

RECORD OF SURVEY

FOR THE BONNEVILLE POWER ADMINISTRATION BONNEVILLE-COULEE LINE RIGHT-OF-WAY MILES 11 THROUGH 13

PROJECT LOCATION

IN GOVERNMENT LOT 6, AND GOVERNMENT LOT 7 OF SECTION 28, GOVERNMENT LOT 2, GOVERNMENT LOT 1, THE NORTHWEST 1/4 OF THE NORTHEAST 1/4, AND THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 27, THE NORTHWEST 1/4 OF THE NORTHWEST 1/4, AND NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 26, THE SOUTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 23, ALL IN T3N, R8E, W.M., SKAMANIA COUNTY, WASHINGTON

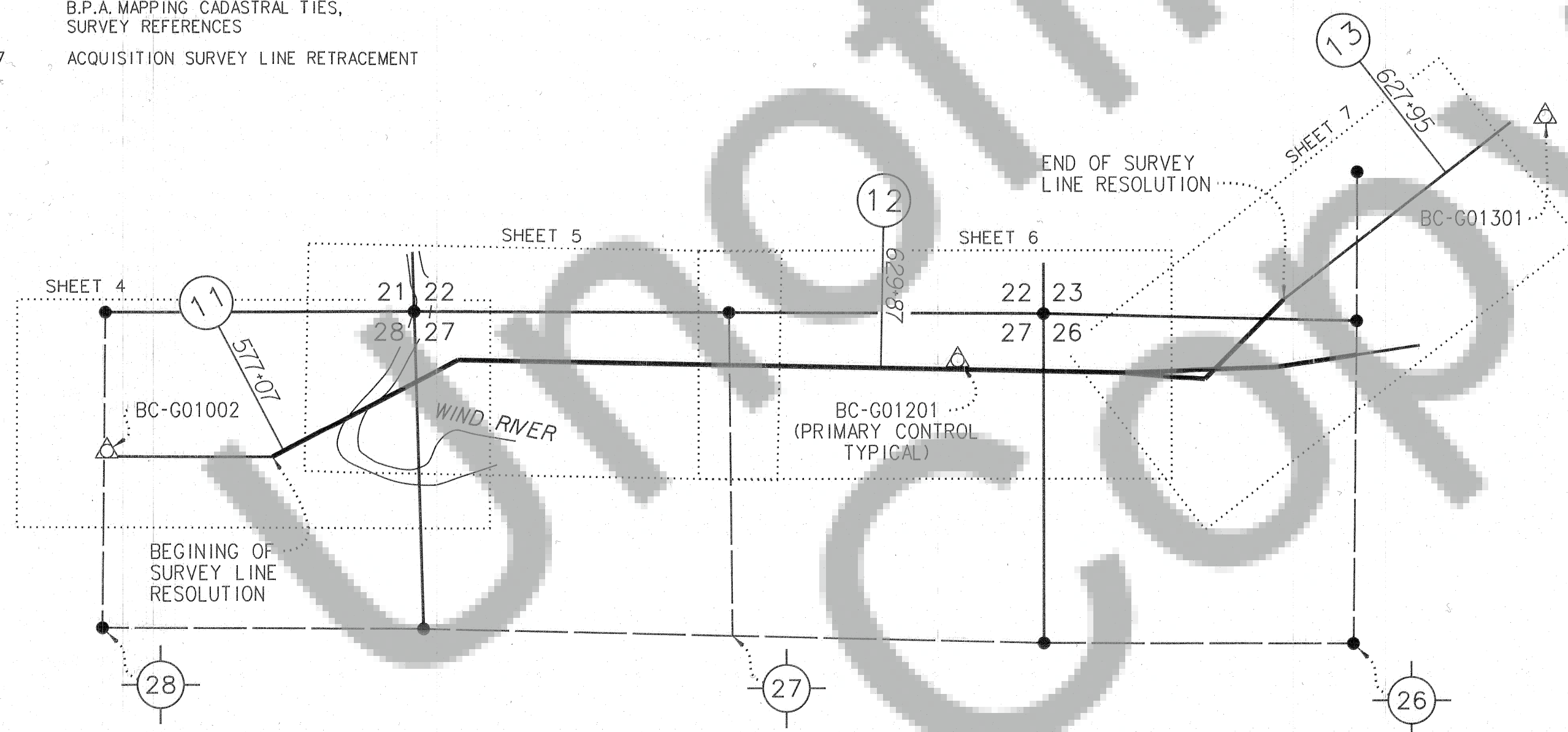
PURPOSE OF SURVEY

THE BONNEVILLE POWER ADMINISTRATION (B.P.A.), PART OF THE U.S. DEPARTMENT OF ENERGY HAS REQUESTED MACKAY SPOSITO INC. TO PROVIDE A RETRACEMENT SURVEY OF A PORTION OF B.P.A.'S BONNEVILLE-COULEE TRANSMISSION LINE RIGHT-OF-WAY CORRIDOR IN SKAMANIA COUNTY, WASHINGTON. THE REQUEST WAS TO DELINEATE THE SURVEY LINE AND THE NORTHERLY AND SOUTHERLY LIMITS OF B.P.A.'S RIGHT-OF-WAY WITHIN THE PROJECT AREA.

THE PROJECT IS WITHIN THE BONNEVILLE-COULEE LINE MILES 11 THROUGH 13 BETWEEN TOWER AS 56 (STATION 576+00 IN SECTION 28, T. 3 N., R. 8 E., W.M.) AND TOWER AS 65 (STATION 610+50 IN SECTION 23, T. 3 N., R. 8 E., W.M.).

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BASIS OF BEARINGS

BEARINGS AND COORDINATES SHOWN ARE GRID, BASED ON THE WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (4602), NAD83(2011) (EPOCH: 2010.0), US SURVEY FOOT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES. TO CONVERT DISTANCES SHOWN TO GRID, MULTIPLY BY 1.00000400 BETWEEN TOWER AS 56 (STATION 576+00 IN SECTION 28, T. 3 N., R. 8 E., W.M.) AND TOWER AS 65 (STATION 610+50 IN SECTION 23, T. 3 N., R. 8 E., W.M.) TO CONVERT DISTANCES EAST OF TOWER AS 65 TO GRID, MULTIPLY BY 0.99996383.

MACKAY SPOSITO MAKES NO WARRANTIES AS TO MATTERS OF UNWRITTEN TITLE SUCH AS ACQUIESCENCE, ESTOPPEL, ADVERSE POSSESSION, ETC. OR WHETHER PARCELS SHOWN HEREON ARE LEGAL LOTS FOR ZONING PURPOSES, ETC.

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT AT THE REQUEST OF BONNEVILLE POWER ADMINISTRATION IN OCTOBER, 2020

ALEX J. SWENSON, PLS
CERTIFICATE NO. 52840



AUDITOR'S CERTIFICATE

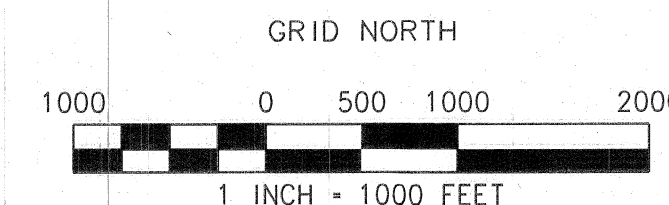
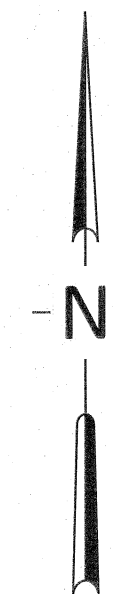
FILED FOR RECORD THIS 23 DAY OF Dec., 2020

AT 10:58 A.M. IN BOOK 1 OF SURVEYS AT PAGE 1

AT THE REQUEST OF MACKAY SPOSITO.

APN-2020-0031231

COUNTY AUDITOR-Deputy



LEGEND

- XXX+XX (X) BONNEVILLE-COULEE LINE MILE MARKER STATION PER B.P.A. MAPS
- ACQUISITION SURVEY LINE
- SECTION LINE
- QUARTER SECTION LINE
- SHEET LAYOUT
- B.P.A. BONNEVILLE POWER ADMINISTRATION
- FOUND CADASTRAL CORNER
- CONTROL MONUMENT AS NOTED
- (XX) CENTER OF SECTION

SURVEYOR NOTES

- ALL RECORD STATIONING IS BASED ON ORIGINAL B.P.A. PLAN MAPS. "MEAS" IS STATIONING DERIVED FROM MEASUREMENTS IN THIS SURVEY.
- THERE MAY BE ADDITIONAL B.P.A. REAL PROPERTY RIGHTS THAT EXTEND BEYOND THE RIGHT-OF-WAY LIMITS SHOWN.
- THIS SURVEY DOES NOT ADDRESS ENCROACHMENTS TO THE B.P.A. RIGHT-OF-WAY.
- TRANSMISSION LINE OPERATING NAMES ARE SUBJECT TO CHANGE BY B.P.A.

