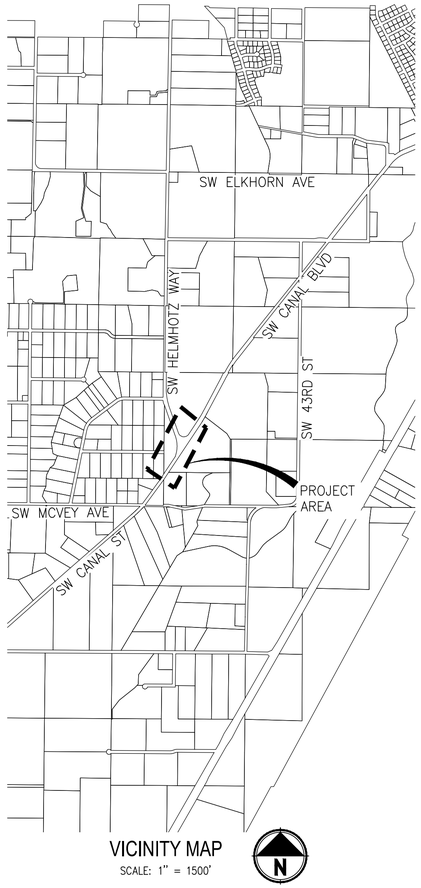
DESCHUTES COUNTY ROAD DEPARTMENT
SW CANAL BLVD/SW HELMHOLTZ WAY
INTERSECTION IMPROVEMENT

DESCHUTES COUNTY
DECEMBER 2019



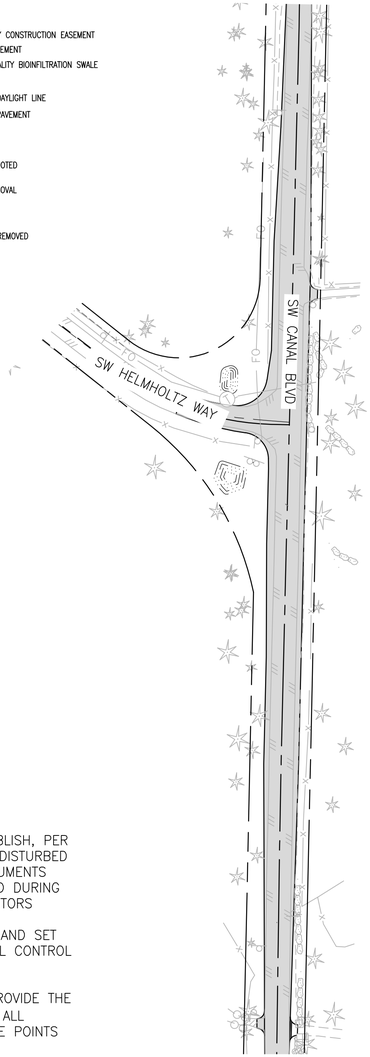
VICINITY MAP
SCALE: 1" = 1500'

EXISTING LEGEND:

- FOUND MONUMENT
- FOUND REBAR, NO CAP
- FOUND REBAR WITH CAP
- SET CONTROL POINT (SEE CONTROL TABLE)
- CABLE TV RISER
- TELEPHONE POLE
- POWER POLE WITH DROP LINE & TRANSFORMER
- POWER POLE GUY ANCHOR
- TELEPHONE JUNCTION BOX
- TELEPHONE RISER
- WATER METER
- WATER VALVE
- WATER IRRIGATION VALVE
- SIGN, AS NOTED
- JUNIPER TREE (TRUNK AND DRIPLINE DIAMETER NOTED)
- FOG LINE STRIPING
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- ROCKERY
- WOOD FENCE
- BARB WIRE FENCE
- POWER LOCATE MARKING
- OVERHEAD UTILITY
- FIBER OPTIC LOCATE MARKING
- TELEPHONE LOCATE MARKING
- WATER LOCATE MARKING
- RIGHT-OF-WAY LINE
- CENTER LINE RIGHT-OF-WAY
- LOT LINE

PROPOSED LEGEND:

- TEMPORARY CONSTRUCTION EASEMENT
- SLOPE EASEMENT
- WATER QUALITY BIOINFILTRATION SWALE
- SAWCUT
- SURFACE DAYLIGHT LINE
- EDGE OF PAVEMENT
- ROW
- FENCE
- SIGN, AS NOTED
- FENCE REMOVAL
- TREE TO BE REMOVED



INTERSECTION IMPROVEMENTS

AREA MAP

1"=100'

OWNER
DESCHUTES COUNTY ROAD DEPARTMENT
61150 SE 27TH
BEND, OR 97702
CONTACT: CODY SMITH
PHONE: (541) 322-7113 (OFFICE)
EMAIL: cody.smith@deschutes.org

ENGINEER
PARAMETRIX
150 NW PACIFIC PARK LANE
BEND, OREGON 97701
CONTACT: DAVID RICO, P.E.
PHONE: (541) 508-7710
EMAIL: drico@parametrix.com

SURVEYOR
PARAMETRIX
150 NW PACIFIC PARK LANE
BEND, OR 97701
CONTACT: ANDREW HUSTON
PHONE: (541) 508-7710
EMAIL: ahuston@parametrix.com

BASIS OF BEARING
BASED ON THE OREGON REAL-TIME GPS NETWORK (ORGN)

DATUM
HORIZONTAL: NAD83 (2011) BASED ON OREGON REAL-TIME GPS NETWORK (ORGN)

VERTICAL: NGVD 29

PROJECTION IS CENTRAL OREGON COORDINATE SYSTEM (C.O.C.S), INTERNATIONAL FEET

BENCHMARK
BENCH MARK FOR THIS PROJECT IS POINT 1041, BEING FOUND AS SET PK NAIL ELEVATION 3116.04

FOUND MONUMENTS TABLE

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1156	446340.67	3314048.29	3111.01	FOUND 1/2 IN IRON ROD UP 0.2
1157	446895.78	3314079.88	3108.15	FOUND 3-1/4 IN ALUMINUM CAP MARKED DESCHUTES COUNTY SURVEYORS OFFICE DOWN 0.3 IN ASPHALT
1157	446895.78	3314079.88	3108.15	FOUND 3-1/4 IN ALUMINUM CAP MARKED DESCHUTES COUNTY SURVEYORS OFFICE DOWN 0.3 IN ASPHALT
1158	446210.12	3314154.43	3113.19	FOUND 1 IN IRON PIPE WITH THREADED TOP
1158	446210.12	3314154.43	3113.19	FOUND 1 IN IRON PIPE WITH THREADED TOP
1159	445964.14	3314758.05	3111.33	1 INCH IRON PIPE, THREADED TOP, BENT N20°E 0.9 FEET, SHOT POINT OF ENTRY

PARAMETRIX CONTROL TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1030	444244.44	3313956.86	3125.39	FOUND 2-1/2 IN ALUMINUM CAP MARKED DESCHUTES COUNTY GIS 0023 IN CONCRETE
1034	444416.33	3313832.95	3126.14	SET 5/8 IN IRON ROD WITH 1-1/2 IN ALUMINUM CAP MARKED PARAMETRIX CNTL 1034
1041	445472.90	3314516.04	3116.04	SET PK NAIL

SHEET LIST TABLE

SHEET #	SHEET TITLE
C1.0	COVER SHEET
C1.1	PROJECT DETAILS
C2.0	TYPICAL SECTIONS
C2.1	PAVING INDEX
C3.0	EXISTING CONDITIONS/DEMO PLAN
C4.0	PLAN & PROFILE, SW CANAL BLVD
C4.1	PLAN & PROFILE, SW CANAL BLVD SW HELMHOLTZ WAY
C5.0	CONSTRUCTION STAGING, STAGE 1
C5.1	CONSTRUCTION STAGING, STAGE 2
C5.2	CONSTRUCTION STAGING, STAGE 3
C5.3	CONSTRUCTION STAGING, STAGE 4
C5.4	CONSTRUCTION STAGING, STAGE 5
C6.0	EROSION CONTROL PLAN
SS1	SIGNING AND STRIPING LEGEND
SS2	RECESSED PAVEMENT MARKERS DETAIL
SS3	EXISTING SIGN DETAILS
SS4	PROPOSED SIGN DETAILS
SS5	SIGN & POST DATA TABLE
SS6	CURVE SIGN AND POST DATA TABLE
SS7	CURVE SIGN AND POST DATA TABLE
SS8	CURVE SIGN AND POST DATA TABLE
SS9	SIGNING & STRIPING PLAN CANAL BLVD
SS10	SIGNING & STRIPING PLAN CANAL BLVD
SS11	SIGNING & STRIPING PLAN CANAL BLVD
SS12	SIGNING & STRIPING PLAN HELMHOLTZ WAY
SS13	CURVE SIGNING PLAN
SS14	CURVE SIGNING PLAN
SS15	CURVE SIGNING PLAN
SS16	CURVE SIGNING PLAN
SS17	DETOUR PLAN
IL1	LEGEND
IL2	LIGHTING PLAN

GENERAL NOTES:

ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED IN THIS CONTRACTS SPECIAL PROVISIONS, BE CONSTRUCTED IN ACCORDANCE WITH THE OREGON STATE "OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION," REVISED 2018

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT" UNDERGROUND LOCATE SERVICE" AT 1-800-332- 2344, PRIOR TO THE START OF CONSTRUCTION, TO LOCATE POWER, GAS, CABLE TV, AND TELEPHONE UNDERGROUND FACILITIES. THE ONE CALL CENTER BUSINESS HOURS ARE 8:00 AM TO 5:00 PM. ANY LOCATE REQUESTS PLACED AFTER 5:00 P.M., WILL BE TREATED AS IF THEY WERE SUBMITTED AT 8:00 A.M. THE FOLLOWING BUSINESS MORNING. THE 2 BUSINESS-DAY (48 BUSINESS HOURS) WAITING PERIOD BEGINS AT THAT TIME. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE PUBLIC AGENCY FOR THE LOCATION OF UNDERGROUND FACILITIES.

ATTENTION: OREGON LAW REQUIRES THAT YOU FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN O.A.R 952-001-0010 THROUGH 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER AT 503-232-1987

IT IS THE CONTRACTORS RESPONSIBILITY TO RE-ESTABLISH, PER OREGON REVISED STATUES, ALL SURVEY MONUMENTS DISTURBED OR DESTROYED BY THIS WORK. THIS INCLUDES MONUMENTS NOT SHOWN IN THESE PLANS, WHICH ARE DISCOVERED DURING THE COURSE OF CONSTRUCTION. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ELEVATIONS OF SIDE SHOT MONUMENTS FOR USE AS TEMPORARY BENCH MARKS AND SET TEMPORARY BENCH MARKS OR ADDITIONAL HORIZONTAL CONTROL AS NEEDED.

UPON AWARD OF THE CONTRACT, PARAMETRIX WILL PROVIDE THE CONTRACTOR WITH AN "ASCII" POINT FILE CONTAINING ALL CONTROL POINTS ALONG WITH ALIGNMENT CENTER LINE POINTS AT 50' STATIONS.

CALL BEFORE YOU DIG

DESCHUTES COUNTY APPROVAL:

COUNTY ENGINEER

COUNTY ENGINEER

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED DR
DRAWN DR/LYF
CHECKED
APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE-2509-005.2-C1.0-CS00
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER
94066PE
OREGON
SEPT. 11, 2018
DAVID RICO
EXPIRES: 12/31/2020

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
150 NW PACIFIC PARK LANE, SUITE 110 | BEND, OR 97701
P 541.508.7710
WWW.PARAMETRIX.COM

PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

COVER SHEET

DRAWING NO.
1 OF 32
C1.0

PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:59:49 PM
PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S
LAYOUT: C1.0 COVER SHEET

FOUND MONUMENTS TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1140	444855.37	3314068.68	3126.40	FOUND 5/8 IN IRON ROD DOWN 0.2
1141	445675.71	3314352.10	3109.56	FOUND 1 IN PIPE WITH ROCK COLLAR
1142	445653.91	3314561.01	3112.26	FOUND 1-1/2 IN IRON PIPE
1143	445926.98	3314816.97	3109.27	FOUND 5/8 IN IRON ROD WITH YELLO PLASTIC CAP MARKED LS1020 BENT 0.5 N45W
1144	446033.05	3314881.20	3108.15	FOUND 5/8 IN IRON ROD YELLOW PLASTIC CAP MARKED LS1020 UP 1.40
1145	446804.16	3315205.40	3084.51	FOUND 1 IN IRON PIPE BENT
1146	446400.65	3314048.74	3110.72	FOUND 5/8 IN IRON ROD
1147	446146.72	3314943.32	3096.01	FOUND 5/8 IN IRON ROD WITH YELLOW PLASTIC CAP MARKED LS 1020 UP 0.4
1148	446771.76	3315267.42	3084.79	FOUND 3/4 IN IRON ROD BENT S25°W 0.50
1150	446538.34	3314096.75	3112.01	FOUND 1 IN IRON PIPE THREADED TOP
1150	446538.34	3314096.75	3112.01	FOUND 1 IN IRON PIPE THREADED TOP
1151	446896.01	3314099.14	3107.33	FOUND FIP 1 IN IRON PIPE THREADED TOP UP 0.2
1151	446896.01	3314099.14	3107.33	FOUND FIP 1 IN IRON PIPE THREADED TOP UP 0.2
1152	446895.70	3314049.99	3107.52	FOUND 1/2 IN IRON ROD DOWN 0.6
1152	446895.70	3314049.99	3107.52	FOUND 1/2 IN IRON ROD DOWN 0.6
1154	444920.75	3314178.64	3121.12	FOUND 5/8 IN IRON ROD WITH YELLOW PLASTIC CAP MARKED LS 1020
1154	444920.75	3314178.64	3121.12	FOUND 5/8 IN IRON ROD WITH YELLOW PLASTIC CAP MARKED LS 1020
1155	444920.57	3314167.38	3121.72	FOUND 1 IN IRON PIPE WITH THREADED TOP UP 0.3
1155	444920.57	3314167.38	3121.72	FOUND 1 IN IRON PIPE WITH THREADED TOP UP 0.3
1156	446340.67	3314048.29	3111.01	FOUND 1/2 IN IRON ROD UP 0.2
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FOUND MONUMENTS

N.T.S

PARAMETRIX CONTROL TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1030	444244.44	3313956.86	3125.39	FOUND 2-1/2 IN ALUMINUM CAP MARKED DESCHUTES COUNTY GIS 0023 IN CONCRETE
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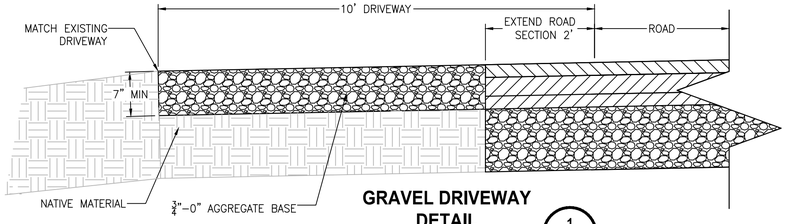
CONTROL TABLE

N.T.S

ODOT STD DWG INDEX	
RD 100	MAILBOX SUPPORT
RD 610	ASPHALT CONCRETE PAVEMENT (ACP) DETAILS
RD 810	BARBED AND WOVEN WIRE FENCE
RD 820	FENCE GATES
RD 1040	SEDIMENT FENCE
TM 200	SIGN INSTALLATION DETAILS
TM 201	MISCELLANEOUS SIGN PLACEMENT DETAILS
TM 500	PAVEMENT MARKING STANDARD DETAIL BLOCKS
TM 501	PAVEMENT MARKING STANDARD DETAIL BLOCKS
TM 503	PAVEMENT MARKING STANDARD DETAIL BLOCKS
TM 517	RECESSED PAVEMENT MARKERS
TM 530	INTERSECTION PAVEMENT MARKINGS (CROSSWALK, STOP BAR & BIKE LANE STENCIL)
TM 531	TURN ARROW MARKING DETAILS
TM 539	MEDIAN AND LEFT TURN CHANNELIZATION DETAILS
TM 560	ALIGNMENT LAYOUT: GENERAL
TM 561	ALIGNMENT LAYOUT: LEFT TURN LANE, CENTERLINE, & MEDIANS
TM 671	3 SECOND GUST WIND SPEED MAP
TM 676	SIGN ATTACHMENTS
TM 681	PERFORATED STEEL SQUARE TUBE (PSST) SIGN SUPPORT INSTALLATION
TM 688	PERFORATED STEEL SQUARE TUBE (PSST) SLIP BASE FOUNDATION
TM 800	TABLES, ABRUPT EDGE AND PCMS DETAILS
TM 820	TEMPORARY BARRICADES
TM 821	TEMPORARY SIGN SUPPORTS
TM 822	TEMPORARY SIGN SUPPORTS
TM 831	TEMPORARY IMPACT ATTENUATORS
TM 832	TEMPORARY IMPACT ATTENUATORS
TM 833	TEMPORARY IMPACT ATTENUATORS
TM 840	CLOSURE DETAILS
TM 841	INTERSECTION WORK ZONE DETAILS
TM 850	2-LANE, 2-WAY ROADWAYS

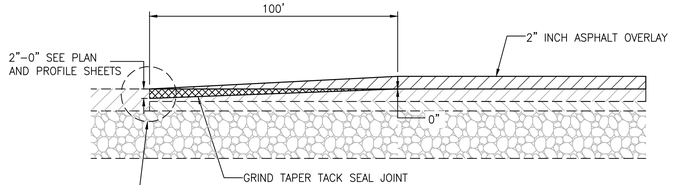
CONSTRUCTION NOTES:

