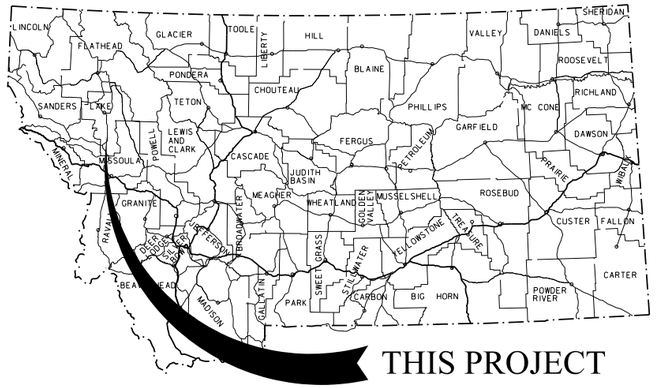


MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NH 5-2(160)37
GRADE, GRAVEL, SURFACING, & STRUCTURE
US 93 N - POST CREEK HILL
LAKE COUNTY, MONTANA

PRESENT: 2014 A.D.T. =	6,040
LETTING: 2020 A.D.T. =	6,410
DESIGN: 2040 A.D.T. =	7,820
D.H.V. =	980
T. =	9.8%
V. =	60 mph
18 KIP ESAL'S =	N/A
GROWTH RATE =	1.0%

CSF = 0.99928538

LENGTH 3.6 MILES

SURFACING SOURCES -
CONTRACTOR FURNISHED

AN ACCESS CONTROLLED FACILITY

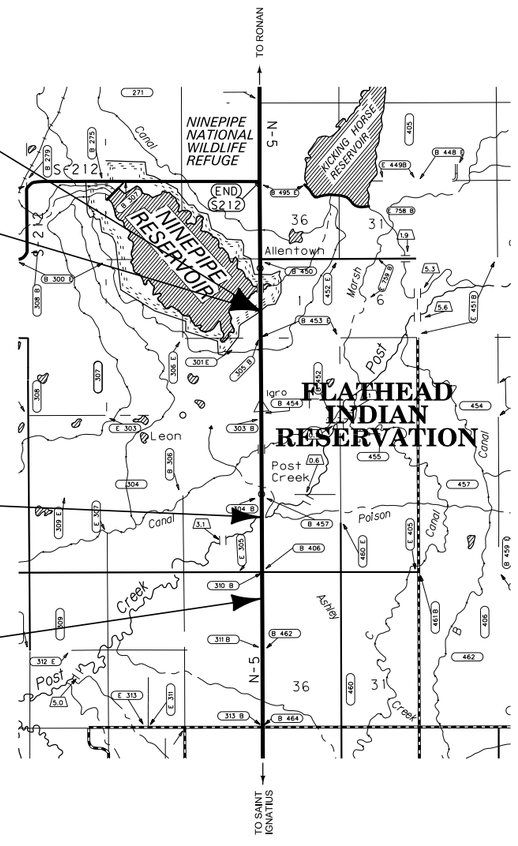
STA 195+63.19
END CONNECTION

STA 195+15.70
END PROJECT NO. NH 5-2(160)37
= POT STA. 424+12.60 ON F-63(5)

THIS CONTRACT
RP 36.8 TO RP 40.4

STA 55+00.00
NEW 54' X 500' BRIDGE
RP 37.7

STA 1+07.35
BEGIN PROJECT NO. NH 5-2(160)37
= POT STA. 229+88.20 ON F-63(5)



ALIGNMENT & GRADE SUBMITTAL MARCH 2017

PLANS PREPARED BY
KLJ 2969 AIRPORT RD, SUITE 1B HELENA, MT 59601 PHONE (406)449-7764 MORRISON-MAIERLE, INC. 1 ENGINEERING PLACE HELENA, MT 59604 PHONE (406)442-3050

RELATED PROJECTS

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W & I.C.	
P. E.	NH 5–2(159)37

BY _____

DATE _____

MONTANA
DEPARTMENT OF TRANSPORTATION

RECEIVED :

BY _____ _____
CONSULTANT DESIGN ENGINEER DATE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED :

_____ _____
DIVISION ADMINISTRATOR DATE

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdttlz01.dgn			ROAD PLANS	PRELIMINARY AGR
2		3/2/2017			UPN 8008000	
1		2:49:25 PM dillonmclain				

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ALIGNMENT & GRADE
SUBMITTAL
MARCH 2017

NOTES

BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

COMP. AGGREGATE WEIGHT	= 3700 LBS. PER CUBIC YARD
COMP. WEIGHT OF PL. MIX BIT. SURF.	= 3855 LBS. PER CUBIC YARD
ASPHALT CEMENT - GRADE S - 3/4" AGG.	= 5.4% OF PL.MIX BIT.SURF.
ASPHALT CEMENT - GRADE S - 1/2" AGG.	= 5.85% OF PL.MIX BIT.SURF.
ASPHALT CEMENT - GRADE S - 3/8" AGG.	= 6.2% OF PL.MIX BIT.SURF.
HYDRATED LIME	= 1.4% OF PL.MIX BIT.SURF.
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
EMULSIFIED ASPHALT - TACK (ALL OTHER SURFACES)	= 0.05 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - TACK (CONCRETE SURFACES)	= 0.10 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (S&C)	= 0.075 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (RUMBLE STRIPS)	= 0.10 GAL. PER SQ.YARD (UNDILUTED)
SEAL	= 0.42 GAL. PER SQ.YARD
COVER	= 25 LBS. PER SQ.YARD

UTILITIES

CALL THE UTILITIES UNDERGROUND LOCATION CENTER (811) OR OTHER NOTIFICATION SYSTEM FOR THE MARKING AND LOCATION OF ALL LINES AND SERVICE BEFORE EXCAVATING. ALL CLEARANCES OR DEPTHS PROVIDED FOR UTILITIES ARE FROM EXISTING GROUND LINE.

MISC. TO BE MOVED OR REMOVED BY OTHERS

ALL PRIVATELY OWNED SIGNS TO BE REMOVED BY OWNER.

SOILS INFORMATION

SOILS INFORMATION ON THE CROSS SECTION SHEETS IS A BRIEF SUMMARY OF THE SOILS CLASSES. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

FURROW DITCHES

CONSTRUCT FURROW DITCHES AT THE TOP OF ALL CUT SECTIONS UNLESS SPECIFIED OTHERWISE IN THE PLANS OR DIRECTED BY THE ENGINEERING PROJECT MANAGER.

MAILBOXES & MAILBOX TURNOUTS

CONSTRUCT MAILBOX TURNOUTS AT LOCATIONS SHOWN IN THE PLANS OR AS STAKED BY THE ENGINEER.

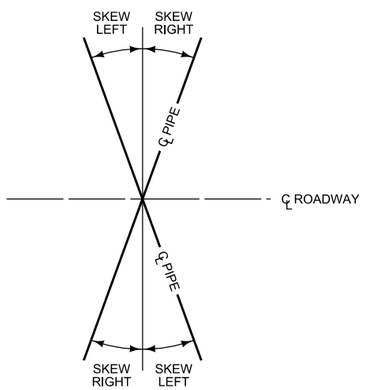
PROVIDE THE FOLLOWING SURFACING:

MAINLINE linear feet PLANT MIX BITUMINOUS SURF.
MAINLINE linear feet CRUSHED AGGREGATE COURSE

QUANTITIES FOR ONE MAILBOX TURNOUT (FOR ESTIMATING PURPOSES ONLY):

AVERAGE LENGTH	=	linear feet
PLANT MIX BITUMINOUS SURF.	=	tons
CRUSHED AGGREGATE COURSE	=	cubic yards
ASPHALT CEMENT	=	tons
AGG. TREATMENT	=	sq. yards

SKEW DIAGRAM



CLEARING AND GRUBBING

CLEAR AND GRUB TO CONSTRUCTION LIMITS. INCLUDE THE COST OF CLEARING AND GRUBBING IN THE UNIT PRICE BID FOR UNCLASSIFIED EXCAVATION

LIMITED ACCESS CONTROL

THIS PROJECT IS A LIMITED ACCESS CONTROL FACILITY. OBTAIN APPROVAL FROM THE CHIEF OF THE RIGHT-OF-WAY BUREAU PRIOR TO ADDING, DELETING OR RELOCATING ANY APPROACHES.

WETLANDS

WETLANDS EXIST ADJACENT TO THE ROADWAY AND MAY EXIST BEYOND THE PROJECT LIMITS. WETLAND AREAS AND PERMANENT WETLAND IMPACT AREAS WITHIN THE PROJECT LIMITS HAVE BEEN DELINEATED AND ARE SHOWN ON THE PLANS. ANY ACTION IMPACTING WETLAND AREAS OUTSIDE OF THE PERMANENT IMPACT AREAS SHOWN IS THE RESPONSIBILITY OF THE CONTRACTOR.

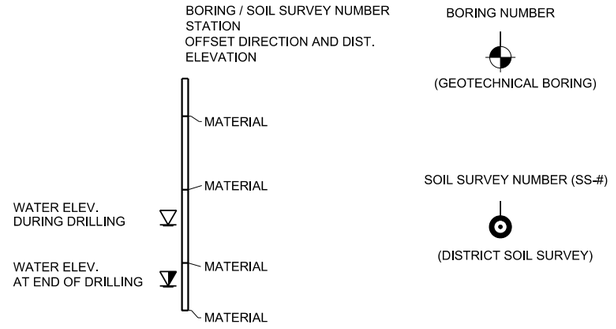
DELINEATED WETLAND AREAS

PERMANENT WETLAND IMPACTED AREAS

TEMPORARY WETLAND IMPACT AREAS

GEOTECHNICAL BORING / SOIL SURVEY LEGEND

- MATERIAL IS LABELED AT THE BOTTOM OF THE LAYER
- A MINUS (-) OFFSET INDICATES A DIRECTION LEFT OF PROJECT CENTERLINE



WETLAND DELINEATION

WETLAND DESIGNATION	STATION FROM	STATION TO	acres DELINEATED AREA	acres IMPACTED AREA (TEMP.)	acres IMPACTED AREA (PERM.)	REMARKS
W-1-14	0+61	7+40	0.868		0.207	RT.
W-2A-14	7+08	16+16	1.235		0.004	RT.
W-2B-14	11+79	15+94	0.136		0.104	RT.
W-3A-14	11+89	17+78	1.165		0.176	LT.
W-3B-14	5+66	11+30	0.533		0.053	LT.
W-3C-14	0+59	1+33	0.108		0.000	LT.
W-4A-14	22+41	26+64	0.706		0.260	RT.
W-4B-14	25+05	28+57	0.639		0.070	LT.
W-5A-14	32+86	42+16	1.057		0.464	RT.
W-5B-14	42+57	45+16	0.253		0.107	RT.
W-6A-14	35+16	58+89	8.687		0.684	LT.
W-6B-14	45+50	61+30	6.186		1.432	RT.
W-7A-14	59+22	70+40	0.623		0.527	LT. & RT.
W-7B-14	70+77	83+57	0.530		0.518	LT. & RT.
W-7C-14	84+00	100+10	0.582		0.433	LT. & RT.
W-8A-14	60+29	70+47	0.636		0.177	RT.
W-8B-14	70+77	73+65	0.380		0.000	RT.
W-9A-14	82+66	86+54	0.283		0.000	RT.
W-9B-14	89+32	101+28	2.714		0.629	RT.
W-10A-14	100+83	117+63	0.551		0.263	LT. & RT.
W-10B-14	119+45	123+26	0.314		0.263	LT. & RT.
W-11A-14	120+85	123+24	0.440		0.009	LT.
W-11B-14	123+81	146+22	4.040		0.113	LT.
W-12A-14	124+46	137+38	0.389		0.364	LT. & RT.
W-12B-14	138+11	147+09	0.507		0.159	RT.
W-13A-14	146+62	149+17	0.079		0.064	LT.
W-13B-14	148+85	155+75	0.270		0.239	RT.
W-13C-14	149+56	152+94	0.306		0.273	LT.
W-14A-14	155+82	162+20	0.950		0.106	RT.
W-14B-14	162+30	163+80	0.358		0.007	RT.
W-15A-14	159+51	162+37	0.386		0.066	LT.
W-15B-14	162+90	163+17	0.008		0.008	LT.
W-16A-14	165+09	166+76	0.200		0.159	RT.
W-16B-14	168+08	168+92	0.091		0.000	RT.
W-16C-14	164+19	176+02	2.747		0.447	LT.
W-16D-14	168+87	175+06	1.200		0.391	LT. & RT.
W-16E-14	175+05	176+24	0.235		0.016	RT.
W-17A-14	176+90	184+26	1.563		0.003	LT.
W-18-15	183+77	188+07	0.107		0.076	RT.
W-19A-15	179+47	179+96	0.004		0.000	RT.
W-19B-15	185+44	186+72	0.092		0.000	RT.
W-19C-15	188+82	193+28	0.821		0.006	RT.
W-19D-15	192+86	197+65	1.101		0.064	RT.
W-19E-15	192+17	197+68	1.853		0.177	LT.
TOTAL			45.933		9.118	

*** AREA OF EXISTING WETLAND EXTENDS BEYOND PLAN LIMITS**

APPROACHES (FOR INFORMATION ONLY)