MacKay Sposito

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CALC BY: AJS CHECKED BY: AJS DRAWN BY: CWR JOB NO.: 17399

SER NO 340817-C

FILE: 17399-R-1-0

SHEET 1 OF 7

RECORD OF SURVEY

FOR THE BONNEVILLE POWER ADMINISTRATION

BONNEVILLE-COULEE LINE RIGHT-OF-WAY MILES 11 THROUGH 13

HISTORY OF RIGHT-OF-WAY ACQUISITION

B.P.A. ACQUIRED THE BONNEVILLE-COULEE LINE RIGHT-OF-WAY, MILES 11 THROUGH 13, IN FEE BY CONDEMNATION IN 1939 TO 1941. THE ACQUISITIONS ARE IDENTIFIED AS TRACTS B-C-11-A-60DD, B-C-11-A-61HH, B-C-12-A-62, B-C-12-A-63 AND B-C-13-A-64 ON THE BONNEVILLE-COULEE LINE 2 MILE AND PLAT MAPS (B.P.A. DRAWING SERIAL NUMBERS 1181-1182, 2947, 2963). THE RIGHT-OF-WAY IS DESCRIBED AS 300 FEET IN WIDTH, 212.5 FEET LEFT AND 87.5 FEET RIGHT OF THE BONNEVILLE-COULEE SURVEY LINE.

B.P.A. ACQUIRED THE BONNEVILLE-COULEE WIND RIVER RELOCATION BY EASEMENT IN 1953. THE ACQUISITIONS ARE IDENTIFIED AS TRACTS B-C-R-13-A-1 AND B-C-R-13-A-2 ON THE BONNEVILLE-COULEE LINE NO 1 WIND RIVER RELOCATION MILE MAP (B.P.A. DRAWING SERIAL NUMBER 57340).

THE ORIGINAL BONNEVILLE-COULEE LINE (MILES 12 THROUGH 14) HAS BEEN GIVEN THE DESIGN NAME BONNEVILLE-COULEE LINE 2 ON PLAN AND PROFILE MAPS PER REVISION DATED 1949. THE LINE IS NOW OPERATED AS NORTH BONNEVILLE-MIDWAY NO.1 (MILES 11 THROUGH 13) TRANSMISSION LINE.

SUBSEQUENT TO THE ACQUISITION OF THE BONNEVILLE-COULEE LINE RIGHT-OF-WAY, THE BONNEVILLE-COULEE LINE NO.1 TRANSMISSION LINE WAS DESIGNED AND BUILT WITHIN THE BONNEVILLE-COULEE LINE FEE OWNED RIGHT-OF-WAY. THE LINE IS NOW OPERATED AS THE UNDERWOOD TAP TO BONNEVILLE PH1-ALCOA NO. 1 & 2.

ANALYSIS OF RECORD DOCUMENTS

RECORD DOCUMENTS FOR THE BONNEVILLE-COULEE LINE WERE ACQUIRED AS SHOWN ON THE MILE MAPS. THE STATION AND DISTANCE CALLS FOR THE SURVEY LINES AND CADASTRAL TIES IN THE DESCRIPTIONS ARE AS SHOWN ON B.P.A. MAPPING.

CONTROL AND PROCEDURES

DURING JUNE-JULY, 2020, MACKAY SPOSITO ESTABLISHED PRIMARY AND SECONDARY CONTROL POINTS AND CONDUCTED A PRELIMINARY RETRACEMENT FIELD SURVEY FOR THE PROJECT. MEASUREMENTS WERE OBSERVED TO ANGLE POINT TOWER CENTERS, ON-LINE (P.O.T.) TOWER CENTERS, RECOVERED ANGLE POINT MONUMENTS AND PUBLIC LAND SURVEY SYSTEM (PLSS) CORNERS.

STATIC AND RTK GPS MEASUREMENTS WERE USED IN THE FIELD SURVEY. THE PRIMARY CONTROL POINTS WERE MEASURED WITH STATIC GPS OBSERVATIONS. SECONDARY CONTROL POINTS AND FOUND PLSS CORNERS WERE MEASURED WITH RTK GPS MEASUREMENTS FROM TWO INDEPENDENT CONTROL POINTS.

TERRESTRIAL MEASUREMENTS WERE ALSO USED IN AREAS UNSUITABLE FOR USING GPS METHODS. DATA WAS COLLECTED RELATIVE TO TWO SECONDARY CONTROL POINTS USING REDUNDANT MEASUREMENTS.

SCALE FACTORS

SCALE FACTORS WERE COMPUTED AT THE SURVEY LINE ANGLE POINTS AND UTILIZED TO COMPUTE A MEAN PROJECT SCALE FACTOR. BECAUSE OF THE ELEVATION CHANGE BETWEEN TOWERS 12/5 (AS 65) AND 14/3 (HB 70) THIS PROJECT WAS SPLIT INTO TWO SCALE FACTORS.

THE PROJECT SCALE FACTOR BETWEEN TOWERS 10/6 (AS 56) AND 12/5 (AS 65) = 1.00000400. THIS RESULTS IN APPROXIMATELY 0.03' OF ABSOLUTE ERROR IN DISTANCE OVER THE LENGTH OF THE SURVEY LINE BETWEEN SAID TOWERS.

THE PROJECT SCALE FACTOR BETWEEN TOWERS 12/5 (AS 65) AND 14/3 (HB 70) = 0.99996383. THIS RESULTS IN APPROXIMATELY 0.01' OF ABSOLUTE ERROR IN DISTANCE OVER THE LENGTH OF THE SURVEY LINE BETWEEN SAID TOWERS.

TOWER CENTERS WERE COMPUTED AT THE INTERSECTION OF GPS RTK MEASUREMENTS TAKEN AT EACH OF THE FOUR TOWER LEGS.

BASIS OF BEARING

GRID, USING THE WASHINGTON STATE PLANE COORDINATE SYSTEM SOUTH ZONE (4602), NAD83(2011)(2010.0000).

DISTANCES

THE DISTANCES SHOWN HEREON ARE GROUND DISTANCES.

TO OBTAIN GRID DISTANCE BETWEEN TOWERS 10/6 AND 12/5, MULTIPLY BY THE SCALE FACTOR OF 1.00000400.

TO OBTAIN GRID DISTANCE BETWEEN TOWERS 12/5 AND 14/3, MULTIPLY BY THE SCALE FACTOR OF 0.99996383.

COORDINATES

THE COORDINATES SHOWN HEREON ARE WASHINGTON STATE PLANE GRID COORDINATES, SOUTH ZONE (4602), NAD83(2011)(2010.0000) IN U.S. SURVEY FEET.

RETRACEMENT AND ANALYSIS PROCEDURES

THE SURVEY LINE AND ASSOCIATED TIES TO CADASTRAL MONUMENTS SHOWN ON B.P.A. BONNEVILLE-COULEE LINE 2 PLAN MAPS (SERIAL NUMBERS 1181 AND 1182), B.P.A. BONNEVILLE-COULEE LINE RIGHT-OF-WAY PLAT MAPS (SERIAL NUMBERS 2995, 2963, 2948 AND 2947), B.P.A. BONNEVILLE-COULEE LINES 1 AND 2 - WIND RIVER RELOCATION PLAN MAPS (SERIAL NUMBERS 57340 THROUGH 57343) AND B.P.A. BONNEVILLE-COULEE LINE NO. 1 PLAN MAPS (SERIAL NUMBERS 7676 AND 7677) WERE CONFIRMED BY REVIEWING ACQUISITION DOCUMENTS. B.P.A. STEEL TOWER SITE DATA LISTS WERE REVIEWED TO IDENTIFY OFFSET TOWERS AND RECORD OFFSET DISTANCES TO SURVEY ANGLE POINTS. POSITIONS OF ANGLE POINT AND P.O.T. STRUCTURES WERE MEASURED. RECOVERED B.P.A. ANGLE POINT AND CADASTRAL MONUMENTS WERE EVALUATED. THE RESULTING RETRACED SURVEY LINE REPRESENTS A BEST-FIT SOLUTION TO THE MEASURED ELEMENTS LISTED ABOVE.

MACKAY SPOSITO MEASURED TO ANGLE POINT TOWERS, ADDITIONAL ON-LINE TOWERS, RECOVERED ANGLE POINT AND CADASTRAL CORNERS. FIELD SEARCHES WERE MADE FOR P.O.T. MONUMENTS AND ANGLE POINT MONUMENTS AT LOCATIONS SHOWN ON B.P.A.'S MILE MAPS. A 2" IRON PIPE WAS FOUND 0.6' BELOW GRADE AT ANGLE POINT TOWER 12/3 (AS 63).