1. ALL UTILITY SERVICES WILL BE FIELD STAKED IN ACCORDANCE WITH DESCHUTES COUNTY STANDARDS AND SPECIFICATIONS.
2. DURING THE COURSE OF THE WORK, CONTRACTOR SHALL COORDINATE AND ACCOMMODATE OTHER CONTRACTORS OR OPERATIONS OF THE COUNTY.
3. CONTRACTOR SHALL RESTRICT ALL OPERATIONS TO THE AREAS WITHIN THE PROJECT BOUNDARIES. ANY DISRUPTION TO NATIVE LANDSCAPES, OUTSIDE OF THE PROJECT AREA, SHALL BE RESTORED AT NO COST TO THE OWNER.
4. CABLE AND GAS UTILITY TRENCHING SHALL BE COMPLETED IN ACCORDANCE WITH PLANS AND SPECIFICATIONS FROM APPLICABLE UTILITY COMPANIES. ALL CABLE AND GAS UTILITIES WILL BE INSTALLED BY THE APPLICABLE UTILITY COMPANY IN CONFORMANCE WITH THEIR JOINT TRENCH DETAIL. CONTRACTOR SHALL COORDINATE TRENCH EXCAVATIONS, BEDDING AND BACKFILL WITH POWER, PHONE, TELEVISION, AND GAS REPRESENTATIVES.
5. ALL FINAL CUT SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL UNLESS OTHERWISE APPROVED. FILL SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL UNLESS OTHERWISE APPROVED BY THE ENGINEER OR SHOWN ON THESE PLANS.
6. THE CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT, AND METHODS REQUIRED TO PREVENT DUST IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED VEGETATION AND DOMESTIC ANIMALS OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST RESULTING FROM CONSTRUCTION.
7. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE INDUSTRIAL SAFETY REGULATIONS. DESCHUTES COUNTY AND THEIR OFFICIALS, THE ENGINEER, AND THE OWNER SHALL NOT BE RESPONSIBLE FOR ENFORCING SAFETY REGULATIONS.
8. MATERIAL QUANTITIES USED, NOTED, OR PROVIDED IN A SEPARATE ITEMIZED QUANTITY TAKE-OFF ARE AN ENGINEER'S OPINION OF PROBABLE MATERIAL REQUIREMENTS, AND IS AN ESTIMATE ONLY. CONTRACTORS HAVE THE SOLE RESPONSIBILITY OF MAKING THEIR OWN QUANTITY TAKE-OFF AND COST ESTIMATE.
9. COUNTY ROAD DEPARTMENT'S SIGNATURE DOES NOT CONSTITUTE APPROVAL OF FACILITIES PROPOSED ON PRIVATE PROPERTY.
10. ANY WORK WITHIN EXISTING PUBLIC RIGHT-OF-WAY OR DEDICATED EASEMENTS REQUIRES A PERMIT TO WORK IN THE PUBLIC RIGHT-OF-WAY OBTAINED FROM DESCHUTES COUNTY. WORK WITHIN THE RIGHT-OF-WAY OR EASEMENTS MAY OCCUR ONLY BETWEEN THE HOURS OF 7:00 AM AND 6:00 PM, UNLESS OTHERWISE PERMITTED, ANY AND EVERY CALENDAR DAY EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS.



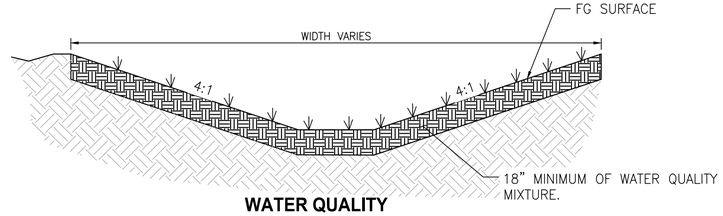
GRAVEL DRIVEWAY DETAIL 1 C1.1

N.T.S



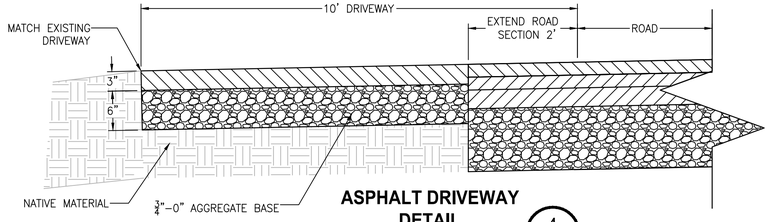
GRIND TAPER DETAIL 2 C1.1

N.T.S



WATER QUALITY SWALE SECTION DETAIL 3 C1.1

N.T.S



ASPHALT DRIVEWAY DETAIL 4 C1.1

N.T.S

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED DR
DRAWN DR/LYF
CHECKED
APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE-2509-005.2-C1.1-NT00
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER 94066PE OREGON SEPT. 11, 2018 DAVID RICO
EXPIRES: 12/31/2020

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
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P 541.508.7710
WWW.PARAMETRIX.COM

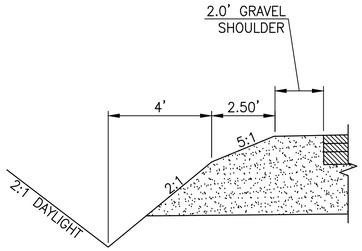
PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

PROJECT DETAILS

DRAWING NO. 2 OF 32

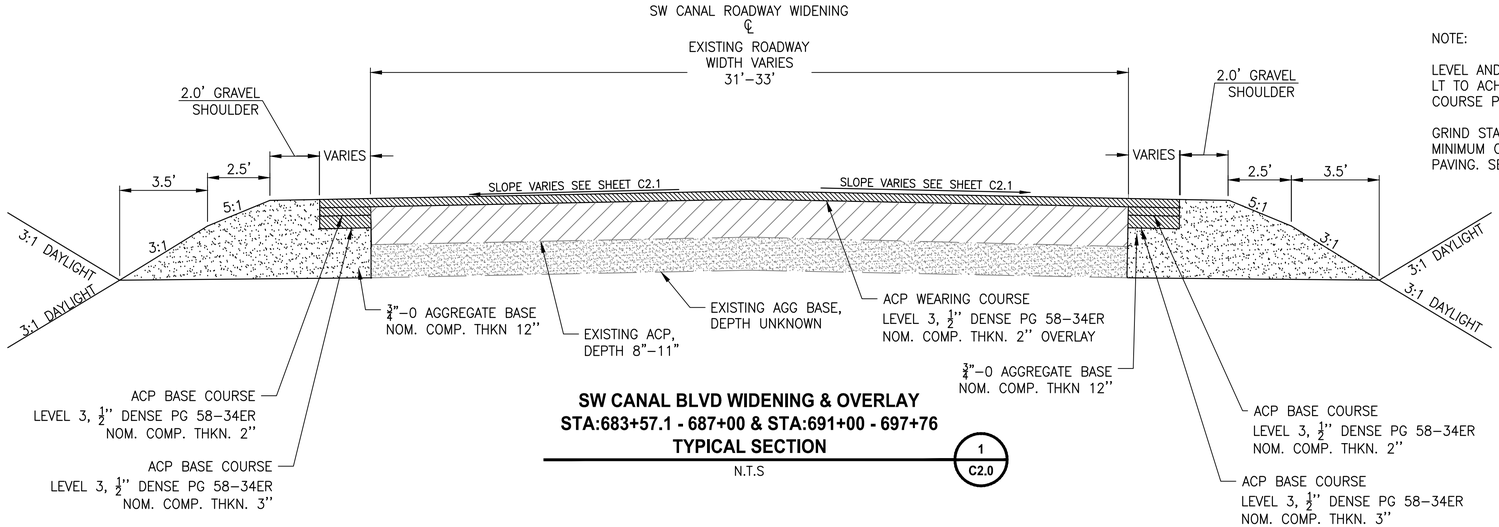
C1.1

LAYOUT: C1.1 PROJECT DETAILS PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodov DATE: Tuesday, November 19, 2019 1:03:48 PM



STA: 691+00-691+50

N.T.S



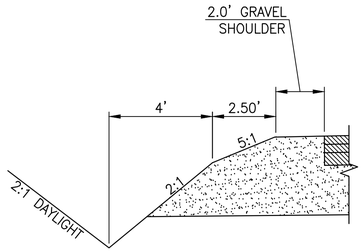
SW CANAL BLVD WIDENING & OVERLAY
STA:683+57.1 - 687+00 & STA:691+00 - 697+76
TYPICAL SECTION (1 / C2.0)

N.T.S

NOTE:

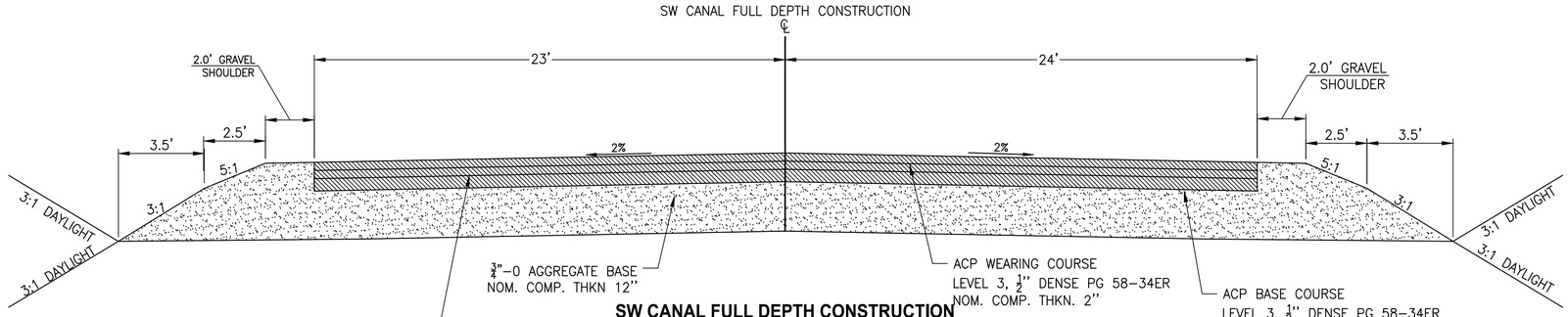
LEVEL AND GRIND PAVEMENT STA: 683+86.6-687+00 LT TO ACHIEVE 2% CROSS SLOPE, PRIOR TO WEARING COURSE PAVING. SEE SHEET C2.1

GRIND STA: 683+86.6-686+27.7 RT TO ACHIEVE 1% MINIMUM CROSS SLOPE, PRIOR TO WEARING COURSE PAVING. SEE SHEET C2.1



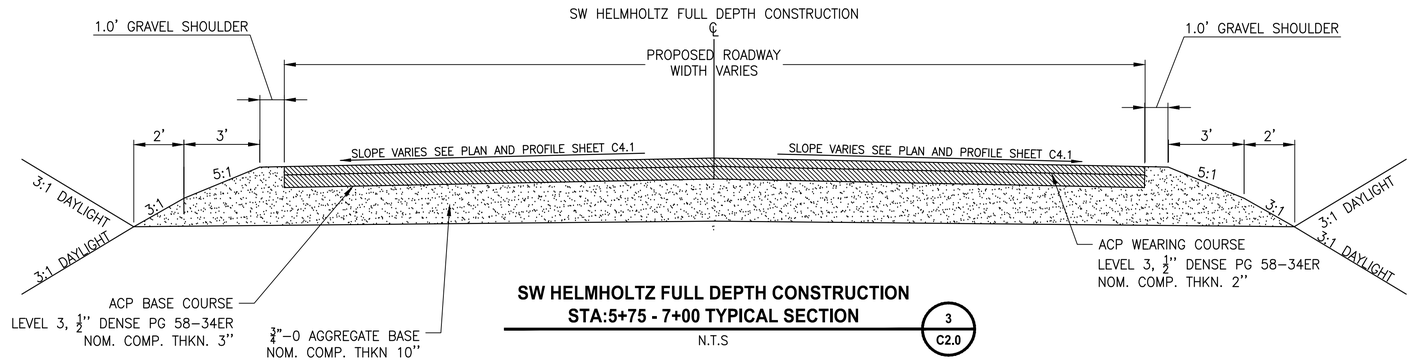
STA: 688+05-691+00

N.T.S



SW CANAL FULL DEPTH CONSTRUCTION
STA:687+00 - 691+00
TYPICAL SECTION (2 / C2.0)

N.T.S



SW HELMHOLTZ FULL DEPTH CONSTRUCTION
STA:5+75 - 7+00 TYPICAL SECTION (3 / C2.0)

N.T.S

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY	DESIGNED DR / DRAWN DR/LYF / CHECKED / APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE-2509-005.2-C2.0-TS00

JOB No.

DATE

REGISTERED PROFESSIONAL ENGINEER 94066PE OREGON SEPT. 11, 2018 DAVID RICO EXPIRES:12/31/2020

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
150 NW PACIFIC PARK LANE, SUITE 110 | BEND, OR 97701
P 541.508.7710
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PROJECT NAME

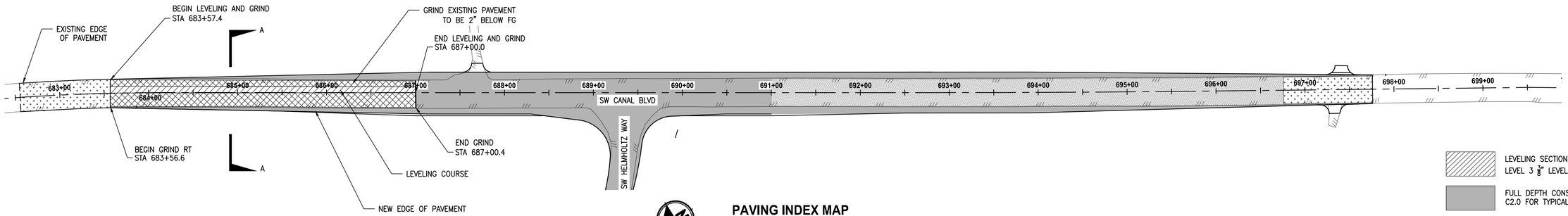
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

TYPICAL SECTIONS

DRAWING NO. 3 OF 32

C2.0

LAYOUT: C2.0 TYPICAL SECTIONS PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:05:30 PM



PAVING INDEX MAP

SCALE IN FEET

0 60' 120'

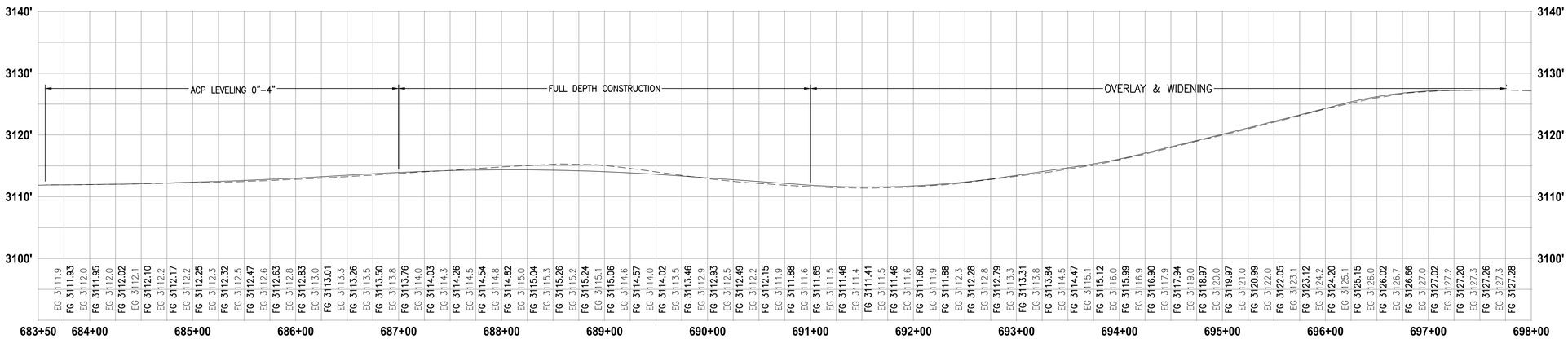
LEVELING SECTION, DEPTH VARIES 0–4". LEVEL 3 3/8" LEVELING COURSE

FULL DEPTH CONSTRUCTION, SEE SHEET C2.0 FOR TYPICAL SECTION

AC GRIND DEPTH VARIES 0–4".

