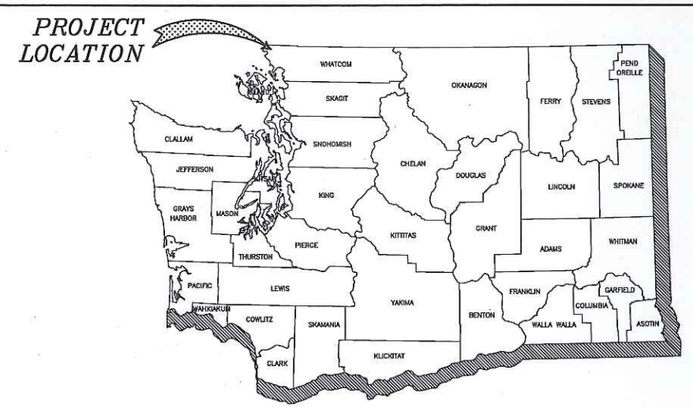
VISTA TERRACE SANITARY SEWER IMPROVEMENTS, PHASE 1

CITY OF BLAINE, WA - PROJECT NO. 10-11

VICINITY MAP

PROJECT LOCATED IN SECTION 32 TOWNSHIP 41N, RANGE 1E, W.M.

NTS



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4	PLAN AND PROFILE (ALLAN ST 20+00 TO 25+00)
5	PLAN AND PROFILE (ALLAN ST 25+00 TO 31+00)
6	DETAILS
7	DETAILS
8	DETAILS

8/5/14

BID SET

DESIGNED BY KEC
DRAWN BY RWG
CHECKED BY KEC

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF BLAINE
1200 YEW AVENUE
BLAINE, WA 98230

VISTA TERRACE SANITARY SEWER IMPROVEMENTS, PHASE 1
COVER

DWG 11012.1 COVER
JOB# 11012.1
SCALE H: N/A V: N/A
DATE 8/5/14
SHEET 1 of 8

ABBREVIATIONS

AC	= ASBESTOS CEMENT	EVLS	= END VERTICAL CURVE STATION	MAX	= MAXIMUM	R&C	= RING AND COVER
AD	= ALGEBRAIC DIFFERENCE	EX, EXIST	= EXISTING	MPOC	= MID-POINT ON CURVE	SSMH	= SANITARY SEWER MANHOLE
ASPH	= ASPHALT	IR	= EXISTING IRRIGATION	MIN	= MINIMUM	SCH	= SCHEDULE
BLDG	= BUILDING	SN	= EXISTING SIGN	MOD	= MODIFIED	S	= SOUTH
BVCE	= BEGIN VERTICAL CURVE ELEVATION	FT	= FEET	MW	= MONITORING WELL	SD	= STORM DRAIN
BVCS	= BEGIN VERTICAL CURVE STATION	FL	= FLOW LINE	MON	= MONUMENT	STD	= STANDARD
CATV	= CABLE TELEVISION	FF	= FINISHED FLOOR	MTR	= METER	SP	= STANDARD PLAN
CDF	= CONTROLLED DENSITY FILL	FG	= FINISHED GRADE	N	= NORTH	STA	= STATION
CL	= CLASS, CENTERLINE	FT/FT	= FEET PER FOOT	OC	= ON CENTER	SDCB	= STORM DRAIN CATCH BASIN
CMP	= CORRUGATED METAL PIPE	F&C	= FRAME AND COVER	PVMNT	= PAVEMENT	SDMH	= STORM DRAIN MANHOLE
CMU	= CONCRETE MASONRY UNIT	F&G	= FRAME AND GRATE	PED	= PEDESTAL	TEL	= TELEPHONE
COMP	= COMPACTED	R&C	= RING AND COVER	PCC	= POINT OF COMPOUND CURVATURE	TL	= TRAFFIC LOOP
CONC	= CONCRETE	GALV	= GALVANIZED	PC	= POINT OF CURVATURE	TYP	= TYPICAL
CONT	= CONTOUR	GRVL	= GRAVEL	PRC	= POINT OF REVERSE CURVE	UP	= UTILITY POLE
C & G	= CURB & GUTTER	GV	= GATE VALVE	PT	= POINT OF TANGENCY	UTIL	= UTILITY
CPSSP	= CORRUGATED POLYETHYLENE STORM SEWER PIPE	HDPE	= HIGH DENSITY POLYETHYLENE	POC	= POINT ON CURVE	VC	= VERTICAL CURVE
CULV	= CULVERT	HMA	= HOT MIX ASPHALT	PVC	= POLYVINYL CHLORIDE	VLT	= VAULT
ø	= DIAMETER	HP	= HIGH POINT	PCC	= PORTLAND CEMENT CONCRETE	VPC	= VERTICAL POINT OF CURVATURE
DI	= DUCTILE IRON	HYD	= HYDRANT	POSS	= POSSIBLE	VPI	= VERTICAL POINT OF INTERSECTION
D/W	= DRIVEWAY	IW	= INJECTION WELL	PROP	= PROPOSED	VPT	= VERTICAL POINT OF TANGENCY
E	= EAST	IE, INV	= INVERT ELEVATION	PVI	= POINT OF VERTICAL INTERSECTION	WSDOT	= WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
EOP, EP	= EDGE OF PAVEMENT	L	= LENGTH	PWR	= POWER	W	= WEST
EQUIV	= EQUIVALENT	LF	= LINEAR FEET	R	= RADIUS	WM	= WATER METER
EVCE	= END VERTICAL CURVE ELEVATION	LP	= LOW POINT	RET	= RETAINING	XEOA	= EXISTING EDGE OF ASPHALT
		LOC	= LOCATION	ROW	= RIGHT OF WAY		

NOTES

1. FIELD WORK PERFORMED BY COMPASS POINT SURVEY GROUP, LYNDEN, WA.
2. HORIZONTAL DATUM: WASHINGTON STATE PLANE (NORTH) COORDINATES – NAD 83/91
   VERTICAL DATUM: NGVD29