B.P.A. ALSO PROVIDED A STEEL TOWER SITE DATA LIST AND LIDAR POSITIONS OF TOWER CENTERS (CENTROIDS) FROM LIDAR FLIGHT SCAN DATA. THE ABOVE ITEMS AND OTHER DATA WERE CONSIDERED IN RESOLVING THE SURVEY ACQUISITION LINE.

SURVEY LINE RESOLUTION NOTES

BONNEVILLE-COULEE LINE

THE TANGENT BETWEEN STATIONS 547+71.92 (AS 53) AND 576+00.00 (AS 56) WAS RESOLVED BY HOLDING THE FOUND B.P.A. MONUMENT AT RECORD OFFSET OF 0.4' LT FOR AS 53 (10/3) SET DURING PREVIOUS SURVEY (AFN 2018001992) AND HOLDING THE FOUND B.P.A. MONUMENT AT RECORD OFFSET OF 1.3' LT FOR AS 56 (10/6) SET DURING THE PREVIOUS SURVEY (AFN 2018001992). THE MEASURED DISTANCE IS 0.25' SHORTER THAN RECORD.

THE TANGENT BETWEEN STATIONS 576+00.00 (AS 56) AND EQUATION STATION 593+79.72 BK = 593+94.00 AH (AS 57) WAS RESOLVED BY HOLDING THE FOUND B.P.A. MONUMENT AT RECORD OFFSET OF 1.3' LT FOR AS 56 (10/6) SET DURING THE PREVIOUS SURVEY (AFN 2018001992) AND HOLDING RECORD OFFSET OF 1.3' RT FROM THE SURVEYED TOWER CENTER FOR AS 57 (11/1). THE MEASURED DISTANCE IS 0.50' SHORTER THAN RECORD. THE MEASURED DEFLECTION ANGLE AT STATION 576+00.00 IS 27°45'06" LT, THAT DIFFERS FROM RECORD BY 00°00'14".

THE TANGENT BETWEEN EQUATION STATION 593+79.72 BK = 593+94.00 AH (AS 57) AND EQUATION STATION 650+32.30 BK = 593+82.30 AH (AS 63) WAS RESOLVED BY HOLDING THE RECORD OFFSET OF 1.3' RT FROM THE SURVEYED TOWER CENTER FOR AS 57 (11/1), AND HOLDING THE FOUND 2" IRON PIPE AT AS 63 (12/3) - WHICH POSITIONS THE TOWER AT 1.67' RT. THE STEEL TOWER SITE DATA SHEET DOES NOT SHOW A RECORD OFFSET AT THIS TOWER - BUT THE ANGLE POINT TOWER LOCATED IMMEDIATELY NORTH HB 65 (12/3) DOES SHOW A RECORD OFFSET OF 1.7' RT. THE TWO SOLUTIONS WERE COMPARED, AND THE SOLUTION HOLDING THE IRON PIPE FIT IN BETTER AGREEMENT WITH THE TANGENT TOWER ALIGNMENT. THIS SOLUTION POSITIONED ALL P.O.T. TOWERS FOR THE BONNEVILLE-COULEE LINE 2 WITHIN 0.4' OF THE SURVEY LINE. A SECOND REVIEW WAS THEN MADE TO COMPARE THIS SOLUTION AGAINST B.P.A. LIDAR DATA ON THE ALTERNATE BONNEVILLE-COULEE NO 1 P.O.T. ALIGNMENT. AGAIN, HOLDING THE IRON PIPE PROVIDED A MORE HARMONIOUS FIT POSITIONING THE P.O.T. TOWERS MUCH CLOSER TO THEIR RECORD OFFSETS. THE MEASURED DISTANCE IS 0.16' LESS THAN RECORD. THE MEASURED DEFLECTION ANGLE AT STATION 593+94.00 IS 28°41'05" RT, THAT DIFFERS FROM RECORD BY 00°01'15".

THE ORIGINAL BONNEVILLE-COULEE LINE 2, EAST OF TOWER 12/3 (AS 63) HAS BEEN REMOVED. THE SURVEY LINE WAS COMPUTED BY HOLDING RECORD DEFLECTIONS AND DISTANCES OFF OF THE AFOREMENTIONED ALIGNMENT BETWEEN TOWERS 11/1 (AS 57) AND 12/3 (AS 63). THE MEASURED STATIONING AT THE NORTH-SOUTH 1/4 LINE OF SECTION 26 IS 0.05' LONGER THAN RECORD. THE MEASURED DISTANCE TO THE RE-ESTABLISHED N 1/4 OF SECTION 26 MISSES RECORD BY 0.76'.



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SER NO 340817-C		FILE: <u>17399-R-2-0</u>	SHEET 2 OF 7

RECORD OF SURVEY

FOR THE BONNEVILLE POWER ADMINISTRATION

BONNEVILLE-COULEE LINE RIGHT-OF-WAY MILES 11 THROUGH 13

SURVEY LINE RESOLUTION NOTES (CONTINUED)

BONNEVILLE-COULEE LINE 2 WIND RIVER RELOCATION

THE TANGENT BETWEEN EQUATION STATION 650+32.30 BK - 593+82.30 AH (AS 63) AND 600+96.00 (AS 64) WAS RESOLVED BY HOLDING THE FOUND 2" IRON PIPE AT AS 63 (12/3) - WHICH POSITIONS THE TOWER AT 1.67' RT AND HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR AS 64 (12/4). THE MEASURED DISTANCE IS 0.04' LONGER THAN RECORD. THE MEASURED DEFLECTION ANGLE AT EQUATION STATION 650+32.30 BK - 593+82.50 AH IS 3°39'34" RT, THAT DIFFERS FROM RECORD BY 00°02'06".

THE TANGENT BETWEEN STATIONS 600+96.00 (AS 64) AND 610+50.00 (AS 65) WAS RESOLVED BY HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR AS 64 (12/4) AND HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR AS 65 (12/5). THE MEASURED DISTANCE IS 0.15' LONGER THAN RECORD. THE MEASURED DEFLECTION ANGLE AT STATION 600+96.00 IS 50°02'24" LT, THAT DIFFERS FROM RECORD BY 00°04'54".

BONNEVILLE-COULEE LINE 1 WIND RIVER RELOCATION

THE TANGENT BETWEEN EQUATION STATION 650+29.30 BK - 595+67.00 AH (HB 65) AND 602+48.4 (HB 66) WAS RESOLVED BY HOLDING THE RECORD OFFSET OF 1.7' RT FROM THE SURVEYED TOWER CENTER FOR HB 65 (12/3) AND HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR HB 66 (12/4). THE MEASURED DISTANCE IS 0.03' LONGER THAN RECORD. THE MEASURED DEFLECTION ANGLE AT EQUATION STATION 650+29.30 BK - 595+67.00 AH IS 09°34'00" LT, THAT DIFFERS FROM RECORD BY 00°01'00".

THE TANGENT BETWEEN STATIONS 602+48.4 (HB 66) AND EQUATION STATION 610+59.70 BK - 610+50.00 AH (HB 67) WAS RESOLVED BY HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR HB 66 (12/4) AND HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR HB 67 (12/5). THE MEASURED DISTANCE IS 0.05' SHORTER THAN RECORD. THE MEASURED DEFLECTION ANGLE AT STATION 602+48.4 IS 20°33'59" LT, THAT DIFFERS FROM RECORD BY 00°08'49".

BONNEVILLE-COULEE LINES 1 AND 2 WIND RIVER RELOCATION

BECAUSE TWO CIRCUITS MEET AT TOWER 12/5, IT WAS GIVEN TWO SERIAL NUMBERS BY B.P.A.

MEASUREMENTS REFERENCING TOWER SERIAL NUMBER HB 67 ARE COMPARING RECORD ANGLE AND DISTANCE MEASUREMENTS TO THE NORTHERLY BONNEVILLE-COULEE NO 1 WIND RIVER RELOCATION LINE.

MEASUREMENTS REFERENCING TOWER SERIAL NUMBER AS 65 ARE COMPARING RECORD ANGLE AND DISTANCE MEASUREMENTS TO THE SOUTHERLY BONNEVILLE-COULEE NO 2 WIND RIVER RELOCATION LINE.

THE TANGENT BETWEEN STATIONS 610+50.00 (AS 65) AND EQUATION STATION 668+70.00 BK - 668+09.40 AH (HB 70) WAS RESOLVED BY HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR AS 65 (12/5) AND HOLDING THE SURVEYED TOWER CENTER (NO RECORD OFFSET) FOR HB 70 (14/3). THE MEASURED DISTANCE IS 0.94' LONGER THAN RECORD. THE MEASURED DEFLECTION ANGLE AT STATION 610+50.00 (AS 65) IS 7°23'28" RT TO THE BONNEVILLE-COULEE NO 2 LINE - THAT DIFFERS FROM RECORD BY 00°02'22". THE MEASURED DEFLECTION ANGLE AT EQUATION STATION 610+59.70 BK - 610+50.00 AH (HB 67) IS 8°51'33" RT TO THE BONNEVILLE-COULEE NO 1 LINE - THAT DIFFERS FROM RECORD BY 00°00'17".