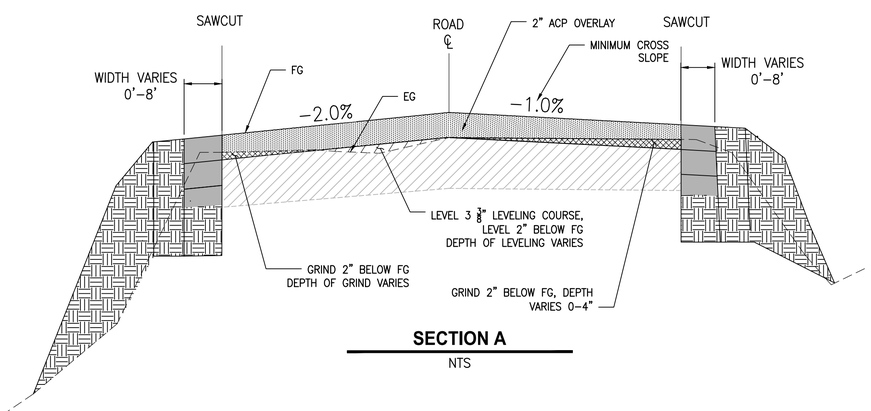
2" AC OVERLAY

0"–2" INCH GRIND TAPER PER DETAIL 2/C1.1



CENTERLINE PROFILE

H=60' V=10'



SECTION A

NTS

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED DR
DRAWN DR/LYF
CHECKED
APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE–2509–005.2–C2.1–PI
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER 94066PE OREGON SEPT. 11, 2018 DAVID RICO
EXPIRES: 12/31/2020

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PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

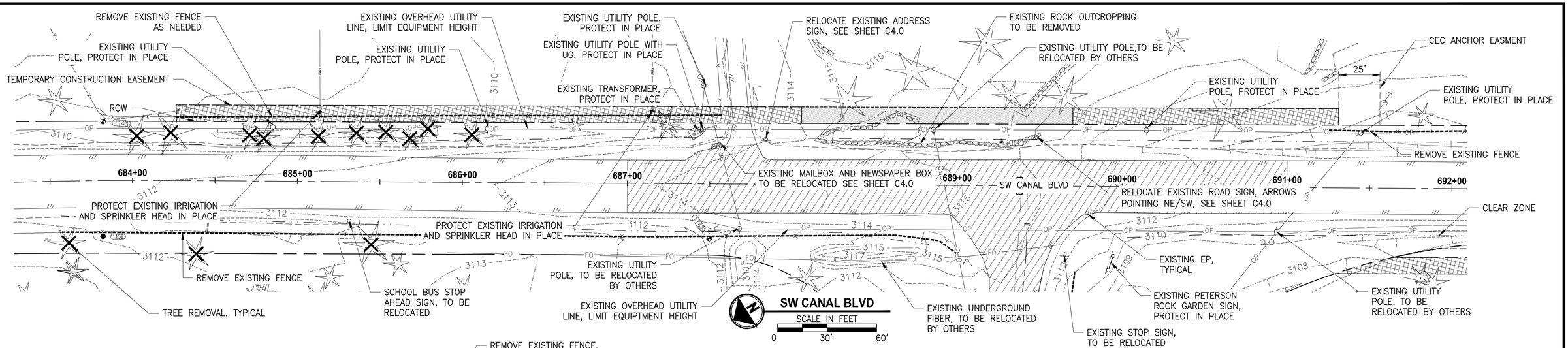
2.1 PAVING INDEX

DRAWING NO. 4 OF 32

C2.1

LAYOUT: PI–Paving Index PATH: U:\Bend\Projects\Clients\2509–Deschutes County\297–2509–005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodv DATE: Tuesday, November 19, 2019 2:48:11 PM

PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 2:08:54 PM
PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Sxca\CADD\DWG\HELMHOLTZ\CD'S
LAYOUT: C3.0 EXISTING CONDITIONS



LEGEND

- REMOVE EXISTING TREE (LOCATED TREES ARE 6" DBH AND LARGER. SMALLER TREES NOT SHOWN MAY REQUIRE REMOVAL)
- REMOVAL OF EXISTING ROAD
- REMOVAL OF EXISTING FENCE
- TEMPORARY CONSTRUCTION EASEMENT TCE
- SLOPE EASEMENT

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	REVISIONS	DATE	BY

DESIGNED DR
DRAWN DR/LYF
CHECKED
APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME BE-2509-005.2-C3.0-EC00
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER
94066PE
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SEPT. 11, 2015
DAVID RICO
EXPIRES:12/31/2020

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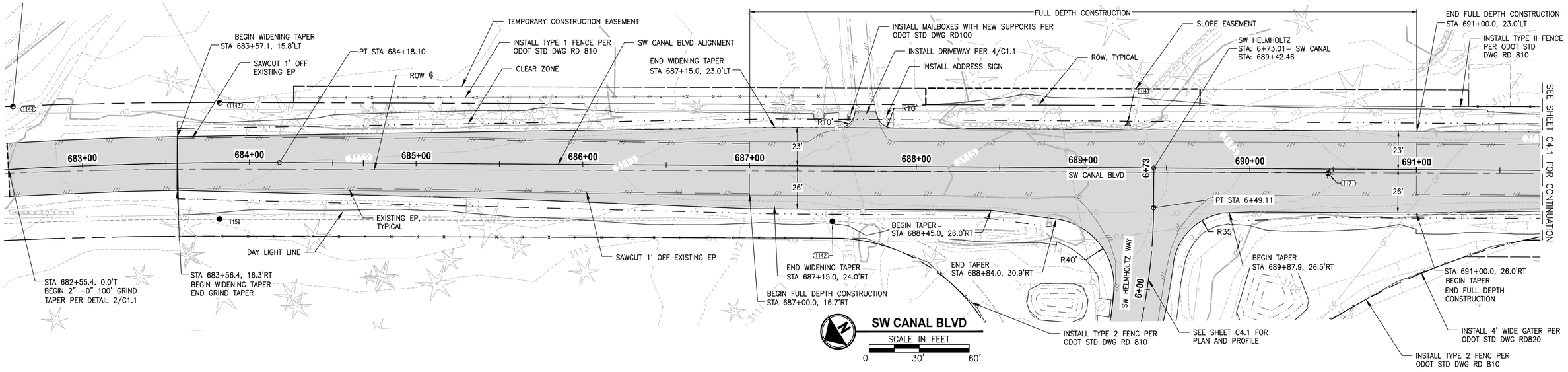
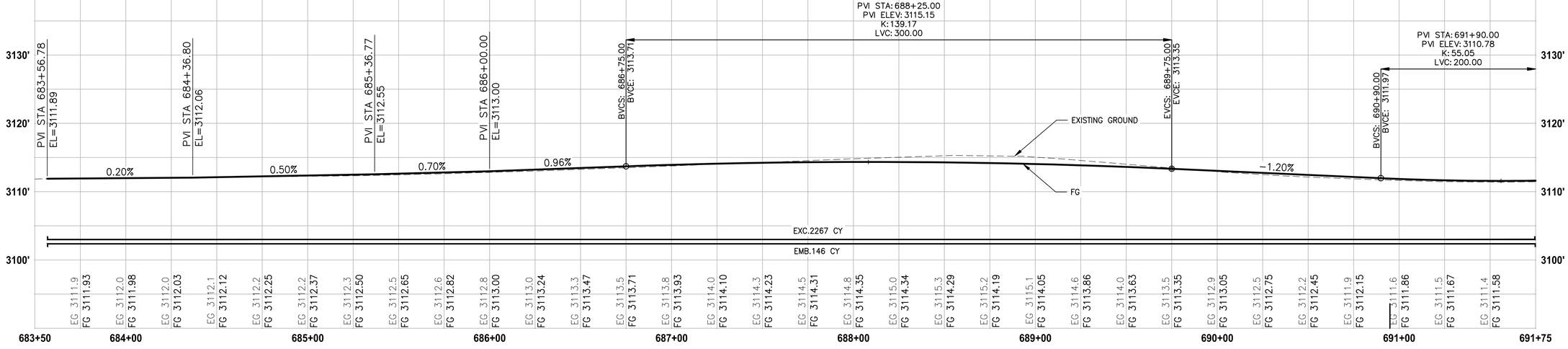
PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

EXISTING CONDITIONS AND DEMOLITION PLAN

DRAWING NO. 5 OF 32

C3.0





SW CANAL BLVD PROFILE

HORIZ: 1"=30' VERT: 1"=8'

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED DR
DRAWN DR/LYF
CHECKED
APPROVED

ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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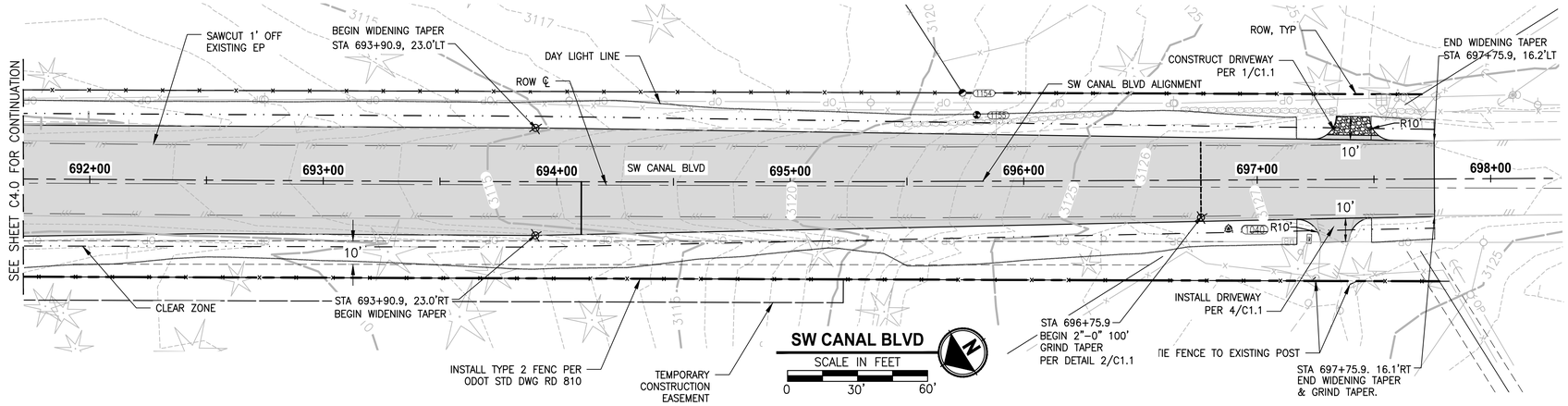
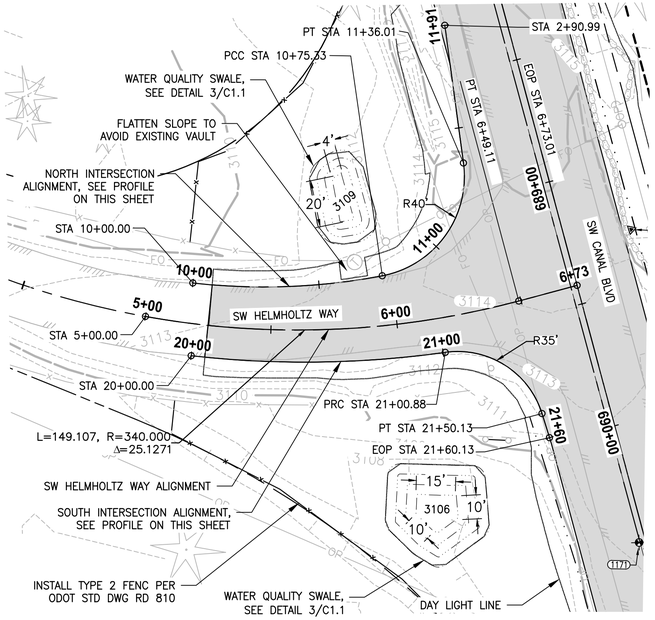
PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

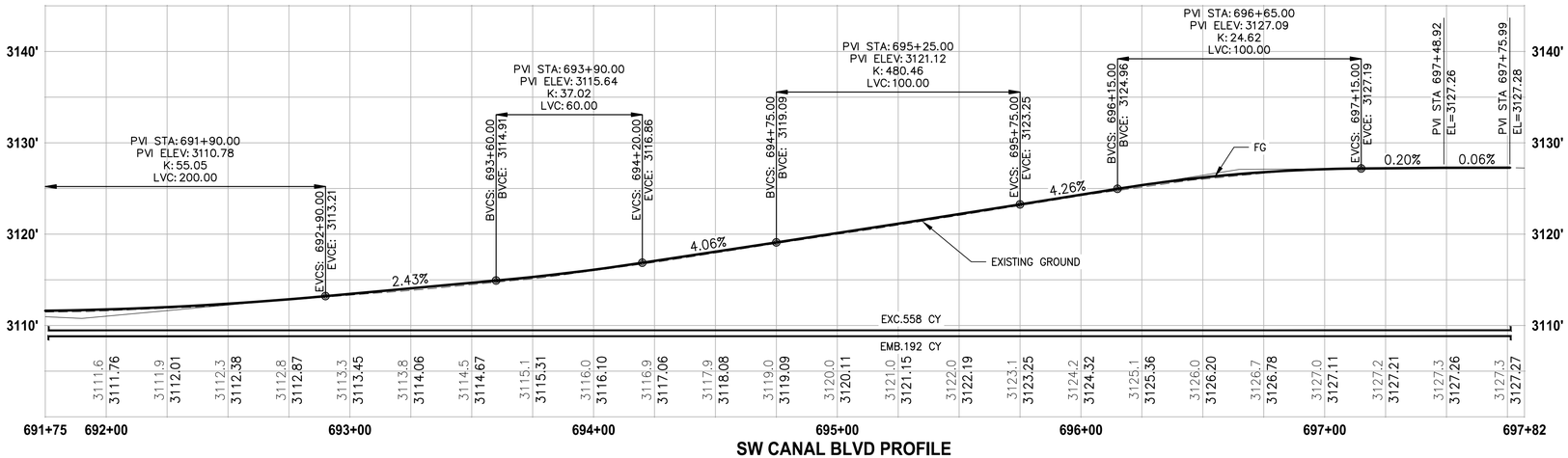
PLAN AND PROFILE

DRAWING NO.
6 OF 32
C4.0

PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:12:44 PM
PATH: U:\Bend\Projects\Clients\2509–Deschutes County\297–2509–005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S
LAYOUT: C4.0 PLAN AND PROFILE

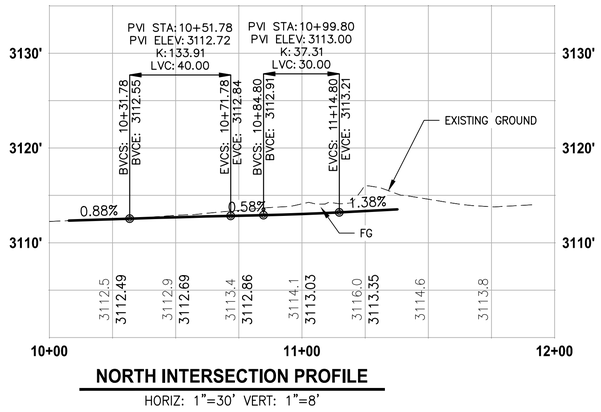






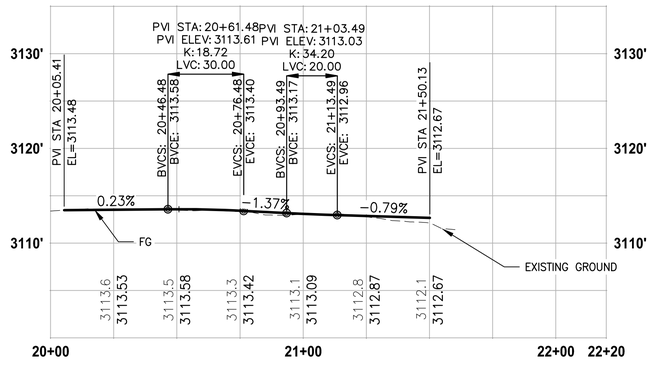
SW CANAL BLVD PROFILE

HORIZ: 1"=30' VERT: 1"=8'



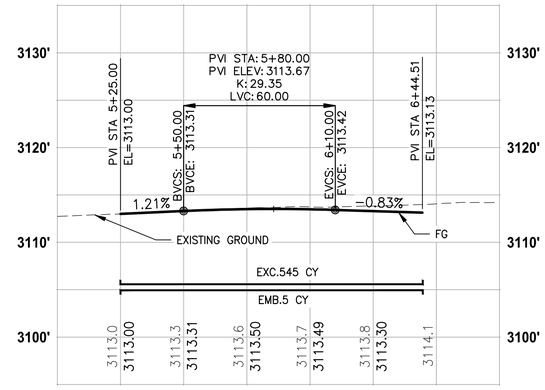
NORTH INTERSECTION PROFILE

HORIZ: 1"=30' VERT: 1"=8'



SOUTH INTERSECTION PROFILE

HORIZ: 1"=30' VERT: 1"=8'



SW HELMHOLTZ PROFILE

HORIZ: 1"=30' VERT: 1"=8'

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DESIGNED DR
DRAWN DR/LYF
CHECKED
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ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE-2509-005.2-C4.1-PP00
JOB No.
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REGISTERED PROFESSIONAL ENGINEER
94066PE
OREGON
SEPT. 11, 2018
DAVID RICO
EXPIRES: 12/31/2020

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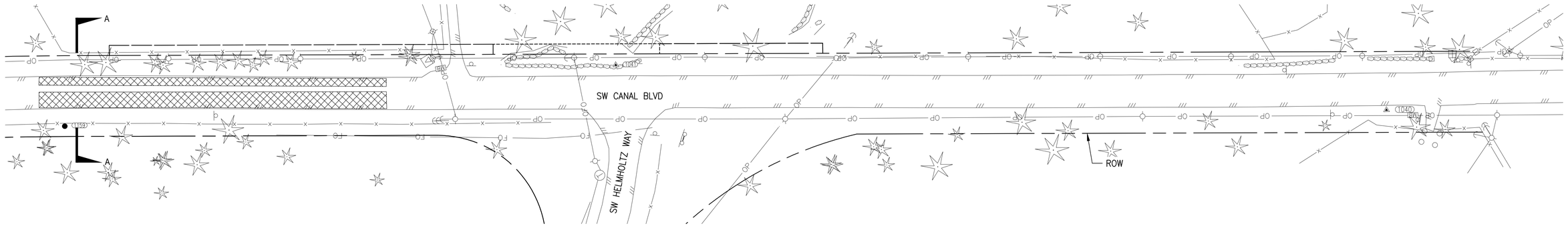
PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

PLAN AND PROFILE

DRAWING NO. 7 OF 32

C4.1

LAYOUT: C4.1 PLAN AND PROFILE PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 GBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:17:44 PM

