POST.
- HOMEOWNER TO REMOVE GARDEN.

### LEGEND

- REMOVE CEMENT CONC SIDEWALK
- REMOVE ASPHALT CONC PAVEMENT
- REMOVE ROLLED CURB & GUTTER
- INLET PROTECTION
- FULL DEPTH SAWCUT

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12/2023	12/2023



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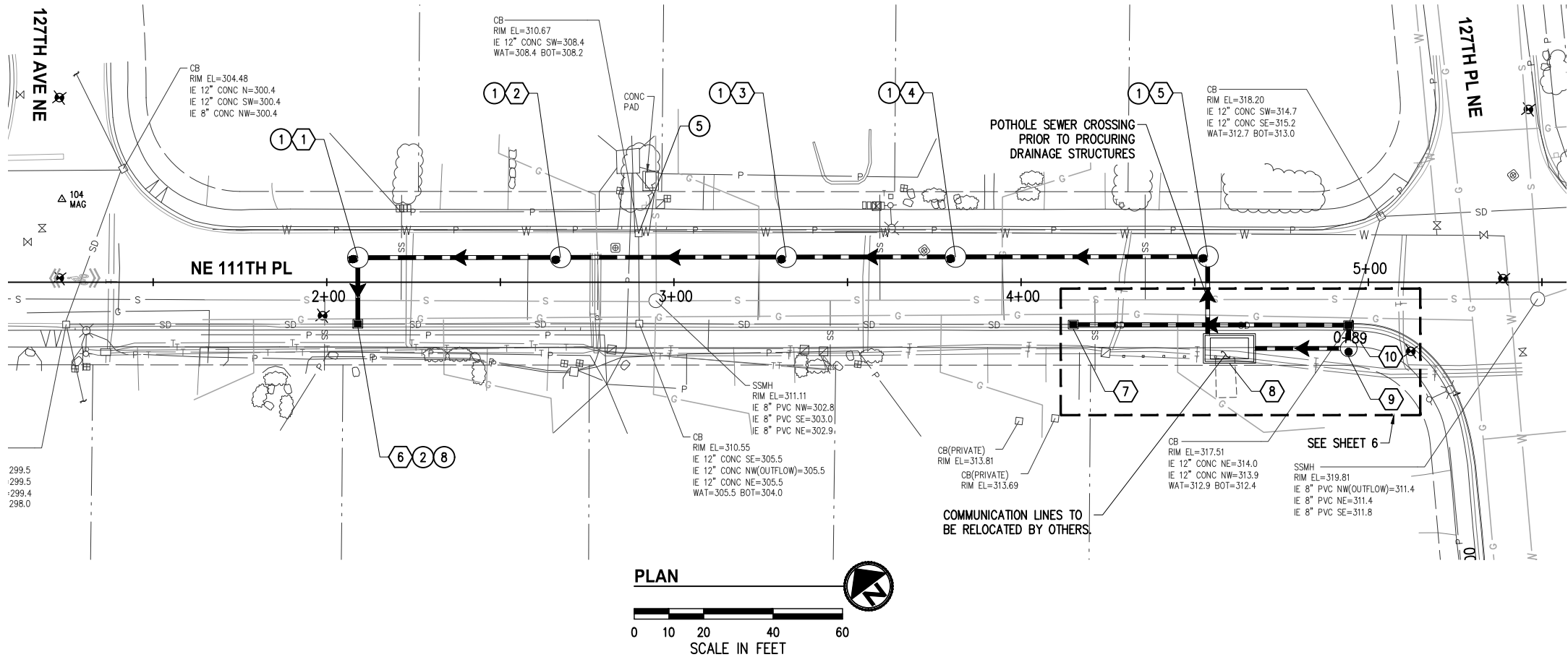


**NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT**

**SITE PREPARATION &  
TESC PLAN**

REFERENCE SHEET NO.
SHEET 4 OF 15 SHEETS

December 19, 2023 - 12:46 PM - DAREK GOCH - K:KIRKLAND21156 - NORTH ROSE HILL INFILTRATIONDESIGNDRAWINGS/CONTRACT21156STRM.DWG - Layout Name: STRM01 STA 1+30 TO STA 5+00

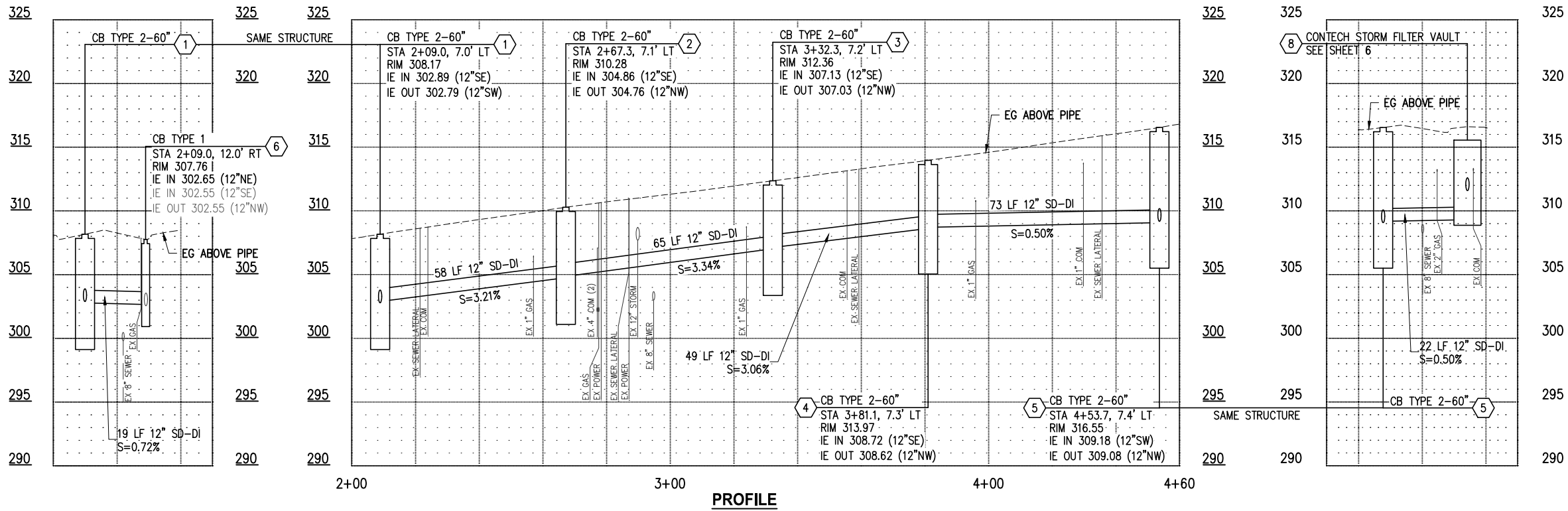


### GENERAL NOTES

- STORM TRENCH SHALL BE PER COK STD DETAIL CK-D.02.
- CATCH BASIN LOCATIONS AND RIM ELEVATIONS ARE APPROXIMATED FINISHED GRADE AT CENTER OF STRUCTURE. MATCH FINISHED GRADES AND FLOWLINE ELEVATIONS UNLESS OTHERWISE NOTED.
- STORM PIPES SHALL BE DUCTILE IRON.
- ALL PENETRATIONS SHALL BE ACCOMPLISHED BY CORING UNLESS THE STRUCTURE HAS KNOCKOUTS OR AN EXISTING CORE DRILLED PENETRATION AT THE CORRECT INVERT ELEVATIONS.
- EXISTING UTILITY LOCATIONS AND DEPTHS ARE BASED ON AS-BUILT RECORDS AND BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION ACTIVITIES.
- PROTECTION OF THE ENVIRONMENT:** NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW A DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

### CONSTRUCTION NOTES

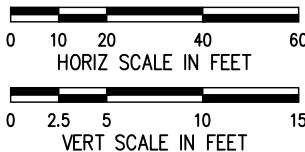
- INSTALL MODIFIED TYPE 2 CB WITH UIC WELL PER DETAIL 1, SHEET 10.
- INSTALL CATCH BASIN TYPE 1 PER COK STD DETAIL CK-D.07.
- REPLACE EXISTING FRAME AND GRATE PER COK STD PLAN CK-D.14 & CK-D.16A. INSTALL PER COK STD PLAN CK-R.17D AND ADJUST TO EXISTING GRADE PER COK STD PLAN CK-D.11.
- CONNECT EXISTING PIPE.