SURVEY REFERENCES

- (1) B.P.A. SERIAL NO. 2995
- (2) BK3 PG196
- (3) BK1 PG60
- (4) B.P.A. SERIAL NO. 2963
- (5) BK2 PG223
- (6) B.P.A. SERIAL NO. 2947
- (7) AFN 201075262
- (8) AFN 2014001934
- (9) B.P.A. SERIAL NO. 57340

B.P.A. PLAT MAP SERIAL NUMBERS

2947, 2948, 2963, 2995

B.P.A. MILE MAP SERIAL NUMBERS

1118, 1182, 57341, 7676, 7677, 57340, 57342, 57343

B.P.A. MAPPING CADASTRAL TIES

NOTE: THE PURPOSE OF THE CADASTRAL TIES IS TO CONFIRM THE LOCATION OF THE RESOLVED SURVEY LINE.

N1/4 CORNER SECTION 28, T.3N., R.8E., - MEASURED STATIONING AT THE NORTH-SOUTH CENTER OF SECTION LINE IS 561+67.52. RECORD IS 561+76.97 FOR A DIFFERENCE OF 9.45'. MEASURED DISTANCE FROM SURVEY LINE IS 1224.71'. RECORD IS 1225.39' FOR A DIFFERENCE OF 0.68'. B.P.A. FOUND A U.S.E.D. MONUMENT. THE MONUMENT FOUND IS A SKAMANIA COUNTY 3" BRASS CAP. THE RE-MONUMENTED POSITION OF THE CORNER COMPARES FAVORABLY FOR DISTANCE FROM THE SURVEY LINE AS SHOWN ON B.P.A. MAPPING.

E1/4 CORNER SECTION 28, T.3N., R.8E., - MEASURED STATIONING AT THE EAST LINE OF SECTION 28 IS 589+78.34. RECORD IS 590+26.46 FOR A DIFFERENCE OF 48.12'. MEASURED DISTANCE FROM SURVEY LINE IS 2094.79'. RECORD IS 2116.38' FOR A DIFFERENCE OF 21.59'. B.P.A. FOUND A U.S.E.D. MONUMENT. THE MONUMENT FOUND IS AN ARMY CORPS OF ENGINEERS CAP ALSO STAMPED "BONNEVILLE POWER NAVIG. PROJECT" AND APPEARS TO BE THE SAME MONUMENT SHOWN ON B.P.A. MAPPING. THE CURRENT SURVEYED POSITION FOR THIS CORNER DOES NOT COMPARE WELL WITH B.P.A. MAPPING.

WE TOOK A DEEPER LOOK INTO THIS DISCREPENCY AFTER THE PREVIOUS SURVEY AND DETERMINED THE FOLLOWING:

NE CORNER SECTION 28, T.3N., R.8E., - THE WITNESS CORNER SET AT THE NORTHEAST CORNER OF SECTION 28 (SHOWN IN B.P.A. SERIAL NUMBER 2995) WAS MONUMENTED 56.1 FEET WEST OF TRUE CORNER LOCATION. THE WITNESS CORNER IS CALLED OUT AS BEING 2624.19' EAST OF THE N1/4 OF SECTION 28. THE DISTANCE THAT WE MEASURED BETWEEN THE N1/4 AND THE WITNESS CONER WAS 2568.32' A DIFFERENCE OF 55.87'.

SIMILARLY, B.P.A. SERIAL NUMBER 2963 SHOWS A COMPUTED DISTANCE ALONG THE NORTH LINE OF SECTION 27 AS BEING 5293.70'. BASED ON THE FOUND WITNESS CORNER AND FOUND IRON PIPE AT THE NE1/4 OF SECTION 27 WE COMPUTED A DISTANCE OF 5347.23' A DIFFERENCE OF 53.53'.

BASED ON THIS, I BELIEVE THE ORIGINAL B.P.A. MAPS APPLIED THE 56.1' WITNESS CORNER CORRECTION TWICE. IF WE ANALIZE WHAT OUR MEASUREMENTS WOULD LOOK LIKE AGAINST THAT SAME DOUBLE CORRECTION, STATIONING MISSES 3.98' INSTEAD OF 45.12' AND DISTANCE MISSES 0.31' INSTEAD OF 21.59'.

E1/4 CORNER SECTION 27, T.3N., R.8E., - MEASURED STATIONING AT THE EAST LINE OF SECTION 27 IS 643+69.85. RECORD IS 643+71.23 FOR A DIFFERENCE OF 1.38'. MEASURED DISTANCE FROM SURVEY LINE IS 2306.18'. RECORD IS 2306.11' FOR A DIFFERENCE OF 0.07'. B.P.A. FOUND A U.S.E.D. MONUMENT. THE MONUMENT FOUND IS AN ARMY CORPS OF ENGINEERS CAP ALSO STAMPED "BONNEVILLE POWER NAVIG. PROJECT" AND APPEARS TO BE THE SAME MONUMENT SHOWN ON B.P.A. MAPPING. THE POSITION OF THE CORNER COMPARES FAVORABLY FOR DISTANCE FROM THE SURVEY LINE AS SHOWN ON B.P.A. MAPPING.

1/4 CORNER COMMON TO SECTIONS 23 AND 26, T.3N., R.8E., - MEASURED STATIONING AT THE INTERSECTION OF THE NORTH-SOUTH QUARTER LINE (SECTION 23) IS 670+65.88. RECORD IS 670+65.83 FOR A DIFFERENCE OF 0.05'. MEASURED DISTANCE FROM SURVEY LINE IS 289.65'. RECORD IS 290.41' FOR A DIFFERENCE OF 0.76'. B.P.A. SET AN IRON PIPE. THE MONUMENT FOUND WAS A 3/4" IRON PIPE BUT NOT BELIEVED TO BE ORIGINAL. BASED ON THE NOTES IN AFN 2010175840 THIS MONUMENT WAS SET BY OLSON TO PERPETUATE THE B.P.A. POSITION. THE RE-MONUMENTED POSITION OF THE CORNER COMPARES FAVORABLY FOR DISTANCE FROM THE SURVEY LINE AS SHOWN ON B.P.A. MAPPING.

1/4 CORNER COMMON TO SECTIONS 23 AND 26, T.3N., R.8E., - MEASURED STATIONING AT THE INTERSECTION OF THE NORTH-SOUTH QUARTER LINE (SECTION 23) IS 618+36.29. RECORD IS 618+35.5 FOR A DIFFERENCE OF 0.79'. MEASURED DISTANCE FROM SURVEY LINE IS 667.89'. RECORD IS 662.8' FOR A DIFFERENCE OF 5.09'. B.P.A. SET AN IRON PIPE. THE MONUMENT FOUND WAS A 3/4" IRON PIPE BUT NOT BELIEVED TO BE ORIGINAL. BASED ON THE NOTES IN AFN 2010175840 THIS MONUMENT WAS SET BY OLSON TO PERPETUATE THE B.P.A. POSITION. THE RE-MONUMENTED POSITION OF THE CORNER DOES NOT COMPARE WELL WITH B.P.A. MAPPING IN THIS DIRECTION.



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SER NO 340817-C			FILE: <u>17399-R-3-0</u>
SHEET 3 OF 7			