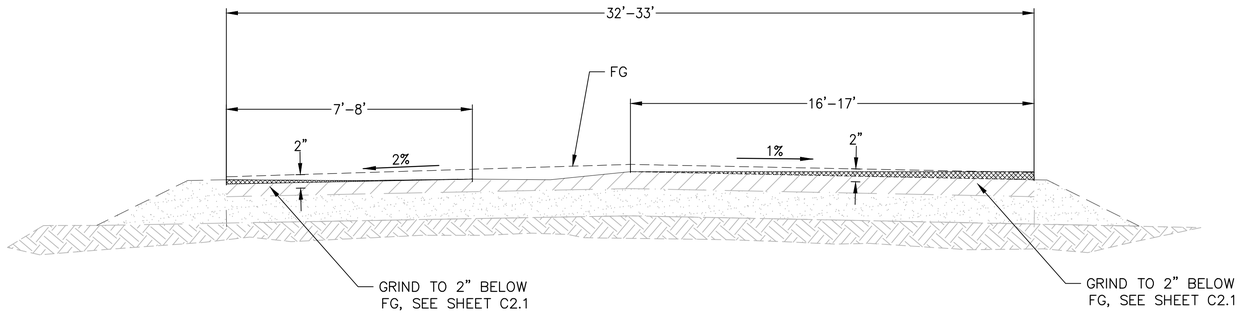


STAGE ONE GRIND

SCALE IN FEET

0 50' 100'

UNDER CONSTRUCTION
GRIND 2" BELOW FG



STAGE ONE GRIND (A / C5.0)

SCALE IN FEET

0 3' 6'

FOR BIDDING REFERENCE ONLY

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				DRAWN DR/LYF
				CHECKED
				APPROVED

ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

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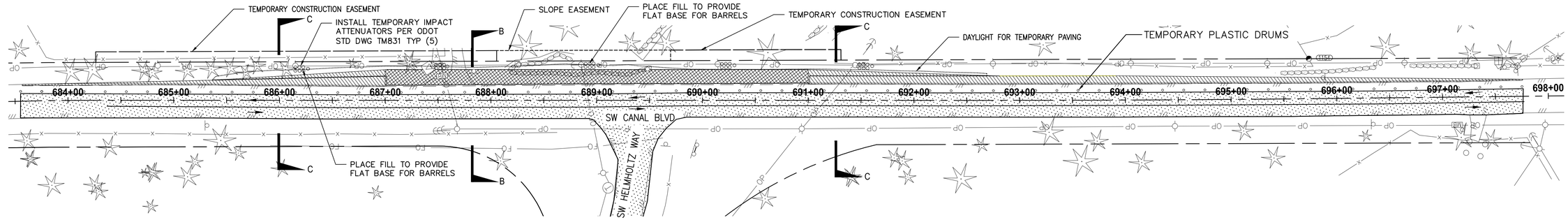
PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

CONSTRUCTION STAGING - STAGE 1

DRAWING NO. 8 OF 32

C5.0

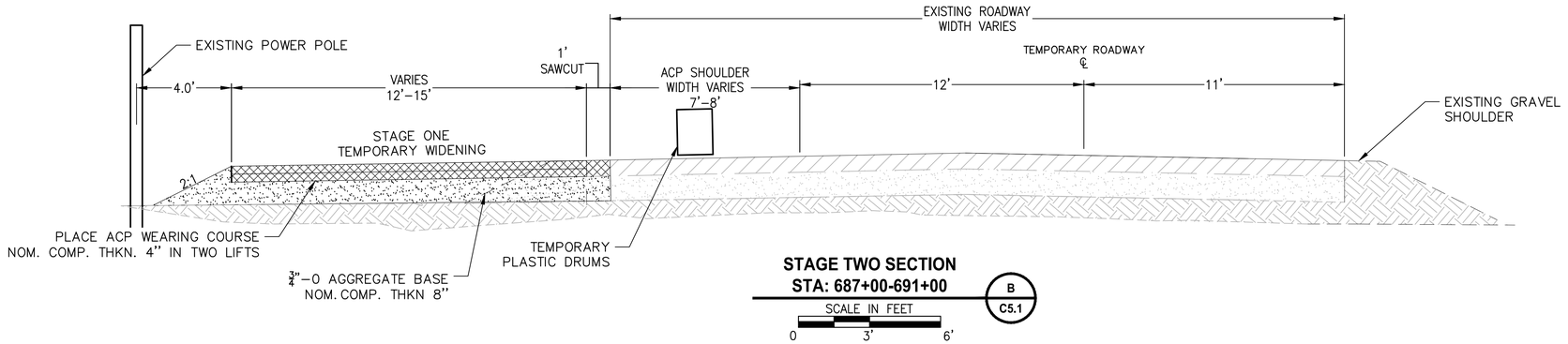
LAYOUT: CONSTRUCTION STAGING - STAGE 1 PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodov DATE: Tuesday, November 19, 2019 1:18:33 PM



STAGE TWO WIDENING

SCALE IN FEET

0 50' 100'

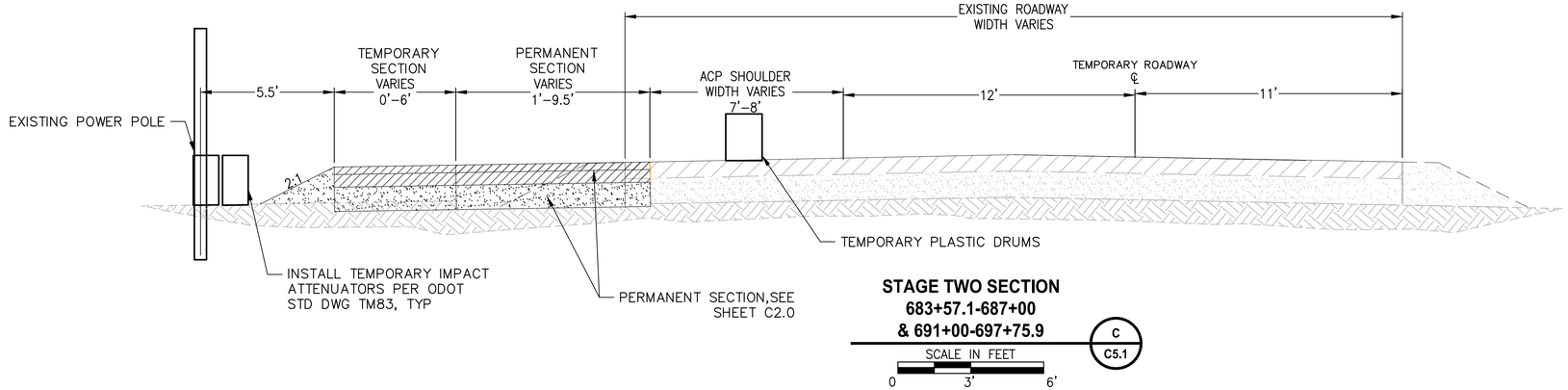


STAGE TWO SECTION
STA: 687+00-691+00

B
C5.1

SCALE IN FEET

0 3' 6'



STAGE TWO SECTION
683+57.1-687+00
& 691+00-697+75.9

C
C5.1

SCALE IN FEET

0 3' 6'

TEMPORARY PAVING

PERMANENT PAVING

UNDER TRAFFIC

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED DR
DRAWN DR/LYF
CHECKED
APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE–2509–005.2–C5.0 TRST
JOB No.
DATE

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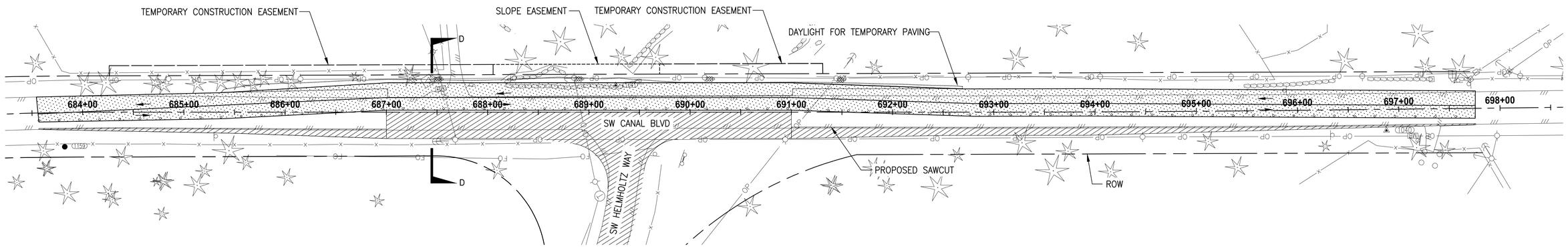
PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

CONSTRUCTION STAGING - STAGE 2

DRAWING NO. 9 OF 32

C5.1

LAYOUT: CONSTRUCTION STAGING – STAGE 2 PATH: U:\Bend\Projects\Clients\2509–Deschutes County\297–2509–005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\C0'S PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:19:35 PM



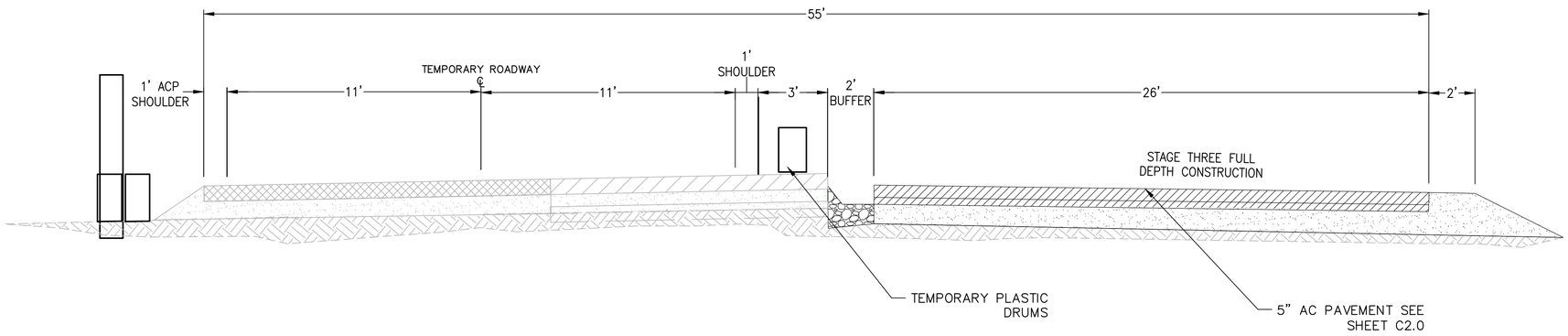
STAGE THREE WIDENING & FULL DEPTH CONSTRUCTION PLAN

SCALE IN FEET

0 50' 100'

UNDER CONSTRUCTION

UNDER TRAFFIC



STAGE THREE FULL DEPTH CONSTRUCTION & WIDENING

D / C5.2

SCALE IN FEET

0 3' 6'

FOR BIDDING REFERENCE ONLY

REVISIONS	DATE	BY

DESIGNED DR

DRAWN DR/LYF

CHECKED

APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE-2509-005.2-C5.0 TRST

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DAVID RICO
EXPIRES: 12/31/2020

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PROJECT NAME

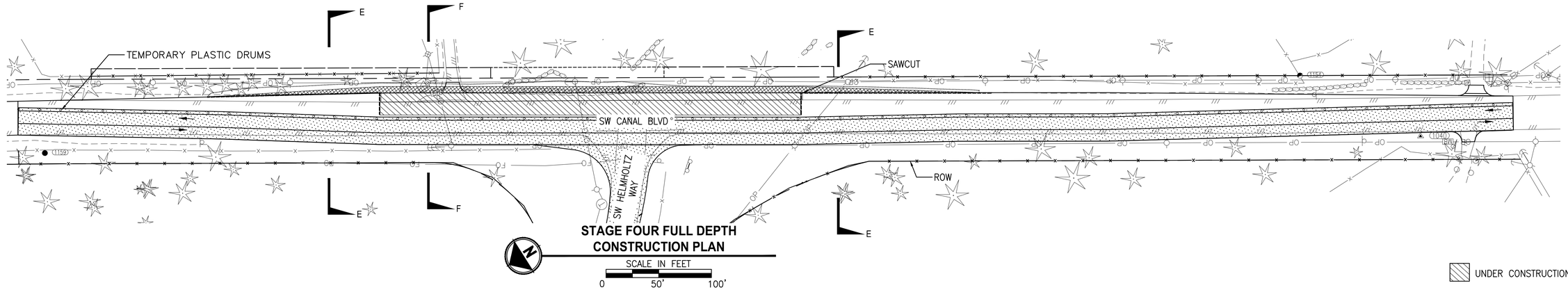
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

CONSTRUCTION STAGING - STAGE 3

DRAWING NO. 10 OF 32

C5.2

LAYOUT: CONSTRUCTION STAGING - STAGE 3 PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:20:14 PM



STAGE FOUR FULL DEPTH CONSTRUCTION PLAN

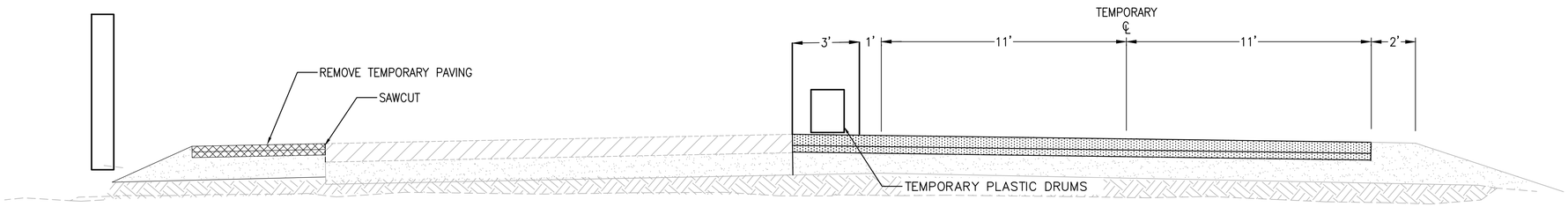
SCALE IN FEET

0 50' 100'

UNDER CONSTRUCTION

UNDER TRAFFIC

TEMPORARY WIDENING TO BE REMOVED

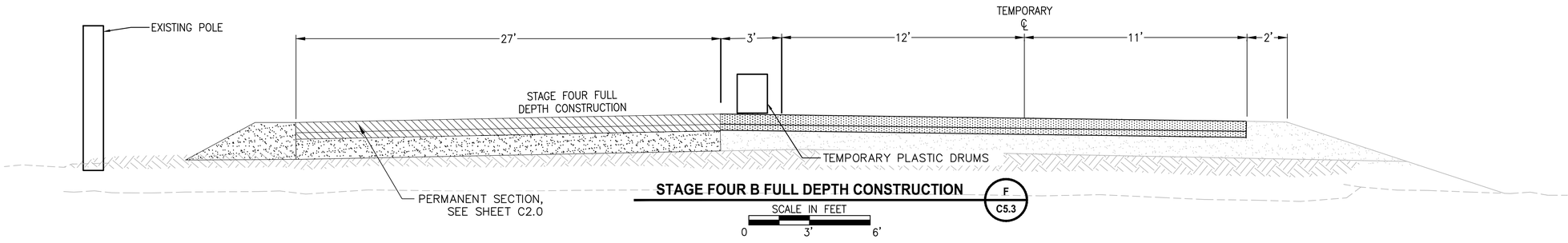


STAGE FOUR A TEMPORARY PAVEMENT REMOVAL

E C5.3

SCALE IN FEET

0 3' 6'



STAGE FOUR B FULL DEPTH CONSTRUCTION

F C5.3

SCALE IN FEET

0 3' 6'

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED DR

DRAWN DR/LYF

CHECKED

APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE-2509-005.2-C5.0 TRST

JOB No.

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EXPIRES: 12/31/2020

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PROJECT NAME

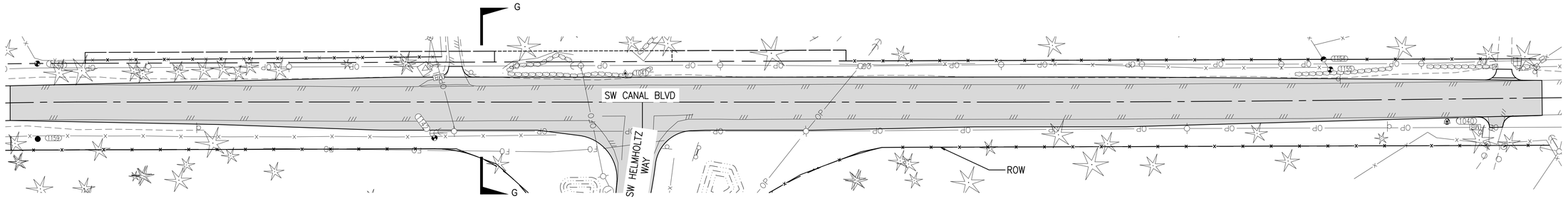
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

CONSTRUCTION STAGING - STAGE 4

DRAWING NO. 11 OF 32

C5.3

LAYOUT: CONSTRUCTION STAGING - STAGE 4 PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:22:08 PM

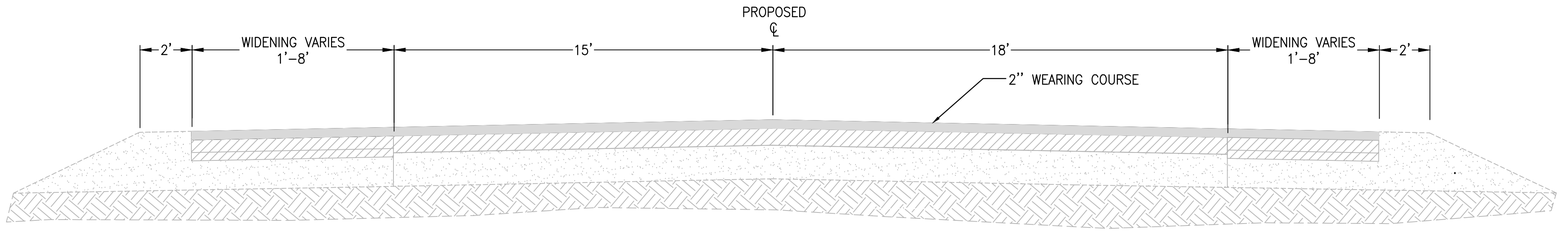


SW CANAL STAGE FIVE OVERLAY

SCALE IN FEET

0 50' 100'

2" OVERLAY



STAGE FIVE OVERLAY

G
C5.4

SCALE IN FEET

0 3' 6'

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DESIGNED DR
DRAWN DR/LYF
CHECKED
APPROVED

ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

FILE NAME BE-2509-005.2-C5.0 TRST
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PROJECT NAME
SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

CONSTRUCTION STAGING - STAGE 5

DRAWING NO.
12 OF 32

C5.4

LAYOUT: CONSTRUCTION STAGING - STAGE 5 PATH: U:\Bend\Projects\Clients\2509-Deschutes County\297-2509-005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\CD'S PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 1:22:52 PM

EROSION CONTROL NOTES:

1. HOLD A PRE–CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS.

2. IDENTIFY, MARK, AND PROTECT (BY CONSTRUCTION/SEDIMENT FENCING OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., CANALS), AND OTHER AREAS TO BE PRESERVED.

3. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE–VEGETATE OPEN AREAS. RE–VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED.

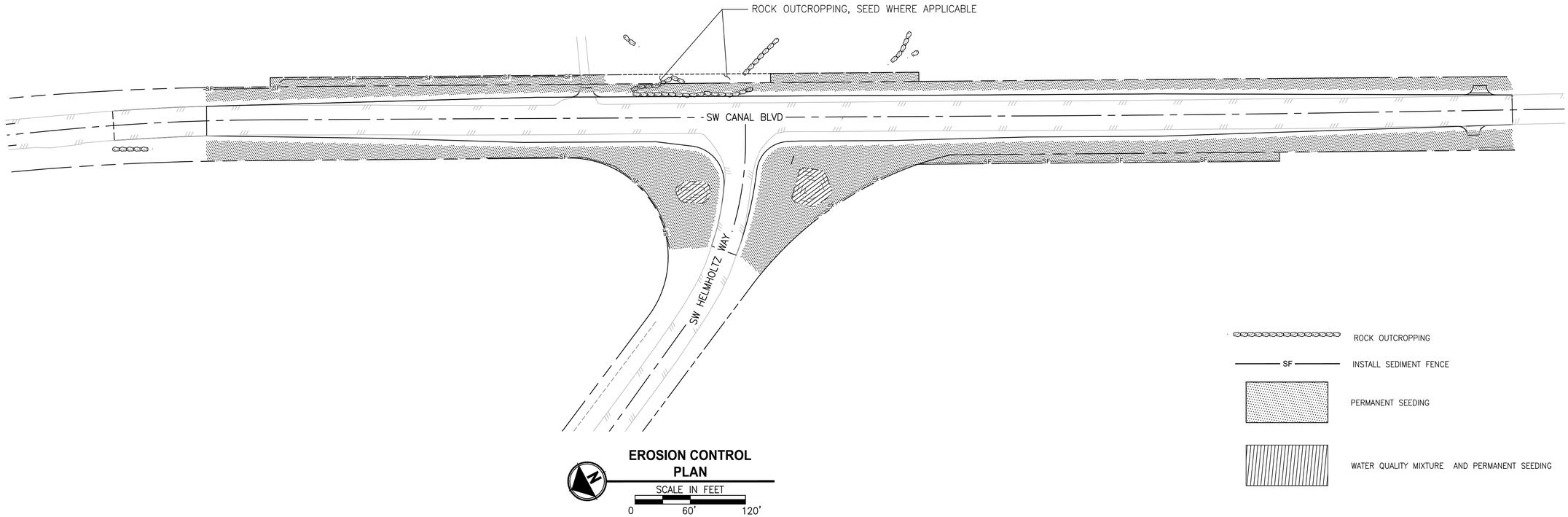
4. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: CONSTRUCTION ENTRANCE, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND–DISTURBING ACTIVITIES.

5. CONTROL PROHIBITED DISCHARGES FROM LEAVING THE CONSTRUCTION SITE, I.E., CONCRETE WASH–OUT, PAINT, AND CURING COMPOUNDS.

6. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZER, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS.

7. USE WATER, SOIL–BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND–BLOWN SOIL.

8. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR.



EROSION CONTROL PLAN

SCALE IN FEET

0 60' 120'

ROCK OUTCROPPING

SF — INSTALL SEDIMENT FENCE

PERMANENT SEEDING

WATER QUALITY MIXTURE AND PERMANENT SEEDING

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED DR
DRAWN DR/LYF
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APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME BE–2509–005.2–C6.0–ESC00

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SEPT. 11, 2018
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EXPIRES:12/31/2020

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P 541.508.7710
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PROJECT NAME

SW CANAL BLVD/SW HELMHOLTZ WAY INTERSECTION IMPROVEMENT

EROSION CONTROL PLAN

DRAWING NO. 13 OF 32

C6.0

LAYOUT: C6.0 EROSION CONTROL PLAN PATH: U:\Bend\Projects\Clients\2509–Deschutes County\297–2509–005 OBRH Design Phase\99Svcs\CADD\DWG\HELMHOLTZ\C0'S PLOTTED BY: ricodav DATE: Tuesday, November 19, 2019 2:02:13 PM

SIGNING & STRIPING LEGEND
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

SIGNING LEGEND

- N — Install new sign (N).
- RSN / M — Remove and save existing sign (n) and remove (M) sign support.
- RIN / M — Reinstall existing sign (n) on new (M) sign support.
- EXN / M — Maintain and protect existing sign (N) and (M) support.
- RXN / M — Remove sign (N) and (M) support.

ABBREVIATIONS

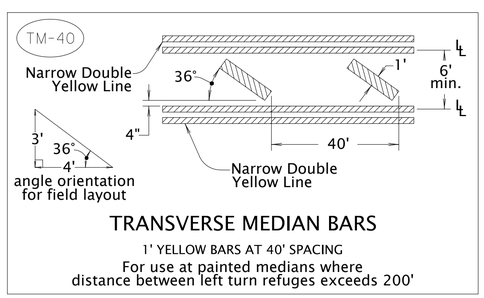
N = Sign Number
M = Material
Material options:
W = Wood Post
ST = Perforated Steel Square Tube

STRIPING LEGEND

- LA — Inst. left turn arrow (white)
- ND — Inst. narrow double no-pass (yellow)
- ND / R-20 — Inst. narrow double yellow positioning guide. See SS2 for details
- S — Inst. 12" white stop bar
- SA — Inst. large "STOP AHEAD" (white)
- TM-40 — Inst. yellow transverse median bars at 40' spacing See detail on this sheet
- W — Inst. 4" white line
- W-2 — Inst. 8" white line
- WD-2 — Inst. 8" white dashed line

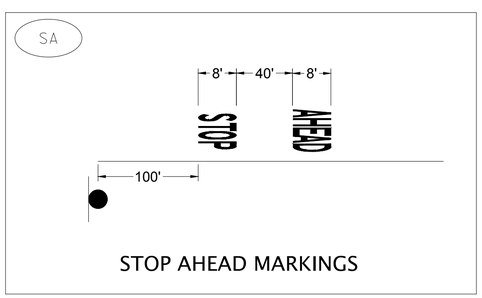
GENERAL NOTES

1. All signage and pavement marking shall conform to the requirements and specifications of the Manual on Uniform Traffic Control Devices (M.U.T.C.D.) latest edition, the Oregon supplement to the M.U.T.C.D., the Oregon Standard Specifications for Construction, and the project special provisions.
2. All pre-markings for pavement markings and striping, as well as signs locations shall be approved by the Engineer prior to final placement.
3. All longitudinal pavement markings shall be thermoplastic, extruded or sprayed, non-profiled.
4. All transverse bar and legend pavement markings shall be "Thermoplastic, Type AB."
5. All signs and sign supports removed from the project shall be salvaged to Deschutes County.



TRANSVERSE MEDIAN BARS

1' YELLOW BARS AT 40' SPACING
For use at painted medians where distance between left turn refuges exceeds 200'



STOP AHEAD MARKINGS

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY

FILE NAME

JOB No.

DATE

REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
EXPIRES 12/31/19

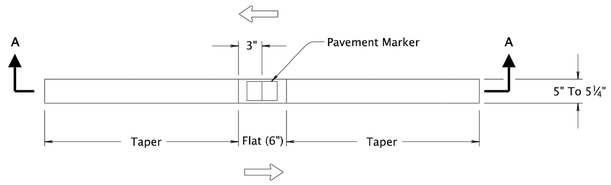
KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

SIGNING & STRIPING LEGEND

DRAWING NO.
14 OF 32
SS1

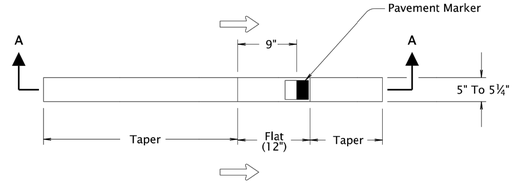
tm517.dgn 07-10-2019



PLAN VIEW

SECTION A – A

BI-DIRECTIONAL RECESSED PAVEMENT MARKER DETAIL



PLAN VIEW

SECTION A – A

MONO-DIRECTIONAL RECESSED PAVEMENT MARKER DETAIL

TM517

LEGEND

- Direction of Travel
- Bi-directional yellow marker reflects yellow both left and right in this symbol
- Mono-directional crystal white marker reflects white to the left in this symbol

To be accompanied by Standard Dwg. Nos. TM502 and TM515

CALC. BOOK NO. _ _ N/A _ _ _ _ _ _ _

BASELINE REPORT DATE _ _ 07/01/2015 _ _ _ _ _ _ _ _ _

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

RECESSED PAVEMENT MARKERS

2018

DATE	REVISION DESCRIPTION

Effective Date: December 01, 2019 - May 31, 2020

TM517

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
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KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

RECESSED PAVEMENT MARKERS DETAIL

DRAWING NO.
15 OF 32
SS2

EXISTING SIGN DETAILS
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

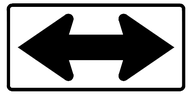
Sign 1

Sign 2

3a

3b

Sign 3



Sign 4

5a

5b

5c

Sign 5

6a

6b

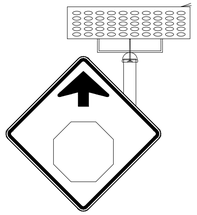
Sign 6

7a

7b

Sign 7

Sign 8



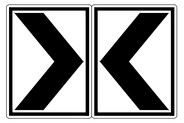
Sign 9

Sign 10

Sign 11

Sign 12

Sign 13



Sign 14

Sign 15

Sign 16

Sign 17

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

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79204PE
OREGON
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SCOTT GLENN BEARD
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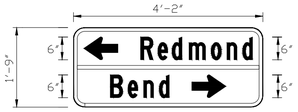
PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

DESCHUTES COUNTY

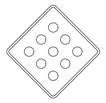
EXISTING SIGN DETAILS

DRAWING NO.
16 OF 32

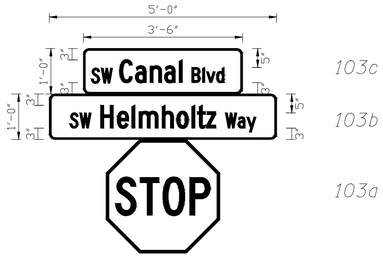
SS3



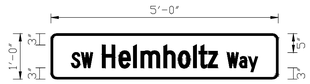
Sign 101



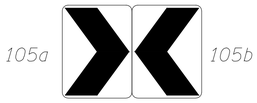
OM4-1
Sign 102



Sign 103



Sign 104



Sign 105

Sign 106

Sign 107

Sign 108

Sign 109

Sign 110

Sign 111

Sign 112

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY

FILE NAME

JOB No.

DATE

REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

PROPOSED SIGN DETAILS

DRAWING NO.
17 OF 32
SS4

SIGN & POST DATA TABLE
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

SIGN NO.	SIGN LOCATION 4/	SIGN DIMENSIONS		BORDER WIDTH			RADIUS					ARROW SIZE	SIGN TYPE	SUB-STRATE			COLOR 1/				LEGEND TYPE		SIGN NO. 2/	TYPE OF SUPPORT																				POST		FOOTING		REFER TO DRAWING NUMBER									REMARKS
																	BACKGROUND		LEGEND																						SECONDARY SIGN MOUNT			SIZE	LENGTH	LOCATION 3/	MIN. DEPTH 5/										
		WIDTH	HEIGHT	1/2"	1"	2"	1 1/2"	3"	6"	9"	12"		(PER SEC. 2910 STD. SPECIFICATIONS)	PLYWOOD	SHEET ALUMINUM	EXTRUDED ALUMINUM	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	NON-REFLECTIVE	PERMANENT	REMOVABLE		WOOD POST	PERF. STEEL SQUARE TUBE	TRIANGULAR BASE BREAKAWAY	MULTI-POST BREAKAWAY	STAINLESS STEEL CLAMP (SSC)	SIGNAL POLE MOUNT	BRIDGE RAIL MOUNT	STRUCTURE MOUNT	CANTILEVER	SIGN BRIDGE	EXIT NUMBER SIGN MOUNT	"H" FRAME	ROUTE MARKER FRAME	MILEPOST MARKER POST	ADJUSTABLE SIGN MOUNT	MAST ARM STREEET NAME SIGN MOUNT	C 4 X 5.4	C 4 X 7.25	LENGTH	(BASED ON ESTIMATED LENGTH)	(MUST BE FIELD VERIFIED)			TM600 & 601	TM602	TM635	TM670	TM675	TM676 & 206	TM677 & 679	TM678	TM680	TM681, 687 & 688	TM200 & 201	TM220 & 225	TM221 & 222	
1	C 685+31.50												(EX)		X							X		1		X																	2 1/2" - 10 ga.	12' - 0"	27.1 RT'	3' - 3 1/2"									X			Slip Base
3a	C 694+10.49												(EX)		X							X		3a		X																	2 1/2" - 10 ga.	13' - 0"	22.4 LT'	3' - 3 1/2"									X			Above 104; Slip Base
6a	C 684+31.55												(EX)		X							X		6a		X																	2 1/2" - 10 ga.	13' - 0"	24.4 RT'	3' - 3 1/2"									X			Above 104; Slip base
9	See SS11												(EX)		X							X		9	X																		4" x 4"	14' - 0"	See SS11'	4				X								Reinstall solar assembly
101	C 689+48.12	4' - 2"	1' - 9"					X					"G"		X		G		SW			X		101		X																	2 1/2" - 10 ga.	13' - 0"	29.4 LT'	3' - 3 1/2"									X	X		Above 102; Slip Base
102	C 689+48.12	18"	18"										"R2"		X		SW		R			X		102		X																											X	X		Same post as 101 (below)
103a	H 6+32.98	30"	30"										"R"		X		R		SW			X		103a		X																	2 1/2" - 10 ga.	13' - 0"	27.7 RT'	3' - 3 1/2"									X	X		Above 103b & 103c; Slip base
103b	H 6+32.98	5' - 0"	1' - 0"					X					"G"		X		G		SW			X		103b		X																											X	X		Above 103c, Below 103a, back of 103b
103b	H 6+32.98	5' - 0"	1' - 0"					X					"G"		X		G		SW			X		103b		X																											X	X		Back of 103b
103c	H 6+32.98	3.5"	1"										"G"		X		G		SW			X		103c		X																											X	X		Below 103a & 103b
104	C 684+31.55	5' - 0"	1' - 0"					X					"Y1"		X		Y				BK	X		104		X																											X	X		Same post as 6a (below)
104	C 694+10.49	5' - 0"	1' - 0"					X					"Y1"		X		Y				BK	X		104		X																											X	X		Same post as 3a (below)
105a	H 5+05.57	18"	24"										"Y1"		X		Y				BK	X		105a		X																	2 1/2" - 10 ga.	14' - 0"	20.0 LT'	3' - 3 1/2"									X	X		Facing Canal; Slip Base
105a	H 5+52.79	18"	24"										"Y1"		X		Y				BK	X		105a		X																	2 1/2" - 10 ga.	14' - 0"	20.0 LT'	3' - 3 1/2"									X	X		Facing Canal; Slip Base
105a	H 6+00.01	18"	24"										"Y1"		X		Y				BK	X		105a		X																	2 1/2" - 10 ga.	14' - 0"	20.0 LT'	3' - 3 1/2"									X	X		Facing Canal; Slip Base
105b	H 5+05.57	18"	24"										"Y1"		X		Y				BK	X		105b		X																											X	X		Same post as 150a, Facing Helmholtz
105b	H 5+52.79	18"	24"										"Y1"		X		Y				BK	X		105b		X																											X	X		Same post as 105a, Facing Helmholtz
105b	H 6+00.01	18"	24"										"Y1"		X		Y				BK	X		105b		X																											X	X		Same post as 150a, Facing Helmholtz

1/ BK= BLACK
BL= BLUE
BR= BROWN
FY= FLUORESCENT YELLOW
G= GREEN
O= ORANGE
R= RED
RB= RED-BLUE
SW= SILVER-WHITE
W= WHITE
Y= YELLOW
YG= YELLOW-GREEN

2/ NOTE: L,C,R ARE LOCATIONS OF POSTS FACING THE SIGN.
L=LEFT POST
C=CENTER POST
R=RIGHT POST

3/ DISTANCE FROM EDGE OF TRAVEL LANE, FACE OF CURB, GUARDRAIL, OR BARRIER TO THE CENTERLINE OF FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601, TM602, AND TM635.

4/ NOTE: THE LOCATIONS SHOWN ARE APPROXIMATE EXCEPT FOR SPEED ZONES, SCHOOL ZONES, OBJECT MARKERS AND MILEPOST MARKERS. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

5/ MINIMUM DEPTH OF FOOTING FOR TRIANGULAR BASE BREAKAWAY AND MULTI-POST BREAKAWAY INSTALLATIONS IS FOR A 2' DIAMETER FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601 AND TM602.