STATION	TYPE	linear feet: FINISHED TOP WIDTH	RADIUS LEFT	RADIUS RIGHT	PAVED LENGTH ALONG C.L.	TOTAL LENGTH ALONG C.L.	EXISTING SURFACE	PROPOSED SURFACE	tons: PLANT MIX BIT. SURF. GRADE	tons: ASPHALT CEMENT PG-	cubic yards: CRUSHED AGG. COURSE	REMARKS
7+50												RT.
7+73												LT.
13+35												RT.
20+80												RT.
24+86												LT.
27+11												RT.
29+13												LT.
29+24												RT.
30+23												LT.
31+50												LT.
32+69												RT. - HUNTSVILLE LOOP
42+37												RT.
45+35												RT.
45+71												LT.
59+02												LT.
83+78												LT.
84+48												RT.
92+88												LT.
92+91												RT.
95+70												RT.
95+71												LT.
107+82												RT.
146+40												LT.
148+72												RT.
154+86												RT.
162+11												LT.
162+23												RT.
163+48												LT.
169+60												RT.
182+65												RT.
184+37												RT.
185+08												LT.
192+22												LT.
192+57												RT.
302+23												DUBLIN GULCH ROAD LT.
304+80												REDHORN ROAD RT.
304+91												REDHORN ROAD LT.
404+37												POST CREEK ROAD LT.
505+60												MCDONALD LAKE ROAD RT.
TOTAL	~	~	~	~	~	~	~	~	0	0	0	

ALIGNMENT & GRADE SUBMITTED MARCH 2017

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdttlz01.dgn	DESIGNED BY		ROAD PLANS	US 93 N – POST CREEK HILL / NH 5–2(160)37
2		3/2/2017	REVIEWED BY		LAKE COUNTY	PRELIMINARY AGR / CSF = 0.99928538 / UPN 8008000
1		7:05:07 PM dillonmclain	CHECKED BY			SHEET 3

LINEAR AND LEVEL DATA

LENGTH OF ROADWAY	2 LANE RURAL	9,771.21 ft
LENGTH OF ROADWAY	3 LANE RURAL	8,717.00 ft
LENGTH OF BRIDGE	2 LANE RURAL	500.14 ft
TOTAL LENGTH OF	NH 5–2(160)37	18,988.35 ft

BEARING SOURCE

GRID – MONTANA COORDINATE SYSTEM NAD83-1992

LEVEL DATUM SOURCE

NAVD88 (GNSS DERIVED ELEVATIONS USING GEOID 12a
AND HOLDING BMS A394, B398, X381, AND Z375)

COMBINATION SCALE FACTOR

ALL SURVEY AND STAKING WILL REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) OF 0.99928538.
ALL DIMENSIONS ON THE PLANS ARE GRID DIMENSIONS AND MUST BE DIVIDED BY THE CSF TO ARRIVE AT GROUND DIMENSIONS.

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

REDHORN ROAD / DUBLIN GULCH ROAD CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
302+00.00	POT	1,176,176.646	830,909.731	BEGIN CONNECTION
302+20.00	POC	1,176,175.729	830,929.710	BEGIN DUBLIN GULCH ROAD
302+03.98	PC	1,176,176.469	830,913.703	
303+20.66	POC	1,176,169.910	831,030.195	END DUBLIN GULCH ROAD
303+24.50	PI	1,176,171.099	831,034.103	
303+74.65	POC	1,176,165.956	831,084.047	BEGIN REDHORN ROAD
304+44.97	PRC	1,176,159.934	831,154.104	
304+68.79	PI	1,176,157.727	831,177.823	
304+92.61	PRC	1,176,155.747	831,201.562	
305+00.00	POC	1,176,155.083	831,208.921	END REDHORN ROAD
305+05.27	PI	1,176,154.694	831,214.174	
305+17.92	PRC	1,176,153.063	831,226.724	
305+35.00	POC	1,176,150.993	831,243.680	END CONNECTION
305+73.88	PI	1,176,145.850	831,282.216	
306+29.74	PRC	1,176,144.306	831,338.154	
306+57.66	PI	1,176,143.535	831,366.067	
306+85.58	PT	1,176,141.519	831,393.917	
307+53.19	POT	1,176,136.637	831,461.352	

GPK NAME: JOB800.GPK CHAIN NAME: REDHORN

POST CREEK ROAD CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
400+98.00	POT	1,181,435.730	831,122.857	BEGIN CONNECTION
401+18.00	POT	1,181,434.664	831,142.829	BEGIN WEST POST CREEK ROAD
402+68.34	POT	1,181,426.651	831,292.956	END WEST POST CREEK ROAD
403+34.35	POT	1,181,423.132	831,358.874	BEGIN EAST POST CREEK ROAD
404+33.07	PC	1,181,417.871	831,457.455	
404+91.25	PI	1,181,414.770	831,515.548	
405+49.42	PT	1,181,410.994	831,573.601	
406+10.00	POT	1,181,407.062	831,634.049	END EAST POST CREEK ROAD
406+30.00	POT	1,181,405.763	831,654.007	END CONNECTION

GPK NAME: JOB800.GPK CHAIN NAME: POSTCRK

MCDONALD LAKE ROAD / LEON ROAD CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
502+20.00	POT	1,186,701.066	831,551.634	BEGIN CONNECTION
502+50.00	POT	1,186,699.261	831,581.580	BEGIN LEON ROAD
503+78.50	POT	1,186,691.530	831,709.851	END LEON ROAD
504+44.50	POT	1,186,687.559	831,775.732	BEGIN MCDONALD LAKE ROAD
506+50.00	POT	1,186,675.196	831,980.855	END MCDONALD LAKE ROAD
506+70.00	POT	1,186,673.993	832,000.819	END CONNECTION

GPK NAME: JOB800.GPK CHAIN NAME: MCDONALD

GUNLOCK ROAD / OLSEN ROAD CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
601+17.00	POT	1,191,984.373	831,766.944	BEGIN CONNECTION
601+37.00	POT	1,191,983.446	831,786.922	BEGIN OLSEN ROAD
601+80.30	PC	1,191,981.440	831,830.180	
602+69.60	PI	1,191,977.300	831,919.380	
603+15.41	POC	1,191,973.359	831,965.040	END OLSEN ROAD
603+58.89	PRC	1,191,969.980	832,008.380	
603+69.42	POC	1,191,969.131	832,018.884	BEGIN GUNLOCK ROAD
604+15.99	PI	1,191,965.300	832,065.300	
604+73.09	PT	1,191,961.920	832,122.300	
605+53.00	POT	1,191,957.194	832,202.071	END GUNLOCK ROAD
605+73.00	POT	1,191,956.011	832,222.036	END CONNECTION

GPK NAME: JOB800.GPK CHAIN NAME: GUNLOCK

US 93 CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
1+07.35	POT	1,174,479.711	830,958.725	BEGIN PROJECT
5+27.35	POT	1,174,899.000	830,983.159	
5+89.63	POT	1,174,961.180	830,986.780	
16+95.06	PI	1,176,064.730	831,051.090	
52+49.93	POT	1,179,613.560	831,258.276	BRIDGE END
57+50.07	POT	1,180,112.849	831,287.425	BRIDGE END
58+09.59	PC	1,180,172.270	831,290.890	
61+84.07	PI	1,180,546.110	831,312.720	
65+58.31	PRC	1,180,920.590	831,311.190	
71+25.84	PI	1,181,488.110	831,308.880	
76+92.52	PRC	1,182,053.320	831,360.140	
79+86.75	PI	1,182,346.350	831,386.710	
82+80.86	PRC	1,182,640.330	831,398.890	
87+40.53	PI	1,183,099.600	831,417.920	
91+99.74	PRC	1,183,556.070	831,472.030	
119+96.88	PI	1,186,333.760	831,801.280	
147+88.19	PRC	1,189,130.840	831,818.670	
151+79.78	PI	1,189,522.420	831,821.100	
155+71.09	PT	1,189,913.010	831,849.060	
171+69.29	PC	1,191,507.130	831,963.160	
177+23.00	PI	1,192,059.430	832,002.690	
182+76.54	PT	1,192,612.940	832,017.740	
191+45.70	PC	1,193,481.790	832,041.340	
193+30.72	PI	1,193,666.730	832,046.370	
195+15.70	PT	1,193,851.440	832,057.100	END PROJECT
195+63.19	POT	1,193,898.846	832,059.848	END CONNECTION

GPK NAME: JOB800.GPK CHAIN NAME: DESIGN

SHARED-USE PATH CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
700+00.00	POT	1,174,368.377	830,980.455	
701+09.90	POT	1,174,477.966	830,988.676	BEGIN CONSTRUCTION
705+29.87	PI	1,174,896.764	831,020.091	
716+97.66	PI	1,176,062.576	831,088.028	
733+72.68	PI	1,177,734.752	831,185.652	
737+92.74	PI	1,178,154.446	831,203.142	
746+28.64	PC	1,178,988.927	831,251.861	
746+45.64	PI	1,179,005.890	831,252.851	
746+62.40	PRC	1,179,021.911	831,258.512	
746+76.16	PI	1,179,034.886	831,263.096	
746+89.81	PT	1,179,048.561	831,264.625	
749+13.79	PC	1,179,271.157	831,289.502	
750+04.72	PI	1,179,361.531	831,299.602	
750+95.16	PT	1,179,452.246	831,293.235	
752+38.19	PC	1,179,594.919	831,283.220	
752+45.90	PI	1,179,602.615	831,282.680	
752+53.59	PT	1,179,610.316	831,283.130	
757+57.21	PC	1,180,113.072	831,312.481	
757+70.80	PI	1,180,126.642	831,313.273	
757+84.28	PT	1,180,139.692	831,317.081	
759+42.67	PC	1,180,291.744	831,361.449	
760+59.66	PI	1,180,404.049	831,394.219	
761+74.17	PT	1,180,520.733	831,385.774	
766+07.64	PC	1,180,953.070	831,354.486	
766+12.96	PI	1,180,958.373	831,354.102	
766+18.27	PCC	1,180,963.689	831,354.189	
768+78.40	PI	1,181,223.789	831,358.433	
771+38.45	PCC	1,181,483.461	831,373.945	
771+60.79	PI	1,181,505.760	831,375.277	
771+82.63	PRC	1,181,526.087	831,384.544	
772+05.54	PI	1,181,546.940	831,394.051	
772+27.92	PRC	1,181,569.830	831,395.204	
773+71.62	PI	1,181,713.352	831,402.435	
775+15.31	PCC	1,181,856.658	831,413.120	
775+29.08	PI	1,181,870.388	831,414.144	
775+42.73	PT	1,181,883.530	831,418.251	
777+46.50	PC	1,182,078.029	831,479.034	
778+21.51	PI	1,182,149.622	831,501.407	
778+54.04	PT	1,182,155.727	831,426.649	
779+54.08	PC	1,182,163.870	831,326.937	
780+24.81	PI	1,182,169.627	831,256.438	
780+58.16	PT	1,182,238.243	831,273.617	
783+06.11	PC	1,182,478.769	831,333.833	
783+16.55	PI	1,182,488.900	831,336.370	
783+26.94	PT	1,182,499.317	831,337.118	
786+27.38	PC	1,182,798.984	831,358.636	
786+72.26	PI	1,182,843.751	831,361.851	
787+17.13	PT	1,182,888.354	831,366.844	
793+14.24	PC	1,183,481.751	831,433.265	
793+53.42	PI	1,183,520.690	831,437.624	
793+92.60	PRC	1,183,559.599	831,442.236	
797+51.04	PI	1,183,915.543	831,484.428	
801+09.46	PCC	1,184,272.056	831,521.509	
801+14.04	PI	1,184,276.612	831,521.983	
801+18.62	PRC	1,184,281.191	831,522.108	

GPK NAME: JOB800.GPK CHAIN NAME: BIKEALT

SHARED-USE PATH CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
802+74.17	PI	1,184,436.687	831,526.359	
804+29.63	PRC	1,184,591.652	831,539.898	
804+41.69	PI	1,184,603.668	831,540.947	
804+53.68	PRC	1,184,615.652	831,539.585	
804+64.04	PI	1,184,625.952	831,538.414	
804+74.36	PT	1,184,636.300	831,539.026	
820+81.46	PI	1,186,240.597	831,634.002	
823+73.14	PC	1,186,531.648	831,653.077	
824+05.03	PI	1,186,563.474	831,655.163	
824+35.49	PRC	1,186,590.065	831,672.775	
824+67.99	PI	1,186,617.166	831,690.725	
824+98.97	PCC	1,186,649.622	831,692.542	
825+33.18	PI	1,186,683.777	831,694.454	
825+67.39	PCC	1,186,717.935	831,696.319	
825+99.51	PI	1,186,750.010	831,698.071	
826+30.17	PRC	1,186,778.670	831,683.565	
826+62.81	PI	1,186,807.799	831,668.821	
826+93.92	PT	1,186,840.382	831,670.867	
833+30.25	PC	1,187,475.610	831,708.287	
833+32.58	PI	1,187,477.936	831,708.424	
833+34.91	PRC	1,187,480.266	831,708.470	
834+80.95	PI	1,187,626.284	831,711.392	
836+26.96	PT	1,187,772.072	831,720.073	
847+42.91	PC	1,188,886.044	831,786.402	
847+45.82	PI	1,188,888.947	831,786.575	
847+48.72	PCC	1,188,891.856	831,786.607	
848+68.31	PI	1,189,011.439	831,787.923	
849+87.90	PRC	1,189,131.026	831,788.666	
850+68.06	PI	1,189,211.183	831,789.164	
851+48.22	PRC	1,189,291.326	831,790.730	
851+72.80	PI	1,189,315.903	831,791.211	
851+96.71	PRC	1,189,338.689	831,781.989	
852+21.12	PI	1,189,361.316	831,772.832	
852+44.87	PT	1,189,385.722	831,773.242	
856+02.14	PC	1,189,742.939	831,779.241	
856+05.63	PI	1,189,746.428	831,779.300	
856+09.11	PT	1,189,749.907	831,779.561	
860+45.77	PC	1,190,185.333	831,812.249	
860+50.31	PI	1,190,189.864	831,812.589	
860+54.85	PT	1,190,194.357	831,813.271	
863+76.07	PC	1,190,511.943	831,861.474	
863+80.83	PI	1,190,516.642	831,862.187	
863+85.57	PT	1,190,521.383	831,862.527	
865+99.62	PI	1,190,734.883	831,877.809	
870+15.51	PC	1,191,150.150	831,900.585	
870+19.68	PI	1,191,154.311	831,900.813	
870+23.84	PT	1,191,158.466	831,901.110	
873+76.05	PC	1,191,509.770	831,926.256	
878+41.40	PI	1,191,973.941	831,959.481	
883+06.66	PT	1,192,439.027	831,975.382	
894+35.29	PC	1,193,566.999	832,013.948	
895+78.59	PI	1,193,710.219	832,018.845	
897+21.88	PT	1,193,853.281	832,027.152	
897+69.26	POT	1,193,900.585	832,029.899	END CONSTRUCTION
903+95.39	POT	1,194,525.661	832,066.194	

GPK NAME: JOB800.GPK CHAIN NAME: BIKEALT

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

CONTROL DIAGRAM

SCALE 1" = 2000'

The horizontal and vertical components of this control densification project were controlled by Morrison-Maierle, Inc., using redundant GNSS RTK methods.