### LEGEND

- ## STORM DRAIN STRUCTURE ID NUMBER
- STORM DRAIN PIPE
- MODIFIED CATCH BASIN TYPE 2 OR CDS HYDRONIC SEPARATOR AS NOTED
- CATCH BASIN TYPE 1 OR 1L AS NOTED
- STORM VAULT
- x GATE VALVE

### PROFILE SCALES



DATE	NO.	REVISION	BY



UPI NO.:	FED. AID PROJ. NO.:
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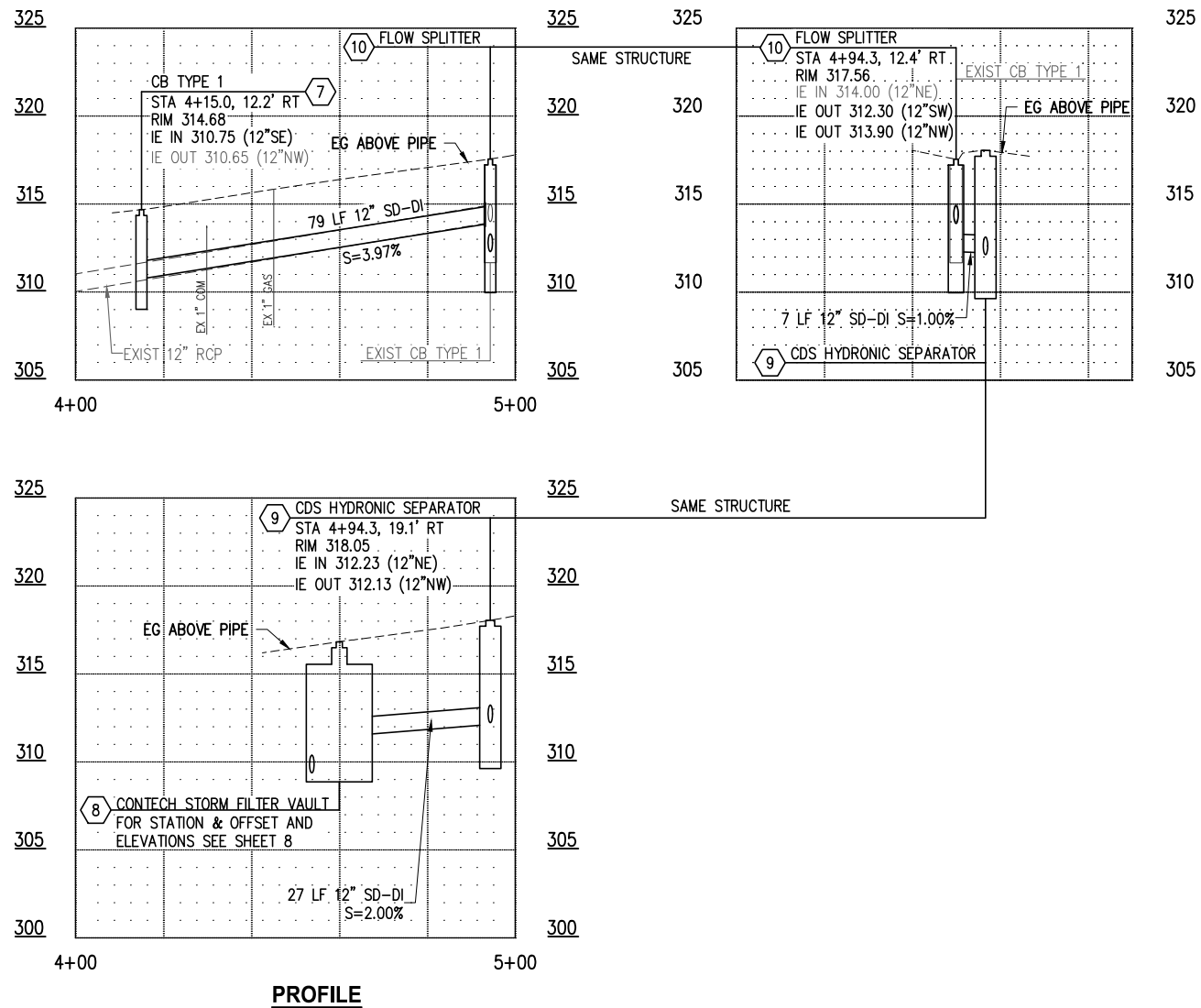
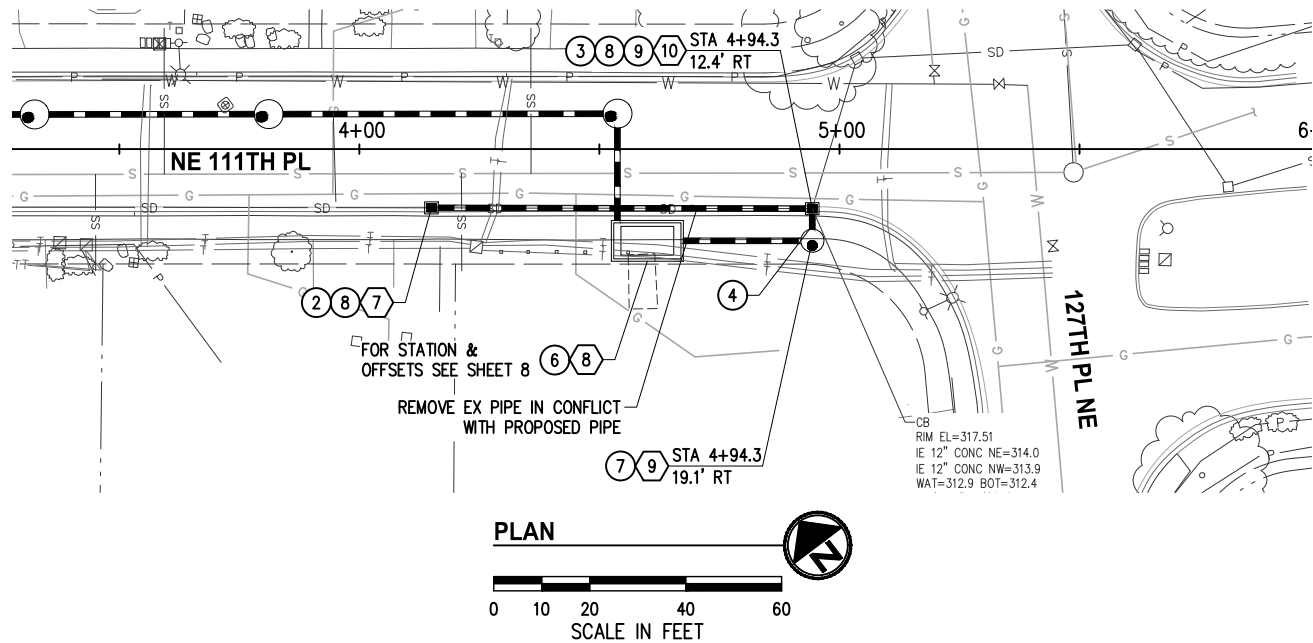
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INFILTRATION WELLS PROJECT

STORMWATER PLAN & PROFILE

REFERENCE  
SHEET NO.

SHEET  
5  
OF  
15  
SHEETS

December 19, 2023 - 12:47 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156\STRMTRT.DWG - Layout Name: 01 TREATMENT & FLOW SPLITTER PLAN



## GENERAL NOTES

1. STORM TRENCH SHALL BE PER COK STD DETAIL CK-D.02.
2. CATCH BASIN LOCATIONS AND RIM ELEVATIONS ARE APPROXIMATED FINISHED GRADE AT CENTER OF STRUCTURE. MATCH FINISHED GRADES AND FLOWLINE ELEVATIONS UNLESS OTHERWISE NOTED.
3. STORM PIPES SHALL BE DUCTILE IRON.
4. ALL PENETRATIONS SHALL BE ACCOMPLISHED BY CORING UNLESS THE STRUCTURE HAS KNOCKOUTS OR AN EXISTING CORE DRILLED PENETRATION AT THE CORRECT INVERT ELEVATIONS.
5. EXISTING UTILITY LOCATIONS AND DEPTHS ARE BASED ON AS-BUILT RECORDS AND BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION ACTIVITIES.
6. **PROTECTION OF THE ENVIRONMENT:** NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW A DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

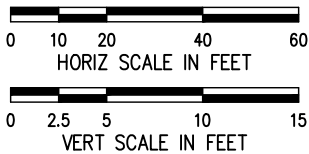
## CONSTRUCTION NOTES

2. INSTALL CATCH BASIN TYPE 1 PER COK STD DETAIL CK-D.07.
3. INSTALL FLOW SPLITTER PER DETAIL, SHEET 9.
4. INSTALL 12" GATE VALVE PER DETAIL, SHEET 9.
6. STORM FILTER VAULT PER DETAIL, SHEET 8.
7. CDS HYDRONIC SEPARATOR PER DETAIL, SHEET 7.
8. CONNECT EXISTING PIPE.
9. REMOVE EXISTING STRUCTURE

## LEGEND

- ## STORM DRAIN STRUCTURE ID NUMBER
- STORM DRAIN PIPE
- MODIFIED CATCH BASIN TYPE 2 OR CDS HYDRONIC SEPARATOR AS NOTED
- CATCH BASIN TYPE 1 OR 1L AS NOTED
- STORM VAULT
- x GATE VALVE