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY

FILE NAME
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

SIGN & POST DATA TABLE

DRAWING NO.
18 OF 32
SS5

CURVE SIGN & POST DATA TABLE
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

SIGN NO.	SIGN LOCATION 4/	SIGN DIMENSIONS		BORDER WIDTH			RADIUS					ARROW SIZE	SIGN TYPE	SUB-STRATE			COLOR 1/				LEGEND TYPE		SIGN NO. 2/	TYPE OF SUPPORT																				POST		FOOTING		REFER TO DRAWING NUMBER										REMARKS
		WIDTH	HEIGHT	1/2"	1"	2"	1 1/2"	3"	6"	9"	12"		(PER SEC. 2910 STD. SPECIFICATIONS)	PLYWOOD	SHEET ALUMINUM	EXTRUDED ALUMINUM	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	NON-REFLECTIVE	PERMANENT	REMOVABLE		WOOD POST	PERF. STEEL SQUARE TUBE	TRIANGULAR BASE BREAKAWAY	MULTI-POST BREAKAWAY	STAINLESS STEEL CLAMP (SSC)	SIGNAL POLE MOUNT	BRIDGE RAIL MOUNT	STRUCTURE MOUNT	CANTILEVER	SIGN BRIDGE	EXIT NUMBER SIGN MOUNT	"H" FRAME	ROUTE MARKER FRAME	MILEPOST MARKER POST	ADJUSTABLE SIGN MOUNT	MAST ARM STREEET NAME SIGN MOUNT	C 4 X 5.4	C 4 X 7.25	LENGTH	SIZE (BASED ON ESTIMATED LENGTH)	LENGTH (MUST BE FIELD VERIFIED)	LOCATION 3/	MIN. DEPTH 5/	TM600 & 601	TM602	TM635	TM670	TM675	TM676 & 206	TM677 & 679	TM678	TM680	TM681, 687 & 688	TM200 & 201	TM220 & 226	TM221 & 222	
105a	HC 14+17.77	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 15+37.77	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 16+57.77	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 17+77.77	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 18+97.77	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 20+17.77	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 29+12.66	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 30+32.66	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 31+52.66	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 32+72.66	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 37+52.47	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 38+52.47	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 39+72.47	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 40+92.47	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 51+67.38	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 52+47.38	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 53+27.38	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 54+55.49	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 55+35.49	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 56+15.49	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 56+95.49	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 57+75.49	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 58+55.49	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 66+45.96	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 67+65.96	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 68+85.96	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 75+85.86	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 77+05.86	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 78+25.86	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 232+37.59	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 233+18.09	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 233+98.40	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 234+38+69	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 235+58.78	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	20' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base
105a	HC 236+38.96	18"	24"										"Y1"		X		Y				BK	X		105a		X																			2 1/2" - 10 ga.	12' - 0"	22' RT'	3' - 3 1/2"									X	X		Back to Back, Slip Base

1/ BK= BLACK
BL= BLUE
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FY= FLUORESCENT YELLOW
G= GREEN
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RB= RED-BLUE
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Y= YELLOW
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L=LEFT POST
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3/ DISTANCE FROM EDGE OF TRAVEL LANE, FACE OF CURB, GUARDRAIL, OR BARRIER TO THE CENTERLINE OF FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601, TM602, AND TM635.

4/ NOTE: THE LOCATIONS SHOWN ARE APPROXIMATE EXCEPT FOR SPEED ZONES, SCHOOL ZONES, OBJECT MARKERS AND MILEPOST MARKERS. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

5/ MINIMUM DEPTH OF FOOTING FOR TRIANGULAR BASE BREAKAWAY AND MULTI-POST BREAKAWAY INSTALLATIONS IS FOR A 2' DIAMETER FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601 AND TM602.

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

CURVE SIGN & POST DATA TABLE

DRAWING NO.
19 OF 32
SS6

CURVE SIGN & POST DATA TABLE
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

SIGN NO.	SIGN LOCATION 4/	SIGN DIMENSIONS		BORDER WIDTH			RADIUS						ARROW SIZE	SIGN TYPE	SUB-STRATE			COLOR 1/				LEGEND TYPE		SIGN NO. 2/	TYPE OF SUPPORT																			POST		FOOTING		REFER TO DRAWING NUMBER										REMARKS
																		BACKGROUND		LEGEND																						SECONDARY SIGN MOUNT			SIZE	LENGTH	LOCATION 3/	MIN. DEPTH 5/										
		WIDTH	HEIGHT	1/2"	1"	2"	1 1/2"	3"	6"	9"	12"			(PER SEC. 2910 STD. SPECIFICATIONS)	PLYWOOD	SHEET ALUMINUM	EXTRUDED ALUMINUM	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	NON-REFLECTIVE	PERMANENT	REMOVABLE		WOOD POST	PERF. STEEL SQUARE TUBE	TRIANGULAR BASE BREAKAWAY	MULTI-POST BREAKAWAY	STAINLESS STEEL CLAMP (SSC)	SIGNAL POLE MOUNT	BRIDGE RAIL MOUNT	STRUCTURE MOUNT	CANTILEVER	SIGN BRIDGE	EXIT NUMBER SIGN MOUNT	"H" FRAME	ROUTE MARKER FRAME	MILEPOST MARKER POST	ADJUSTABLE SIGN MOUNT	MAST ARM STREEET NAME SIGN MOUNT	C 4 X 5.4	C 4 X 7.25	LENGTH	(BASED ON ESTIMATED LENGTH)	(MUST BE FIELD VERIFIED)			TM600 & 601	TM602	TM635	TM670	TM675	TM676 & 206	TM677 & 679	TM678	TM680	TM681, 687 & 688	TM200 & 201	TM220 & 225	TM221 & 222	
105b	HC 14+17.77	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 15+37.77	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 16+57.77	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 17+77.77	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 18+97.77	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 20+17.77	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 29+12.66	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 30+32.66	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 31+52.66	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 32+72.66	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 37+52.47	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 38+52.47	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 39+72.47	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 40+92.47	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 51+67.38	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 52+47.38	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 53+27.38	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 54+55.49	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 55+35.49	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 56+15.49	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 56+95.49	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 57+75.49	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 58+55.49	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 66+45.96	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 67+65.96	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 68+85.96	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 75+85.86	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 77+05.86	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 78+25.86	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 232+37.59	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 233+18.09	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 233+98.40	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 234+38+69	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 235+58.78	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a
105b	HC 236+38.96	18"	24"											"Y1"		X		Y				BK	X		105b		X																													X	X		Back to Back with 105a

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L=LEFT POST
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3/ DISTANCE FROM EDGE OF TRAVEL LANE, FACE OF CURB, GUARDRAIL, OR BARRIER TO THE CENTERLINE OF FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601, TM602, AND TM635.

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FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

CURVE SIGN & POST DATA TABLE

DRAWING NO.
20 OF 32
SS7

CURVE SIGN & POST DATA TABLE
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

SIGN NO.	SIGN LOCATION 4/	SIGN DIMENSIONS		BORDER WIDTH			RADIUS					ARROW SIZE	SIGN TYPE	SUB-STRATE			COLOR 1/					LEGEND TYPE		SIGN NO. 2/	TYPE OF SUPPORT																				POST		FOOTING		REFER TO DRAWING NUMBER										REMARKS
																	BACKGROUND		LEGEND																																							
		WIDTH	HEIGHT	1/2"	1"	2"	1 1/2"	3"	6"	9"	12"		(PER SEC. 2910 STD. SPECIFICATIONS)	PLYWOOD	SHEET ALUMINUM	EXTRUDED ALUMINUM	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	ASTM TYPE III OR TYPE IV	ASTM TYPE IX	NON-REFLECTIVE	PERMANENT	REMOVABLE		WOOD POST	PERF. STEEL SQUARE TUBE	TRIANGULAR BASE BREAKAWAY	MULTI-POST BREAKAWAY	STAINLESS STEEL CLAMP (SSC)	SIGNAL POLE MOUNT	BRIDGE RAIL MOUNT	STRUCTURE MOUNT	CANTILEVER	SIGN BRIDGE	EXIT NUMBER SIGN MOUNT	"H" FRAME	ROUTE MARKER FRAME	MILEPOST MARKER POST	ADJUSTABLE SIGN MOUNT	MAST ARM STREEET NAME SIGN MOUNT	SECONDARY SIGN MOUNT C 4 X 6.4	SECONDARY SIGN MOUNT C 4 X 7.25	SECONDARY SIGN MOUNT LENGTH	SIZE (BASED ON ESTIMATED LENGTH)	LENGTH (MUST BE FIELD VERIFIED)	LOCATION 3/	MIN. DEPTH 5/	TM600 & 601	TM602	TM635	TM670	TM675	TM676 & 206	TM677 & 679	TM678	TM680	TM681, 687 & 688	TM200 & 201	TM220 & 225	TM221 & 222	
106	HC 11+72.77	24"	30"										"W2"		X		SW				BK	X		106		X																				2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"										X	X		Slip Base
107a	HC 12+92.77	30"	30"										"Y1"		X		Y				BK	X		107a		X																				2 1/2" - 10 ga.	14' - 0"	21' RT'	3' - 3 1/2"										X	X		Above 107b, Slip Base
107a	HC 42+17.47	30"	30"										"Y1"		X		Y				BK	X		107a		X																				2 1/2" - 10 ga.	14' - 0"	20' LT'	3' - 3 1/2"										X	X		Above 107b, Slip Base
107b	HC 12+92.77	18"	18"										"Y1"		X		Y				BK	X		107b		X																															X	X		Same post as 107a (below)
107b	HC 42+17.47	18"	18"										"Y1"		X		Y				BK	X		107b		X																															X	X		Same post as 107a (below)
108	HC 21+37.77	30"	30"										"Y1"		X		Y				BK	X		108		X																				2 1/2" - 10 ga.	12' - 0"	21' RT'	3' - 3 1/2"										X	X		Slip Base
109a	HC 50+67.38	30"	30"										"Y1"		X		Y				BK	X		109a		X																				2 1/2" - 10 ga.	14' - 0"	21' RT'	3' - 3 1/2"										X	X		Above 109b, Slip Base
109a	HC 59+55.18	30"	30"										"Y1"		X		Y				BK	X		109a		X																				2 1/2" - 10 ga.	14' - 0"	20' LT'	3' - 3 1/2"										X	X		Above 109b, Slip Base
109b	HC 50+67.38	18"	18"										"Y1"		X		Y				BK	X		109b		X																															X	X		Same post as 109a (below)
109b	HC 59+55.18	18"	18"										"Y1"		X		Y				BK	X		109b		X																															X	X		Same post as 109a (below)
110	HC 61+05.74	30"	30"										"Y5"		X		FY				BK	X		110		X																				2 1/2" - 10 ga.	12' - 0"	20' LT'	3' - 3 1/2"										X	X		Slip Base
111a	HC 69+85.96	30"	30"										"Y1"		X		Y				BK	X		111a		X																				2 1/2" - 10 ga.	14' - 0"	20' LT'	3' - 3 1/2"										X	X		Above 111b, Slip Base
111a	HC 74+85.86	30"	30"										"Y1"		X		Y				BK	X		111a		X																				2 1/2" - 10 ga.	14' - 0"	21' RT'	3' - 3 1/2"										X	X		Above 111b, Slip Base
111b	HC 69+85.96	18"	18"										"Y1"		X		Y				BK	X		111b		X																															X	X		Same post as 111a (below)
111b	HC 74+85.86	18"	18"										"Y1"		X		Y				BK	X		111b		X																															X	X		Same post as 111a (below)
112a	HC 65+45.96	30"	30"										"Y1"		X		Y				BK	X		112a		X																				2 1/2" - 10 ga.	14' - 0"	21' RT'	3' - 3 1/2"										X	X		Above 112b, Slip Base
112a	HC 79+25.86	30"	30"										"Y1"		X		Y				BK	X		112a		X																				2 1/2" - 10 ga.	14' - 0"	20' LT'	3' - 3 1/2"										X	X		Above 112b, Slip Base
112b	HC 65+45.96	18"	18"										"Y1"		X		Y				BK	X		112b		X																															X	X		Same post as 112a (below)
112b	HC 79+25.86	18"	18"										"Y1"		X		Y				BK	X		112b		X																															X	X		Same post as 112a (below)

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FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME
JOB No.
DATE

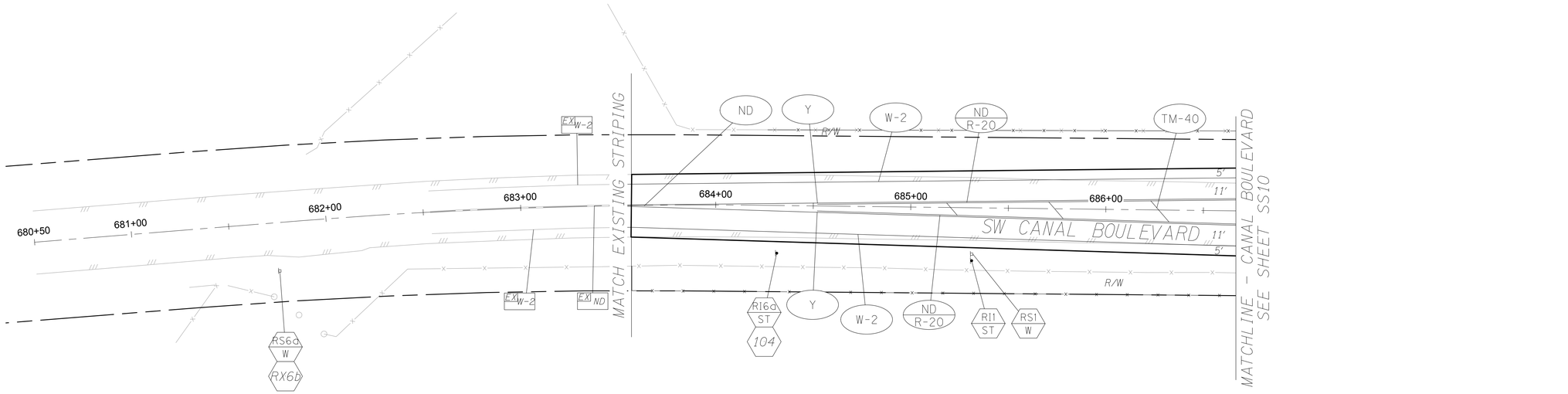
REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN REIRS
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

CURVE SIGN & POST DATA TABLE

DRAWING NO.
21 OF 32
SS8



SCALE
0 30 60

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
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APPROVED SGB

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY

FILE NAME
JOB No.
DATE

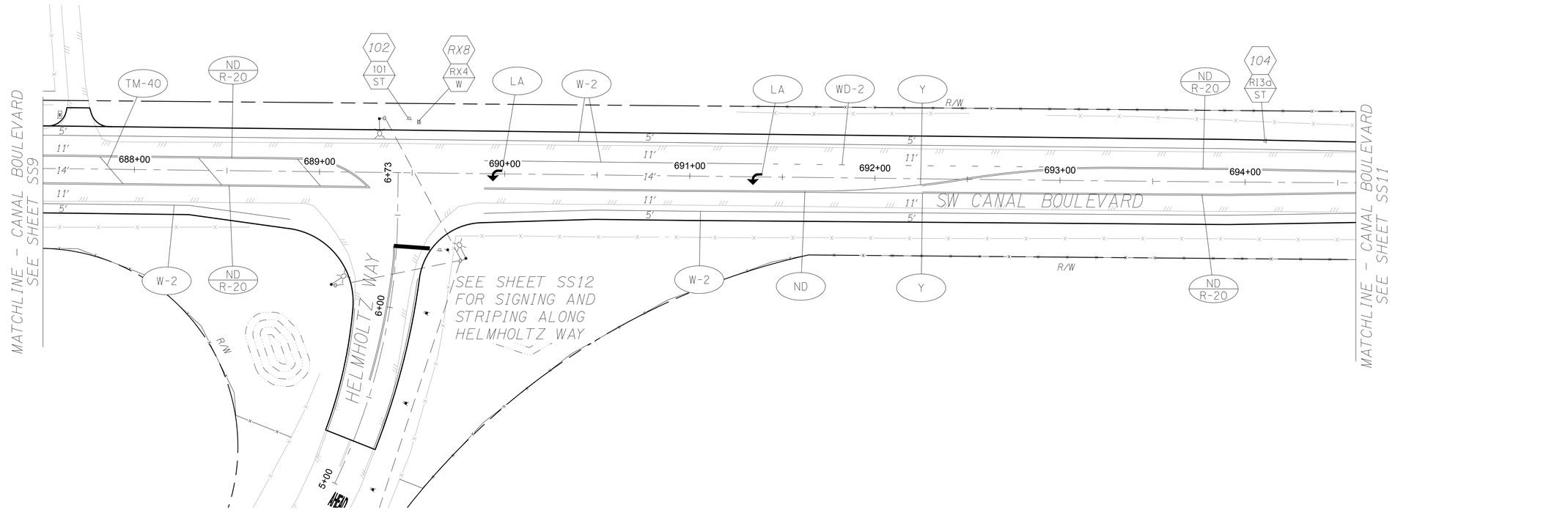
REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEAIRD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