The following were held fixed in the final adjustments:
A weighted mean of the vectors were held.

Mark	Y	X	Z
A394	X	X	X
B398	X	X	X
X381	X	X	X
Z375	X	X	X

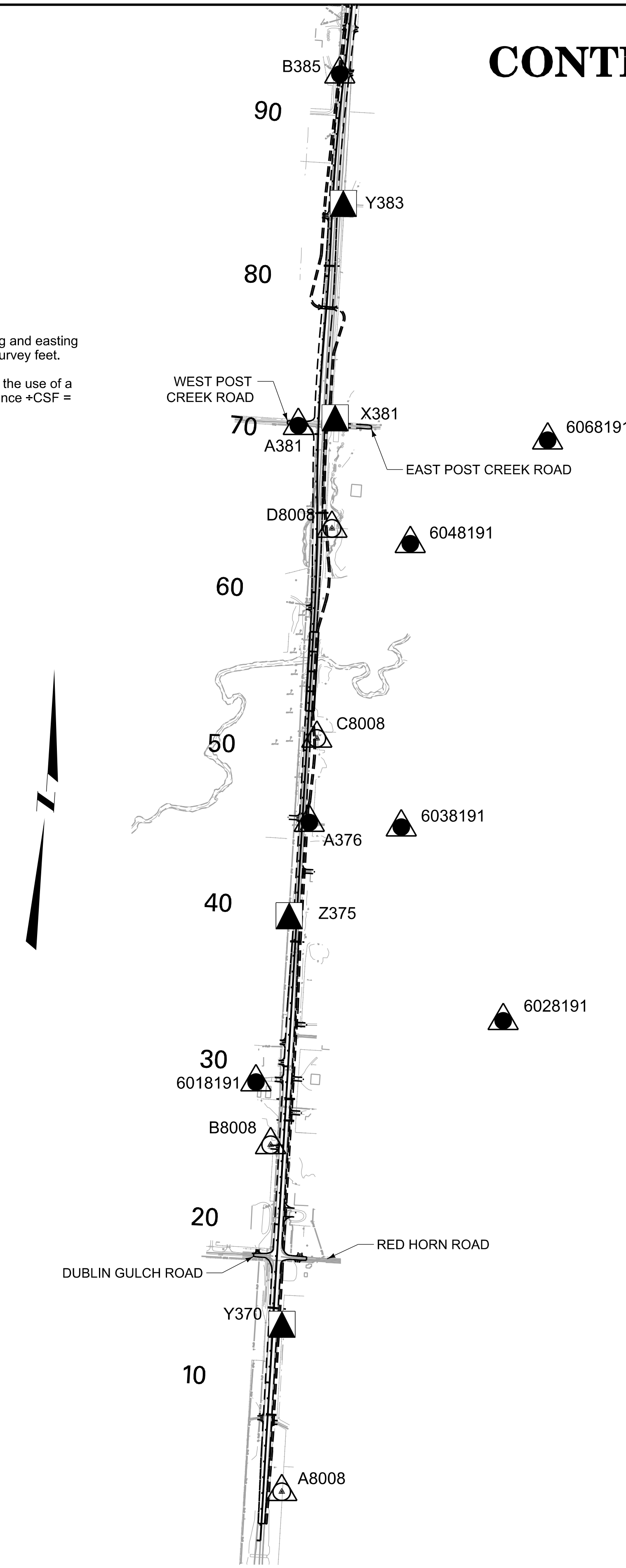
NOTE: A394 = 39.4A (CN1744); B398 = 39.8B (CN1744); etc.

Control Note: This project is on the Montana coordinate system NAD83-1992. Northing and easting coordinates are expressed in units of international feet and elevations are in units of U.S. survey feet.

Dimensions shown on the plans are grid. All survey and staking require the use of a combination scale factor (CSF) to convert grid dimensions to ground dimensions (grid distance ÷CSF = ground distance). The CSF for this project is 0.99928538.

Basis of Bearing: Grid -- Montana coordinate system NAD83-1992

Level Datum: NAVD88 GNSS derived elevations using GEOID 12A and holding BMs A394, B398, X381, AND Z375.



LEGEND

- PUBLISHED CONTROL UPN 8191000
- PUBLISHED AND VERIFIED CN 1744
- RESURVEYED CONTROL CN 1744
- CONTROL SET UNDER UPN 8008000

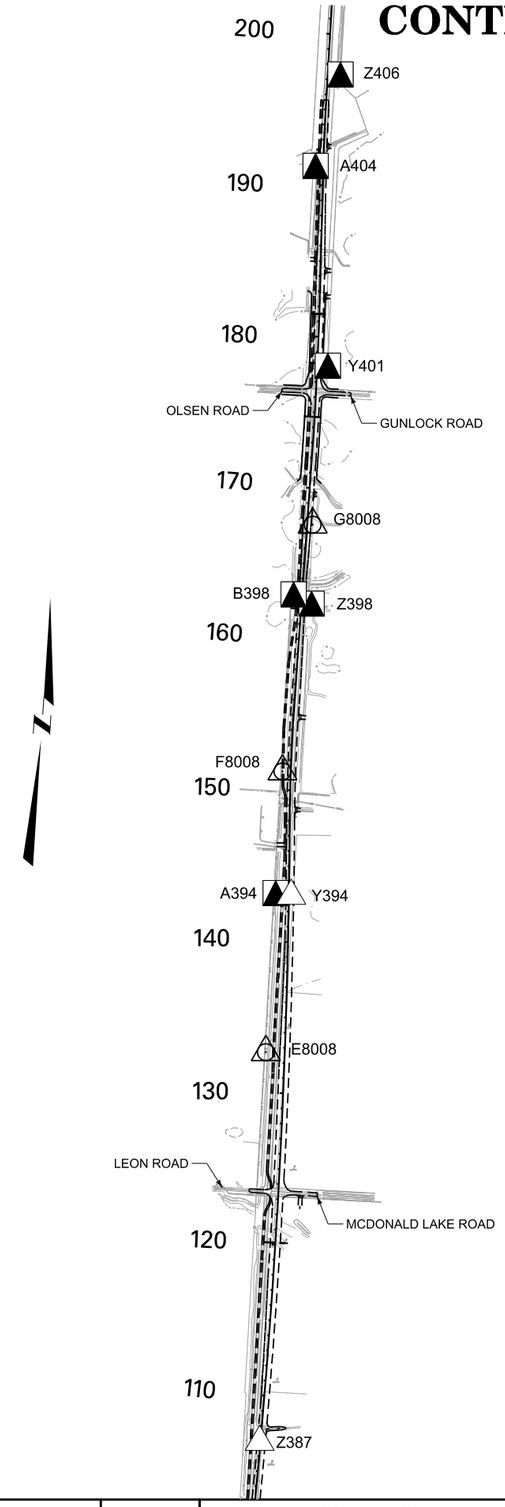
CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	LOCATION AND DESCRIPTION
6018191	1,177,268.706	830,924.250	2755.19	SET A 2 INCH ALUMINUM CAP ON 5/8 INCH BY 30 INCH REBAR FLUSH WITH GROUND STAMPED 6018191 2013. SET MDT WITNESS POST 6 FEET SOUTH EAST FROM ALUMINUM CAP AND REBAR. RENTAL BLG CORNER IS 20 FEET SOUTHEAST FROM PIN. PIN IS 7 FEET SOUTH OF DRIVEWAY GATE POST.
6028191	1,177,656.102	832,485.680	2763.27	SET A 2 INCH ALUMINUM CAP ON 5/8 INCH BY 30 INCH REBAR FLUSH WITH GROUND STAMPED 6028191 2013. SET MDT WITNESS POST 8 FEET SOUTH OF ALUMINUM CAP AND REBAR. CAP IS 9 FEET NORTH OF PROPERTY FENCE LINE AND 72 FEET SOUTH OF PRIVATE ROAD TO JULIE HUNTS HOME.
6038191	1,178,879.432	831,842.190	2752.42	SET A 2 INCH ALUMINUM CAP ON 5/8 INCH BY 30 INCH REBAR FLUSH WITH GROUND STAMPED 6038191 2013. POINT WAS MOVED TO NORTH SIDE OF ROAD AS PER LAND OWNER REQUEST. SET MDT WITNESS POST 4 FEET NORTH AND 4 FEET EAST OF CAP. CAP IS LOCATED 6 FEET SOUTH OF PROPERTY FENCE. CAP IS ON NORTH SIDE OF PRIVATE APPROACH TO ROBERT HUNTS HOME.
6048191	1,180,669.948	831,898.867	2761.70	SET A 2 INCH ALUMINUM CAP ON 5/8 INCH BY 30 INCH REBAR FLUSH WITH GROUND STAMPED 6048191 2013. SET MDT WITNESS POST 4 FEET SOUTH WEST OF CAP. CAP FALLS IN FIELD 50' WEST OF SOUTH WEST SHED CORNER.
6068191	1,181,323.586	832,766.693	2777.47	SET A 2 INCH ALUMINUM CAP ON 5/8 INCH BY 30 INCH REBAR FLUSH WITH GROUND STAMPED 6068191 2013. CAP FALLS 7 FEET SOUTH OF EAST POST CREEK ROAD WITHIN EXISTING COUNTY ROAD RIGHT OF WAY. SET MDT WITNESS POST 4 FEET EAST OF CAP.
A8008	1,174,680.517	831,087.263	2776.54	SET A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED A8008 2014 ON 5/8-INCH BY 30-INCH REBAR FLUSH WITH GROUND, AT MP 36.8,120 FEET RIGHT OF CENTERLINE, 5 FEET WEST OF A NORTH-SOUTHFENCE, AND 1 FOOT WEST OF A WITNESS POST.
B8008	1,176,871.981	831,016.681	2762.43	SET A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED B8008 2014 ON 5/8-INCH BY 30-INCH REBAR FLUSH WITH GROUND, AT MP 37.2,82 FEET LEFT OF CENTERLINE, 35 FEET WEST OF A NORTH-SOUTH FENCE, 4 FEET NORTH OF AN EAST-WEST FENCE, AND 1 FOOT EAST OF A WITNESS POST.
C8008	1,179,439.749	831,308.771	2744.31	SET A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED C8008 2014 ON 5/8-INCH BY 30-INCH REBAR FLUSH WITH GROUND, AT MP 37.7, 60 FEET RIGHT OF CENTERLINE, 194 FEET NORTHWEST OF A WELL CASING, 6.5 FEET WEST OF A NORTH-SOUTH FENCE, AND 1 FOOT WEST OF A WITNESS POST.
D8008	1,180,766.017	831,404.394	2764.77	SET A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED D8008 2014 ON 5/8-INCH BY 30-INCH REBAR FLUSH WITH GROUND, AT MP 38.0,79.4 FEET RIGHT OF CENTERLINE, 2.6 FEET SOUTH OF AN EAST-WEST FENCE, AND 1 FOOT WEST OF A WITNESS POST.
A376	1,178,908.557	831,261.321	2746.81	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 37.6 1991,1.4 FEET BELOW SURFACE OF ROAD, ON A 5/8-INCH REBAR, AT MP37.6, 44 FEET RIGHT OF CENTERLINE, 4 FEET SOUTHWEST OF A WITNESS POST.
A381	1,181,415.546	831,192.043	2773.32	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 38.1 1991,FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 38.1, 168 FEET LEFT OF CENTERLINE, 6 FEET SOUTH OF SOUTH EDGE OF GRAVEL ROAD, 2.6 FEET NORTH OF AN EAST-WEST FENCE, AND 1 FOOT NORTHEAST OF A WITNESS POST.
B385	1,183,635.794	831,453.781	2804.85	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 38.5B 1991,FLUSH WITH GROUND, ON A 5/8-INCH REBAR, AT MP 38.5, 39 FEET LEFT OF CENTERLINE, 9.2 FEET NORTHEAST OF A POWER POLE, 2.6 FEET SOUTH OF THE SOUTH EDGE OF A GRAVEL DRIVEWAY. NO WITNESS POST.
X381	1,181,436.870	831,424.302	2773.86	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 38.1X 1991,FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 38.1, 59 FEET RIGHT OF CENTERLINE, 3 FEET SOUTH OF AN EAST-WEST FENCE, AND 1 FOOT NORTHWEST OF A WITNESS POST.
Y370	1,175,710.129	831,088.648	2772.20	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 37.0Y 1991,FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 37.0, 58 FEET RIGHT OF CENTERLINE, 1.3 FEET WEST OF A NORTH-SOUTH FENCE, AND 1 FOOT NORTHWEST OF WITNESS POST.
Y383	1,182,790.754	831,476.293	2790.94	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 38.3Y 1991,FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 38.3, 33 FEET RIGHT OF CENTERLINE, 3.4 FEET SOUTH OF DRIVEWAY APPROACH. NO WITNESS POST.
Z375	1,178,290.666	831,134.362	2748.81	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 37.5Z 1991,FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 37.5, 46 FEET LEFT OF CENTERLINE, 6 FEET EAST OF NORTH-SOUTH FENCE, AND 1 FOOT SOUTHWEST OF A WITNESS POST.