RECORD OF SURVEY

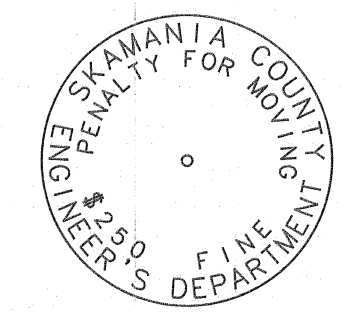
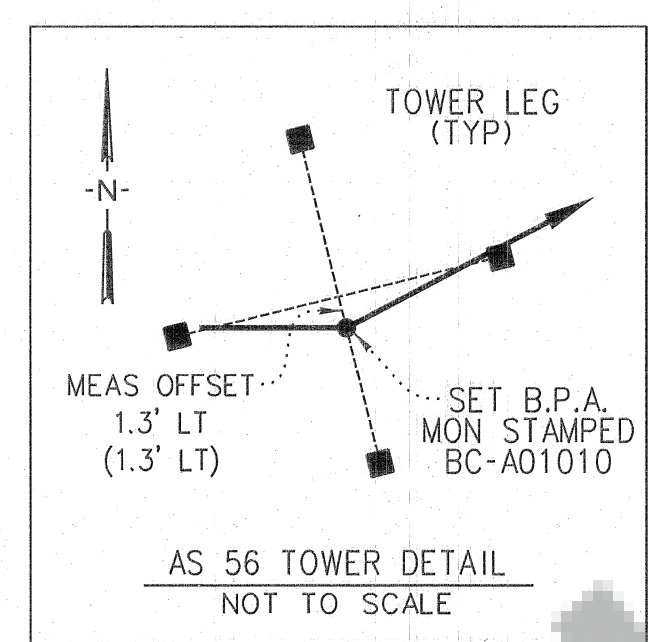
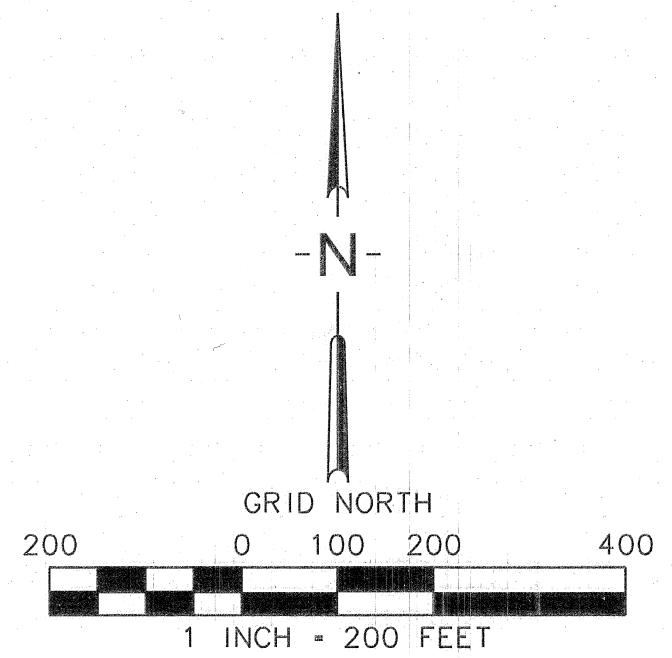
FOR THE BONNEVILLE POWER ADMINISTRATION

BONNEVILLE-COULEE LINE RIGHT-OF-WAY MILES 11 THROUGH 13

IN GOVERNMENT LOT 6 AND GOVERNMENT LOT 7 OF T.3N., R.8E., W.M.: SKAMANIA COUNTY, WASHINGTON

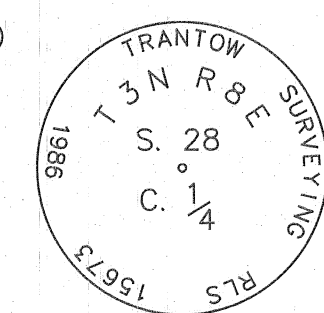
SURVEY LINE MONUMENT TABLE

POINT ID	GRID NORTHING	GRID EASTING	MONUMENT DESCRIPTION	STATION	OFFSET
BC-A01010	144721.07	1308612.04	3-1/4" B.P.A. AC W/PUNCH "BC-A01010 LS 38973 MSI 18"	576+00.00	0.00
BC-P01011	144748.83	1308665.24	3-1/4" B.P.A. AC W/PUNCH "BC-P01011 LS 52840 MSI 20"	576+60.0	0.00



WM03N08E340300
FOUND 3" BRASS CAP
N: 145950.49
E: 1307192.30
ROS BK1 PG60
(B.P.A. USED MON)
VISITED JULY, 2018

AS 53
547+72.06 0.4' Lt MEAS
(547+71.92) HELD Ah
 $\Delta 0^\circ 35' 54''$ Rt
($\Delta 0^\circ 36' 00''$ Rt)
N: 144730.48
E: 1305784.22



WM03N08E340240
FOUND 2-1/2" BRASS CAP
N: 143274.35
E: 1307165.00
LCR AFN 101177

BEGINNING OF SURVEY
LINE RESOLUTION
BC-A01010
(HELD FROM
PREVIOUS SURVEY)

LEGEND

- Ah STATION AHEAD
- Bk STATION BACK
- L.C.R. LAND CORNER RECORD
- B.P.A. BONNEVILLE POWER ADMINISTRATION
- U.S.D.O.E. UNITED STATES DEPARTMENT OF ENERGY
- A.F.N. AUDITOR'S FILE NUMBER
- AS / HB XX B.P.A. TOWER SERIAL NUMBER

XXX-XX TRANSMISSION LINE MILE MARKER
WITH STATION PER B.P.A. MILE MAPS

- B.P.A. OPERATING TOWER NUMBERS
- CONTROL MONUMENT AS NOTED
- FOUND MONUMENT AS NOTED
- SET 3-1/4" ALUMINUM CAP ON 5/8" IRON ROD.
- FOUND MONUMENT AT TOWER
- B.P.A. ROTATED STEEL TOWER
- B.P.A. STEEL TOWER
- ACQUISITION SURVEY LINE
- B.P.A. TRANSMISSION LINE RIGHT-OF-WAY (FEE)
- B.P.A. TRANSMISSION LINE RIGHT-OF-WAY (EASEMENT)
- SECTION LINE
- QUARTER SECTION LINE
- SIXTEENTH SECTION LINE
- PARCEL DATA PER SKAMANIA COUNTY
GEOGRAPHIC INFORMATION SYSTEM (G.I.S.)

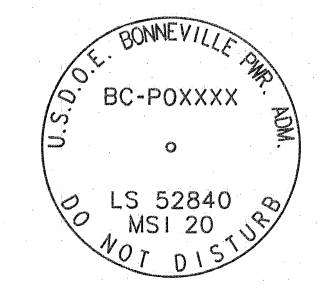
SURVEY REFERENCES

- REFERENCE B.P.A. PLAT MAP 2995
- REFERENCE B.P.A. MILE MAP 7676, 7677, 1181, 1182
- (1) B.P.A. SERIAL NO. 2995
- (2) BK3 PG196
- (3) BK1 PG60

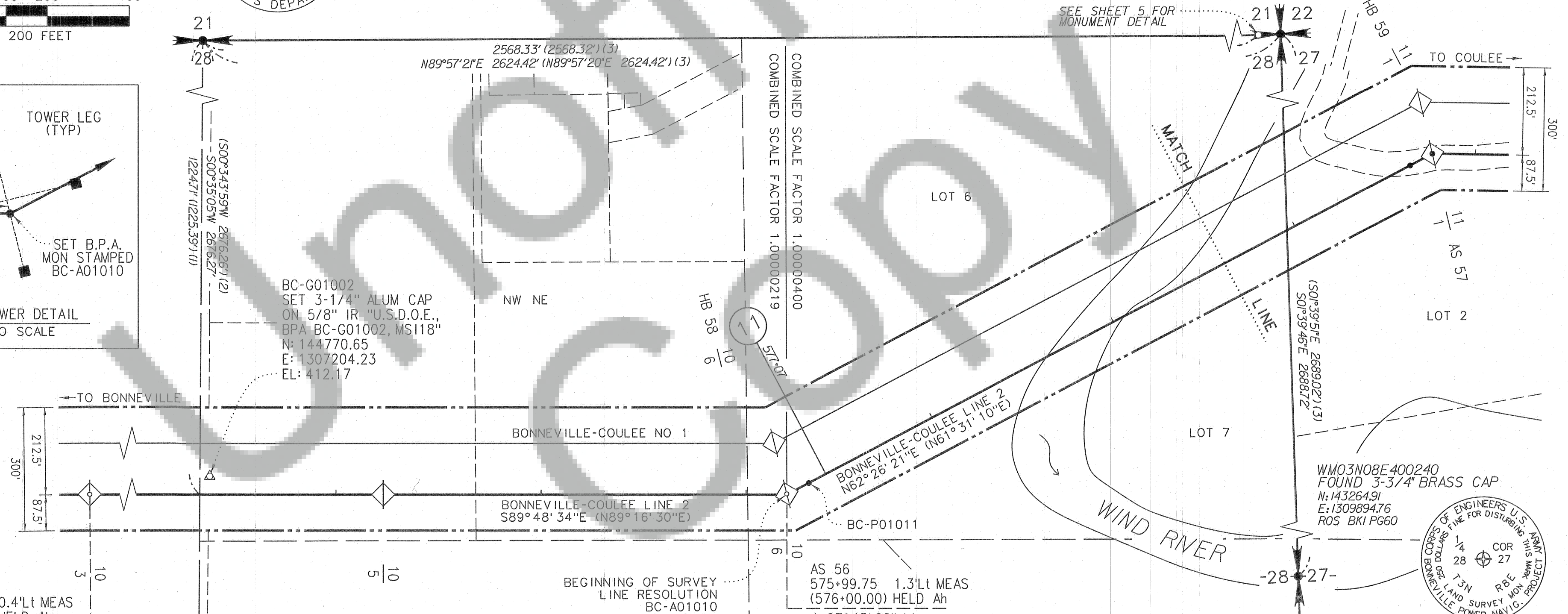
BASIS OF BEARINGS

BEARINGS AND COORDINATES SHOWN ARE GRID, BASED ON THE WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (4602), NAD83(2011) (EPOCH: 2010.0000), US SURVEY FOOT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES. TO CONVERT DISTANCES SHOWN TO GRID, MULTIPLY BY THE COMBINED SCALE FACTOR AS SHOWN BELOW