SIGNING & STRIPING PLAN
SW CANAL BLVD

DRAWING NO.
22 OF 32
SS9



SCALE
0 30 60

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY	DESIGNED JDS
				DRAWN JDS
				CHECKED HJS
				APPROVED SGB

ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY
FILE NAME
JOB No.
DATE

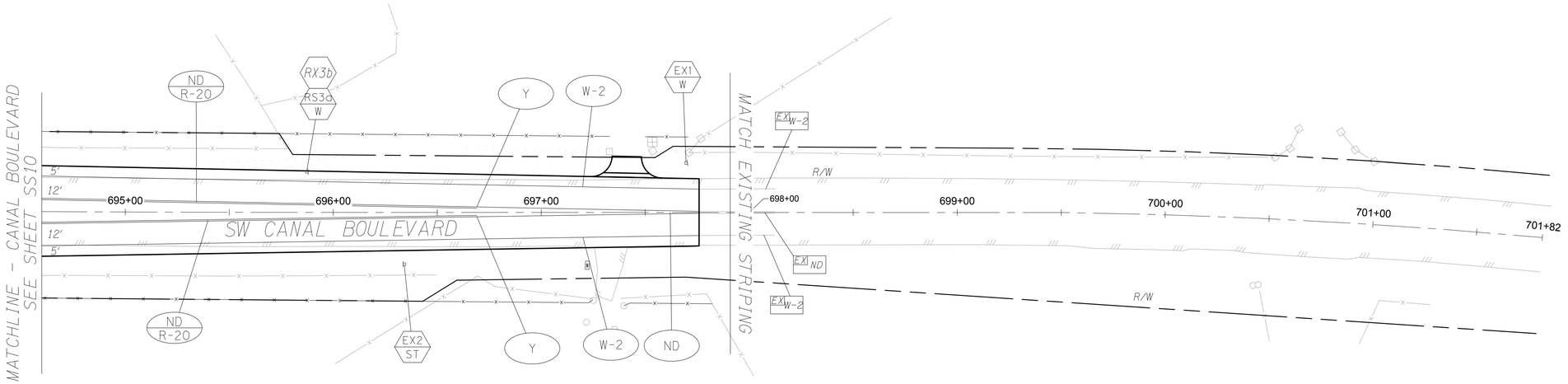
REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEALES
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

SIGNING & STRIPING PLAN
SW CANAL BLVD

DRAWING NO.
23 OF 32
SS10



SCALE
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FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY	
				DESIGNED JDS
				DRAWN JDS
				CHECKED HJS
				APPROVED SGB

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79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN BEAIRD
EXPIRES 12/31/19

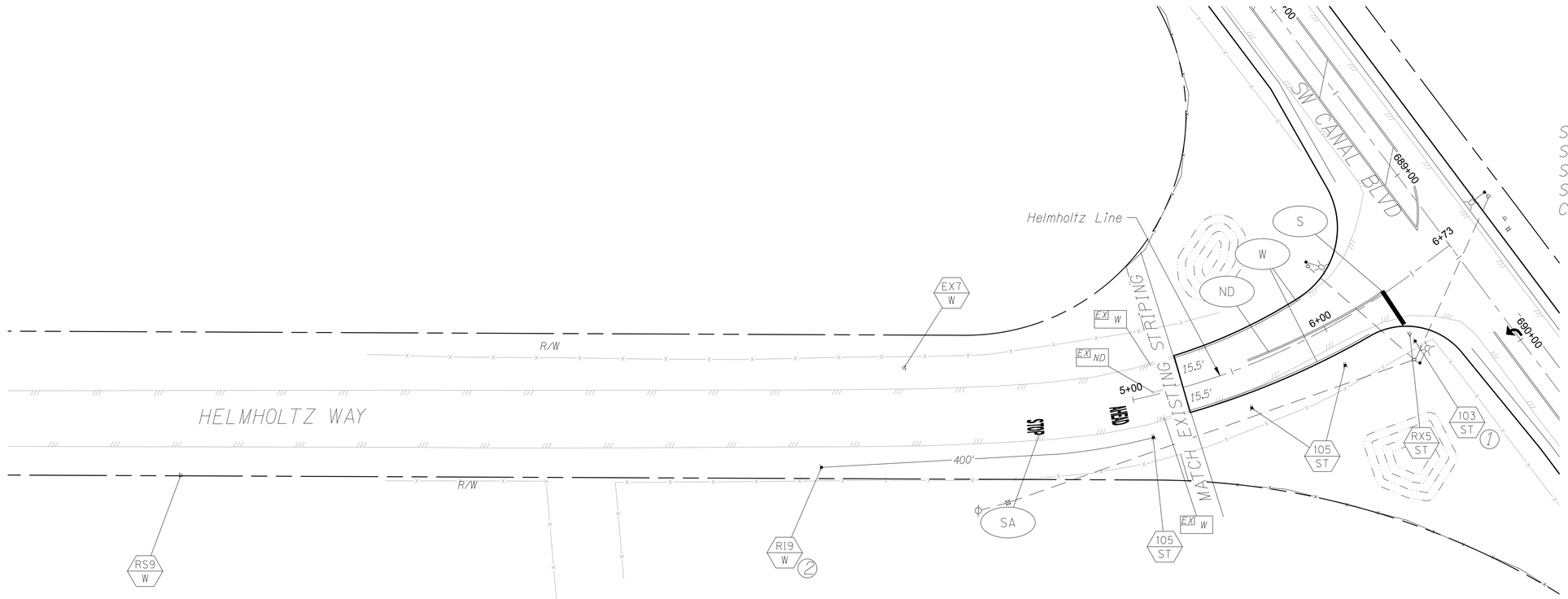
KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

SIGNING & STRIPING PLAN
SW CANAL BLVD

DRAWING NO.
24 OF 32
SS11

SIGNING & STRIPING PLAN HELMHOLTZ WAY
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS



SEE SHEETS SS9-SS11 FOR SIGNING AND STRIPING ALONG CANAL BLVD

CONSTRUCTION NOTES

1. Install reflective sign post panels facing oncoming traffic from Helmholtz Way
2. Reinstall existing solar assembly. 10' from edge of existing pavement.

SCALE
0 30 60

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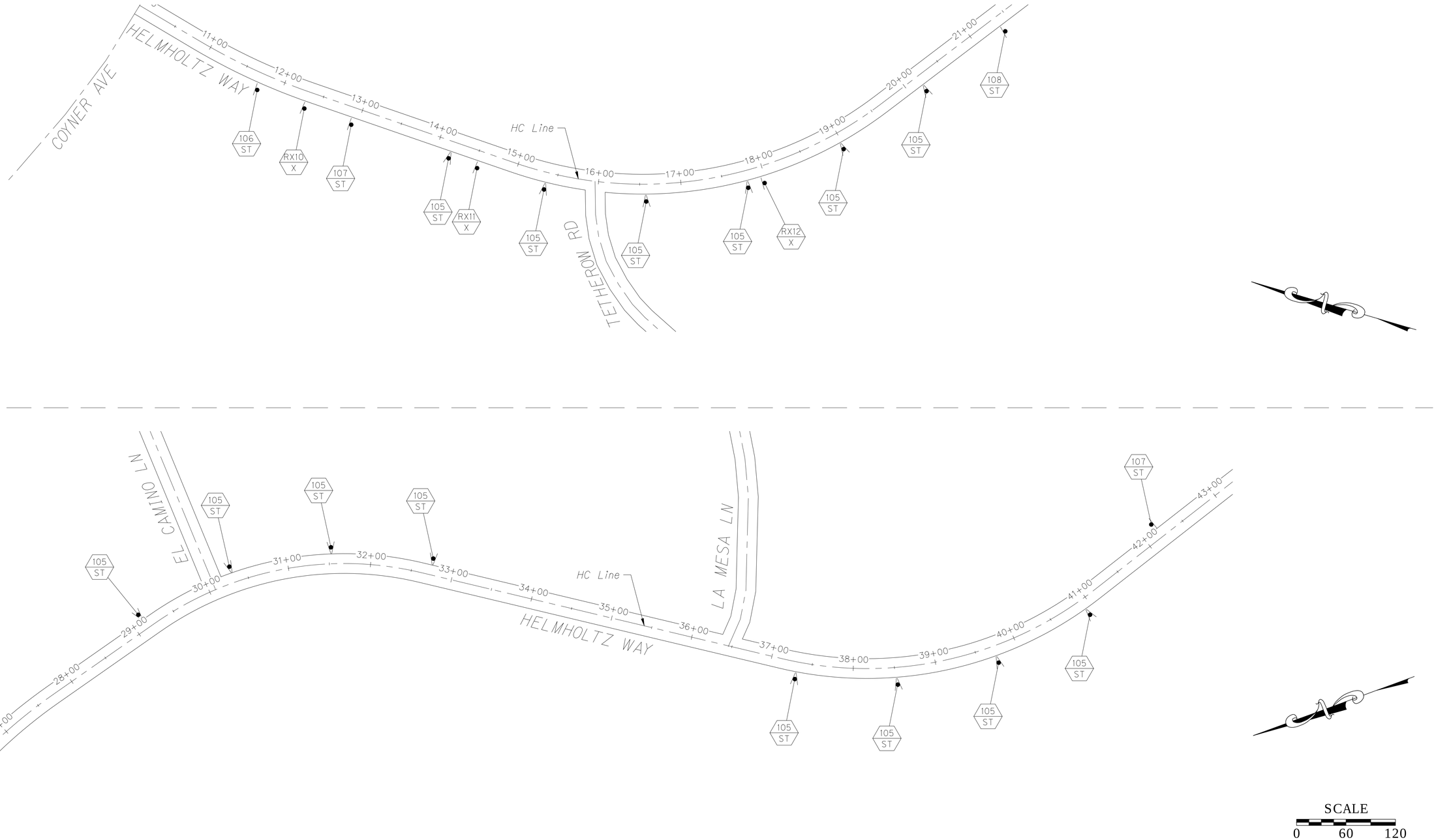
PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

SIGNING & STRIPING PLAN
HELMHOLTZ WAY

DRAWING NO.
25 OF 32
SS12

CURVE SIGNING PLAN
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS



SCALE
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	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
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ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY

FILE NAME
JOB No.
DATE

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SCOTT GLENN BEARD
EXPIRES 12/31/19

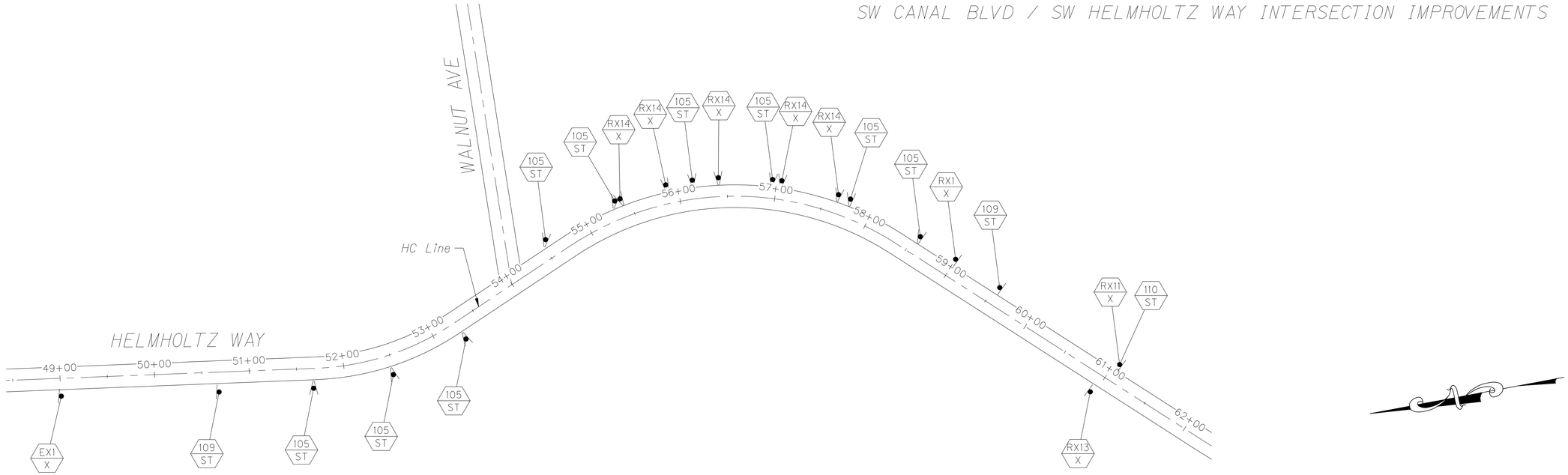
KITTELSON & ASSOCIATES

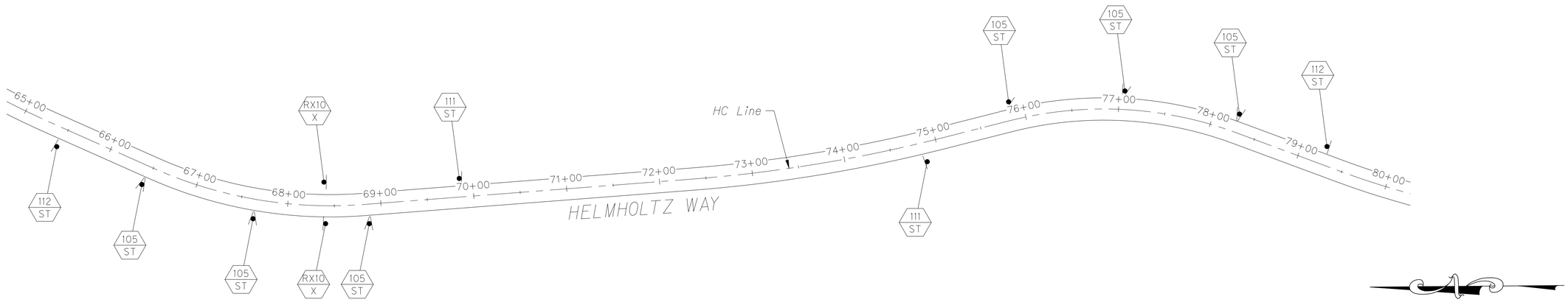
PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

CURVE SIGNING PLAN

DRAWING NO.
26 OF 32
SS13

CURVE SIGNING PLAN
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS





SCALE
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FOR BIDDING REFERENCE ONLY

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APPROVED SGB

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SCOTT GLENN BEARD
EXPIRES 12/31/19

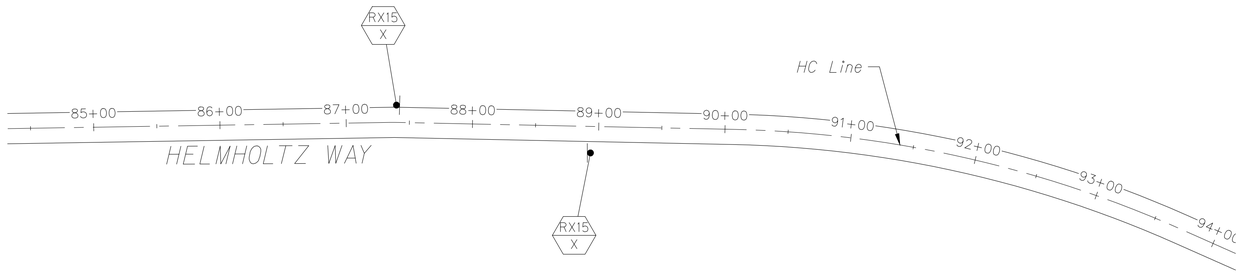
KITTELSON & ASSOCIATES

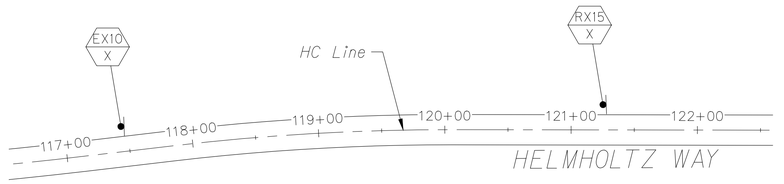
PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

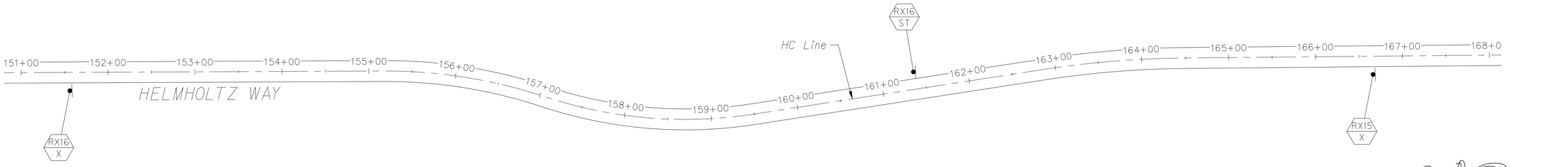
CURVE SIGNING PLAN

DRAWING NO.
27 OF 32
SS14

CURVE SIGNING PLAN
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS







SCALE
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DESIGNED JDS
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CHECKED HJS
APPROVED SGB

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OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