## PROFILE SCALES



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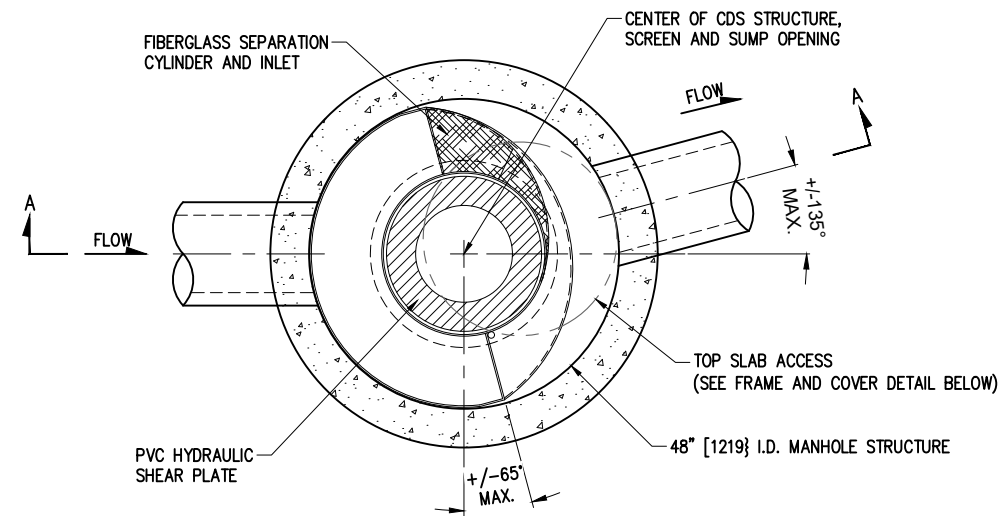


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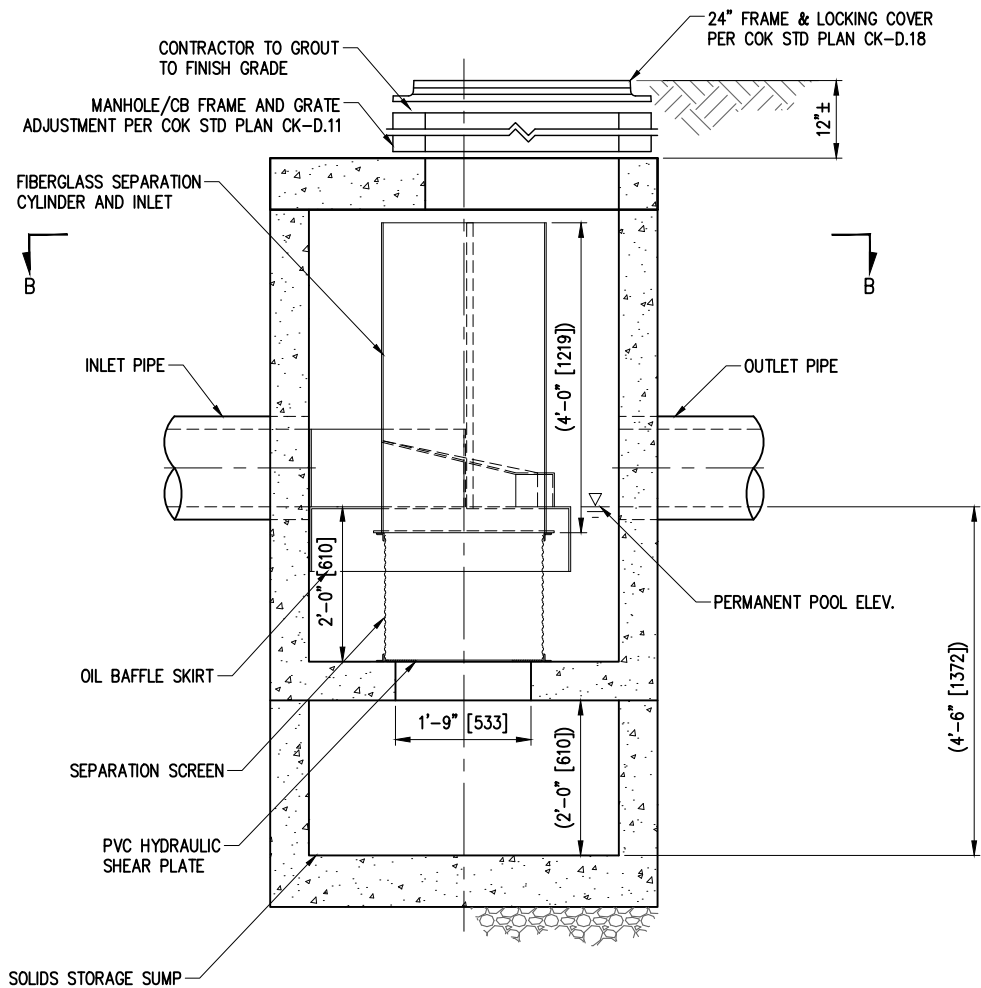
NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT  
TREATMENT & FLOW SPLITTER  
PLAN

REFERENCE  
SHEET NO.  
SHEET  
6  
OF  
15  
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PLAN VIEW B-B  
N.T.S.



PLAN VIEW A-A  
N.T.S.

## CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

### CONFIGURATION DESCRIPTION

GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS

### SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			CDS
WATER QUALITY FLOW RATE (CFS OR L/s)			0.446
PEAK FLOW RATE (CFS OR L/s)			0.446
RETURN PERIOD OF PEAK FLOW (YRS)			-
SCREEN APERTURE (2400 OR 4700)			-
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	312.23	DI	12
INLET PIPE 2	-	-	-
OUTLET PIPE	312.13	DI	12
RIM ELEVATION			318.05
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		-	-
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

### GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.contechES.com](http://www.contechES.com)
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

### INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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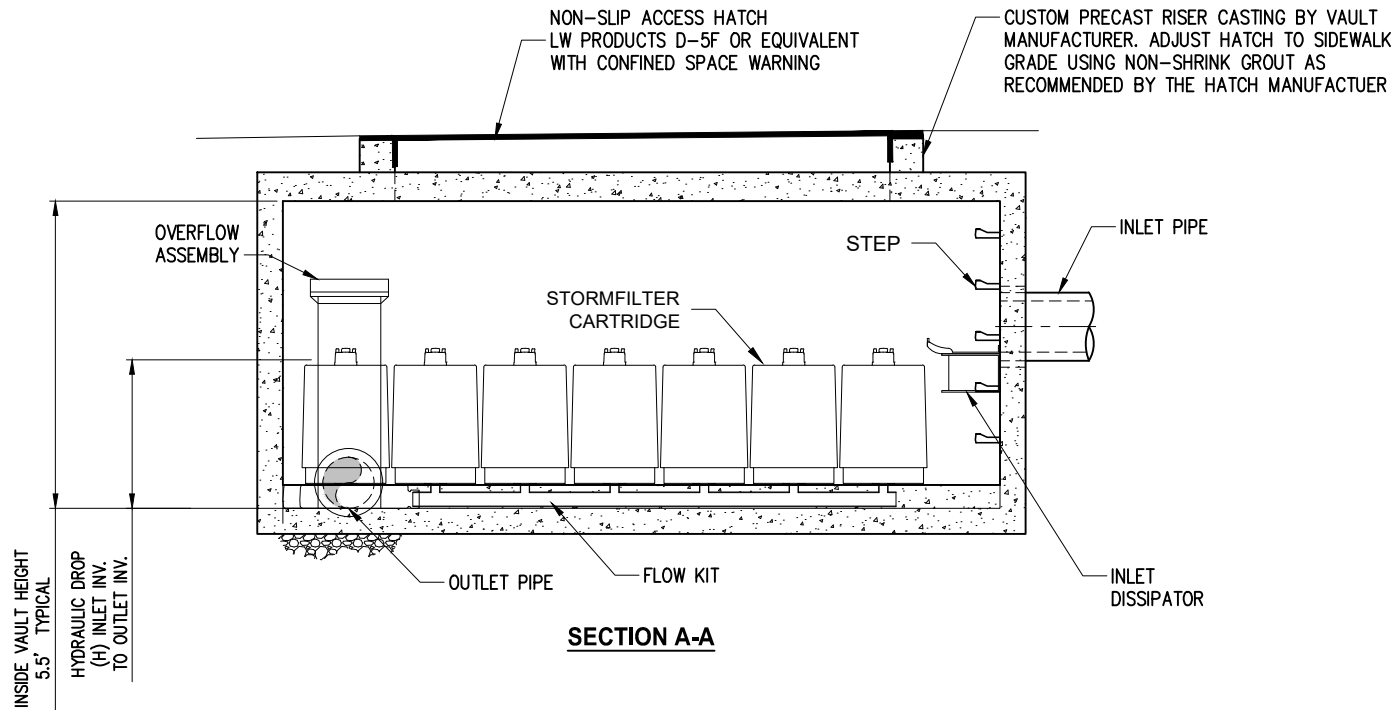
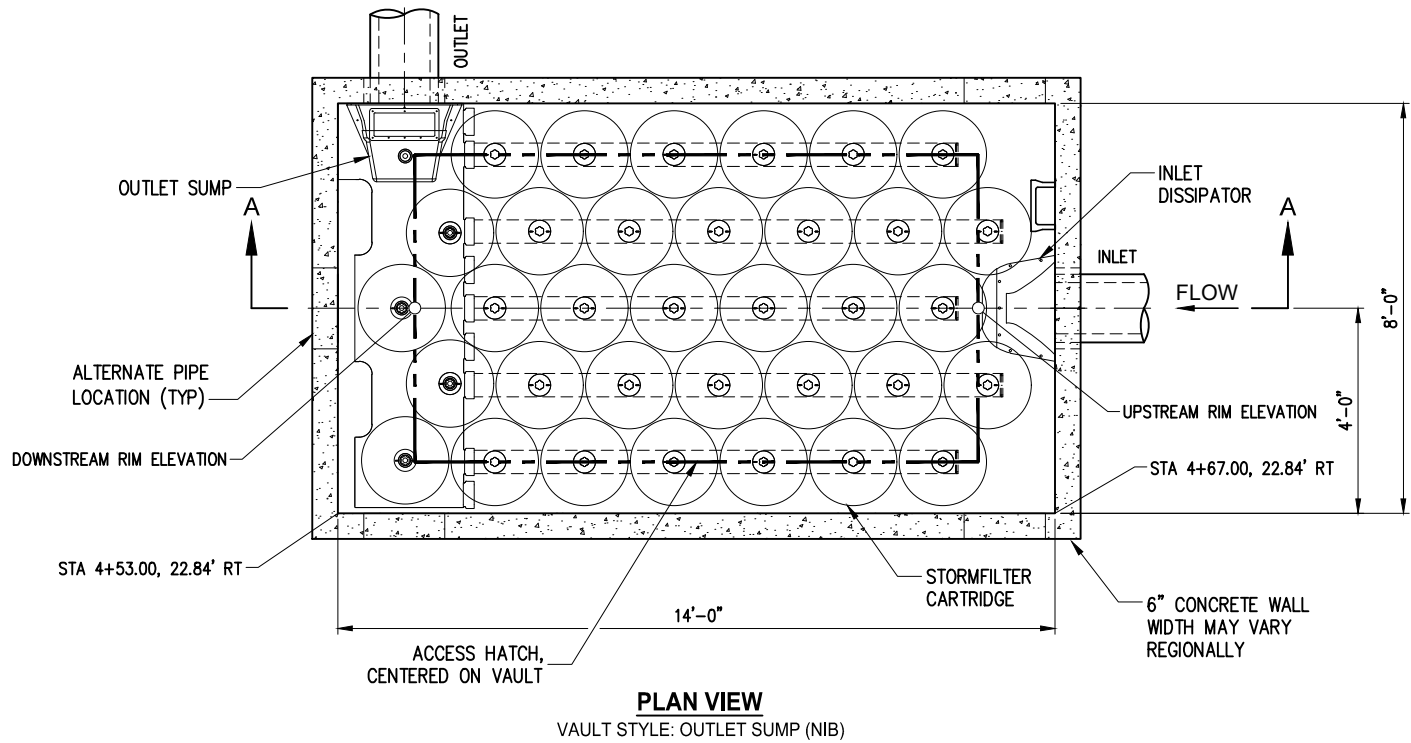