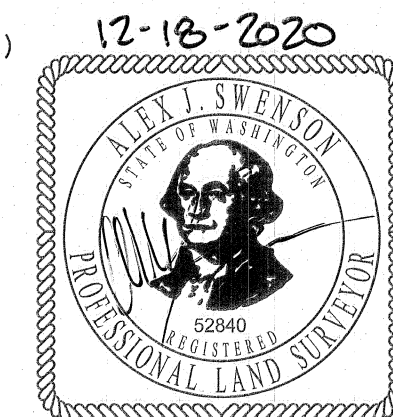
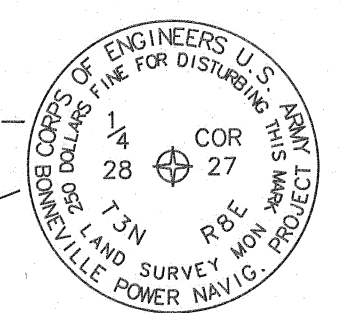
- CENTER OF SECTION
- FOUND PLSS CORNER MONUMENT
- CALCULATED PLSS CORNER



SET B.P.A. MONUMENT
DETAIL
(STAMPING VARIES BY POINT NUMBER)



WM03N08E400240
FOUND 3-3/4" BRASS CAP
N: 143264.91
E: 1309894.76
ROS BK1 PG60



SECTIONS 27 & 28, TOWNSHIP 3 NORTH, RANGE 8 EAST, W.M.

MacKay Spósito

ENERGY PUBLIC WORKS LAND DEVELOPMENT

www.mackaysposito.com

1325 SE TECH CENTER DRIVE, SUITE 140
VANCOUVER, WA 98683
VANCOUVER: (360) 695-3411
PORTLAND: (503) 289-6726
FAX (360) 695-0833

CALC BY: AJS CHECKED BY: AJS DRAWN BY: CWR JOB NO.: 17399

SER NO 340817-C

FILE: 17399-R-4-0

SHEET 4 OF 7

RECORD OF SURVEY

FOR THE BONNEVILLE POWER ADMINISTRATION

BONNEVILLE-COULEE LINE RIGHT-OF-WAY MILES 11 THOUGH 13

IN GOVERNMENT LOT 6 AND GOVERNMENT LOT 7 OF SECTION 28, GOVERNMENT LOT 2, GOVERNMENT LOT 1, AND THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 27, ALL IN T3N, R8E, W.M.: SKAMANIA COUNTY, WASHINGTON

SURVEY LINE MONUMENT TABLE

POINT ID	GRID NORTHING	GRID EASTING	MONUMENT DESCRIPTION	STATION	OFFSET
BC-P01101	145515.98	1310135.07	3-1/4" B.P.A. AC W/PUNCH "BC-P01101 LS 52840 MSI 20"	593+18.0	0.00
BC-A01102	145544.30	1310189.35	3-1/4" B.P.A. AC W/PUNCH "BC-A01102 LS 52840 MSI 20"	593+94.00	0.00
BC-P01103	145535.76	1310624.28	3-1/4" B.P.A. AC W/PUNCH "BC-P01103 LS 52840 MSI 20"	598+29.0	0.00
BC-P01104	145526.91	1311075.19	3-1/4" B.P.A. AC W/PUNCH "BC-P01104 LS 52840 MSI 20"	602+80.0	0.00
BC-P01105	145516.03	1311630.08	3-1/4" B.P.A. AC W/PUNCH "BC-P01105 LS 52840 MSI 20"	608+35.0	0.00
BC-P01106	145506.25	1312129.95	3-1/4" B.P.A. AC W/PUNCH "BC-P01106 LS 52840 MSI 20"	613+35.0	0.00

LEGEND

Ah STATION AHEAD
Bk STATION BACK
L.C.R. LAND CORNER RECORD
B.P.A. BONNEVILLE POWER ADMINISTRATION
U.S.D.O.E. UNITED STATES DEPARTMENT OF ENERGY
A.F.N. AUDITOR'S FILE NUMBER
AS / HB XX B.P.A. TOWER SERIAL NUMBER

XXX-XX

TRANSMISSION LINE MILE MARKER
WITH STATION PER B.P.A. MILE MAPS

B.P.A. OPERATING TOWER NUMBERS

CONTROL MONUMENT AS NOTED

FOUND MONUMENT AS NOTED

SET 3-1/4" ALUMINUM CAP ON 5/8" IRON ROD.

FOUND MONUMENT AT TOWER

B.P.A. ROTATED STEEL TOWER

B.P.A. STEEL TOWER

ACQUISITION SURVEY LINE

B.P.A. TRANSMISSION LINE RIGHT-OF-WAY (FEE)

B.P.A. TRANSMISSION LINE RIGHT-OF-WAY (EASEMENT)

SECTION LINE

QUARTER SECTION LINE

SIXTEENTH SECTION LINE

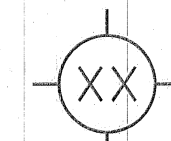
PARCEL DATA PER SKAMANIA COUNTY
GEOGRAPHIC INFORMATION SYSTEM (G.I.S.)

SURVEY REFERENCES

REFERENCE B.P.A. PLAT MAP 2963
REFERENCE B.P.A. MILE MAP 1182, 7677
(1) B.P.A. SERIAL NO. 2995
(3) BK1 PG60
(5) BK2 PG223

BASIS OF BEARINGS

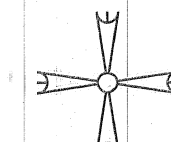
BEARINGS AND COORDINATES SHOWN ARE GRID, BASED ON THE WASHINGTON STATE
PLANE COORDINATE SYSTEM, SOUTH ZONE (4602), NAD83(2011) (EPOCH:2010.0000),
US SURVEY FOOT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES, TO CONVERT
DISTANCES SHOWN TO GRID, MULTIPLY BY 1.00000400