LEGEND

EXISTING

- = EXISTING TOP OF BANK
- = EXISTING BOTTOM OF BANK
- = EXISTING DITCH ℄
- = EXISTING GRADE BREAK
- = EXISTING MAJOR CONTOUR
- = EXISTING MINOR CONTOUR
- = EXISTING GUARDRAIL
- = EXISTING FENCE
- = EXISTING GRAVEL
- = EXISTING WALL
- = EXISTING BUILDING
- = EXISTING PROPERTY BOUNDARY
- = EXISTING RIGHT OF WAY
- = EXISTING RIGHT OF WAY ℄
- = EXISTING EASEMENT
- = EXISTING WETLANDS BOUNDARY
- = EXISTING ROAD ℄
- = EXISTING TRAFFIC STRIPING
- = EXISTING EDGE OF PAVEMENT
- = EXISTING FLOWLINE
- = EXISTING TOP BACK OF CURB
- = EXISTING SIDEWALK
- = EXISTING POWER BURIED
- = EXISTING COMMUNICATIONS BURIED
- = EXISTING OVERHEAD POWER
- = EXISTING OVERHEAD COMMUNICATIONS
- = EXISTING FIBER OPTICS BURIED
- = EXISTING TELEPHONE BURIED
- = EXISTING TV BURIED
- = EXISTING CONDUIT
- = EXISTING GAS MAIN
- = EXISTING ORDINARY HIGH WATER
- = EXISTING WATER MAIN
- = EXISTING SANITARY SEWER FORCE MAIN
- = EXISTING SANITARY SEWER
- = EXISTING STORM DRAIN
- = EXISTING UNDERDRAIN
- = EXISTING CULVERT
- = EXISTING TREE LINE
- = EXISTING CONCRETE
- = EXISTING RR TRACKS
- = EXISTING SIGNAL POLE AND ARM W/ LUMINAIRE
- = EXISTING STREET LIGHT ASSEMBLY
- = EXISTING GUY WIRE
- = EXISTING GAS METER
- = EXISTING TRANSFORMER PAD
- = EXISTING POWER VAULT
- = EXISTING JBOX
- = EXISTING SOIL BORING LOCATION
- = EXISTING MAIL BOX
- = EXISTING WATER SPIGOT
- = EXISTING WATER METER
- = EXISTING WATER VALVE
- = EXISTING FIRE HYDRANT
- = EXISTING TRAFFIC SIGNAL VAULT
- = EXISTING SEWER MANHOLE
- = EXISTING STORM DRAIN CATCH BASIN TYPE I
- = EXISTING STORM DRAIN CATCH BASIN TYPE II
- = EXISTING UTILITY POLE
- = EXISTING MONITORING WELL
- = EXISTING STORM CLEANOUT
- = EXISTING SEWER CLEANOUT
- = EXISTING SIGN
- = EXISTING TELEPHONE PEDESTAL
- = EXISTING BENCH MARK
- = EXISTING IRON PIPE
- = EXISTING MONUMENT (IN CASE)
- = EXISTING MONUMENT (SURFACE)
- = EXISTING ANGLE POINT
- = EXISTING TREE STUMP
- = EXISTING TREE
- = EXISTING VEGETATION

PROPOSED

- = PROPOSED TOP OF BANK
- = PROPOSED TOE OF BANK
- = PROPOSED SAWCUT
- = PROPOSED FIELD STORM DRAIN
- = PROPOSED MAJOR CONTOUR
- = PROPOSED MINOR CONTOUR
- = PROPOSED PAVEMENT VALLEY
- = PROPOSED DITCH ℄
- = PROPOSED FENCE
- = PROPOSED FIBER OPTICS
- = PROPOSED HANDRAIL
- = PROPOSED GUARDRAIL
- = PROPOSED GRAVEL
- = PROPOSED PATH
- = PROPOSED AUTOTURN
- = PROPOSED ROAD ℄
- = PROPOSED ROAD EDGE OF PAVEMENT
- = PROPOSED ROCK WALL
- = PROPOSED RIGHT OF WAY
- = PROPOSED TREE LINE
- = PROPOSED STORM DRAIN
- = PROPOSED TRAFFIC SIGNAL CONDUCTOR
- = PROPOSED SANITARY SEWER
- = PROPOSED TRAFFIC STRIPE
- = PROPOSED PARKING STRIPE
- = PROPOSED CURB AND GUTTER
- = PROPOSED POWER LINE
- = PROPOSED WATER MAIN
- = PROPOSED SIDEWALK
- = PROPOSED SILT FENCE
- = PROPOSED CONSTRUCTION EASEMENT
- = PROPOSED GRADE BREAK
- = PROPOSED SANITARY SEWER FORCE MAIN
- = PROPOSED UNDERDRAIN
- = PROPOSED CONDUIT
- = PROPOSED BUILDING
- = PROPOSED CONC. SIDEWALK/DRIVEWAY
- = PROPOSED INFILTRATION TRENCH
- = PROPOSED INFILTRATION FILTER MEDIA
- = PROPOSED GRIND
- = PROPOSED DEMOLITION AREA
- = PROPOSED ASPHALT
- = PROPOSED RIGHT OF WAY TAKE
- = PROPOSED STORM DRAIN INLET
- = PROPOSED COUPLER
- = PROPOSED WATER METER
- = PROPOSED WATER VALVE
- = PROPOSED HYDRANT
- = PROPOSED SANITARY SEWER MANHOLE
- = PROPOSED STORM DRAIN CATCH BASIN TYPE I
- = PROPOSED STORM DRAIN CATCH BASIN TYPE II
- = PROPOSED UTILITY POLE
- = PROPOSED MONITORING WELL
- = PROP STORM CLEANOUT
- = PROPOSED SANITARY SEWER CLEAN OUT
- = PROPOSED SIGN
- = FLOW ARROW
- = PROPOSED TREE

KYLE EDWARD CARLSON — STATE OF WASHINGTON — 50768 — REGISTERED PROFESSIONAL ENGINEER — 8/5/14

BID SET

DESIGNED BY	KEC
DRAWN BY	RWG
CHECKED BY	KEC

R&E Reichhardt & Ebe ENGINEERING INC
P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687
813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713

NO.	DATE	DESCRIPTION	BY

CITY OF BLAINE
1200 YEW AVENUE
BLAINE, WA 98230

VISTA TERRACE SANITARY SEWER IMPROVEMENTS, PHASE 1
LEGEND AND ABBREVIATIONS

DWG 11012.1 COVER			DATE 8/5/14
JOB# 11012.1	SCALE H: N/A' V: N/A		SHEET 2 of 8

LEGEND

WASHINGTON STATE DEPT. OF ECOLOGY BEST MANAGEMENT PRACTICES (BMP)