NOTE: DESCRIPTIONS FOR 6018191 THROUGH 6068191 ARE PER UPN 8191000, NOT SEARCHED FOR OR VERIFIED THIS SURVEY.

CONTROL DIAGRAM

SCALE 1″ = 2000′



LEGEND

PUBLISHED CONTROL UPN 8191000
PUBLISHED AND VERIFIED CN 1744
RESURVEYED CONTROL CN 1744
CONTROL SET UNDER UPN 8008000

CONTROL ABSTRACT

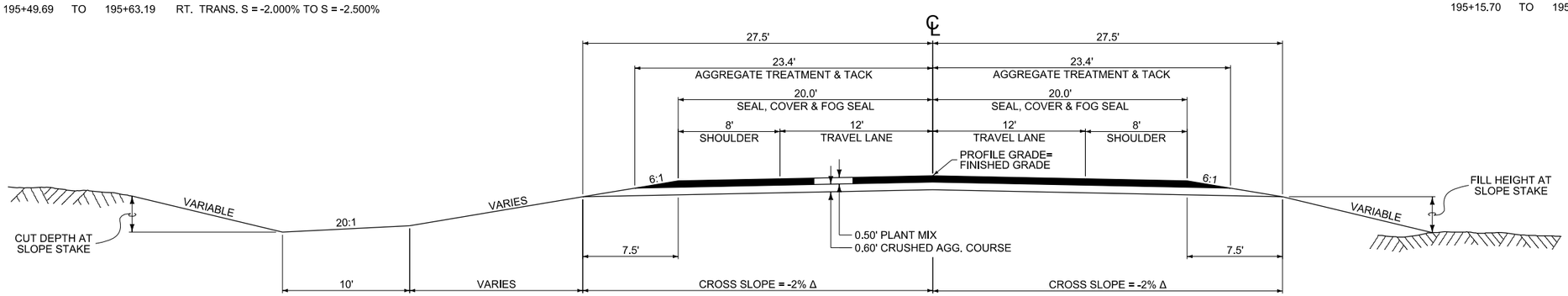
POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	LOCATION AND DESCRIPTION
E8008	1,187,636.845	831,659.303	2963.23	SET A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED E8008 2014 ON 5/8-INCH BY 30-INCH REBAR FLUSH WITH GROUND, AT MP 39.2,66 FEET WEST OF CENTERLINE, 5 FEET EAST OF A NORTH-SOUTH FENCE, AND 1 FOOT WEST OF A WITNESS POST.
F8008	1,189,503.648	831,769.835	3010.97	SET A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED F8008 2014 ON 5/8-INCH BY 30-INCH REBAR FLUSH WITH GROUND, AT MP 39.6,61 FEET WEST OF CENTERLINE, 64.6 FEET SOUTHEAST OF A POWER POLE, 5 FEET EAST OF A NORTH-SOUTH FENCE, AND 1 FOOT EAST OF A WITNESS POST.
G8008	1,191,144.744	831,970.678	3029.90	SET A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED G8008 2014 ON 5/8-INCH BY 30-INCH REBAR FLUSH WITH GROUND, AT MP 39.9,51 FEET RIGHT OF CENTERLINE, 2 FEET WEST OF A NORTH-SOUTH FENCE, AND 1 FOOT WEST OF A WITNESS POST.
A394	1,188,694.546	831,724.637	2999.57	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 39.4A 1991, FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 39.4, 60 FEET LEFT OF CENTERLINE, 17.4 FEET SW OF POWER POLE, 8.8 FEET EAST OF NORTH-SOUTH BARBED WIRE FENCE, AND 1 FOOT SOUTHEAST OF A WITNESS POST.
A404	1,193,530.033	831,989.962	3019.23	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 40.4A 1991, FLUSH WITH GROUND, ON A 5/8-INCH REBAR, AT MP 40.4, 49 FEET LEFT OF CENTERLINE, 16.6 FEET EAST OF A NORTH-SOUTH FENCE. NO WITNESS POST.
B398	1,190,680.084	831,843.947	3032.16	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 39.8B 1991, FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 39.8, 55 FEET LEFT OF CENTERLINE, AND 1 FOOT EAST OF A WITNESS POST.
Y394	1,188,675.686	831,828.514	2999.75	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 39.4Y 1991, FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 39.4, 44 FEET RIGHT OF CENTERLINE, 15 FEET WEST OF A NORTH-SOUTH FENCE, AND 1 FOOT EAST OF A WITNESS POST.
Y401	1,192,201.124	832,071.265	3034.17	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 40.1Y 1991, FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 40.1, 100 FEET RIGHT OF CENTERLINE, 1.3 FEET WEST OF A NORTH-SOUTH FENCE, AND 1 FOOT NORTHWEST OF A WITNESS POST.
Z387	1,185,044.075	831,618.174	2855.12	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 38.7Z 1991, 2 INCHES BELOW SURFACE ON A 5/8-INCH REBAR, AT MP 38.7, 43 FEET RIGHT OF CENTERLINE, 14.6 FEET WEST OF A NORTH-SOUTHFENCE, 7.6 FEET SOUTH OF FORT CONNAH SIGN. NO WITNESS
Z398	1,190,618,604	831,963.193	3031.15	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 39.8Z 1991, FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 39.8, 67 FEET RIGHT OF CENTERLINE, 3 FEET WEST OF A NORTH-SOUTH FENCE, 9.6 FEET NORTHWEST OF A HEADGATE, AND 1 FOOT WEST OF A WITNESS POST.
Z406	1,194,137.468	832,155.635	3018.40	FOUND A 2-INCH ALUMINUM MDT CONTROL CAP STAMPED 40.6Z 1991, FLUSH WITH GROUND ON A 5/8-INCH REBAR, AT MP 40.6, 81 FEET RIGHT OF CENTERLINE, 3.7 FEET WEST OF A NORTH-SOUTH FENCE, AND 1 FOOT NORTHWEST OF A WITNESS POST.

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000RDTRVZ	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5–2(160)37
2		3/2/2017	REVIEWED BY				
1		2:49:50 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 7

TYPICAL SECTION NO. 1

TWO-LANE ROADWAY

Δ	1+07.35	TO	1+15.45	LT. TRANS. S = -2.300% TO S = -2.000%
	1+07.35	TO	1+20.85	RT. TRANS. S = -1.500% TO S = -2.000%
	195+24.58	TO	195+63.19	RT. TRANS. S = -2.000% TO S = -3.430%
	195+49.69	TO	195+63.19	RT. TRANS. S = -2.000% TO S = -2.500%



1+07.35			ONLY
1+07.35	TO	5+27.35	TRANS. TYP. NO. 1 TO TYP. NO. 2
37+90.00	TO	50+49.93	SEE TYP. NO. 3 FOR AHEAD STATION
163+93.00			ONLY
163+93.00	TO	168+13.00	TRANS. TYP. NO. 1 TO TYP. NO. 2
188+81.00	TO	195+15.70	
195+15.70	TO	195+63.19	CONNECT TO PTW

QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		21,70	30,54	square yards PER STATION		444	1560	444	520
cubic yards PER STATION		80,4	113,1	tons PER STATION	9,07	0,79			
tons PER STATION		155,0		gallons PER STATION			78	33	
square yards PER STATION	444								

* BASED ON THREE APPLICATIONS

SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

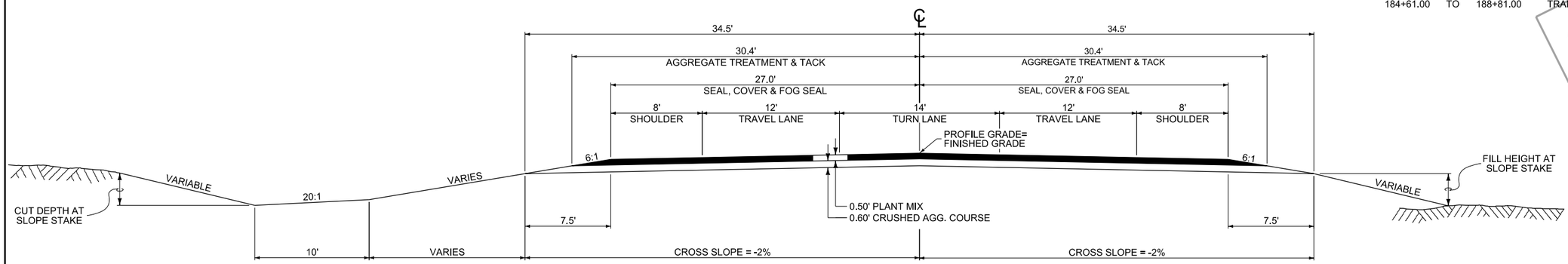
* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 2

TWO-LANE ROADWAY WITH LEFT TURN LANE



5+27.35	TO	33+70.00	
33+70.00	TO	37+90.00	TRANS. TYP. NO. 2 TO TYP. NO. 1
62+36.00			ONLY
62+36.00	TO	69+56.00	TRANS. TYP. NO. 2 TO TYP. NO. 6
168+13.00	TO	184+61.00	
184+61.00	TO	188+81.00	TRANS. TYP. NO. 2 TO TYP. NO. 1

ALIGNMENT & GRADE
SUBMITTAL
MARCH 2017

QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		28,70	38,94	square yards PER STATION		600	2028	600	676
cubic yards PER STATION		106,3	144,2	tons PER STATION	11,99	1,07			
tons PER STATION		204,9		gallons PER STATION			101	45	
square yards PER STATION	600								

* BASED ON THREE APPLICATIONS

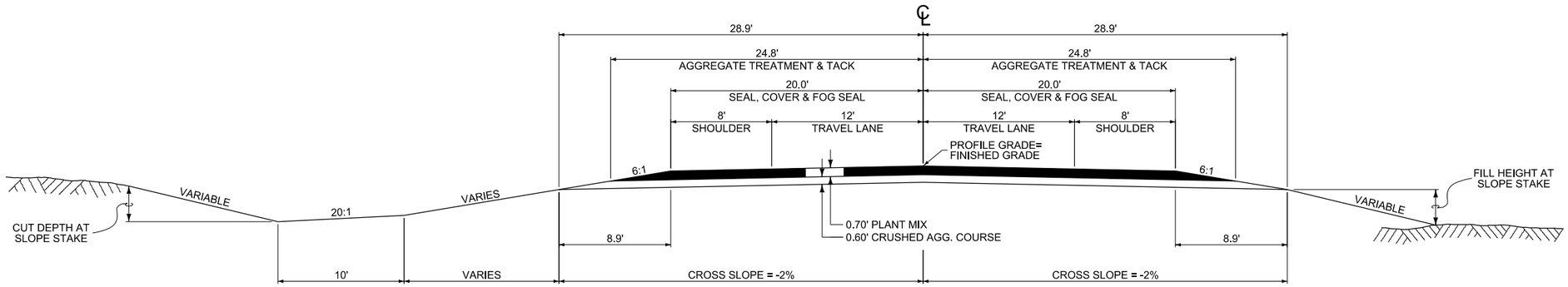
SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdtypz01.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5–2(160)37
2		3/2/2017	REVIEWED BY				
1		2:40:24 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 8

TYPICAL SECTION NO. 3

TWO-LANE BRIDGE APPROACH

50+49.93 TO 52+49.93 B.E.
57+50.07 B.E. TO 58+09.59
58+09.59 TO 59+50.07 TRANS. TYP. NO. 3 TO TYP. NO. 4



QUANTITIES									
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		31,36	32,22	square yards PER STATION		444	2204	444	551
cubic yards PER STATION		116,1	119,3	tons PER STATION	13,09	0,79			
tons PER STATION		223,8		gallons PER STATION			110	33	
square yards PER STATION	444								

* BASED ON THREE APPLICATIONS

SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

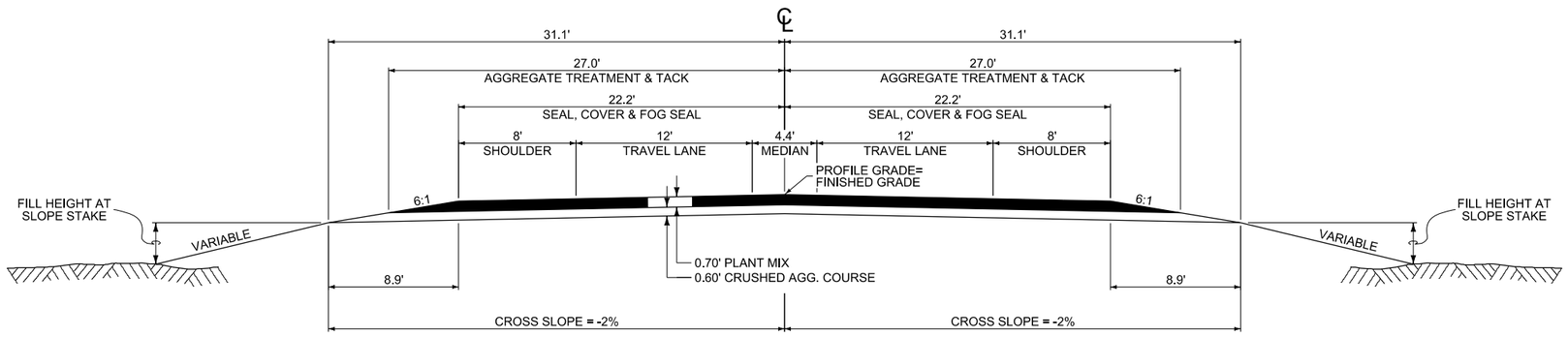
* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 4