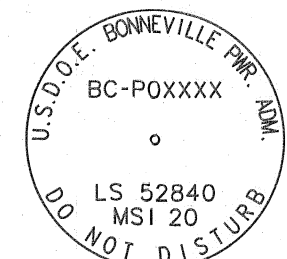
CENTER OF SECTION



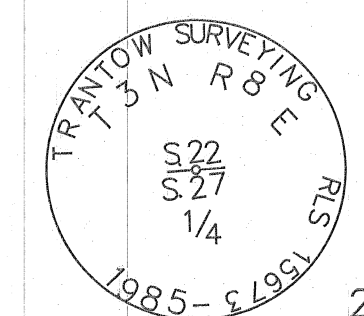
FOUND PLSS CORNER MONUMENT



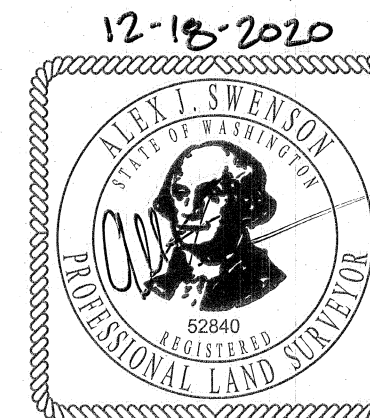
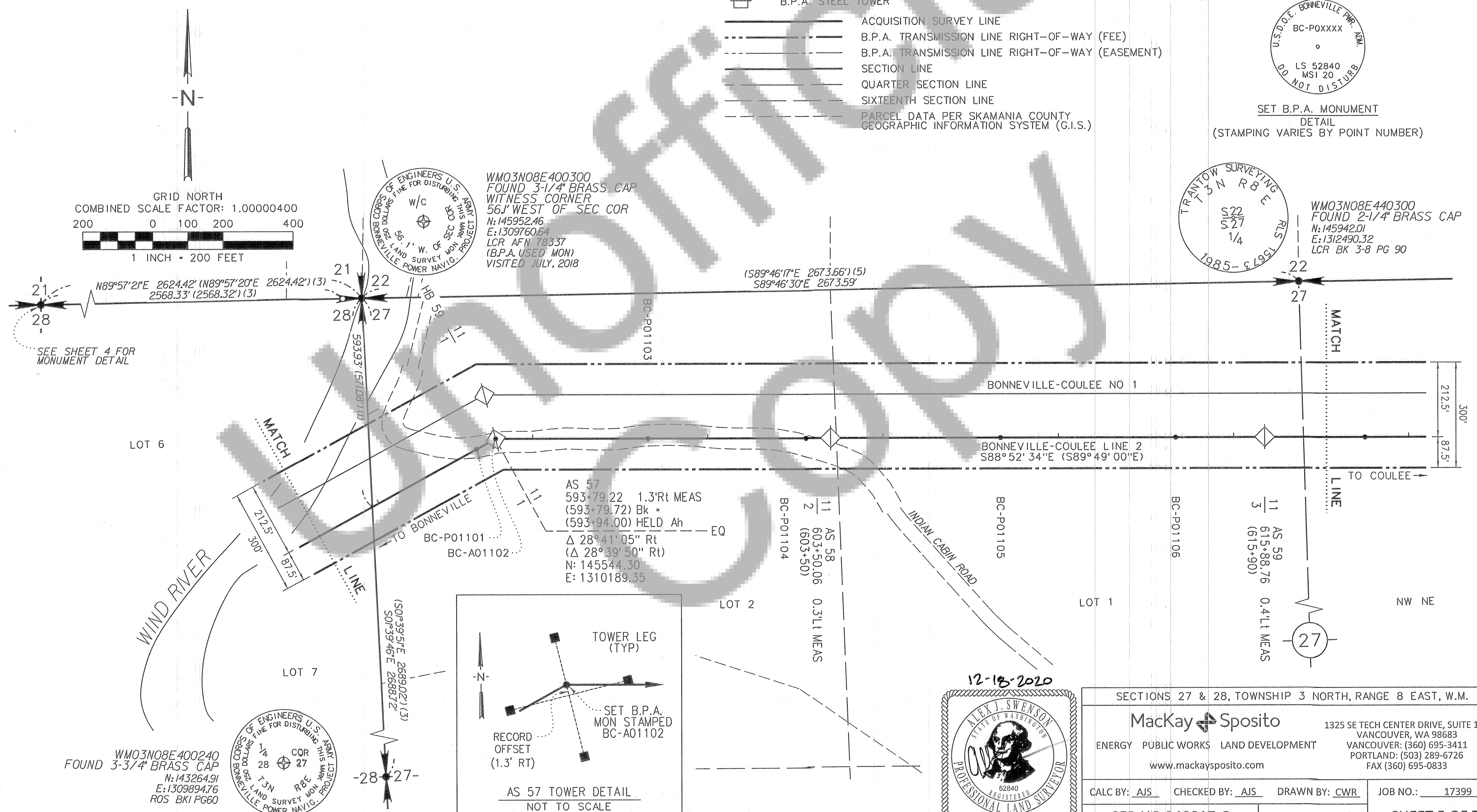
CALCULATED PLSS CORNER



SET B.P.A. MONUMENT
DETAIL
(STAMPING VARIES BY POINT NUMBER)



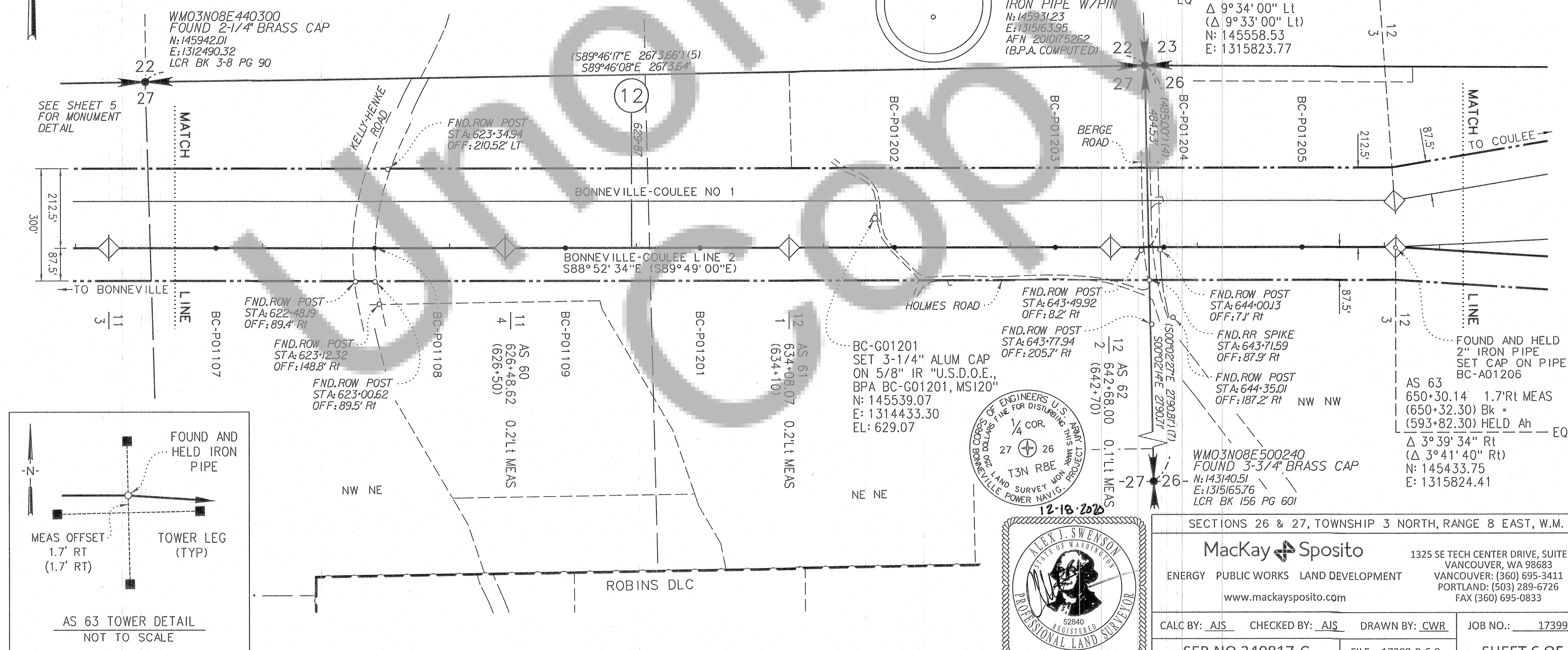
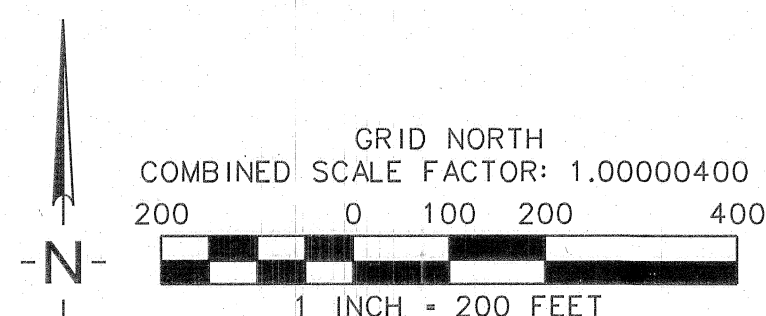
WMO3N08E440300
FOUND 2-1/4" BRASS CAP
N: 145942.01
E: 1312490.32
LCR BK 3-8 PG 90



SECTIONS 27 & 28, TOWNSHIP 3 NORTH, RANGE 8 EAST, W.M.			
Mackay Sposito		1325 SE TECH CENTER DRIVE, SUITE 140 VANCOUVER, WA 98683	
ENERGY PUBLIC WORKS LAND DEVELOPMENT		VANCOUVER: (360) 695-3411 PORTLAND: (503) 289-6726 FAX (360) 695-0833	
www.mackaysposito.com			
CALC BY: <u>AJS</u>	CHECKED BY: <u>AJS</u>	DRAWN BY: <u>CWR</u>	JOB NO.: <u>17399</u>
SER NO 340817-C		FILE: <u>17399-R-5-0</u>	
SHEET 5 OF 7			

IN THE NORTHWEST 1/4 OF THE NORTHEAST 1/4, AND THE NORTHEAST 1/4 OF THE
26. ALL IN T3N. R8E. W.M.: SKAMANIA COUNTY, WASHINGTON