SYMBOL

REF: STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, 2005

BMP E3.30 INLET PROTECTION – PLACE SEDIMENT FILTER AROUND OR OVER CATCH BASINS

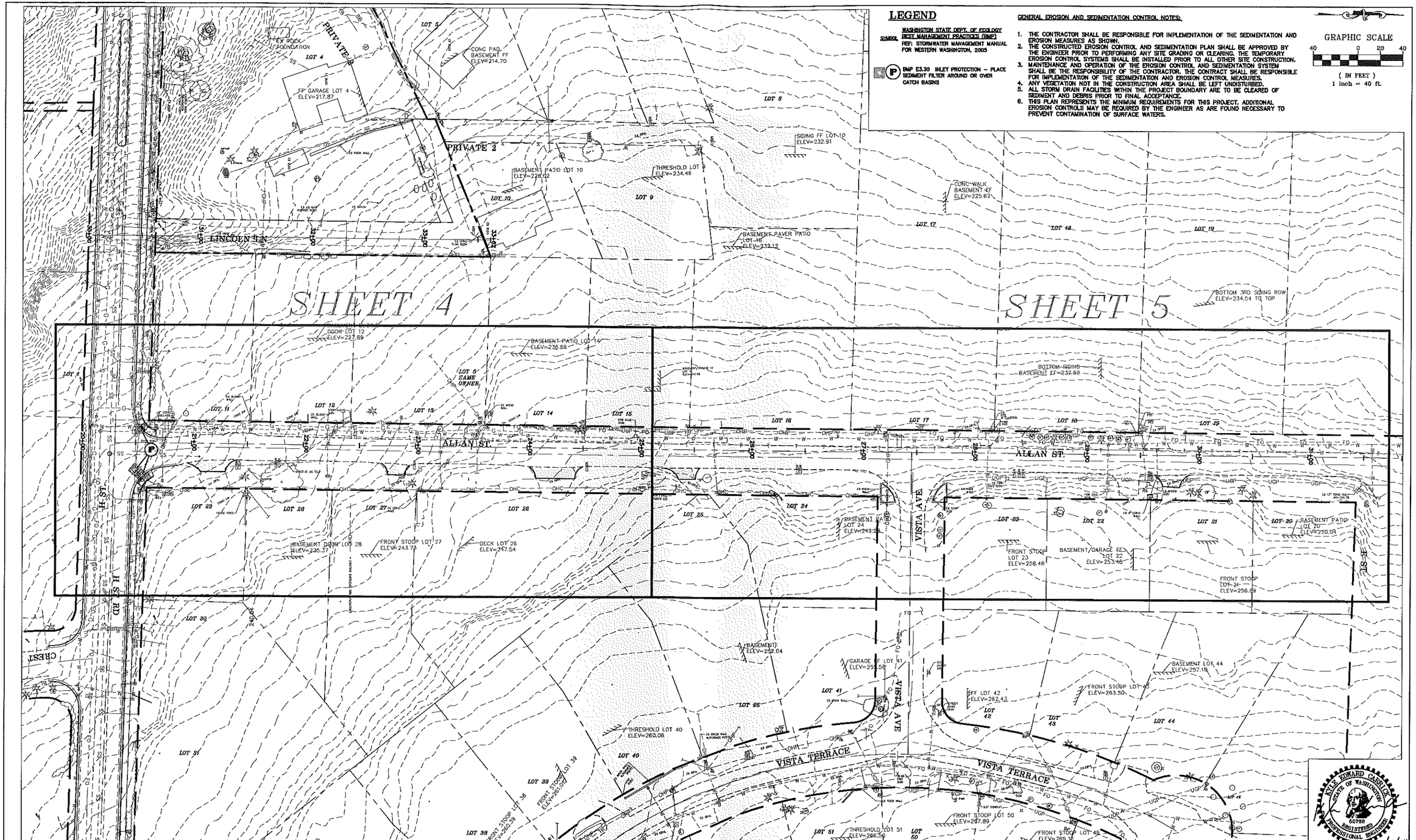
GENERAL EROSION AND SEDIMENTATION CONTROL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SEDIMENTATION AND EROSION MEASURES AS SHOWN.
2. THE CONSTRUCTED EROSION CONTROL AND SEDIMENTATION PLAN SHALL BE APPROVED BY THE ENGINEER PRIOR TO PERFORMING ANY SITE GRADING OR CLEARING. THE TEMPORARY EROSION CONTROL SYSTEMS SHALL BE INSTALLED PRIOR TO ALL OTHER SITE CONSTRUCTION.
3. MAINTENANCE AND OPERATION OF THE EROSION CONTROL AND SEDIMENTATION SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACT SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SEDIMENTATION AND EROSION CONTROL MEASURES.
4. ANY VEGETATION NOT IN THE CONSTRUCTION AREA SHALL BE LEFT UNDISTURBED.
5. ALL STORM DRAIN FACILITIES WITHIN THE PROJECT BOUNDARY ARE TO BE CLEARED OF SEDIMENT AND DEBRIS PRIOR TO FINAL ACCEPTANCE.
6. THIS PLAN REPRESENTS THE MINIMUM REQUIREMENTS FOR THIS PROJECT. ADDITIONAL EROSION CONTROLS MAY BE REQUIRED BY THE ENGINEER AS ARE FOUND NECESSARY TO PREVENT CONTAMINATION OF SURFACE WATERS.

GRAPHIC SCALE

40 0 20 40

(IN FEET)
1 inch = 40 ft.



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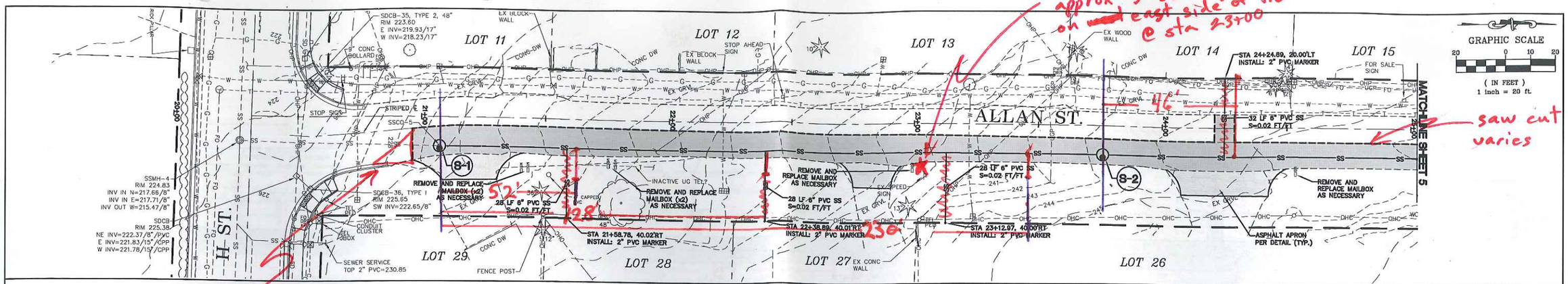
1200 YEW AVENUE
BLAINE, WA 98230