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NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT  
  
CDS HYDRONIC SEPARATOR  
DETAIL

REFERENCE SHEET NO.
SHEET 7 OF 15 SHEETS

February 5, 2024 - 5:05 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156\STRMDET03\_SF.DWG - Layout Name: STRM VLT DET01



## STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD VAULT STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (34). VAULT STYLE OPTIONS INCLUDE INLET BAY (27), INLET BAY/OUTLET BAY (22), OUTLET BAY (29), INLET BAY/FULL HEIGHT BAFFLE (28), FULL HEIGHT BAFFLE WALL (25). STORMFILTER 8X14 PEAK HYDRAULIC CAPACITY IS 1.8 CFS. IF THE SITE CONDITIONS EXCEED 1.8 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

### CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

\* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY

### SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	SF
WATER QUALITY FLOW RATE (cfs)	0.446
PEAK FLOW RATE (cfs)	0.446
RETURN PERIOD OF PEAK FLOW (yrs)	-
CARTRIDGE HEIGHT (27", 18", LOW DROP(LD))	18
NUMBER OF CARTRIDGES REQUIRED	27
CARTRIDGE FLOW RATE	7.5
MEDIA TYPE (PERLITE, ZPG, PSORB)	ZPG

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	311.59	DI	12
INLET PIPE #2	-	-	-
OUTLET PIPE	309.29	DI	12

UPSTREAM RIM ELEVATION	317.01
DOWNSTREAM RIM ELEVATION	316.63

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	-	-

NOTES/SPECIAL REQUIREMENTS:

\* PER ENGINEER OF RECORD

### GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.ContechES.com](http://www.ContechES.com)
- STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL BE PER COK STD PLAN D.18, EXCEPT FRAME DIAMETER SHALL BE 30".
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
- SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).
- STORMFILTER STRUCTURE SHALL BE PRECAST CONFORMING TO ASTM C-857 AND AASHTO LOAD FACTOR DESIGN METHOD.

### INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER VAULT (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT SECTIONS AND ASSEMBLE VAULT.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

DATE	NO.	REVISION	BY



UPI NO.:	FED. AID PROJ. NO.:
SURVEY NO.:	FIELD BOOK(S):
HORZ. DATUM: WSPCS, N ZONE, NAD 83/11	VERT. DATUM: NAVD 88
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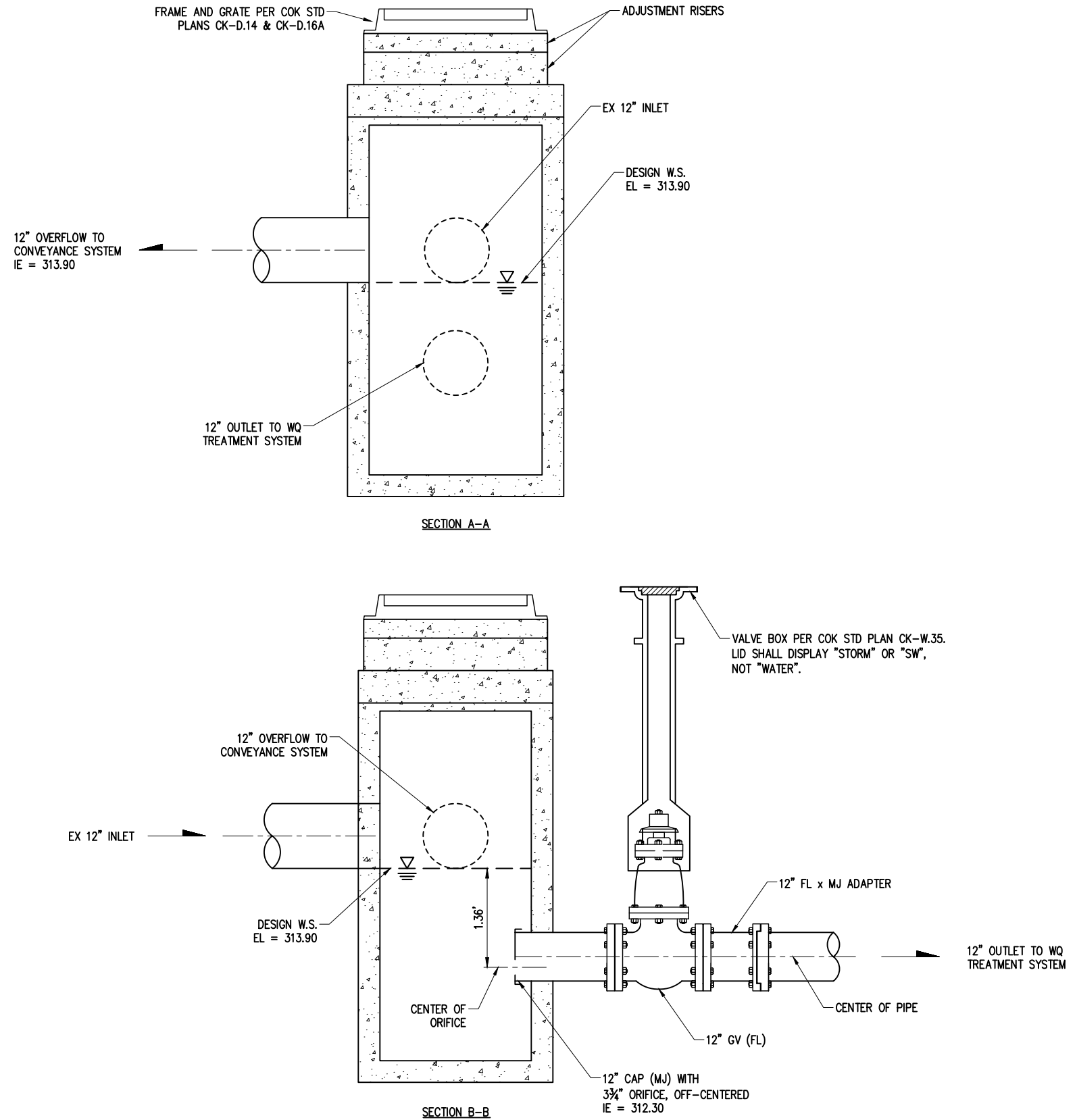
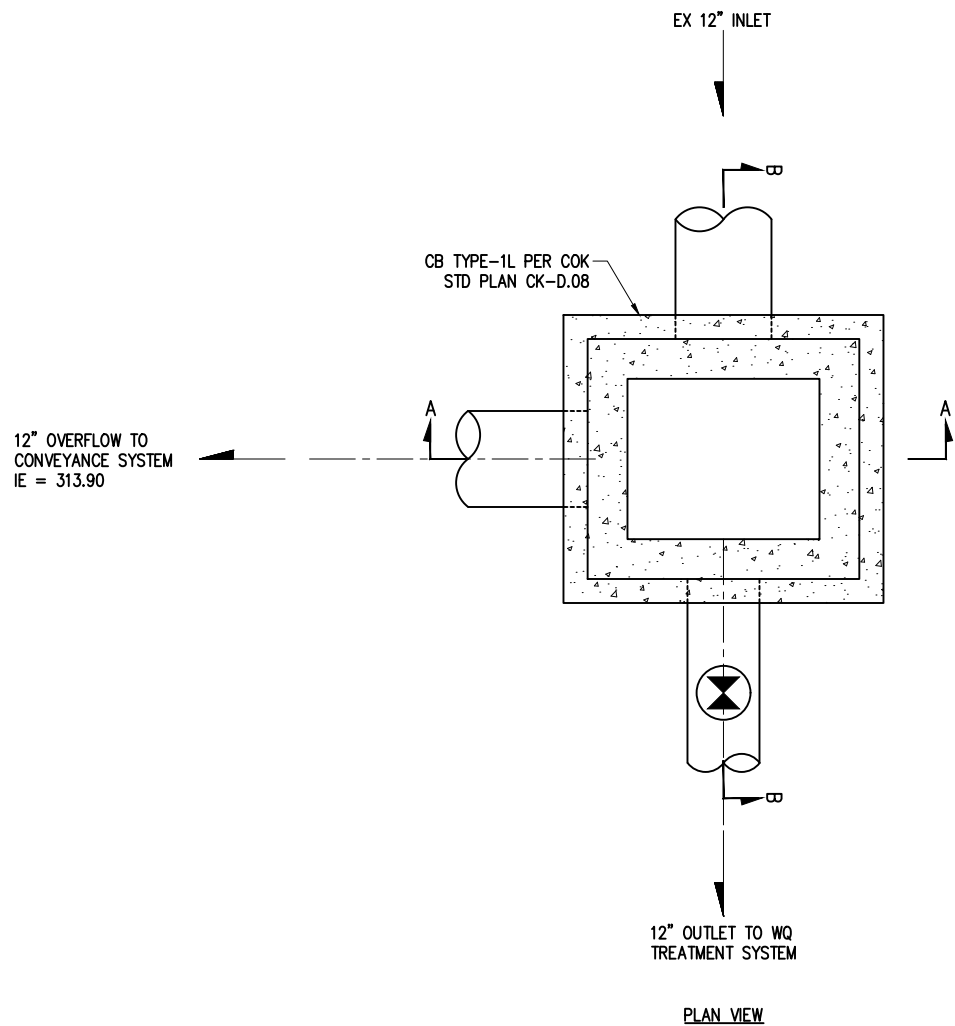
NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT

STORM FILTER DETAIL

REFERENCE  
SHEET NO.

SHEET  
8  
OF  
15  
SHEETS

December 19, 2023 - 12:48 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156\STRMDET01.DWG - Layout Name: STORM DETAILS 1



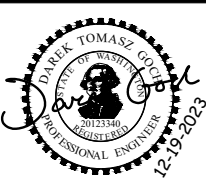
FLOW SPLITTER DETAIL 1  
NTS

DATE	NO.	REVISION	BY



UPI NO.:	
SURVEY NO.:	
HORZ. DATUM:	WSPCS, N ZONE, NAD 83/11
DESIGNED BY:	DTG

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NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT

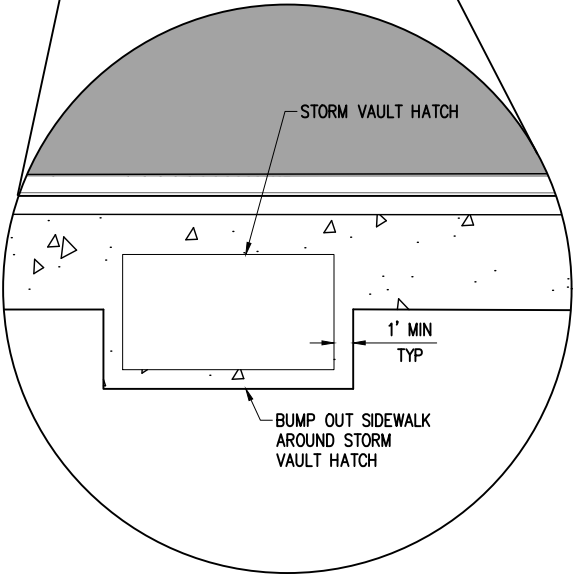
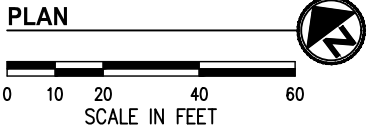
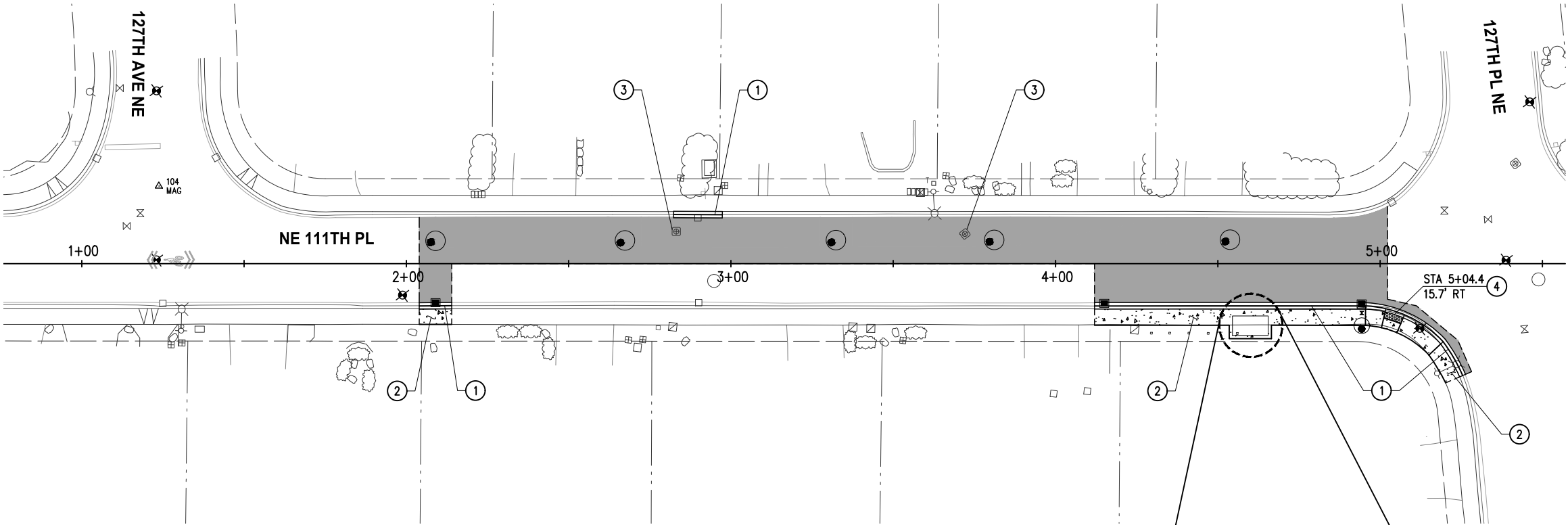
FLOW SPLITTER DETAIL

REFERENCE  
SHEET NO.

SHEET  
9  
OF  
15  
SHEETS

FEET  
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15  
FEET

December 19, 2023 - 12:48 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156RD.DWG - Layout Name: 01 SIDEWALK RESTORATION PLAN



**SIDEWALK BUMP-OUT DETAIL**  
NTS

**GENERAL NOTES**

1. FOR ALIGNMENT & SURVEY CONTROL, SEE SHEET 3.
2. FOR RESTORATION DETAILS, SEE SHEET 12.
3. RESTORE BEHIND SIDEWALK WITH SEEDED LAWN OVER A MIN OF 2" TOPSOIL. INCREASE DEPTH OF TOPSOIL AS REQUIRED TO BRING FINISHED GRADE FLUSH WITH ADJACENT SURFACES

**CONSTRUCTION NOTES**

- 1 ROLLED CURB PER DETAIL 1 SHEET 12.
- 2 CEMENT CONC SIDEWALK PER DETAIL 1 SHEET 12..
- 3 ADJUST WELL AND CASING TO FINISHED GRADE.
- 4 REPLACE EXISTING CURB RAMP WITH NEW TYPE PARALLEL A CURB RAMP PER WSDOT STD PLAN F-40.12, EXCEPT CONCRETE THICKNESS SHALL BE 6". LANDING WIDTH SHALL BE MIN 4' WIDE AND 5' DEEP. TRANSITION FROM DEPRESSED CURB & GUTTER TO ROLLED CURB THROUGH CURB RAMP WINGS.