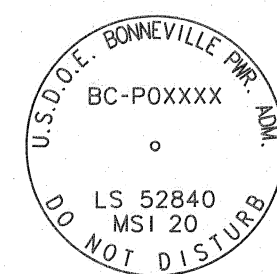
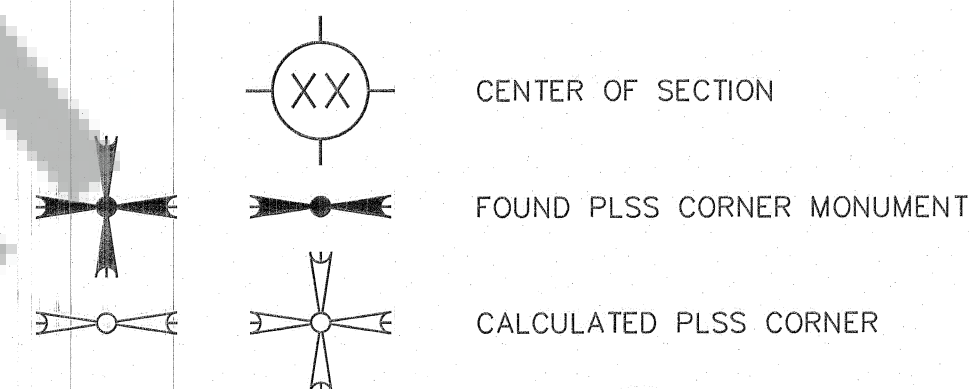
POINT ID	GRID NORTHING	GRID EASTING	MONUMENT DESCRIPTION	STATION	OFFSET
BC-P01107	145495.61	1312669.88	3-1/4" B.P.A. AC W/PUNCH "BC-P01107 LS 52840 MSI 20"	618+75.0	0.00
BC-P01108	145487.31	1313094.79	3-1/4" B.P.A. AC W/PUNCH "BC-P01108 LS 52840 MSI 20"	623+00.0	0.00
BC-P01109	145477.29	1313604.69	3-1/4" B.P.A. AC W/PUNCH "BC-P01109 LS 52840 MSI 20"	628+10.0	0.00
BC-P01201	145470.24	1313964.62	3-1/4" B.P.A. AC W/PUNCH "BC-P01201 LS 52840 MSI 20"	631+70.0	0.00
BC-P01202	145460.05	1314484.42	3-1/4" B.P.A. AC W/PUNCH "BC-P01202 LS 52840 MSI 20"	636+89.9	0.00
BC-P01203	145451.60	1314914.43	3-1/4" B.P.A. AC W/PUNCH "BC-P01203 LS 52840 MSI 20"	641+20.0	0.00
BC-P01204	145445.91	1315205.38	3-1/4" B.P.A. AC W/PUNCH "BC-P01204 LS 52840 MSI 20"	644+11.0	0.00
BC-P01205	145438.66	1315574.31	3-1/4" B.P.A. AC W/PUNCH "BC-P01205 LS 52840 MSI 20"	647+80.0	0.00
BC-A01206	145433.75	1315824.41	3-1/4" B.P.A. AC W/PUNCH "BC-A01206 LS 52840 MSI 20"	593+82.30	0.00



Ah	STATION AHEAD
Bk	STATION BACK
L.C.R.	LAND CORNER RECORD
B.P.A.	BONNEVILLE POWER ADMINISTRATION
U.S.D.O.E.	UNITED STATES DEPARTMENT OF ENERGY
A.F.N.	AUDITOR'S FILE NUMBER
AS / HB XX	B.P.A. TOWER SERIAL NUMBER

REFERENCE B.P.A. PLAT MAP 2963, 2947
REFERENCE B.P.A. MILE MAP 1182, 57341, 7677, 57340
(4) B.P.A SERIAL NO. 2963
(5) BK2 PG223
(7) AFN 201075262

BEARINGS AND COORDINATES SHOWN ARE GRID, BASED ON THE WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (4602), NAD83(2011) (EPOCH: 2010.0000), US SURVEY FOOT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES, TO CONVERT DISTANCES SHOWN TO GRID, MULTIPLY BY 1.00000400



SET B.P.A. MONUMENT
DETAIL
(STAMPING VARIES BY POINT NUMBER)

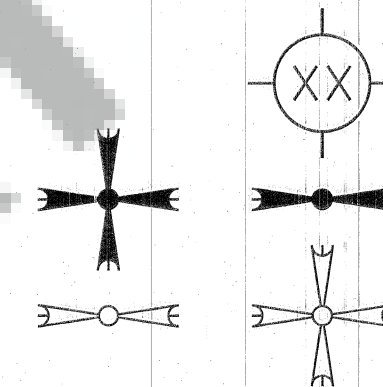
IN THE NORTHWEST 1/4 OF THE NORTHWEST 1/4, AND THE NORTHEAST 1/4 OF THE NORTHWEST 1/4, OF SECTION 26, THE SOUTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 23, ALL IN T3N R8E, W.M.: SKAMANIA COUNTY, WASHINGTON

POINT ID	GRID NORTHING	GRID EASTING	MONUMENT DESCRIPTION	STATION	OFFSET
BC-P01207	145413.91	1316061.29	3-1/4" B.P.A. AC W/PUNCH "BC-P01207 LS 52840 MSI 20"	596+20.0	0.00
BC-P01208	145390.16	1316345.29	3-1/4" B.P.A. AC W/PUNCH "BC-P01208 LS 52840 MSI 20"	599+05.0	0.00
BC-A01209	145374.24	1316535.67	3-1/4" B.P.A. AC W/PUNCH "BC-A01209 LS 52840 MSI 20"	600+96.00	0.00
BC-P01210	145567.42	1316727.14	3-1/4" B.P.A. AC W/PUNCH "BC-P01210 LS 52840 MSI 20"	603+68.0	0.00
BC-P01211	145923.95	1317080.52	3-1/4" B.P.A. AC W/PUNCH "BC-P01211 LS 52840 MSI 20"	608+70.0	0.00

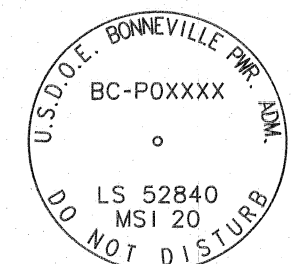
Ah	STATION AHEAD
Bk	STATION BACK
L.C.R.	LAND CORNER RECORD
B.P.A.	BONNEVILLE POWER ADMINISTRATION
U.S.D.O.E.	UNITED STATES DEPARTMENT OF ENERGY
A.F.N.	AUDITOR'S FILE NUMBER
AS / HB XX	B.P.A. TOWER SERIAL NUMBER

REFERENCE B.P.A. PLAT MAP 2947, 2948
REFERENCE B.P.A. MILE MAP 57340, 57341, 57342
(6) B.P.A. SERIAL NO. 2947
(7) AFN 201075262
(8) AFN 2014001934
(9) B.P.A. SERIAL NO. 57340

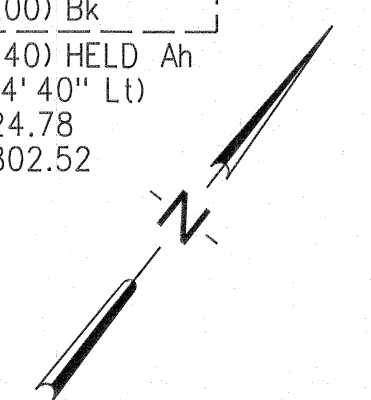
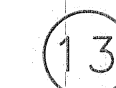
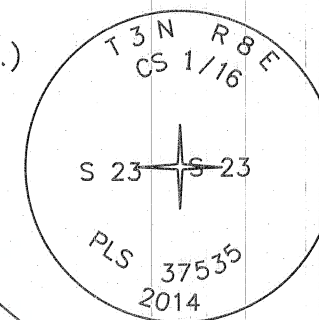
BEARINGS AND COORDINATES SHOWN ARE GRID, BASED ON THE WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (4602), NAD83(2011)(EPOCH:2010.0000), US SURVEY FOOT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES. TO CONVERT DISTANCES SHOWN TO GRID, MULTIPLY BY THE COMBINED SCALE FACTOR AS SHOWN BELOW



CALCULATED PLSS CORNER




(STAMPING VARIES BY POINT NUMBER)

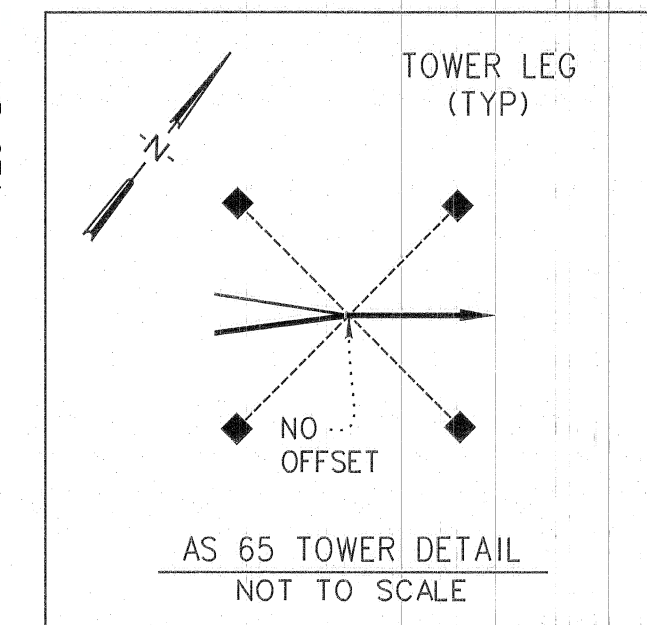


GRID NORTH

200 0 100 200 400



1 INCH = 200 FEET



OLSON
o
9025



1325 SE TECH CENTER DRIVE, SUITE 140
VANCOUVER, WA 98683
VANCOUVER: (360) 695-3411
PORTLAND: (503) 289-6726
FAX (360) 695-0833

SHEET 7 OF 7