VISTA TERRACE SANITARY SEWER IMPROVEMENTS, PHASE 1

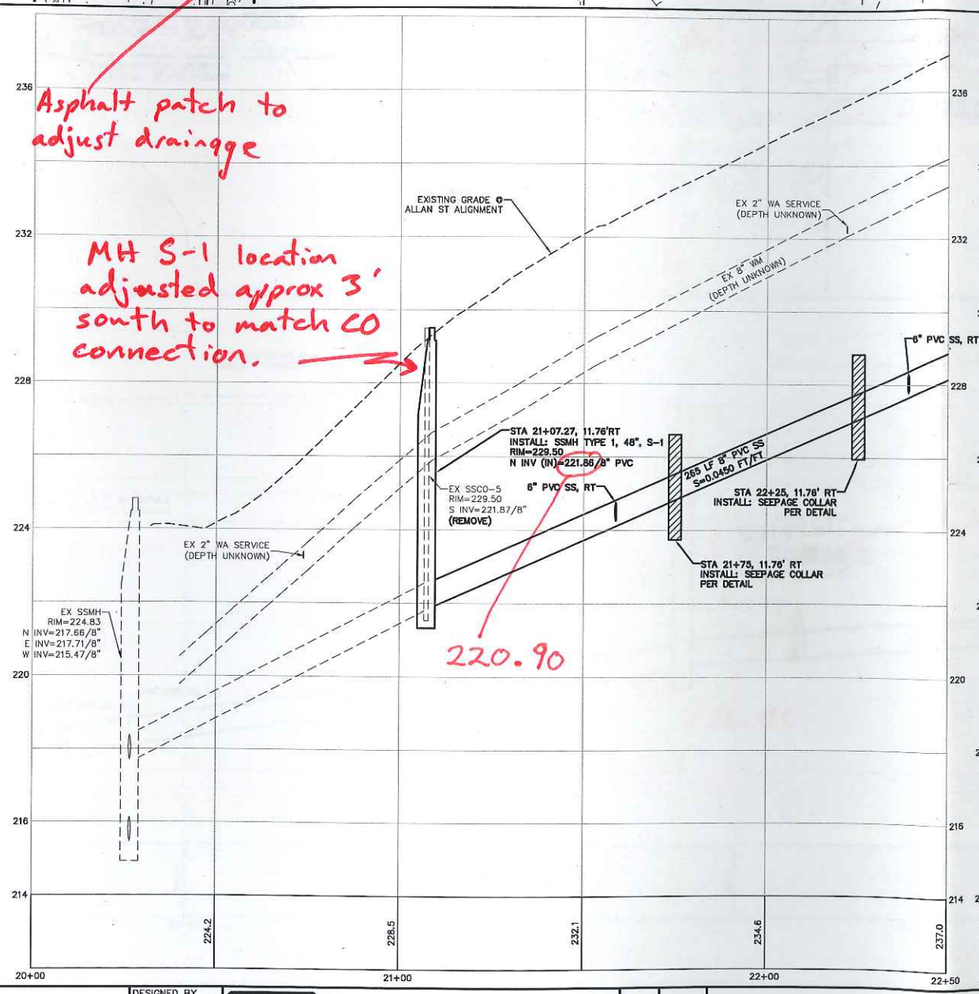
EXISTING CONDITIONS / SHEET INDEX

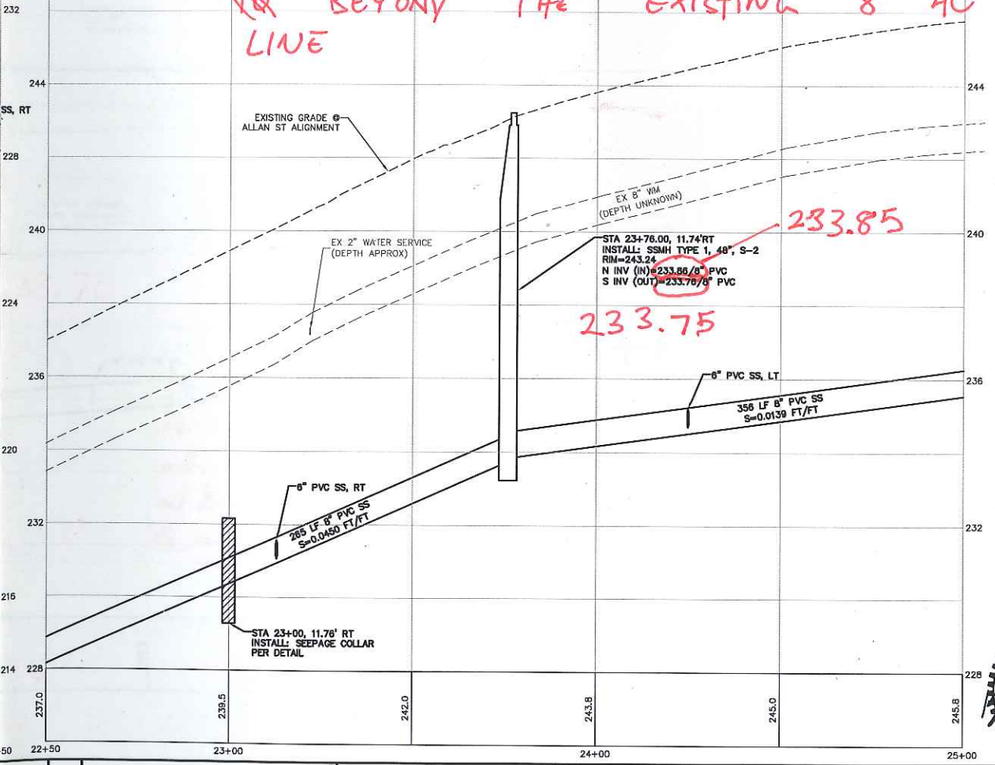
DWG 11012.1 PROBASE			DATE 8/5/14
JOB# 11012.1	SCALE H: 1"=40'	V: N/A	SHEET 3 of 8



Note - ALL SERVICE STUBS 20' FROM ℄ OF ROADWAY.