**LEGEND**

- CEMENT CONC SIDEWALK
- 6" HMA CL 1/2" PG 58H-22 OVER 4" CSTC
- STORM STRUCTURES, SEE STORMWATER PLAN & PROFILE SHEET 5.
- SAWCUT MATCH LINE

DATE	NO.	REVISION	BY



UPI NO.:	FED. AID PROJ. NO.:
SURVEY NO.:	FIELD BOOK(S):
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DESIGNED BY: DTG	DRAWN BY: DTG
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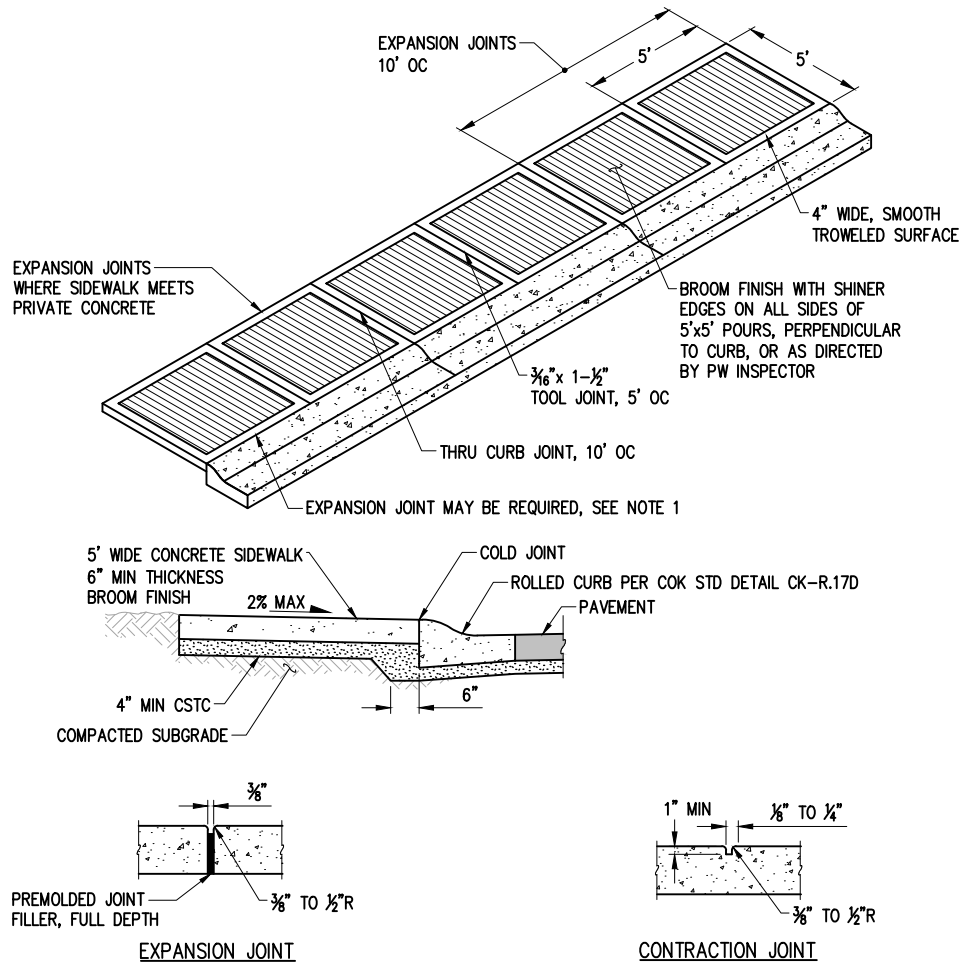
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**NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT**

**ROADWAY  
RESTORATION PLAN**

REFERENCE SHEET NO.
SHEET 11 OF 15 SHEETS

December 19, 2023 - 12:48 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156\RESTODET.DWG - Layout Name: RESTORATION DETAILS



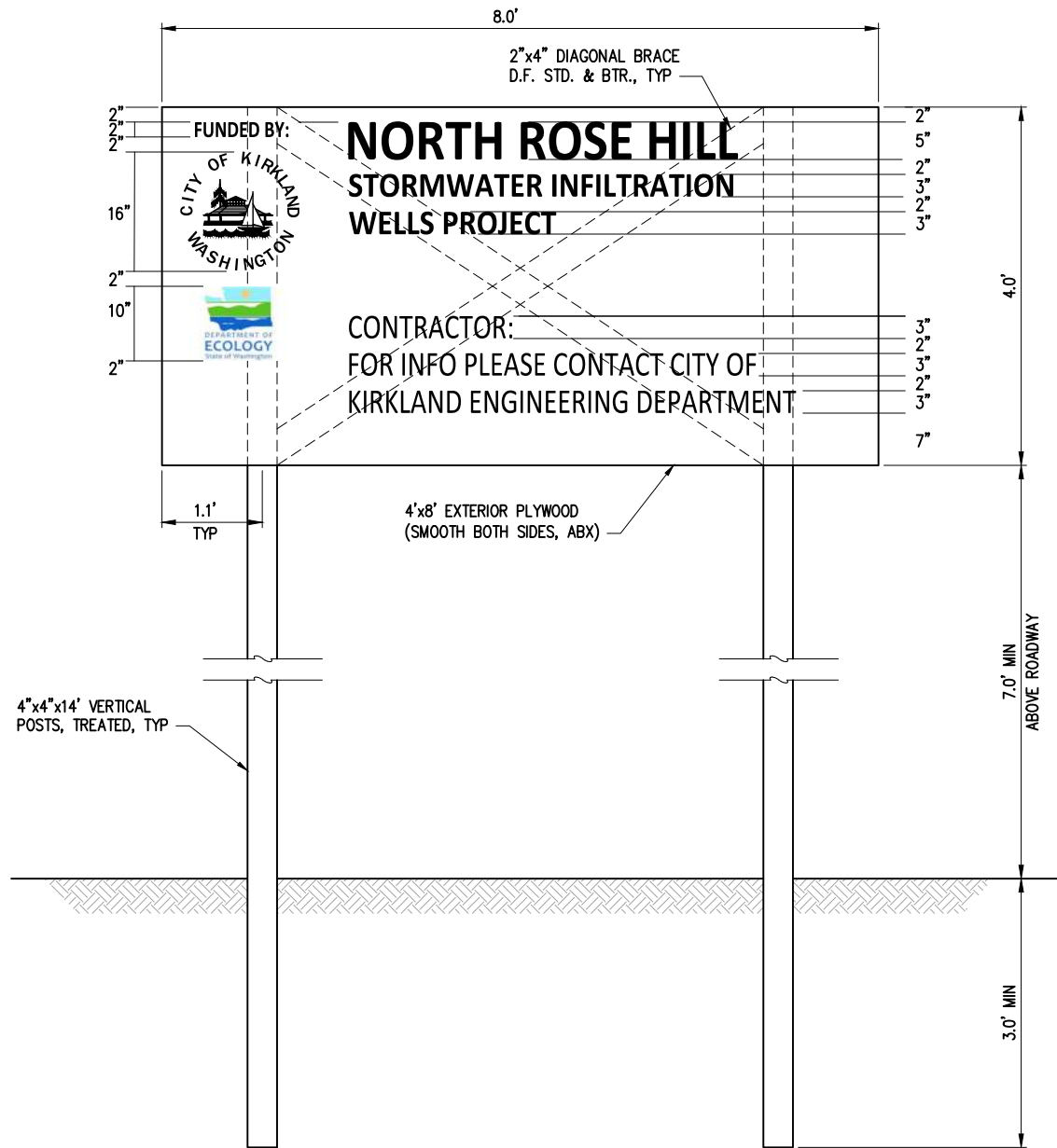
NOTES

1. SIDEWALK AND ROLLED CURB CANNOT BE POURED MONOLITHICALLY. EXPANSION JOINT WILL BE REQUIRED WHEN CONCRETE SIDEWALK IS SURROUNDED BY OTHER HARD SURFACES (E.G., DRIVEWAY); OR AS DIRECTED BY PW INSPECTOR.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000 PSI MINIMUM, WITH AIR ENTRAINMENT. NO COLOR OR TINT SHALL BE ADDED.
3. FORMS SHALL BE SET TRUE TO LINE AND GRADE AND SHALL BE STEEL UNLESS OTHERWISE APPROVED BY INSPECTOR.
4. SIDEWALK SHALL NOT BE POURED IN THE RAIN. SEE POLICY R-8, PLACING CONCRETE OR ASPHALT IN ADVERSE WEATHER CONDITIONS.

