

SITE PHOTOS:

PHOTOS WERE TAKEN ON 7/12/2016, AND REFLECT SITE CONDITIONS AT THE TIME OF SURVEY



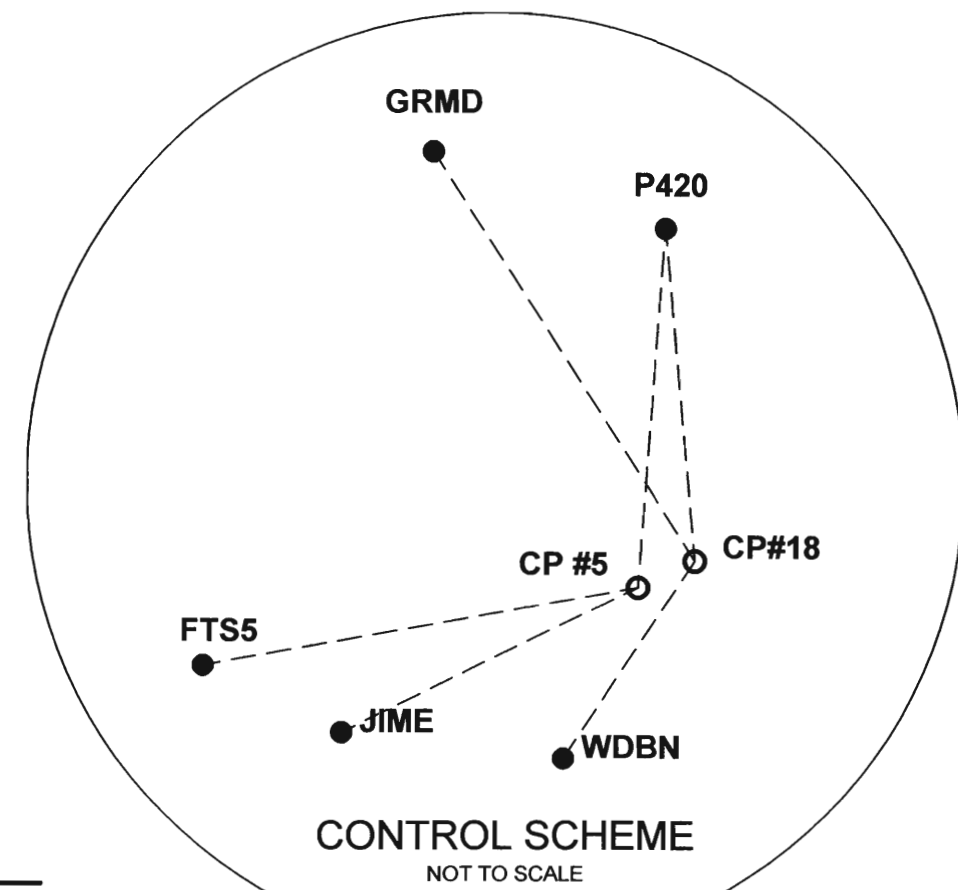
TAKEN ON SOUTHWEST END OF THE PROJECT, LOOKING NORTHEAST



TAKEN NEAR THE 12" CPP ON THE SOUTH SIDE OF THE INTERSECTION AT THE NORTHEAST END OF THE PROJECT, LOOKING SOUTHWEST, TOWARDS THE SLIDE



TAKEN ON SOUTHEAST SIDE OF ROAD, LOOKING NORTHEAST TOWARDS SLIDE AREA



REFERENCE SURVEYS LEGEND:

- ##ILCR## - LAND CORNER RECORD BOOK AND PAGE, COWLITZ COUNTY SURVEY RECORDS
- ##ISPLATS## - SHORT PLAT BOOK AND PAGE, COWLITZ COUNTY SURVEY RECORDS
- ##PLATS## - SUBDIVISION PLAT BOOK AND PAGE, COWLITZ COUNTY SURVEY RECORDS
- ##WROS## - RECORD OF SURVEY BOOK AND PAGE, COWLITZ COUNTY SURVEY RECORDS
- CCPWFB-##-## - COWLITZ COUNTY PUBLIC WORKS FIELD BOOK YEAR AND NUMBER
- ###-## - MEASURED DIMENSION
- (###)##(##) - RECORD DIMENSION PER REFERENCE NUMBER (BELOW)
- (###)##(##) - MEASURED AND RECORD DIMENSION PER REF. NO. (BELOW)
- (1) - RECORD INFORMATION PER 12/ROSL173
- (2) - RECORD INFORMATION PER SURVEY BY DONALD LEE DAY, PLS. PER PROPOSED RIGHT OF WAY EASEMENT EXHIBIT MAP (PROJECT NUMBER 5286) FROM 1998-DATE NOT SHOWN ON EXHIBIT) AVAILABLE IN THE COWLITZ COUNTY ENGINEERS OFFICE

UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM UTILITY PAINT MARKINGS PROVIDED BY OTHERS, THAT WERE AVAILABLE DURING THE FIELD SURVEY. AS-BUILT MAPS WERE REQUESTED FROM THE NOTIFIED UTILITIES - NONE WERE RECEIVED.

THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, AND ARE LOCATED FROM THE INFORMATION PROVIDED.

UTILITY LOCATIONS MUST BE VERIFIED BY THE STATE UTILITY NOTIFICATION CENTER IMMEDIATELY PRIOR TO ANY EXCAVATION.

UTILITY LOCATES WERE REQUESTED 7/12/16 UNDER TICKET NUMBER 16216552

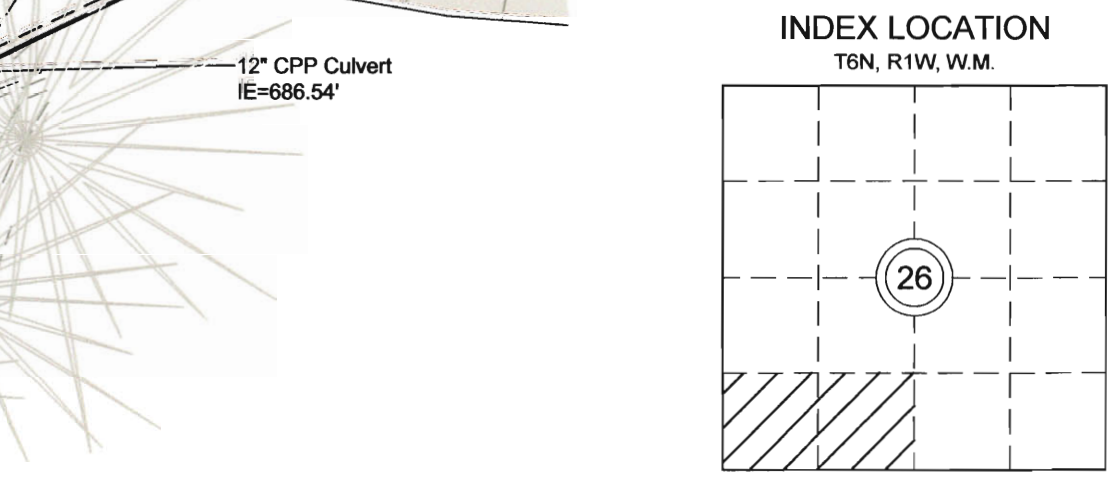
FOLLOWING IS A LIST OF UTILITY PROVIDERS NOTIFIED:

COWPUD03	COWLITZ COUNTY PUD	(360)577-7546
FTR02	FRONTIER COMMUNICATIONS NW INC	(800)778-9140
KALAMA01	CITY OF KALAMA	(360)673-3706
OLYPE01	OLYMPIC PIPE LINE COMPANY	(425)861-2517

* - DENOTES ASBUILT MAPS RECEIVED

SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	CONIFER TREE*
	DECIDUOUS TREE*
	DECIDUOUS TREE CLUMP*
	POWER VAULT
	MONITOR WELL
	TELEPHONE PEDESTAL
LINETYPE LEGEND	
LINETYPE	DESCRIPTION
--->	UTILITY LINE - PAINT ENDS HERE, CONNECTION NOT LOCATED OR UNKNOWN
---	DRAINAGE CULVERT
---	DRAINAGE / ROAD DITCH
---	FENCE, TYPE AS NOTED
---	EDGE OF PAVEMENT
---	EDGE OF GRAVEL
---	POWER LINE
---	TELEPHONE LINE
---	VISIBLE CRACKING
---	MAJOR CONTOUR - SPACED AT 5' INTERVALS
---	MINOR CONTOUR - SPACED AT 1' INTERVALS

* NOTE THAT APPROXIMATE TREE DIAMETERS WERE COLLECTED, BUT NOT SHOWN HEREON DUE TO CLARITY ISSUES. PLEASE REQUEST THIS INFORMATION IF NECESSARY.



PURPOSE OF SURVEY

THE PURPOSE OF THIS SURVEY WAS TO PROVIDE TOPOGRAPHIC SURVEY AND RIGHT OF WAY RESOLUTION FOR A PORTION OF MARTIN BLUFF ROAD, FOR A ROAD SLIDE REPAIR PROJECT.