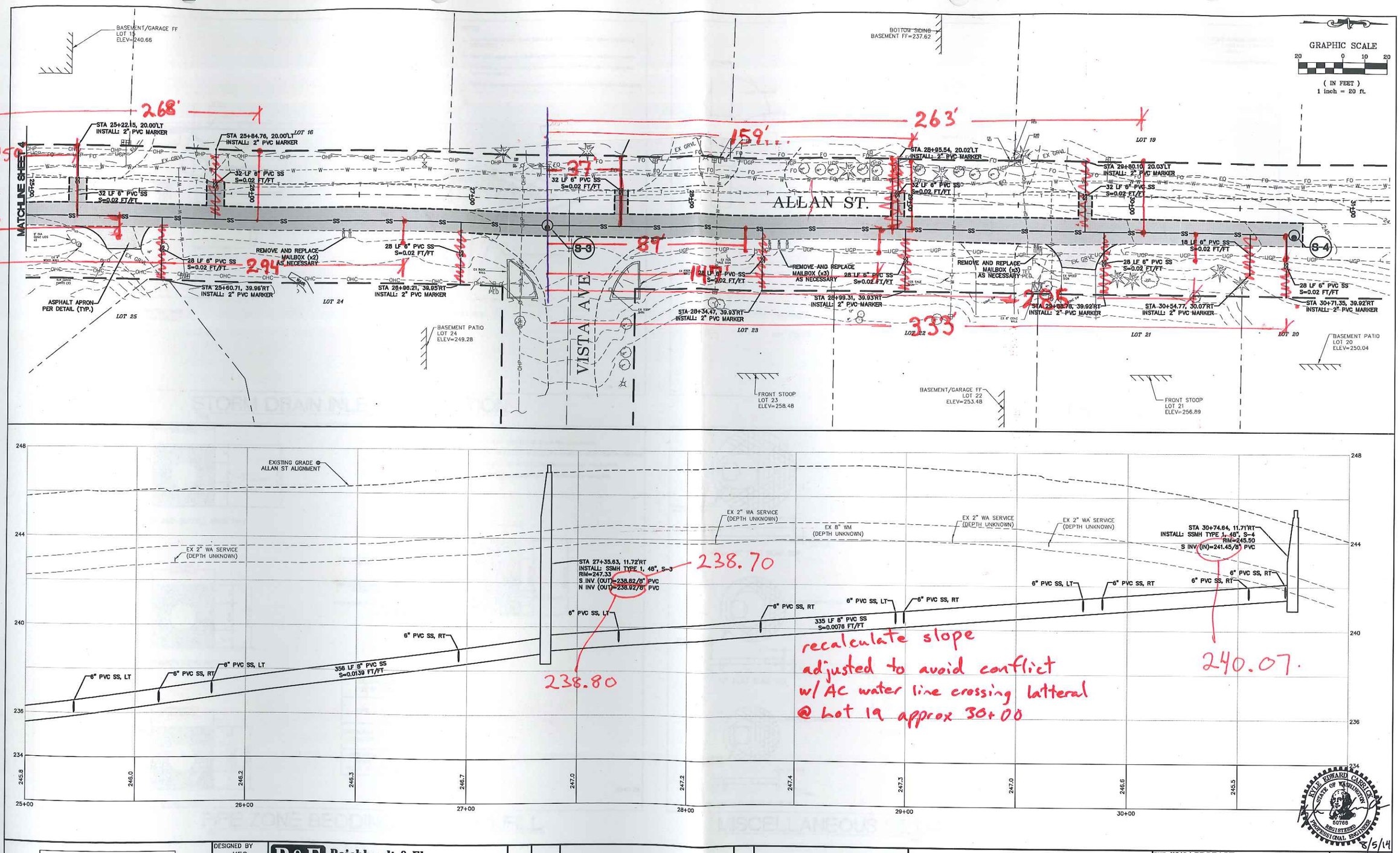
- ALL SERVICES ON W. SIDE OF ROAD STUBBED ~~TO~~ BEYOND THE EXISTING 8" AC WTR LINE





KYLE EDWARD CARDICK STATE OF WASHINGTON 50768 REGISTERED PROFESSIONAL ENGINEER 8/5/14

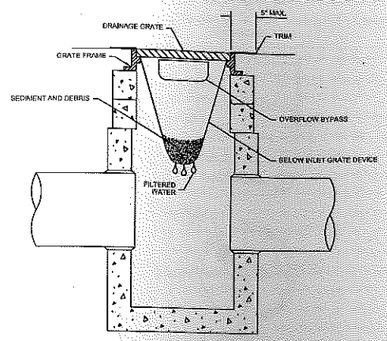
BID SET	DESIGNED BY KEC DRAWN BY RWG CHECKED BY KEC	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO. / DATE / DESCRIPTION / BY	CITY OF BLAINE 1200 YEW AVENUE BLAINE, WA 98230	VISTA TERRACE SANITARY SEWER IMPROVEMENTS, PHASE 1 PLAN AND PROFILE (ALLAN ST 20+00 TO 25+00)	DWG 11012.1 PROBASE JOB# 11012.1 SCALE H: 1"=20' V: 1"=2'	DATE 8/5/14 SHEET 4 of 8



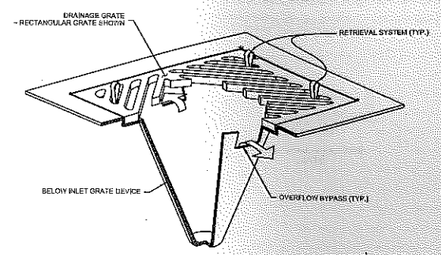
BID SET	DESIGNED BY KEC DRAWN BY RWG CHECKED BY KEC	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF BLAINE 1200 YEW AVENUE BLAINE, WA 98230	VISTA TERRACE SANITARY SEWER IMPROVEMENTS, PHASE 1 PLAN AND PROFILE (ALLAN ST 25+00 TO 31+00)	DWG 11012.1 PROBASE JOB# 11012.1	SCALE H: 1"=20' V: 1"=2'	DATE 8/5/14 SHEET 5 of 8

NOTES

1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
2. The BIGD shall have a built-in high-flow relief system (overflow bypass).
3. The retrieval system must allow removal of the BIGD without spilling the collected material.
4. Perform maintenance in accordance with Standard Specification 8-01.3(15).