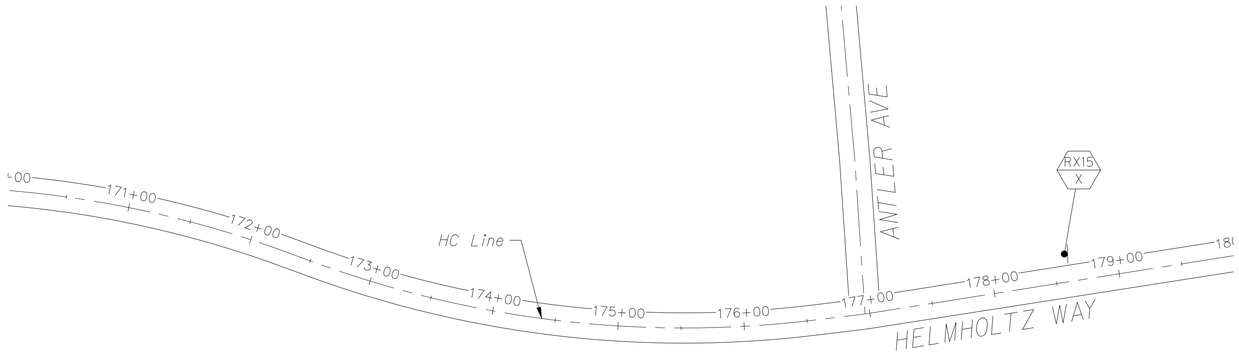
DESCHUTES COUNTY

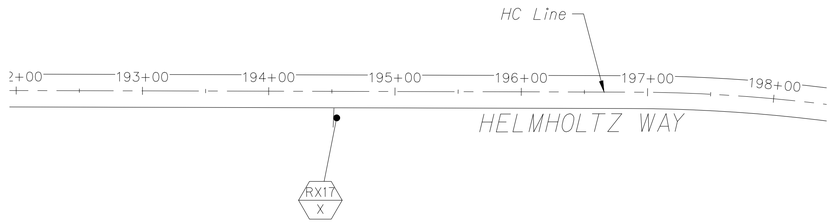
CURVE SIGNING PLAN

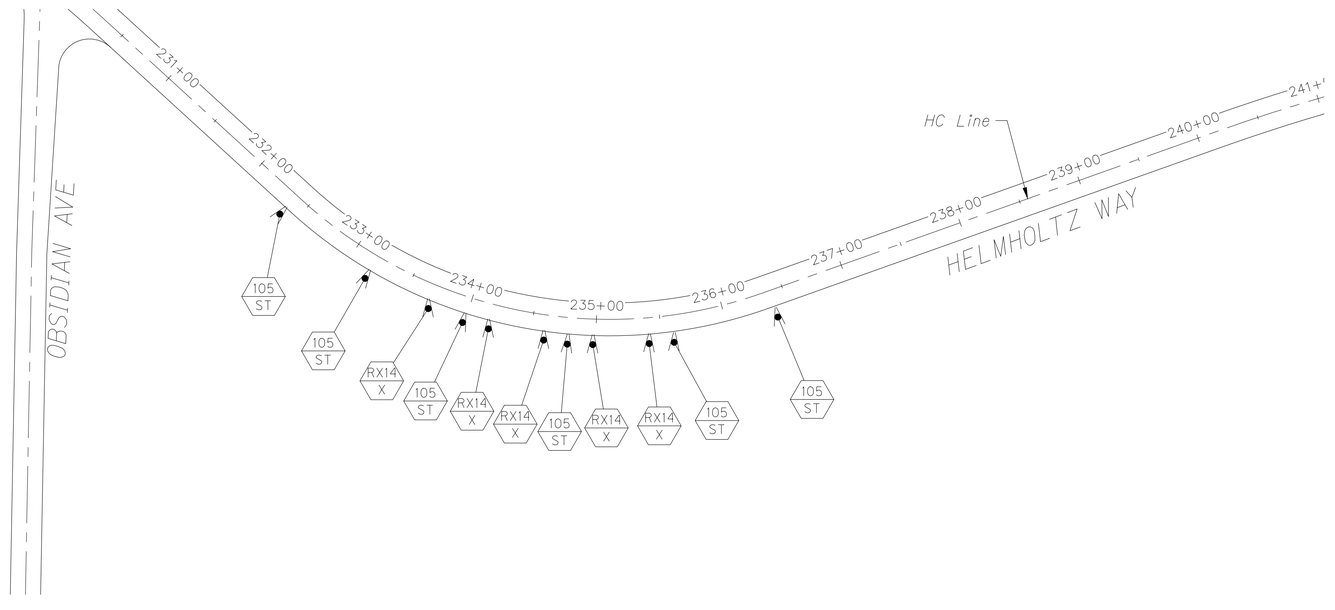
DRAWING NO.
28 OF 32

SS15

CURVE SIGNING PLAN
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS







SCALE
0 60 120

FOR BIDDING REFERENCE ONLY

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DATE

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OREGON
JUNE 14, 2007
SCOTT GLENN BEARD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

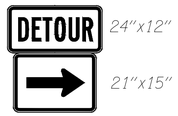
DESCHUTES COUNTY

CURVE SIGNING PLAN

DRAWING NO.
29 OF 32

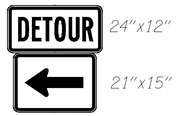
SS16

DETOUR PLAN
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS



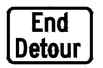
24"x12"
21"x15"
1

36"x36"
30"x8"
6



24"x12"
21"x15"
2

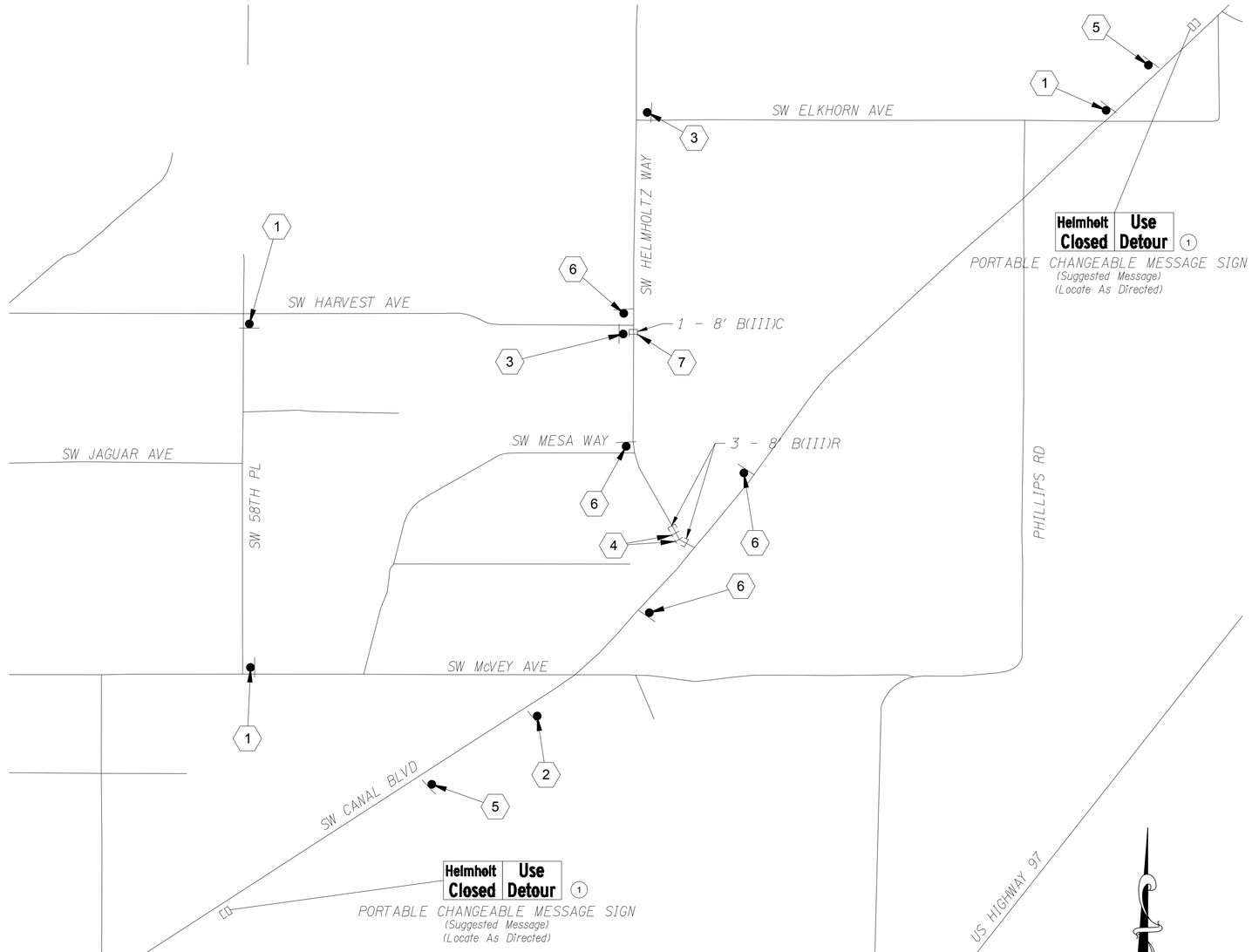
60"x30"
7



30"x24"
3

48"x30"
4

36"x36"
5



GENERAL NOTES

1. All sign dimensions listed in inches unless otherwise notes.
2. Maintain and protect existing signs.
3. Ensure a minimum of 100' spacing between existing and temporary signs.

LEGEND

- Type III Barricade
- TSS Sign Support As Shown On ODOT Standard Dwg. TM821
- Post Mounted Detour Sign

CONSTRUCTION NOTES

(1) Portable changeable message signs to remain on project throughout construction and be located as directed.

SCALE
0 2000 4000

FOR BIDDING REFERENCE ONLY

	REVISIONS	DATE	BY

DESIGNED JDS
DRAWN JDS
CHECKED HJS
APPROVED SGB

ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY
FILE NAME
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER
79204PE
OREGON
JUNE 14, 2007
SCOTT GLENN REIRD
EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

DETOUR PLAN

DRAWING NO.
30 OF 32
SS17

ILLUMINATION LEGEND
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

L E G E N D

- (JB 1A) Install 10"W x 17"L x 12"H precast junction box with concrete apron. Cover to be marked "STREET LIGHTS."
- (JB 2A) Install 12"W x 22"L x 12"H (min. dimension) precast concrete junction box with concrete apron. Cover to be marked "STREET LIGHTS."
- (N) Install street light pole (N). Shall be HAPCO embedded aluminum alloy light pole (Model No. RTA25C7BEM18) or approved equal. Install street light Cree (Model: BXSP C HT 3ME E 40K-UL SV N with backlight shield) or approved equal. See "Street Light Pole Schedule".
- (S) Install (S) inch electrical grade schedule 40 PVC conduit.
- (W) Install conduit as required by power company. Central Electric Cooperative to install wire from meter to power source.
- (FDN) Install Central Electric Cooperative approved street light sleeve for embedded street light pole. See Central Electric Cooperative drawing number SR_210. Sleeve shall be 14" diameter PVC or galvanized steel. Use 3/4"-0 gravel to level sleeve as necessary.
- (PS 2) Power source for 120/240 volt, single phase.
- (BMCL) Install base mounted service cabinet, 120/240 volt metered. Central Electric Cooperative to install meter.
- 2/8 Install (N=number) No. (G=AWG wire size) XHHW wires.
- G/S Install one No (S=AWG wire size) bare copper ground.

G E N E R A L N O T E S

1. Foundations, junction boxes, and conduit shall be installed at locations shown on plans. If conflicts arise, foundation, junction box, and conduit locations may be modified in the field per the engineer's approval. All lighting equipment must be placed within the right-of-way. Place conduit in same trench as other conduits whenever possible.
2. Location of existing utilities shall be verified. Coordinate all work with utility companies to eliminate conflicts.
3. Final light pole locations shall be approved in the field by the engineer prior to foundation installation.
4. This illumination plans set is accompanied by Oregon Standard Drawing TM472.
5. All conduit elbows shall be factory made and be long radius 36". For conduit runs longer than 150' or containing more than 270 degrees of bends, elbows shall be fiberglass.
6. Contractor to coordinate with Central Electric Cooperative (Cody Smith, 541.312.7752) ten (10) business days in advance of commencing illumination work.
7. Conduit trenches crossing new roadway alignments shall be backfilled prior to paving according to "Trench Detail" (this sheet).

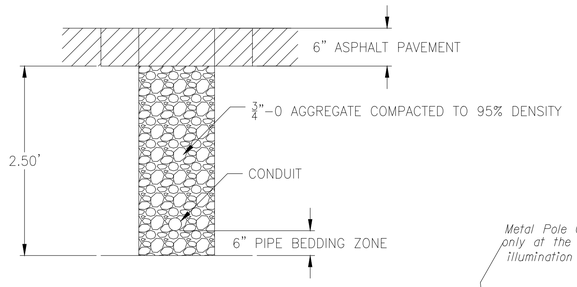
STREET LIGHT POLE SCHEDULE

POLE NO.	STREET	STATION	OFFSET*	LUMINAIRE ARM LENGTH	LAMP	LUMINAIRE MOUNTING HEIGHT (FT)	TYPE	NOTES
1A	Helmholtz Way	6+29.32	37.8' Rt.	8'	LED	25'	III	100 Watts
2A	Helmholtz Way	6+08.08	33.1' Lt.	8'	LED	25'	III	100 Watts
3A	Canal Blvd	689+31.95	29.0' Lt.	8'	LED	25'	III	100 Watts

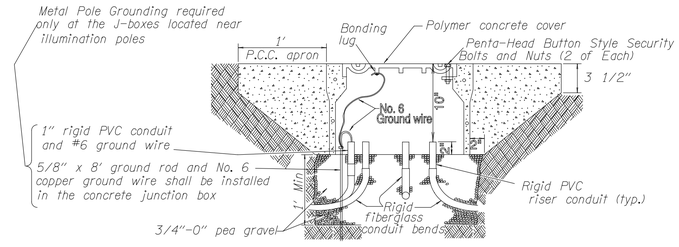
* - Offset measured from roadway centerline.

LIGHT LEVEL SUMMARY TABLE

ROADWAY/INTERSECTION	CLASSIFICATION		LIGHT LEVEL	UNIFORMITY	LIGHT LOSS FACTOR	BUG RATING
Helmholtz/Canal	Rural Arterial	TARGET	≥ 0.9 fc	≤ 3 : 1	0.85	B1 UI G1
		DESIGN	1.3 fc	2.5 : 1		



TRENCH DETAIL



NOTE
1. Illumination circuit wires are not shown. See Illumination Plans.
2. Illumination Circuits shall be spliced according to Section 02920.25
3. Polymer concrete junction box cover, if used, is not required to be bonded.
4. Metallic conduit, if used, shall be bonded and connected to circuit ground wires

CONCRETE JUNCTION BOX INSTALLATION WITH APRON (NEAR ILLUM. POLE)

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DESIGNED JDS
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CHECKED HJS
APPROVED SGB

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FILE NAME
JOB No.
DATE

REGISTERED PROFESSIONAL ENGINEER 79204PE OREGON JUNE 14, 2007 SCOTT GLENN BEAIRD
EXPIRES 12/31/19

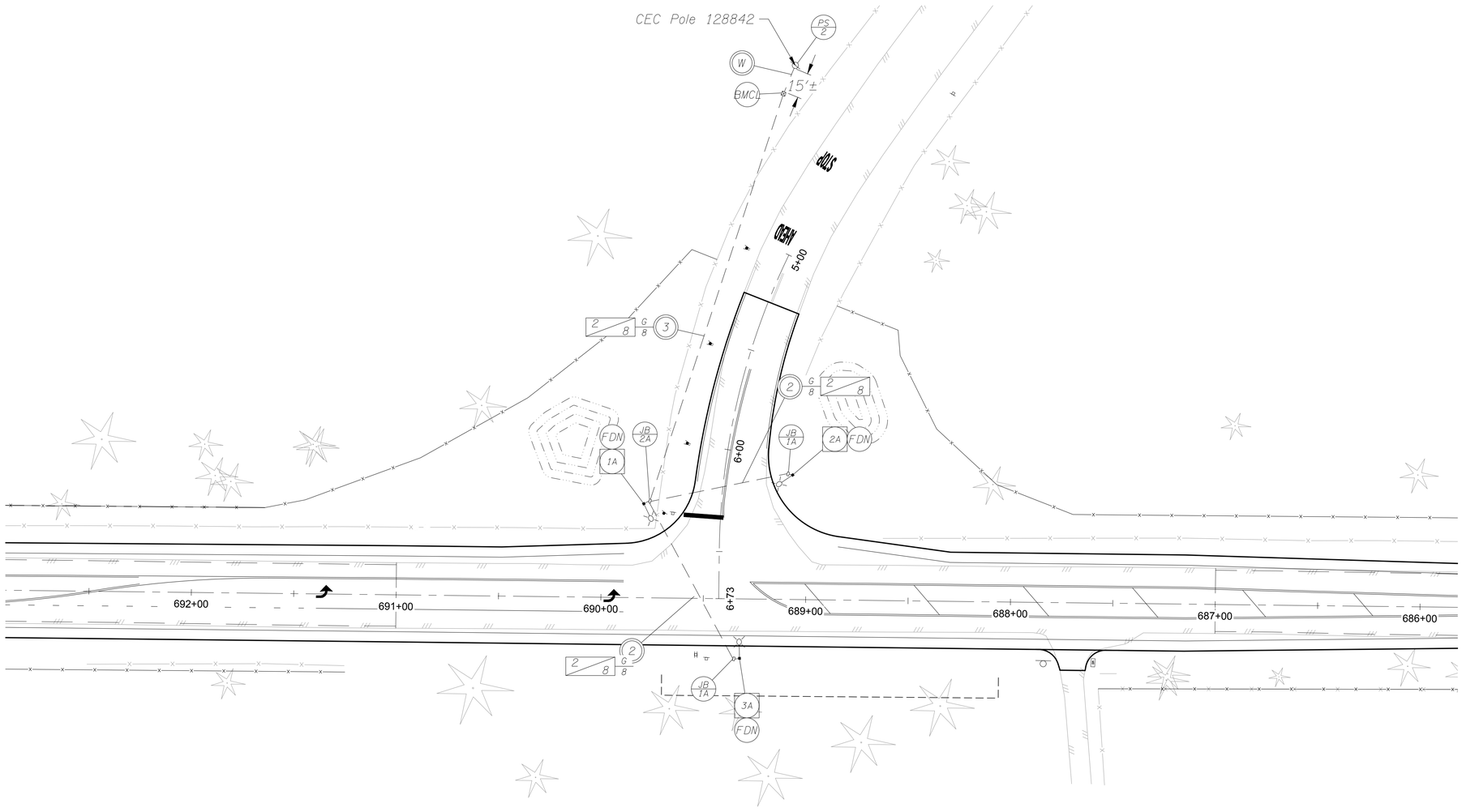
KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS
DESCHUTES COUNTY

ILLUMINATION LEGEND

DRAWING NO.
31 OF 32
IL1

ILLUMINATION PLAN
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS



SCALE
0 30 60

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EXPIRES 12/31/19

KITTELSON & ASSOCIATES

PROJECT NAME
SW CANAL BLVD / SW HELMHOLTZ WAY INTERSECTION IMPROVEMENTS

DESCHUTES COUNTY

ILLUMINATION PLAN

DRAWING NO.
32 OF 32

IL2