TWO-LANE BRIDGE APPROACH WITH MEDIAN

59+50.07 ONLY, SEE TYP. NO. 5 FOR AHEAD STATION

ALIGNMENT & GRADE SUBMITTAL MARCH 2017



QUANTITIES									
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		34,44	34,86	square yards PER STATION		493	2400	493	600
cubic yards PER STATION		127,6	129,1	tons PER STATION	14,39	0,88			
tons PER STATION		245,9		gallons PER STATION			120	37	
square yards PER STATION	493								

* BASED ON THREE APPLICATIONS

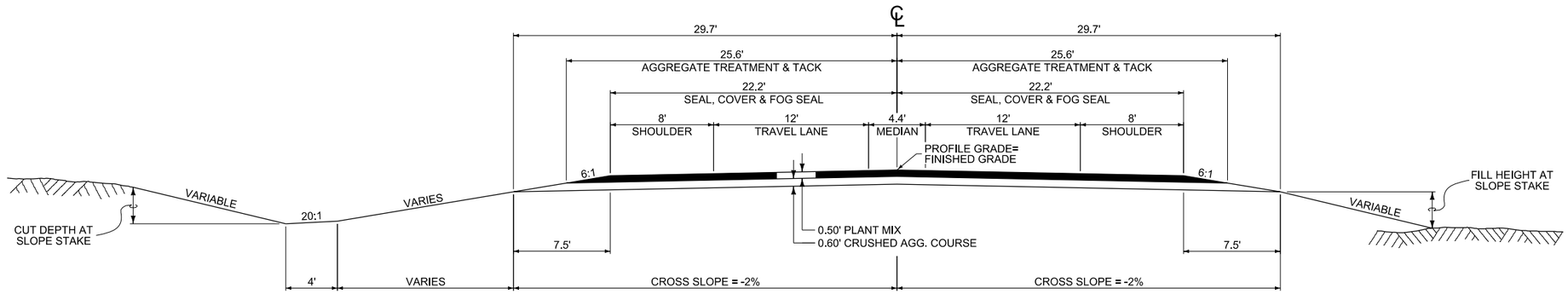
SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdtypz01.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5–2(160)37
2		3/2/2017	REVIEWED BY					
1		2:40:28 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 UPN 8008000	SHEET 9

TYPICAL SECTION NO. 5

TWO-LANE ROADWAY WITH MEDIAN

59+50.07 ONLY
59+50.07 TO 62+36.00 TRANS. TYP. NO. 5 TO TYP. NO. 2



QUANTITIES									
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		23,90	33,18	square yards PER STATION		493	1707	493	569
cubic yards PER STATION		88,5	122,9	tons PER STATION	9,98	0,88			
tons PER STATION		170,6		gallons PER STATION			85	37	
square yards PER STATION	493								

* BASED ON THREE APPLICATIONS

SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

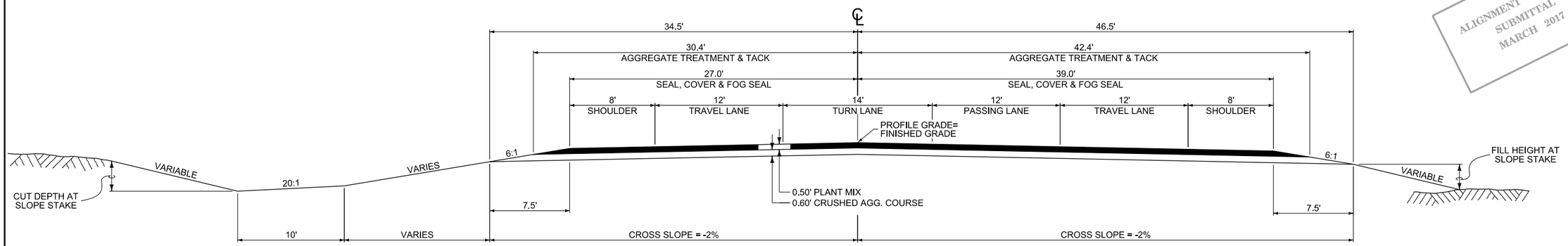
* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 6

TWO-LANE ROADWAY WITH LEFT TURN LANE AND PASSING LANE

69+56.00 TO 78+85.00
78+85.00 TO 83+05.00 TRANS. TYP. NO. 6 TO TYP. NO. 7

ALIGNMENT & GRADE SUBMITTAL MARCH 2017



QUANTITIES									
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		34,70	46,14	square yards PER STATION		733	2427	733	809
cubic yards PER STATION		128,5	170,9	tons PER STATION	14,49	1,31			
tons PER STATION		247,7		gallons PER STATION			121	55	
square yards PER STATION	733								

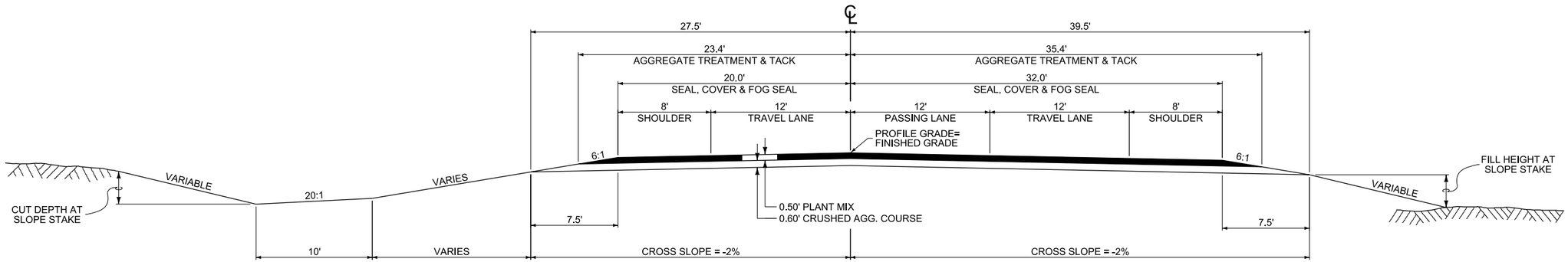
* BASED ON THREE APPLICATIONS

SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

TYPICAL SECTION NO. 7

TWO-LANE ROADWAY WITH PASSING LANE

83+05.00	TO	109+34.00	
109+34.00	TO	117+74.00	TRANS. TYP. NO. 7 TO TYP. NO. 8
140+10.00	TO	156+73.00	
156+73.00	TO	163+93.00	TRANS. TYP. NO. 7 TO TYP. NO. 1



QUANTITIES									
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		27.70	37.74	square yards PER STATION		578	1959	578	653
cubic yards PER STATION		102.6	139.8	tons PER STATION	11.57	1.03			
tons PER STATION		197.8		gallons PER STATION			98	43	
square yards PER STATION	578								

* BASED ON THREE APPLICATIONS

SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

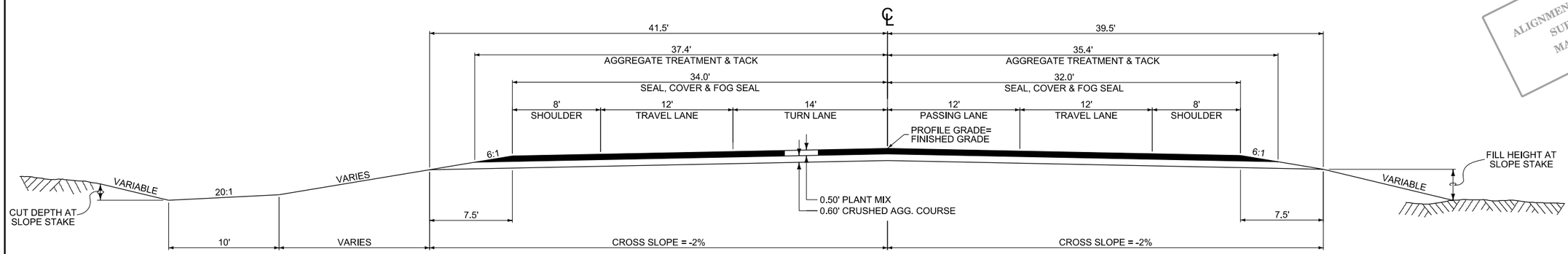
* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 8

TWO-LANE ROADWAY WITH LEFT TURN LANE AND PASSING LANE

117+74.00	TO	131+70.00	
131+70.00	TO	140+10.00	TRANS. TYP. NO. 8 TO TYP. NO. 7

ALIGNMENT & GRADE
SUBMITTAL
MARCH 2017



QUANTITIES									
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG. TREATMENT
AREA square feet		34.70	46.14	square yards PER STATION		733	2427	733	809
cubic yards PER STATION		128.5	170.9	tons PER STATION	14.49	1.31			
tons PER STATION		247.7		gallons PER STATION			121	55	
square yards PER STATION	733								

* BASED ON THREE APPLICATIONS

SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

Morrison Maierle
engineers | surveyors | planners | scientists

Δ DUBLIN GULCH ROAD / REDHORN ROAD

302+00.00	TO	302+26.60	LT. TRANS. S = -3.330% TO S = -2.000%
302+00.00	TO	302+26.60	RT. TRANS. S = -3.330% TO S = -2.000%
302+63.25	TO	303+20.66	RT. TRANS. S = -2.000% TO S = +0.870%
302+99.05	TO	303+20.66	LT. TRANS. S = -2.000% TO S = -0.920%
304+73.20	TO	305+35.00	RT. TRANS. S = -2.000% TO S = -5.090%
304+90.80	TO	305+35.00	LT. TRANS. S = -2.000% TO S = -4.210%

POST CREEK ROAD

400+98.00	TO	401+45.00	LT. TRANS. S = -4.350% TO S = -2.000%
400+98.00	TO	401+29.00	RT. TRANS. S = -3.550% TO S = -2.000%
405+81.80	TO	406+30.00	RT. TRANS. S = -2.000% TO S = -4.410%

MCDONALD LAKE ROAD / LEON ROAD

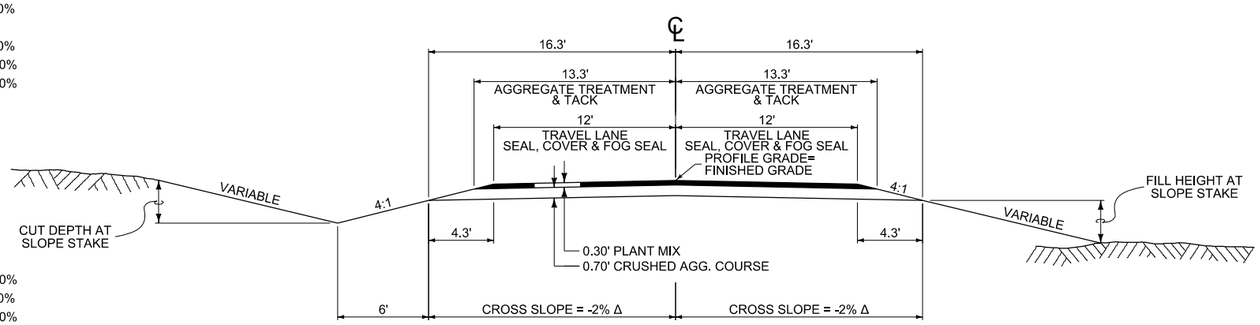
502+20.00	TO	502+52.40	RT. TRANS. S = -3.620% TO S = -2.000%
502+20.00	TO	502+55.20	LT. TRANS. S = -3.760% TO S = -2.000%
505+91.60	TO	506+70.00	RT. TRANS. S = -2.000% TO S = -5.920%
506+27.60	TO	506+70.00	LT. TRANS. S = -2.000% TO S = -4.120%

GUNLOCK ROAD / OLSEN ROAD

601+17.00	TO	601+36.80	LT. TRANS. S = -2.990% TO S = -2.000%
601+17.00	TO	601+62.80	RT. TRANS. S = -4.290% TO S = -2.000%
605+03.20	TO	605+73.00	RT. TRANS. S = -2.000% TO S = -5.490%
605+46.40	TO	605+73.00	LT. TRANS. S = -2.000% TO S = -3.330%

TYPICAL SECTION NO. 9

TWO-LANE OFF SYSTEM ROADWAY



QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL				
	COVER	PLANT MIX	CR. AGG, COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK *	EMULSIFIED ASPHALT FOG SEAL	AGG, TREATMENT
AREA square feet		7,59	20,72	square yards PER STATION		267	592	267	296
cubic yards PER STATION		28,1	76,7	tons PER STATION	3,17	0,48			
tons PER STATION		54,2		gallons PER STATION			30	20	
square yards PER STATION	267								

* BASED ON TWO APPLICATIONS

DUBLIN GULCH ROAD / REDHORN ROAD

302+00.00	TO	302+20.00	CONNECT TO PTW
302+20.00	TO	302+63.25	
302+63.25	TO	303+20.66	TRANS. TYP. NO. 9 TO TYP. NO. 10
304+32.05	TO	305+00.00	
305+00.00	TO	305+35.00	CONNECT TO PTW

POST CREEK ROAD

400+98.00	TO	401+18.00	CONNECT TO PTW
401+18.00	TO	402+04.34	
402+04.34	TO	402+68.34	TRANS. TYP. NO. 9 TO TYP. NO. 10
403+98.35	TO	406+10.00	
406+10.00	TO	406+30.00	CONNECT TO PTW

MCDONALD LAKE ROAD / LEON ROAD

502+20.00	TO	502+50.00	CONNECT TO PTW
502+50.00	TO	502+58.50	
502+58.50	TO	503+78.50	TRANS. TYP. NO. 9 TO TYP. NO. 10
505+64.50	TO	506+50.00	
506+50.00	TO	506+70.00	CONNECT TO PTW

GUNLOCK ROAD / OLSEN ROAD

601+17.00	TO	601+37.00	CONNECT TO PTW
601+37.00	TO	602+58.95	
602+58.95	TO	603+15.41	TRANS. TYP. NO. 9 TO TYP. NO. 10
604+25.88	TO	605+53.00	
605+53.00	TO	605+73.00	CONNECT TO PTW

SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

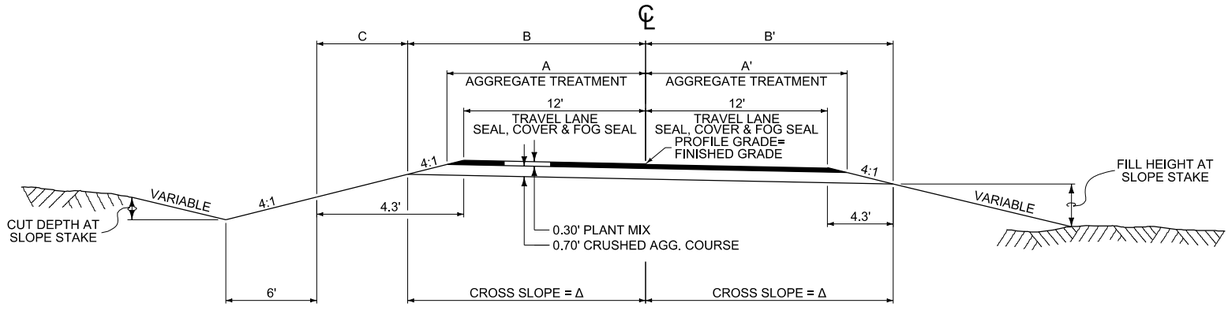
* FILL SLOPES	
0' - 10'	4:1
10' - 20'	3:1
OVER 20'	1.5:1

* BACK SLOPES	
0' - 5'	4:1
5' - 10'	3:1
10' - 15'	2:1
OVER 15'	1.5:1

* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 10

TWO-LANE OFF SYSTEM ROADWAY (SUPERELEVATED)



SUPER %	WIDTHS (ft)					
	A	B	C	A'	B'	C'
DUBLIN GULCH ROAD / REDHORN ROAD						
0,87	-	-	-	13,2	15,9	0,4
0,92	13,3	16,2	0,1	-	-	-
3,33	13,4	16,6	-	13,4	16,6	-
POST CREEK ROAD						
1,20	13,2	15,8	0,4	13,3	16,2	-
3,55	-	-	-	13,4	16,5	-
4,35	13,5	16,8	-	-	-	-
4,41			-	13,5	16,9	-
MCDONALD LAKE ROAD / LEON ROAD						
2,95	-	-	-	13,4	16,5	-
4,00	13,0	15,5	1,3	13,4	16,8	-
4,12	13,4	16,8	-	-	-	-
4,18	13,4	16,8	-	-	-	-
5,92	-	-	-	13,6	17,2	-
GUNLOCK ROAD / OLSEN ROAD						
0,82	13,2	16,1	-	13,2	15,9	0,2
2,99	13,4	16,6	-	-	-	-
3,33	13,4	16,6	-	-	-	-
4,29	-	-	-	13,5	16,8	-
5,49	-	-	-	13,5	17,1	-

* 9,8' RIGHT SIDE FINISHED TOP

SEE TYPICAL SECTION NO. 9 FOR QUANTITIES

DUBLIN GULCH ROAD / REDHORN ROAD

303+20.66			ONLY
303+74.65			ONLY
303+74.65	TO	304+32.05	TRANS. TYP. NO. 10 TO TYP. NO. 9

POST CREEK ROAD

402+68.34			ONLY
403+34.35			ONLY
403+34.35	TO	403+98.35	TRANS. TYP. NO. 10 TO TYP. NO. 9

MCDONALD LAKE ROAD / LEON ROAD

503+78.50			ONLY
504+44.50			ONLY
504+44.50	TO	505+64.50	TRANS. TYP. NO. 10 TO TYP. NO. 9

GUNLOCK ROAD / OLSEN ROAD

603+15.41			ONLY
603+69.42			ONLY
603+69.42	TO	604+25.88	TRANS. TYP. NO. 10 TO TYP. NO. 9

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

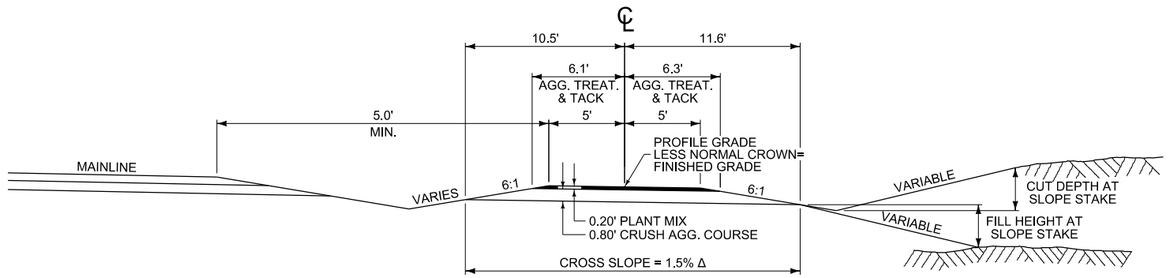
SURFACING SECTION DESIGN BASED ON
THE TOP 2 FEET OF SPECIAL BORROW HAVING
AN R-VALUE OF 30

Δ SHARED-USE PATH

777+16.50	TO	777+46.50	TRANS. S = -1.500% RT. TO S = -1.500% LT.
777+46.50	TO	778+39.04	S = 1.500% LT.
778+39.04	TO	778+54.04	TRANS. S = -1.5000% LT. TO S = 0.000%
778+54.04	TO	778+60.16	S = 0.000%
779+47.51	TO	779+54.08	S = 0.000%
779+54.08	TO	779+69.08	TRANS. S = 0.000% TO S = -1.500% RT.
780+58.16	TO	780+88.16	TRANS. S = -1.500% RT. TO S = -1.500% LT.
780+88.16	TO	897+69.26	S = -1.500% LT.

TYPICAL SECTION NO. 11

SHARED-USE PATH



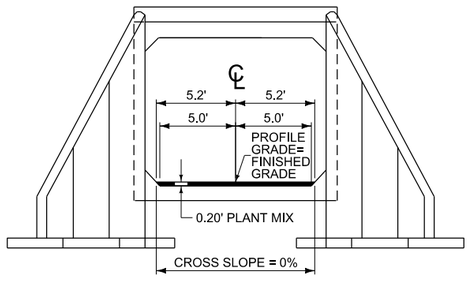
QUANTITIES						
UNIT	AGGREGATE		UNIT	BITUMINOUS MATERIAL		
	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	EMULSIFIED ASPHALT TACK *	AGG. TREATMENT
AREA square feet	2,24	13,81	square yards PER STATION		276	138
cubic yards PER STATION	8,3	51,1	tons PER STATION	0,94		
tons PER STATION	16,0		gallons PER STATION		14	
square yards PER STATION						

* BASED ON TWO APPLICATIONS

701+09.90	TO	717+74.05
718+46.79	TO	752+55.38 B.E.
757+55.52 B.E.	TO	770+52.13
771+19.97	TO	778+60.16 SEE TYP. NO. 12 FOR AHEAD STATION
779+47.51	TO	825+02.88
825+64.23	TO	877+94.30
878+67.61	TO	897+69.26

TYPICAL SECTION NO. 12

SHARED-USE PATH PEDESTRIAN UNDERPASS



QUANTITIES						
UNIT	AGGREGATE		UNIT	BITUMINOUS MATERIAL		
	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	EMULSIFIED ASPHALT TACK *	AGG. TREATMENT
AREA square feet	2,04		square yards PER STATION		231	
cubic yards PER STATION	7,6		tons PER STATION	0,85		
tons PER STATION	14,6		gallons PER STATION		23	
square yards PER STATION						

* BASED ON TWO APPLICATIONS

778+60.16	TO 779+47.51 SEE TYP. NO. 11 FOR AHEAD STATION

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdtypz02.dgn	DESIGNED BY			ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5–2(160)37
2		3/2/2017	REVIEWED BY					
1		2:40:43 PM dillonmclain	CHECKED BY			LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 13

SUMMARY

GRADING

STATION		cubic yards			REMARKS
		UNCL. EXC.	UNCL. BORROW	EMB+	
1+07.53					
		160,551	20,648	181,199	US 93 N - POST CREEK HILL
195+15.70					
TOTAL		160,551	20,648	# 181,199	

FOR INFORMATION ONLY

ADDITIONAL GRADING

STATION		cubic yards			REMARKS
		INCL. IN GRADING		ADD UNCL. EXC.	
FROM	TO	UNCL. EXC.	EMB +		
302+00.00	305+35.00	480	65		REDHORN ROAD/DUBLIN GULCH ROAD
400+98.00	406+30.00	220	835		POST CREEK ROAD
502+20.00	506+70.00	345	880		MCDONALD LAKE ROAD/LEON ROAD
601+17.00	605+73.00	95	685		GUNLOCK ROAD/OLSEN ROAD
TOTAL		~	~	~	

SUBEXCAVATION

STATION		cubic yards		square yards	REMARKS
		UNCL. EXC. #	SPECIAL BORROW	STABILIZATION GEOTEXTILE	
FROM	TO				
1+07.35	195+15.70	62,253	115,493	143,246	US 93
302+00.00	305+35.00	1,416	1,445	1,030	REDHORN ROAD/DUBLIN GULCH ROAD
400+98.00	406+30.00	1,314	2,095	1,709	POST CREEK ROAD
502+20.00	506+70.00	876	1,896	1,408	MCDONALD LAKE ROAD/LEON ROAD
601+17.00	605+73.00	888	1,722	1,474	GUNLOCK ROAD/OLSEN ROAD
TOTAL		~	122,651	148,867	

FOR INFORMATION ONLY - INCL. IN GRADING

TOPSOIL & SEEDING

STATION		cubic yards	acres							REMARKS
		TOPSOIL SALVAGING & PLACING	SEED			FERTILIZER		CONDITION SEEDBED	MULCH	
FROM	TO		NO. 1	NO. 2	NO.3	NO. 1	NO. 2			
1+07.35	195+15.70		23.5	0.1	5.8	23.5	0.1	29.3	0.1	US 93
302+00.00	305+35.00		0.2		0.1	0.2		0.3		REDHORN ROAD/DUBLIN GULCH ROAD
400+98.00	406+30.00		0.2		0.1	0.2		0.3		POST CREEK ROAD
502+20.00	506+70.00		0.3		0.1	0.3		0.4		MCDONALD LAKE ROAD/LEON ROAD
601+17.00	605+73.00		0.1		0.1	0.1		0.2		GUNLOCK ROAD/OLSEN ROAD
TOTAL		20,210	24.3	0.1	6.2	24.3	0.1	30.5	0.1	

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000RDSUM.dgn	DESIGNED BY			ROAD PLANS	US 93 N – POST CREEK HILL	NH 5–2(160)37
2		3/2/2017	REVIEWED BY			PRELIMINARY AGR		
1		7:05:48 PM dillonmclain	CHECKED BY			LAKE COUNTY	CSF = 0.99928538 UPN 8008000	SHEET 14

SUMMARY

SURFACING

STATION		linear feet				FOR	tons	AGGREGATE			BITUMINOUS MATERIAL		square yards	gallons		REMARKS
		GROSS	NET	+	-		HYDRATED LIME	sq yards	tons	cubic yards	tons		AGGREGATE TREATMENT	EMULSIFIED ASPHALT		
								COVER TYPE	PLANT MIX BIT. SURF GRADE	CRUSHED AGG. COURSE	ASPHALT CEMENT PG	SEAL				
FROM	TO							1	S-1/2"		PG 70-28	CRS-2P		FOG SEAL	TACK	
1+07.35	5+27.35	420.00	420.00					2,192	756	540	44.2	3.9	2,512	164	376	TRANS. TYP. NO. 1 TO TYP. NO. 2
5+27.35	33+70.00	2,842.65	2,842.65					17,056	5,825	4,099	340.8	30.4	19,216	1,279	2,871	TYP. NO. 2
33+70.00	37+90.00	420.00	420.00					2,192	756	540	44.2	3.9	2,512	164	376	TRANS. TYP. NO. 2 TO TYP. NO. 1
37+90.00	50+49.93	1,259.93	1,259.93					5,594	1,953	1,425	114.3	10.0	6,552	416	983	TYP. NO. 1
5049+93	5249.93	200.00	200.00					888	448	239	26.2	1.6	1,102	66	220	TYP. NO. 3
52+49.93	57+50.07	500.14			500	BRIDGE										BRIDGE OVER POST CREEK
57+50.07	58+09.59	59.52	59.52					264	133	71	7.8	0.5	328	20	65	TYP. NO. 3
58+09.59	59+50.07	140.48	140.48					658	330	174	19.3	1.2	808	49	162	TRANS. TYP. NO. 3 TO TYP. NO. 4
59+50.07	62+36.00	285.93	285.93					1,563	537	382	31.4	2.8	1,780	117	266	TRANS. TYP. NO. 5 TO TYP. NO. 2
62+36.00	69+56.00	720.00	720.00					3,935	1,352	962	79.1	7.0	4,482	360	799	TRANS. TYP. NO. 2 TO TYP. NO. 6
69+56.00	78+85.00	929.00	929.00					6,810	2,301	1,588	134.6	12.2	7,516	511	1,124	TYP. NO. 6
78+85.00	83+05.00	420.00	420.00					2,753	936	650	54.7	4.9	3,070	206	460	TRANS. TYP. NO. 6 TO TYP. NO. 7
83+05.00	109+34.00	2,629.00	2,629.00					15,196	5,200	3,649	304.2	27.1	17,167	1,130	2,576	TYP. NO. 7
109+34.00	117+74.00	840.00	840.00					5,506	1,871	1,301	109.5	9.8	6,140	412	920	TRANS. TYP. NO. 7 TO TYP. NO. 8
117+74.00	131+70.00	1,396.00	1,396.00					10,233	3,458	2,386	202.3	18.3	11,294	768	1,689	TYP. NO. 8
131+70.00	140+10.00	840.00	840.00					5,506	1,871	1,301	109.5	9.8	6,140	412	920	TRANS. TYP. NO. 8 TO TYP. NO. 7
140+10.00	156+73.00	1,663.00	1,663.00					9,612	3,289	2,308	192.4	17.1	10,859	715	1,630	TYP. NO. 7
156+73.00	163+93.00	720.00	720.00					3,679	1,270	907	74.3	6.6	4,223	274	634	TRANS. TYP. NO. 7 TO TYP. NO. 1
163+93.00	168+13.00	420.00	420.00					2,192	756	540	44.2	3.9	2,512	164	376	TRANS. TYP. NO. 1 TO TYP. NO. 2
168+13.00	184+61.00	1,648.00	1,648.00					9,888	3,377	2,376	197.6	17.6	11,140	742	1,664	TYP. NO. 2
184+61.00	188+81.00	420.00	420.00					2,192	756	540	44.2	3.9	2,512	164	376	TRANS. TYP. NO. 2 TO TYP. NO. 1
188+81.00	195+15.70	634.70	634.70					2,818	984	718	57.6	5.0	3,300	209	495	TYP. NO. 1
						ADDITIONAL SURFACING		5,573	4,879	12,550	285.8	7.8	37,790	417	3,848	
TOTAL		19,408.35	18,908.21	0	500		603	116,300	43,038	39,246	2,518.2	205.3	162,955	8,759	22,830	