SECTION VIEW
NOT TO SCALE



ISOMETRIC VIEW

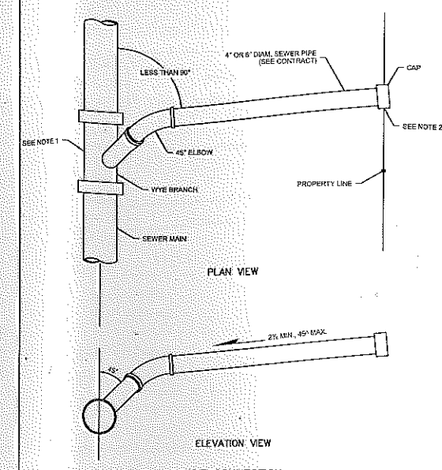
09-20-07

STORM DRAIN INLET PROTECTION

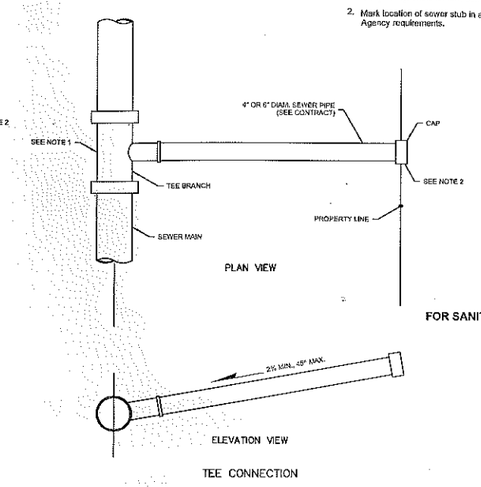
NTS

NOTES

1. Install sewer saddle with gasket and stainless steel clamps for connection to existing sewers. Install wye or tee sewer fitting with gaskets for new sewer installations.
2. Mark location of sewer stub in accordance with Contracting Agency requirements.



WYE CONNECTION



TEE CONNECTION

FOR SANITARY SEWER USE

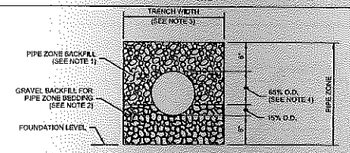
06-01-06

SIDE SEWER CONNECTION

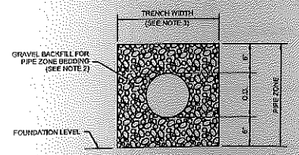
NTS

NOTES

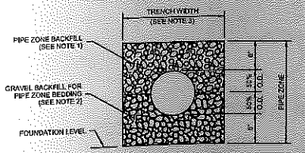
1. See Standard Specifications Section 7-08.3(3) for Pipe Zone Backfill.
2. See Standard Specifications Section 9-03.12(3) for Gravel Backfill for Pipe Zone Bedding.
3. See Standard Specifications Section 2-09.4 for Measurement of Trench Width.
4. For sanitary sewer installation, concrete pipe shall be bedded to spring line.



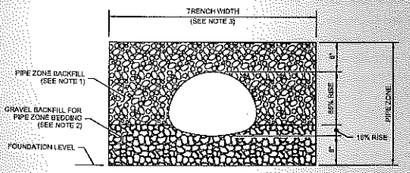
CONCRETE AND DUCTILE IRON PIPE



THERMOPLASTIC PIPE



METAL PIPE



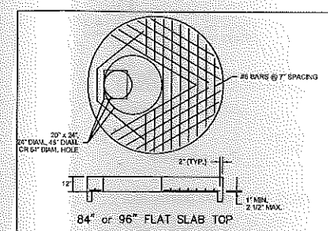
PIPE ARCHES

CLEARANCE BETWEEN PIPES FOR MULTIPLE INSTALLATIONS		
PIPE	SIZE	MINIMUM DISTANCE BETWEEN BARRELS
CIRCULAR PIPE (DIAMETER)	12" to 24"	12"
	30" to 96"	DIAM. /2
	102" to 180"	48"
PIPE ARCH (SPAN) METAL ONLY	18" to 36"	12"
	43" to 142"	SPAN /3
	148" to 200"	48"

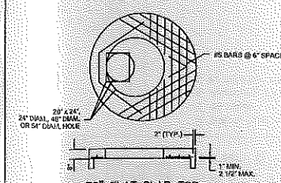
06-01-06

PIPE ZONE BEDDING AND BACKFILL

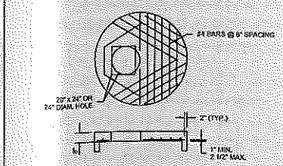
NTS



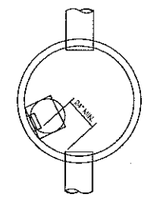
84" or 96" FLAT SLAB TOP



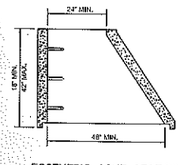
72" FLAT SLAB TOP



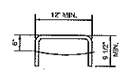
48", 54", or 60" FLAT SLAB TOP



TYPICAL ORIENTATION FOR ACCESS AND STEPS

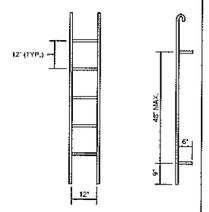


ECCENTRIC CONE SECTION

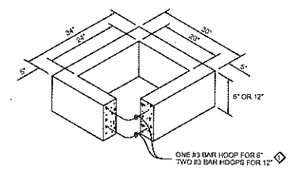


STEP

NOTE
Ladder rungs for manholes and catch basins shall meet the requirements of AASHTO M 199.

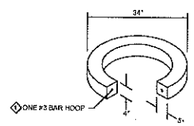


PREFABRICATED LADDER



RECTANGULAR ADJUSTMENT SECTION

◇ As an acceptable alternative to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.