COUNTY PROJECT NUMBER: 5286

VERTICAL DATUM

ELEVATION DATUM: NAVD88 - DERIVED FROM GPS OBSERVATIONS (SEE BELOW)
 BENCHMARK: CONTROL POINT #17
 LOCATION: SEE LOCATION SHOWN HEREON
 ELEVATION: 694.86'

HORIZONTAL DATUM / BASIS OF BEARINGS

WASHINGTON STATE PLANE (SOUTH ZONE) - REFERENCE FRAME: NAD83 (2011) EPOCH 2010.0000, US SURVEY FEET. ALL DISTANCES ARE GROUND. SO STATE PLANE COORDINATES ARE APPROXIMATE, AND WERE DETERMINED FROM NGS OPUS SOLUTIONS, WHICH WERE DERIVED FROM 2 HOUR MINIMUM GPS OBSERVATIONS (UTILIZING EXISTING NGS BASE STATIONS DN2111 (JIME), DK4499 (FTSS), DG6344 (P420), DE6433 (WDBN), AND DJ4303 (GRMD)) ON CONTROL POINTS 5 AND 18 (SHOWN HEREON), WHICH WERE THEN TIED TOGETHER USING STANDARD TRAVERSE TECHNIQUES. THE RESULTS OF WHICH WERE ADJUSTED TOGETHER IN A WEIGHTED LEAST SQUARES ADJUSTMENT, UTILIZING STARNET SOFTWARE. AN AVERAGE PROJECT COMBINED SCALE FACTOR (0.9999548703) WAS CALCULATED AND APPLIED TO THE PROJECT TO GENERATE GROUND DISTANCES. THE RESULTS OF WHICH WERE THEN TRANSLATED TO MATCH THE ADJUSTED STATE PLANE COORDINATES OF CONTROL POINT #17.

THE CONVERGENCE ANGLE IS -1'39"16" AT CONTROL POINT #18.

THE LOCATION OF THE BASIS OF BEARINGS LINE IS BETWEEN CONTROL POINTS #5 AND #18, BEING N62°19'58"E, 6905.00', AS SHOWN HEREON.

GROUND COORDINATES THAT ARE SHOWN HEREON HAVE BEEN TRUNCATED TO ELIMINATE CONFUSION WITH TRUE STATE PLANE.

ACTUAL STATE PLANE COORDINATES (AFTER LEAST SQUARES ADJUSTMENT OF OPUS COORDINATES AND TRAVERSE) FOR GPS OBSERVED CONTROL POINTS 5, AND 18, AS WELL AS TRAVERSE AND COMPUTED POINT 17 ARE AS FOLLOWS:

5:	N237426.1353	E1055200.1150
17:	N240057.9120	E1061181.7737
18:	N240632.2400	E1061515.3088

METHOD OF SURVEY

FIELD SURVEYS WERE ACCOMPLISHED UTILIZING STANDARD CLOSED TRAVERSE AND RADIAL SURVEY METHODS, AS WELL AS STANDARD GLOBAL POSITIONING SYSTEM (GPS) STATIC GPS METHODS (2-HOUR OBSERVATIONS, MINIMUM). MEASUREMENTS WERE PERFORMED USING A TOPCON 3-SECOND TOTAL STATION AND TOPCON GR3, SURVEY GRADE GPS UNITS. THE ANGULAR CLOSURE OF TRAVERSE MEETS STANDARDS AS SET FORTH IN WAC332-130-050. LINEAR CLOSURE AFTER AZIMUTH ADJUSTMENT IS GREATER THAN 1:10000. A LEAST SQUARES ADJUSTMENT OF THE DATA WAS PERFORMED.

NARRATIVE

MARTIN BLUFF ROAD (PREVIOUSLY KNOWN AS MILL CREEK ROAD, GRIMSHAW ROAD, AND GUS ANDERSON ROAD) WAS ESTABLISHED SOMETIME IN THE LATE 1800'S OR EARLY 1900'S, AS FAR AS I CAN TELL. UNFORTUNATELY, I WAS UNABLE TO FIND THE ORIGINAL DOCUMENTS FOR THIS ROAD. A PORTION WAS LATER MODIFIED IN 1910 AS THE "GRIMSHAW ROAD" (NOT IN THE AREA OF THIS SURVEY), BUT IT DOES INDICATE THAT THERE WAS AN EXISTING COUNTY ROAD CALLED "MILL CREEK ROAD" AT THAT TIME. IN 1921, A SURVEY WAS COMPLETED BY THE COUNTY PER THAT CERTAIN ROAD PLAN ENTITLED "PLAT OF GUS ANDERSON ROAD", LAST DATED OCTOBER 29TH, 1924, BY AR CRUKSHANK, AVAILABLE IN THE OFFICE OF THE COUNTY ENGINEER. THAT COVERS THE AREA IN QUESTION. I COULD NOT FIND ANY INDICATION OF A RIGHT OF WAY WIDTH IN THE AVAILABLE DOCUMENTS. THE EXTENSION OF GUS ANDERSON ROAD WAS COMPLETED IN 1932, WHICH EXTENDED THE ROAD FURTHER NORTHEASTERLY. THE DOCUMENTS FOR THE EXTENSION INDICATE A 40 FOOT RIGHT OF WAY. I HELD 40 FEET OF RIGHT OF WAY, TO MATCH WITH THE EXTENSION, WHICH APPEARS TO MATCH WITH THE EXISTING IMPROVEMENTS. IT IS HIGHLY RECOMMENDED THAT THE COUNTY OBTAIN NEW RIGHT OF WAY WITHIN THIS STRETCH OF ROADWAY, DUE TO THE LACK OF ORIGINAL RECORDS.