 # FOR INFORMATION ONLY - BASED ON ONE APPLICATION

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

SUMMARY

ADDITIONAL SURFACING

STATION		linear feet				FOR	tons	AGGREGATE			BITUMINOUS MATERIAL		square yards	gallons		REMARKS
		GROSS	NET	+	-		HYDRATED LIME	sq yards	tons	cubic yards	tons		AGGREGATE TREATMENT	EMULSIFIED ASPHALT		
								COVER TYPE	PLANT MIX BIT. SURF GRADE	CRUSHED AGG. COURSE	ASPHALT CEMENT PG	SEAL				
FROM	TO							1	S-1/2"		PG 64-28	CRS-2P		FOG SEAL	TACK	
195+15.70	195+63.19	47.49	47.49			MAINLINE-CONNECT TO PTW		211	74	54	4.3	0.4	247	16	37	TYP. NO. 1
302+00.00	302+20.00	20.00	20.00			DUBLIN GULCH ROAD CONNECT TO PTW		53	11	15	0.6	0.1	59	4	6	TYP. NO. 9
302+20.00	302+63.25	43.25	43.25			DUBLIN GULCH ROAD		115	23	33	1.4	0.2	128	9	13	TYP. NO. 9
302+63.25	303+20.66	57.41	57.41			DUBLIN GULCH ROAD		153	31	44	1.8	0.3	170	11	17	TRANS. TYP. NO. 9 TO TYP. NO. 10
303+74.65	304+32.05	57.40	57.40			REDHORN ROAD		153	31	44	1.8	0.3	170	11	17	TRANS. TYP. NO. 10 TO TYP. NO. 9
304+32.05	305+00.00	67.95	67.95			REDHORN ROAD		181	37	52	2.2	0.3	201	14	20	TYP. NO. 9
305+00.00	305+35.00	35.00	35.00			REDHORN ROAD CONNECT TO PTW		93	19	27	1.1	0.2	104	7	11	TYP. NO. 9
400+98.00	401+18.00	20.00	20.00			POST CREEK ROAD CONNECT TO PTW		53	11	15	0.6	0.1	59	4	6	TYP. NO. 9
401+18.00	402+04.34	86.34	86.34			POST CREEK ROAD		231	47	66	2.7	0.4	256	17	26	TYP. NO. 9
402+04.34	402+68.34	64.00	64.00			POST CREEK ROAD		171	35	49	2.0	0.3	189	13	19	TRANS. TYP. NO. 9 TO TYP. NO. 10
403+34.35	403+98.35	64.00	64.00			POST CREEK ROAD		171	35	49	2.0	0.3	189	13	19	TRANS. TYP. NO. 10 TO TYP. NO. 9
403+98.35	406+10.00	211.65	211.65			POST CREEK ROAD		565	115	162	6.7	1.0	626	42	63	TYP. NO. 9
406+10.00	406+30.00	20.00	20.00			POST CREEK ROAD CONNECT TO PTW		53	11	15	0.6	0.1	59	4	6	TYP. NO. 9
502+20.00	502+50.00	30.00	30.00			LEON ROAD CONNECT TO PTW		80	16	23	1.0	0.1	89	6	9	TYP. NO. 9
502+50.00	502+58.50	8.50	8.50			LEON ROAD		23	5	7	0.3		25	2	3	TYP. NO. 9
502+58.50	503+78.50	120.00	120.00			LEON ROAD		320	65	92	3.8	0.6	355	24	36	TRANS. TYP. NO. 9 TO TYP. NO. 10
504+44.50	505+64.50	120.00	120.00			MCDONALD LAKE ROAD		320	65	92	3.8	0.6	355	24	36	TRANS. TYP. NO. 10 TO TYP. NO. 9
505+64.50	506+50.00	85.50	85.50			MCDONALD LAKE ROAD		228	46	66	2.7	0.4	253	17	26	TYP. NO. 9
506+50.00	506+70.00	20.00	20.00			MCDONALD LAKE ROAD CONNECT TO PTW		53	11	15	0.6	0.1	59	4	6	TYP. NO. 9
601+17.00	601+37.00	20.00	20.00			OLSEN ROAD CONNECT TO PTW		53	11	15	0.6	0.1	59	4	6	TYP. NO. 9
601+37.00	602+58.95	121.95	121.95			OLSEN ROAD		326	66	94	3.9	0.6	361	24	37	TYP. NO. 9
602+58.95	603+15.41	56.46	56.46			OLSEN ROAD		151	31	43	1.8	0.3	167	11	17	TRANS. TYP. NO. 9 TO TYP. NO. 10
603+69.42	604+25.88	56.46	56.46			GUNLOCK ROAD		151	31	43	1.8	0.3	167	11	17	TRANS. TYP. NO. 10 TO TYP. NO. 9
604+25.88	605+53.00	127.12	127.12			GUNLOCK ROAD		339	69	98	4.0	0.6	376	25	38	TYP. NO. 9
605+53.00	605+73.00	20.00	20.00			GUNLOCK ROAD CONNCET TO PTW		53	11	15	0.6	0.1	59	4	6	TYP. NO. 9
701+09.90	717+74.05	1,664.15	1,664.15			SHARED-USE PATH			266	850	15.6		2,297		233	TYP. NO. 11
718+46.79	752+53.58	3,406.79	3,406.79			SHARED-USE PATH			545	1,741	32.0		4,701		477	TYP. NO. 11
757+53.58	770+52.13	1,298.55	1,298.55			SHARED-USE PATH			208	664	12.2		1,792		182	TYP. NO. 11
771+19.97	778+60.16	740.19	740.19			SHARED-USE PATH			118	378	7.0		1,021		104	TYP. NO. 11
778+60.16	779+47.51	87.35	87.35			SHARED-USE PATH			14		0.8				12	TYP. NO. 12
779+47.51	825+02.88	4,555.37	4,555.37			SHARED-USE PATH			729	2,328	42.8		6,286		638	TYP. NO. 11
825+64.23	877+94.30	5,230.07	5,230.07			SHARED-USE PATH			837	2,673	49.2		7,217		732	TYP. NO. 11
878+67.61	897+69.26	1,901.65	1,901.65			SHARED-USE PATH			304	972	17.9		2,624		266	TYP. NO. 11
						INTERSECTION FILLETS		1,273	264	445	15.4		1,463	96	146	
						APPROACHES (39)			687	1,271	40.2		5,607		561	
TOTAL		~	~	~	~		~	5,573	4,879	12,550	285.8	7.8	37,790	417	3,848	

 # FOR INFORMATION ONLY - BASED ON ONE APPLICATION

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

HYDRAULIC DATA SUMMARY *

STATION	STREAM NAME (IF NAMED)	SIZE / TYPE STRUCTURE (1) (1A) (4)	DESIGN FLOOD			BASE FLOOD (1%)		OVERTOPPING FLOOD (2) (3)			REMARKS (FLOOD OF RECORD, Qp(max), etc.) (5)
			MAGNITUDE (cfs)	FREQUENCY (%)	H.W. ELEV. (ft.)	MAGNITUDE (cfs)	H.W. ELEV. (ft.)	MAGNITUDE (cfs)	APPROX. FREQUENCY (%)	H.W. ELEV. (ft.)	
26+59	ASHLEY CREEK	6'X5' RCP		2							
37+65		36" CSP		2							
54+98	POST CREEK	500' - 4 Span Bridge	3,205	1	2,744.9	3,205	2,744.9	24,900	0.1	2,752.3	Qp(max)
64+89		36" CSP		2							
102+31	POST F CANAL	8'X4' RCP		2							
120+97		36" CSP		2							
170+58	POST G CANAL	8'X4' RCP		2							

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

NOTES :

* H.W. ELEVATIONS SHOWN ARE BASED UPON PEAK FLOW ANALYSIS UNLESS NOTED IN REMARKS COLUMN.

(1) STRUCTURE SIZE OR TYPE AND RELATED HYDRAULIC DATA MAY NOT REFLECT CHANGES MADE DUE TO R/W OR OTHER CONSIDERATIONS (I.E., STOCKPASS ADDED, STRUCTURE SIZE OR TYPE CHANGED, ROAD GRADE CHANGED DURING CONSTRUCTION, ETC.)

(1A) BRIDGE LENGTH SHOWN EQUALS THE WATER SURFACE WIDTH IN THE OPENING AT THE DESIGN H.W. ELEVATION MEASURED NORMAL TO FLOW.

(2) OVERTOPPING IS DEFINED AS FLOW OVER THE ROAD, FLOW THROUGH A SIGNIFICANT RELIEF STRUCTURE OR FLOW OVER THE BASIN DIVIDE WHICHEVER IS LOWER.

(3) FOR THOSE CROSSINGS NOTED BY Qp(max) IN THE REMARKS COLUMN OVERTOPPING DOES NOT OCCUR AND THE FLOOD MAGNITUDE LISTED CORRESPONDS TO THE FLOOD OF SECTION 650.115 (a) (1) (ii) OF FEDERAL-AID POLICY GUIDE; SUBCHAPTER G, PART 650, SUBPART A (DEC. 1991)
THE FLOOD SPECIFIED IS SUBJECT TO STATE-OF-THE-ART CAPABILITY TO ESTIMATE THE EXCEEDANCE PROBABILITY.
(PIPES 0.5%; BRIDGE .2%)

(4) HIGH WATER ELEVATIONS MAY VARY SLIGHTLY DEPENDING UPON THE PIPE OPTION SELECTED.

(5) PROCEDURE MEMORANDUM NO.10, HYDRAULICS MANUAL CHAPTER 9 APPENDIX H.

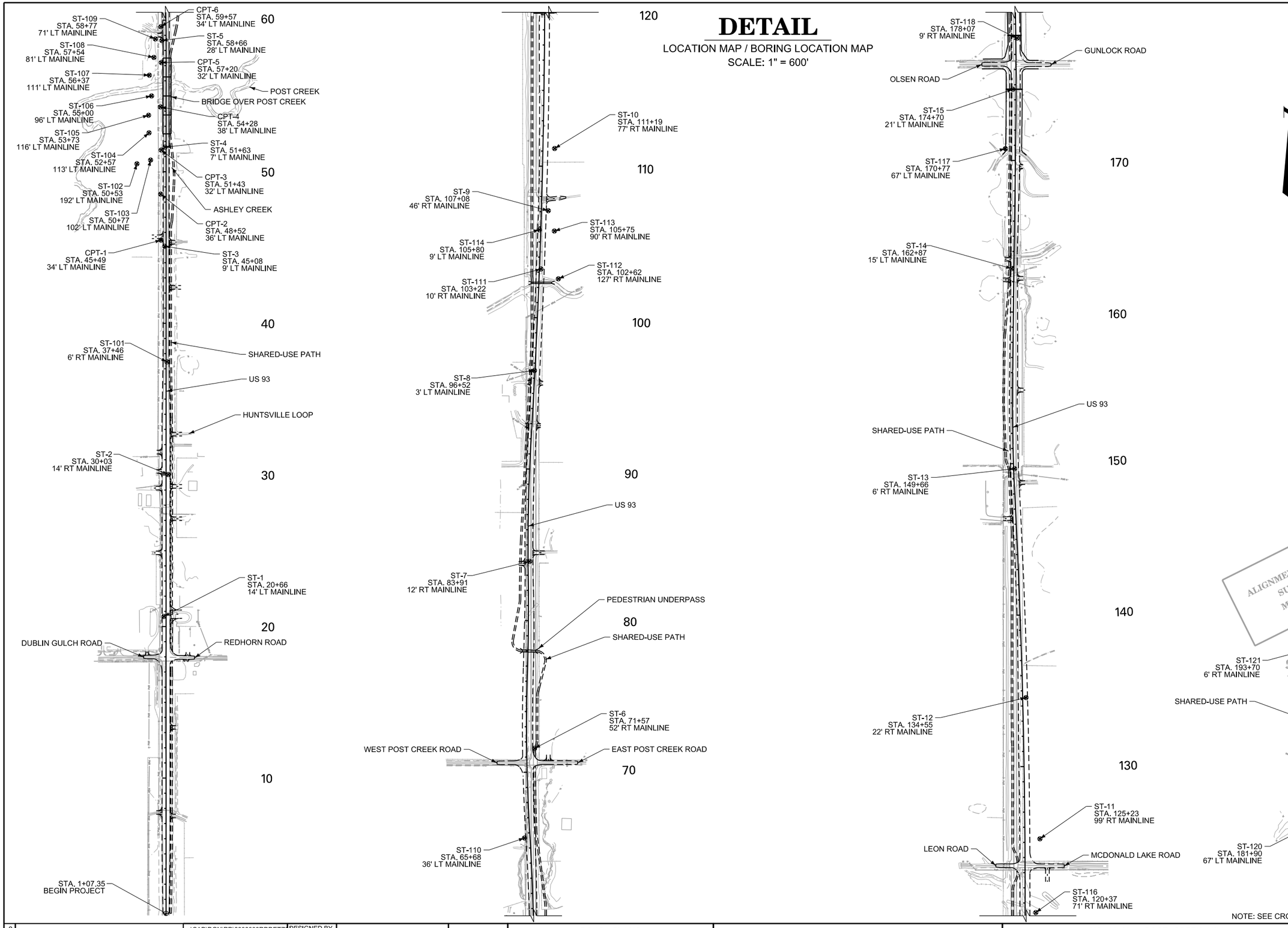
EXCEEDANCE PROBABILITIES

25 YEAR	4 % CHANCE
50 YEAR	2 % CHANCE
100 YEAR	1 % CHANCE
200 YEAR	.5% CHANCE
500 YEAR	.2% CHANCE

DETAIL

LOCATION MAP / BORING LOCATION MAP

SCALE: 1" = 600'