CIRCULAR ADJUSTMENT SECTION

SHEET 1 OF 1 SHEET

09-20-07

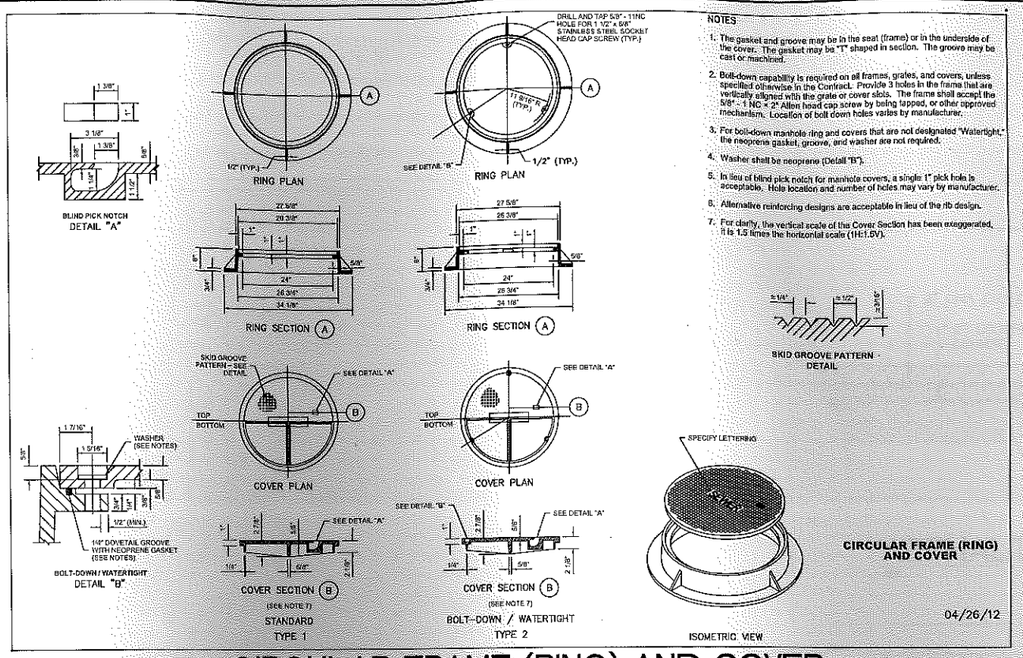
MISCELLANEOUS DETAILS FOR DRAINAGE STRUCTURES

NTS

KYLE EDWARD CARSLAW
STATE OF WASHINGTON
50768
REGISTERED PROFESSIONAL ENGINEER
8/5/14

BID SET	DESIGNED BY KEC DRAWN BY RWG CHECKED BY KEC	R&E Reichhardt & Ebe ENGINEERING INC P.O. Box 978 | 423 Front Street, Lynden, WA 98264 (360) 354-3687 813 Metcalf Street, Sedro-Woolley, WA 98284 (360) 855-1713	NO.	DATE	DESCRIPTION	BY	CITY OF BLAINE 1200 YEW AVENUE BLAINE, WA 98230	VISTA TERRACE SANITARY SEWER IMPROVEMENTS, PHASE 1 DETAILS

DWG 11012.1 DETAILS		DATE 8/5/14
JOB# 11012.1	SCALE H: N/A V: N/A	SHEET 6 of 8



NOTES

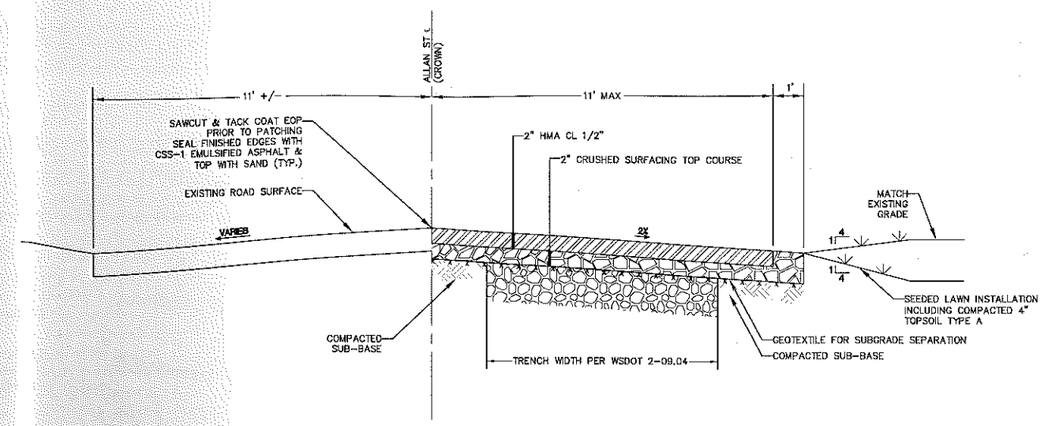
1. The gasket and groove may be in the seat (frame) or in the underside of the cover. The gasket may be "T" shaped in section. The groove may be cast or machined.
2. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 3 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8" - 11 NC x 2" Allen head cap screw by being tapped, or other approved mechanism. Location of bolt down holes varies by manufacturer.
3. For bolt-down manhole ring and covers that are not designated "Watertight," the neoprene gasket, groove, and washer are not required.
4. Washer shall be neoprene (Detail "B").
5. In lieu of blind pick notch for manhole covers, a single 1" pick hole is acceptable. Hole location and number of holes may vary by manufacturer.
6. Alternative reinforcing designs are acceptable in lieu of the rib design.
7. For clarity, the vertical scale of the Cover Section has been exaggerated, it is 1.5 times the horizontal scale (1H:1.5V).

CIRCULAR FRAME (RING) AND COVER

04/26/12

CIRCULAR FRAME (RING) AND COVER

NTS



ALLAN ST. SECTION

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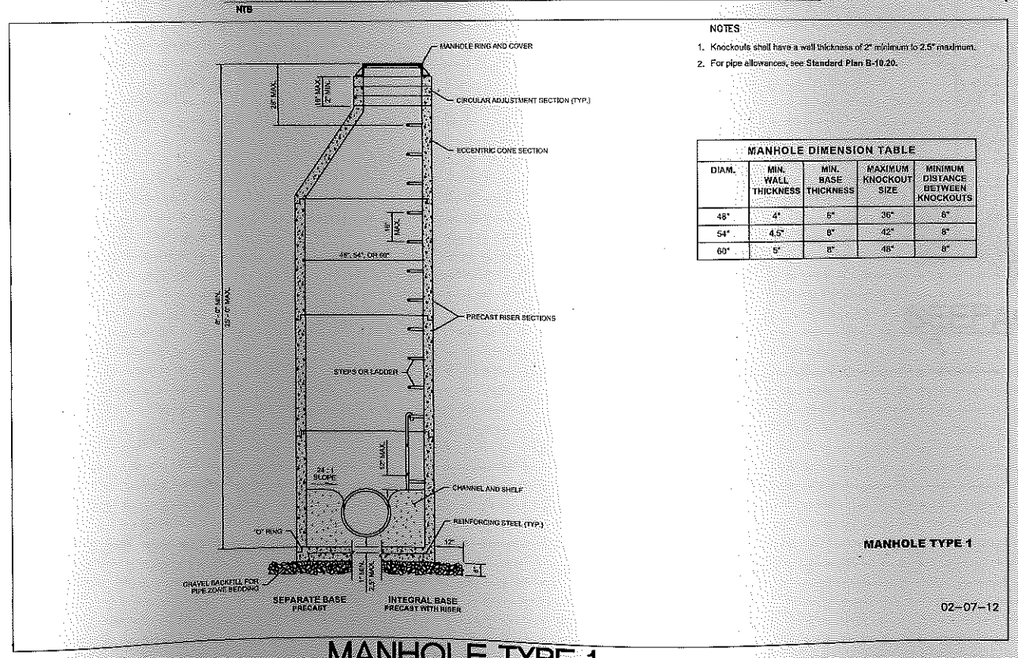


NOTES

1. Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum.
2. For pipe allowances, see Standard Plan B-10.20.