DUE TO LACK OF EXISTING COUNTY MONUMENTATION OR L-LINE SURVEYS, I HELD THE AS-TRAVELLED CENTERLINE AS THE ROADWAY CENTERLINE, DETERMINED BY TYING BOTH EDGES OF PAVEMENT, AS THE BEST INDICATION OF THE ORIGINAL CENTERLINE LOCATION.

MONUMENT LEGEND:

- - FOUND MONUMENT AS NOTED IN MONUMENT TABLE
- ▲ ELEV. DESC. - TEMPORARY CONTROL POINT - SEE MONUMENT TABLE

- NOTES:
- 1) ALL PIPE DIAMETERS ARE INSIDE DIMENSION, UNLESS NOTED OTHERWISE.
 - 2) THE TERM "IRON ROD" REFERS TO REINFORCING BAR. SMOOTH RODS (IF ANY) ARE NOTED AS SUCH.
 - 3) ALL FOUND MONUMENTS WERE VISITED AND TIED DURING THIS SURVEY (9/27/2016).

POINT	NORTHING	EASTING	DESCRIPTION	ORIGIN
5	37426.0160	55199.8450	MAG NAIL	THIS SURVEY
16	39859.5410	60879.9270	MAG NAIL	THIS SURVEY
17	40057.9120	61181.7740	5/8" IRON ROD W/ RCP MARKED "COWLITZ CNTY CONTROL POINT"	THIS SURVEY
18	40632.2660	61315.3150	5/8" IRON ROD W/ RCP MARKED "COWLITZ CNTY CONTROL POINT"	THIS SURVEY
19	39959.7910	61024.0720	MAG NAIL	THIS SURVEY
20	39877.4200	61005.6160	HUB AND TACK (TEMPORARY CONTROL ONLY)	THIS SURVEY
21	39783.0550	60851.4690	HUB AND TACK (TEMPORARY CONTROL ONLY)	THIS SURVEY
114	39602.6460	60770.0010	1/2" IRON ROD W/ YPC MARKED "HAGEDORN RLS 9579"	12/ROSL173
115	39610.5160	60550.0570	1/2" IRON ROD W/ YPC MARKED "HAGEDORN RLS 9579"	12/ROSL173

ABBREVIATIONS:

- AFN = AUDITOR'S FILE NUMBER
- CCJ = COWLITZ COUNTY COMMISSIONER'S JOURNAL
- CCPWFB = COWLITZ COUNTY PUBLIC WORKS FIELD BOOK
- CPP = CORRUGATED PLASTIC PIPE
- IE = INVERT ELEVATION
- PG = PAGE
- PKA = PREVIOUSLY KNOWN AS
- VOL = VOLUME
- WRPC = WITH RED PLASTIC CAP

RM PROJECT MANAGER	N/A
PG/CB DRAWN BY	9/27/2016
PG/CB CHECKED BY	9/27/2016

HORIZ. SCALE:	1" = 20'
VERT. SCALE:	1" = 20' CONTOURS
PROJECT ID:	5286
ROAD NO.:	31800
COMPUTER FILE:	5286 Martins Bluff topo.dwg
FIELD BOOK(S):	2016-01, PAGES 61-65

COWLITZ COUNTY WASHINGTON

DEPARTMENT OF PUBLIC WORKS

1600 13TH AVENUE SOUTH
 KELSO, WASHINGTON 98626

LOCATED IN THE SW ONE-QUARTER OF SECTION 26,
 TOWNSHIP 6 NORTH, RANGE 1 WEST, WILLAMETTE MERIDIAN
 COWLITZ COUNTY, WASHINGTON
 FIELD WORK DATES: 7/6, 7/7, 7/11, 7/26, 7/27, AND 9/27/2016

MARTIN'S BLUFF ROAD MILEPOST

TOPOGRAPHIC SURVEY OF SLIDE AREA

SHEET 1 OF 1