SIDEWALK WITH ROLLED CURB DETAIL

NTS

1



NOTES

1. LOCATIONS: INSTALL ONE SIGN AT EACH END OF PROJECT, FACING VEHICLE TRAFFIC.
2. PAINTING: THE FACE AND EDGES OF THE 1/2" PLYWOOD SIGN BOARD SHALL HAVE ON PRIME COAT AND TWO COATS OF EXTERIOR ENAMEL. THE POSTS, BRACES, AND BACK OF SIGN BOARD SHALL HAVE ONE COAT OF PRIMER AND EXTERIOR ENAMEL. THE BACKGROUND COLOR SHALL BE WHITE.
3. LETTER TYPES: THE LETTER TYPE SHALL BE CALIBRI EXCEPT THE LOGOS WHICH WILL BE PROVIDED BY THE CITY. ALL LETTERS AND NUMBERS SHALL BE BLACK.
4. LETTER SIZE: 5" LETTERS SHALL BE 5/8" WIDE, 4" LETTERS SHALL BE 1/2" WIDE, 3" LETTERS SHALL BE 3/8" WIDE, 2" LETTERS SHALL BE 1/4" WIDE.

PROJECT SIGN DETAIL

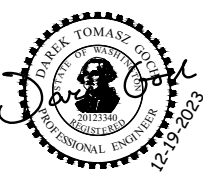
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DATE	NO.	REVISION	BY		



UPI NO.:	FED. AID PROJ. NO.:
SURVEY NO.:	FIELD BOOK(S):
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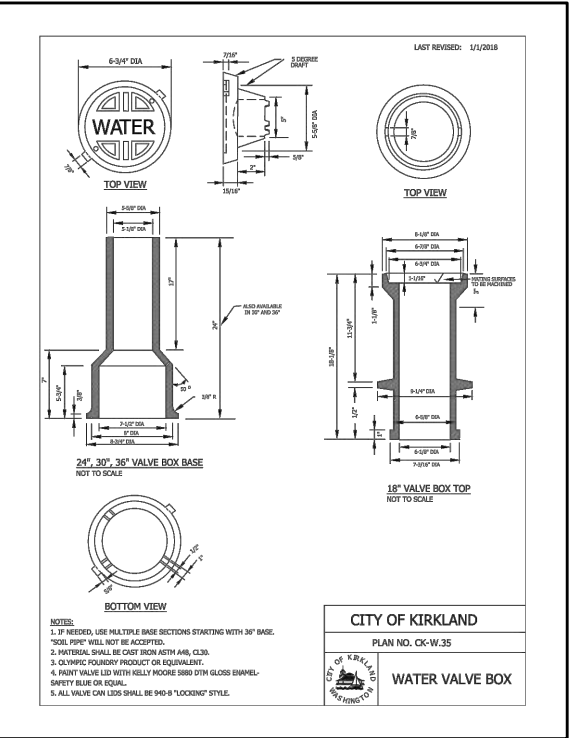
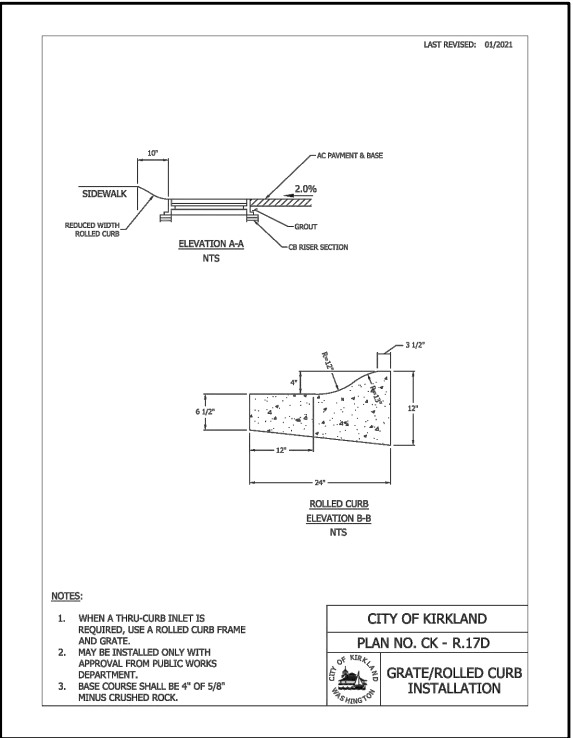
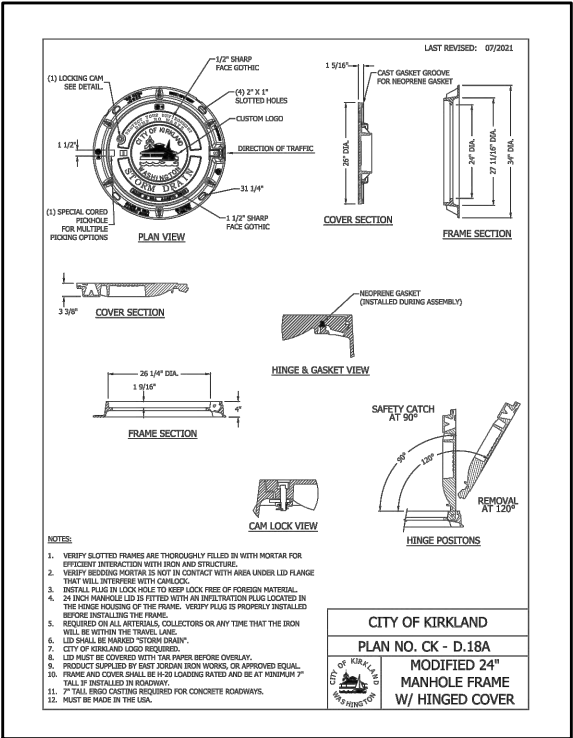
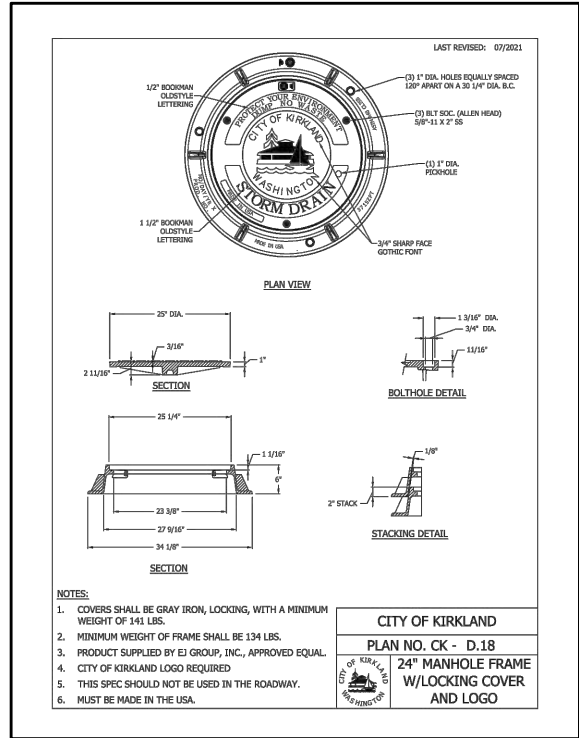


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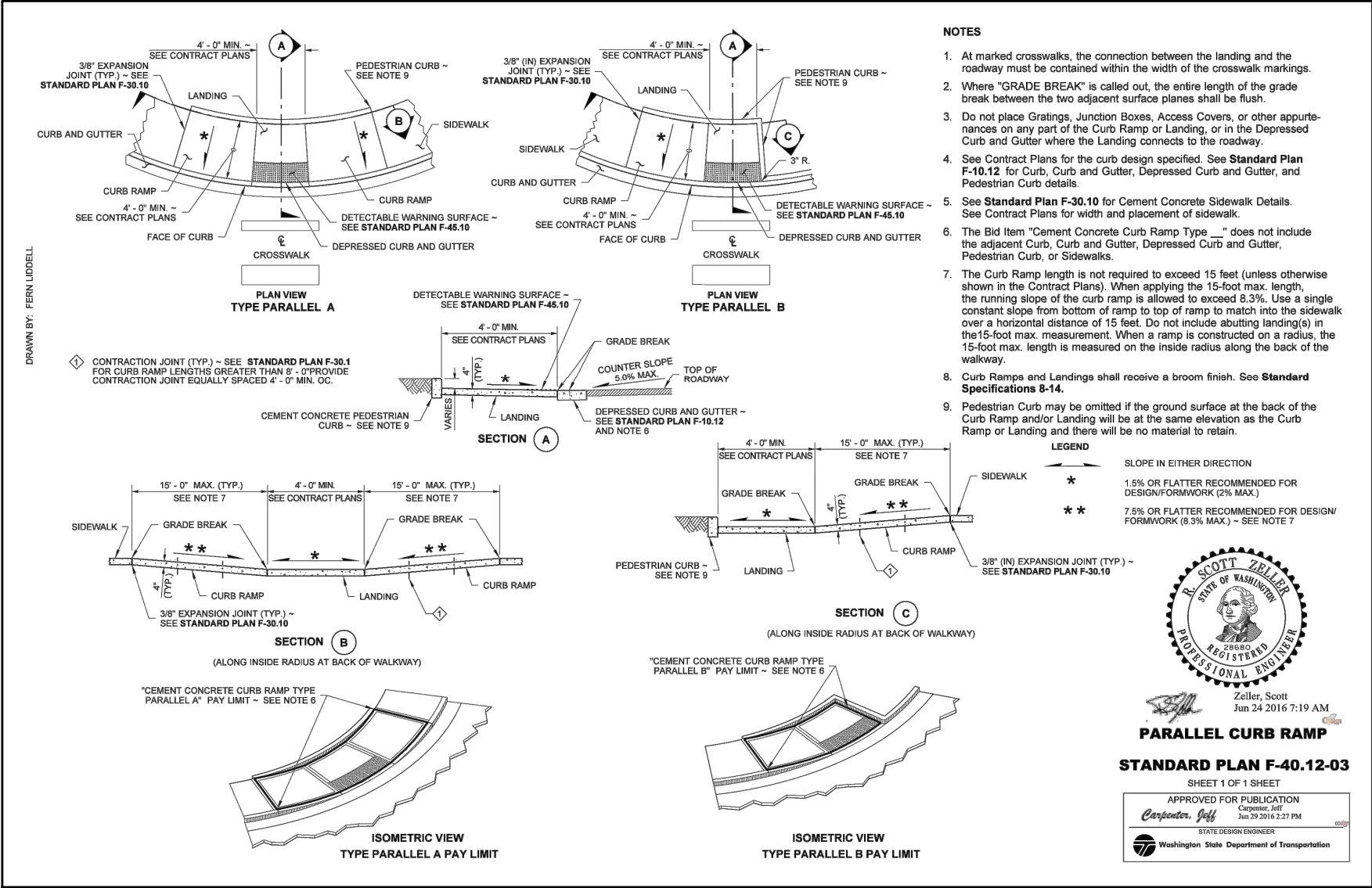
NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT

RESTORATION DETAILS

REFERENCE SHEET NO.
SHEET 12 OF 15 SHEETS



December 19, 2023 - 12:49 PM - DAREK GOCH - K:\KIRKLAND\21156 - NORTH ROSE HILL INFILTRATION\DESIGN\DRAWINGS\CONTRACT\21156\WSDOT-STD DET.DWG - Layout Name: WSDOT STD DET 01



DATE	NO.	REVISION	BY		



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DESIGNED BY:	DRAWN BY:

**DAREK TOMASZ GOCH**

20123340

REGISTERED PROFESSIONAL ENGINEER

12-19-2023

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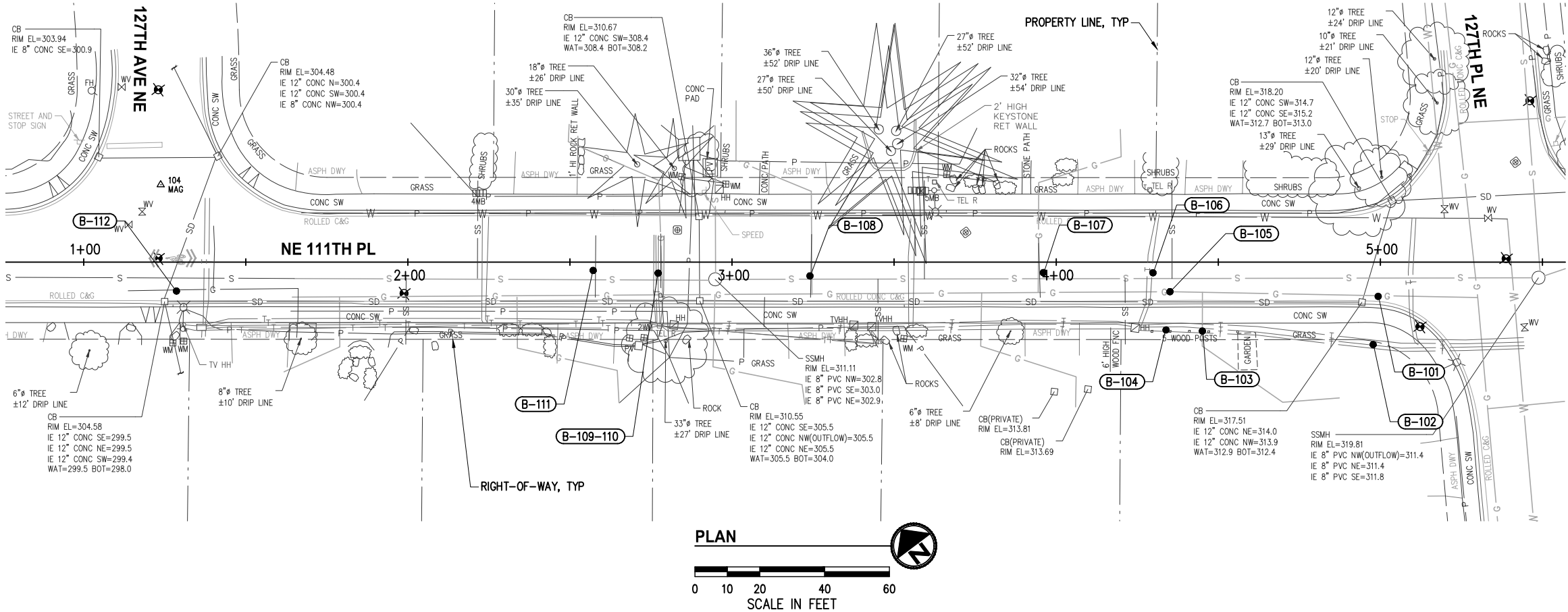
**NORTH ROSE HILL STORMWATER INFILTRATION WELLS PROJECT**

WSDOT

**WSDOT STANDARD PLANS**

REFERENCE SHEET NO.
SHEET 14 OF 15 SHEETS

December 19, 2023 - 12:49 PM - DAREK GOCH - K:KIRKLAND21156 - NORTH ROSE HILL INFILTRATIONDESIGNDRAWINGS/CONTRACT21156EXCOND&POTHOLE.DWG - Layout Name: EX CONDITION & POTHOLE



## SURVEY NOTES

### BASIS OF BEARING

1. RTK GPS DERIVED BETWEEN LIN AND ASSOCIATES CONTROL POINTS 610 AND 612  
N 49°57'18" W
2. INTENDED USE OF THE TOPOGRAPHIC ELEMENTS SHOWN HEREIN ARE FOR CIVIL ENGINEERING DESIGN PURPOSES.
3. CONTOURS PORTRAYED HEREIN ARE DERIVED FROM DIRECT FIELD OBSERVATIONS, FROM TERRESTRIAL LIDAR SCAN AND CONVENTIONAL TOTAL STATION MEASUREMENTS.
4. CONTOUR ACCURACY IS ONE-HALF THE CONTOUR INTERVAL BASED NATIONAL MAPPING STANDARDS.
5. THIS IS NOT A BOUNDARY SURVEY, RIGHT OF WAY AND PARCEL LINES DEPICTED ARE FROM KING COUNTY GIS.
6. LOCATIONS OF UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON FIELD MEASUREMENT BY LOCATING PAINT MARKS PROVIDED BY FREE ONE CALL SERVICE AND AUGMENTED BY PRIVATE UTILITY LOCATING SERVICE APS.
7. CITY OF KIRKLAND GIS LINES SHOWN HEREIN FOR STORM DRAIN, SANITARY SEWER AND WATER SERVICE LINES ARE ON RECORD LAYERS.
8. PSE GAS AND POWER LINES SHOWN HEREIN ARE BASED ON RECORDS REQUEST OF FRANCHISE UTILITY MAPS AND ARE ON RECORD LAYERS.

DATE VISITED  
JANUARY 8-14, 2019

POTHoles					
#	STATION	OFFSET	DESCRIPTION	TOP UTIL DEPTH (IN)	BOT UTIL DEPTH (IN)
B-101	4+99.3	10.6' RT	PSE GAS 2" STEEL WRAP	33.0	35.0
B-102	4+97.8	25.5' RT	ZIPLY FIBER (3)-1" PVC	32.0	34.0
B-103	4+45.1	21.3' RT	PSE GAS 1" PE	47.0	48.0
B-104	4+33.9	20.9' RT	ZIPLY FIBER (2)-1" PVC	30.0	32.0
B-105	4+35.1	9.1' RT	PSE GAS 2" STEEL WRAP	37.0	39.0
B-106	4+29.9	3.3' RT	ZIPLY FIBER 1" PVC	23.0	24.0
B-107	3+96.0	3.2' RT	PSE GAS 1" PE	44.0	45.0
B-108	3+24.0	4.3' RT	PSE GAS 1" PE	40.0	41.0
B-109-110	2+77.2	3.4' RT	COMCAST (2)-4" PVC 9" WIDE	38.0	42.0
B-111	2+57.2	2.6' RT	PSE GAS 1" STEEL WRAP	42.0	43.0
B-112	1+28.6	8.9' RT	COK WATER 1.25"	39.0	40.0

DATE	NO.	REVISION	BY



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NORTH ROSE HILL STORMWATER  
INFILTRATION WELLS PROJECT  
  
EXISTING CONDITIONS &  
POTHOLE PLAN

REFERENCE SHEET NO.
SHEET 15 OF 15 SHEETS