MANHOLE DIMENSION TABLE

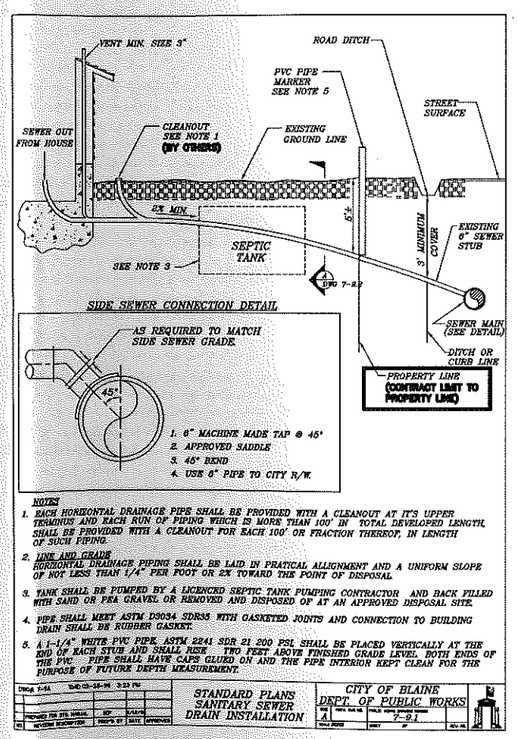
DIAM.	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	6"
54"	4.5"	6"	42"	6"
60"	5"	8"	48"	6"

MANHOLE TYPE 1

02-07-12

MANHOLE TYPE 1

NTS



NOTES

1. EACH HORIZONTAL DRAINAGE PIPE SHALL BE PROVIDED WITH A CLEANOUT AT IT'S UPPER TERMINUS AND EACH RUN OF PIPING WHICH IS MORE THAN 100' IN TOTAL DEVELOPED LENGTH, SHALL BE PROVIDED WITH A CLEANOUT FOR EACH 100' OR FRACTION THEREOF, IN LENGTH OF SUCH PIPING.
2. LINE AND GRADE HORIZONTAL DRAINAGE PIPING SHALL BE LAID IN PRATICAL ALLIGNMENT AND A UNIFORM SLOPE OF NOT LESS THAN 1/4" PER FOOT OR 2% TOWARD THE POINT OF DISPOSAL.
3. TANK SHALL BE PUMPED BY A LICENCED SEPTIC TANK PUMPING CONTRACTOR AND BACK FILLED WITH SAND OR PEA GRAVEL OR REMOVED AND DISPOSED OF AT AN APPROVED DISPOSAL SITE.
4. PIPE SHALL MEET ASTM D3034 SDR35 WITH GASKETED JOINTS AND CONNECTION TO BUILDING DRAIN SHALL BE RUBBER GASKET.
5. A 1-1/4" WHITE PVC PIPE, ASTM 2241 SDR 21 200 PSI, SHALL BE PLACED VERTICALLY AT THE END OF EACH STUB AND SHALL RISE TWO FEET ABOVE FINISHED GRADE LEVEL. BOTH ENDS OF THE PVC PIPE SHALL HAVE CAPS GLUED ON AND THE PIPE INTERIOR KEPT CLEAN FOR THE PURPOSE OF FUTURE DEPTH MEASUREMENT.

STANDARD PLANS SANITARY SEWER DRAIN INSTALLATION

CITY OF BLAINE DEPT. OF PUBLIC WORKS

7-9.1

SANITARY SEWER SIDE SERVICE

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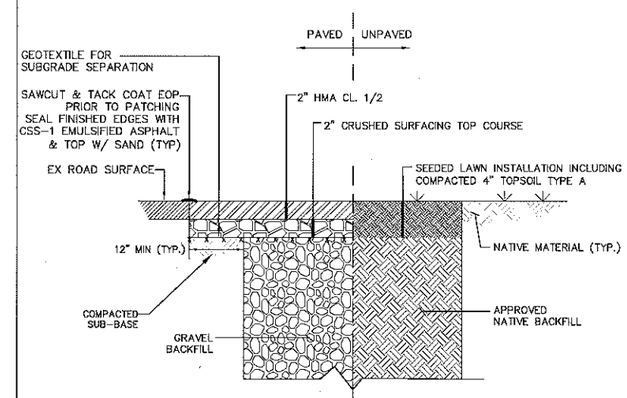

UTILITY SERVICE TRENCH DETAIL

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NOTES:

1. TRENCH WIDTH PER WSDOT 2-09.4

KYLE EDWARD GABRIEL STATE OF WASHINGTON 50765 REGISTERED PROFESSIONAL ENGINEER

8/5/14

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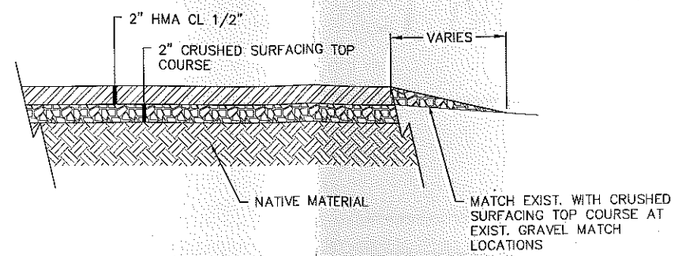

ASPHALT APRON AREA

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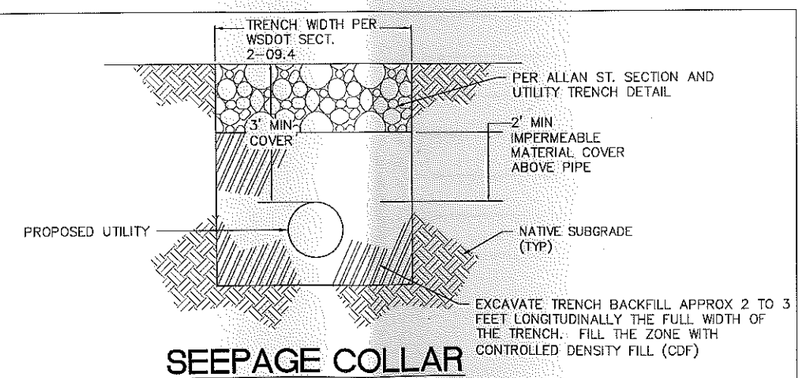

SEEPAGE COLLAR

NTS

KYLE EDWARD CARRICK
STATE OF WASHINGTON
50768
REGISTERED PROFESSIONAL ENGINEER
8/5/14

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