NOTE: SEE CROSS SECTIONS FOR BORING INFORMATION

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000RDDETZ01.dgn	DESIGNED BY			ROAD PLANS	PRELIMINARY AGR
2		3/2/2017	REVIEWED BY				
1		2:55:45 PM dillonmclain	CHECKED BY			LAKE COUNTY	

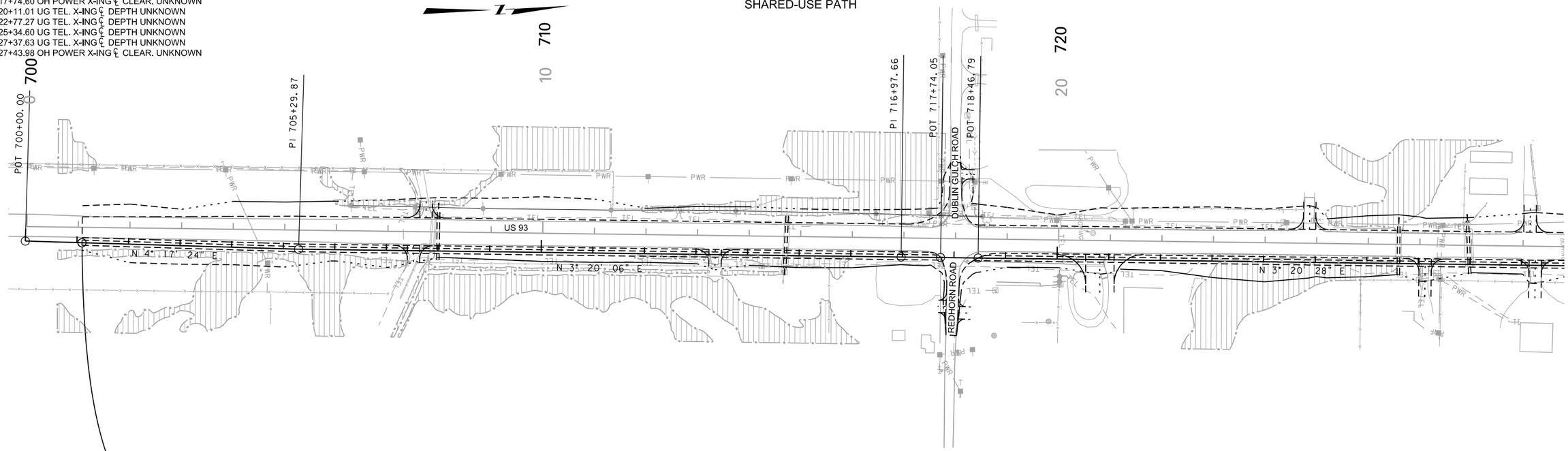
US 93 N – POST CREEK HILL		NH 5–2(160)37
CSF = 0.99928538	UPN 8008000	SHEET 18

UTILITY CROSSINGS

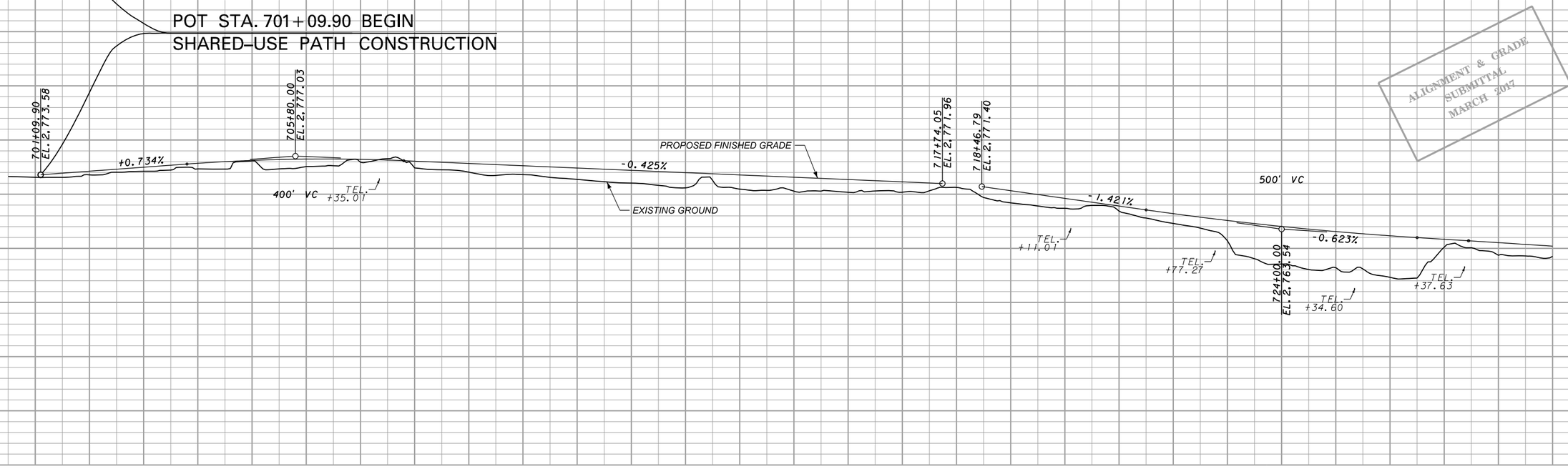
704+56.56 OH POWER X-ING ℄ CLEAR. UNKNOWN
707+35.01 UG TEL. X-ING ℄ DEPTH UNKNOWN
717+74.60 OH POWER X-ING ℄ CLEAR. UNKNOWN
720+11.01 UG TEL. X-ING ℄ DEPTH UNKNOWN
722+77.27 UG TEL. X-ING ℄ DEPTH UNKNOWN
725+34.60 UG TEL. X-ING ℄ DEPTH UNKNOWN
727+37.63 UG TEL. X-ING ℄ DEPTH UNKNOWN
727+43.98 OH POWER X-ING ℄ CLEAR. UNKNOWN

DETAIL

SHARED-USE PATH



POT STA. 701+09.90 BEGIN
SHARED-USE PATH CONSTRUCTION



ALIGNMENT & GRADE SUBMITTAL MARCH 2017

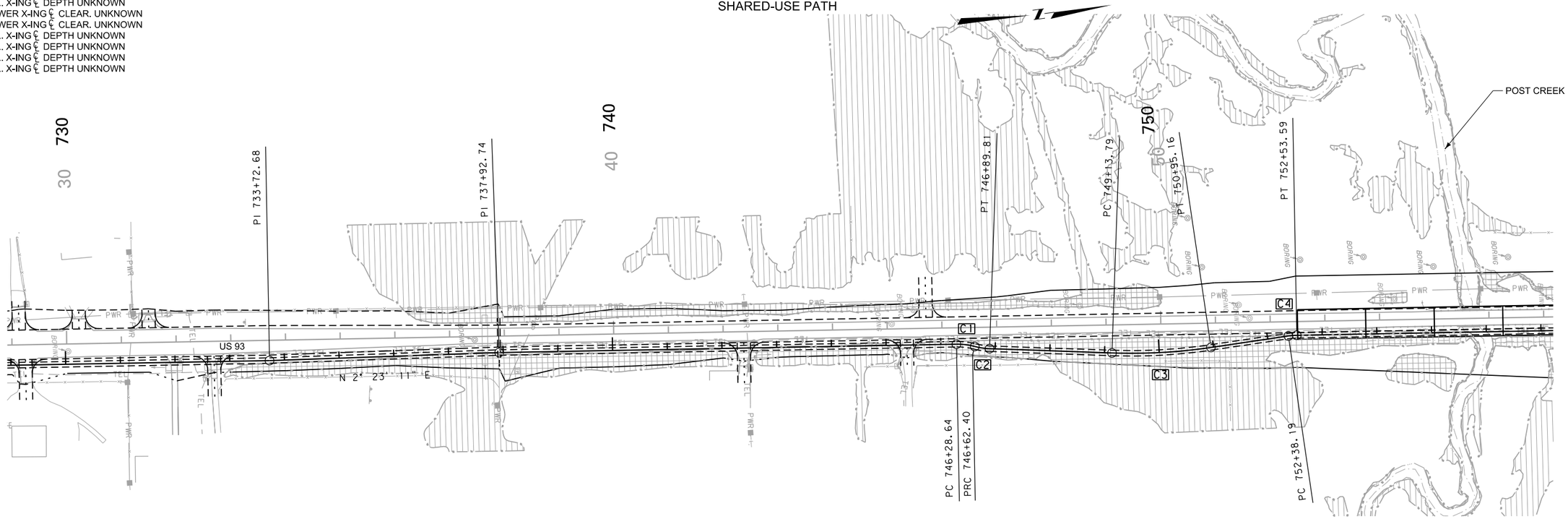
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ05.dgn	DESIGNED BY			ROAD PLANS	US 93 N – POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY			PRELIMINARY AGR	CSF = 0.99928538 / UPN 8008000	
1		7:06:29 PM dillonmclain	CHECKED BY			LAKE COUNTY		SHEET 19

UTILITY CROSSINGS

731+16.15 OH POWER X-ING ℄ CLEAR. UNKNOWN
732+35.49 UG TEL. X-ING ℄ DEPTH UNKNOWN
732+79.17 UG TEL. X-ING ℄ DEPTH UNKNOWN
738+32.58 OH POWER X-ING ℄ CLEAR. UNKNOWN
742+48.25 OH POWER X-ING ℄ CLEAR. UNKNOWN
742+56.84 UG TEL. X-ING ℄ DEPTH UNKNOWN
745+23.64 UG TEL. X-ING ℄ DEPTH UNKNOWN
745+47.88 UG TEL. X-ING ℄ DEPTH UNKNOWN
753+95.23 UG TEL. X-ING ℄ DEPTH UNKNOWN

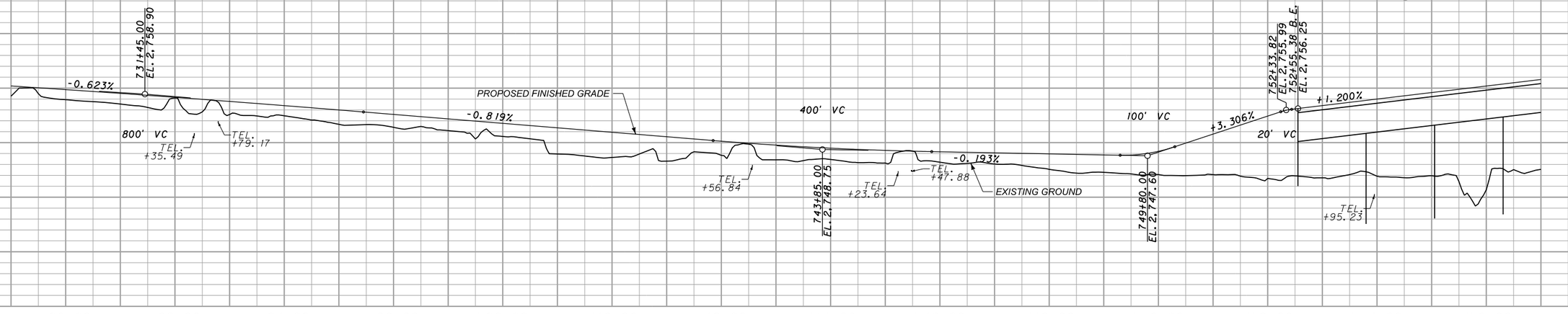
DETAIL

SHARED-USE PATH



SHARED-USE PATH CURVE DATA

CURVE	P.I.	Δ	RADIUS (ft)	T	L	E	BACK TANGENT	AHEAD TANGENT
C1	746+45.64	16° 07' 08" RT	120.00'	16.99'	33.76'	1.20'	N 3° 20' 28" E	N 19° 27' 37" E
C2	746+76.16	13° 05' 00" LT	120.00'	13.76'	27.40'	0.79'	N 19° 27' 37" E	N 6° 22' 37" E
C3	750+04.72	10° 23' 31" LT	1,000.00'	90.94'	181.38'	4.13'	N 6° 22' 37" E	N 4° 00' 55" W
C4	752+45.90	7° 21' 23" RT	120.00'	7.71'	15.41'	0.25'	N 4° 00' 55" W	N 3° 20' 28" E



ALIGNMENT & GRADE SUBMITTAL MARCH 2017

2800 2790 2780 2770 2760 2750 2740 2730 2720

730+00 732+00 734+00 736+00 738+00 740+00 742+00 744+00 746+00 748+00 750+00 752+00 754+00 756+00

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ05.dgn	DESIGNED BY			ROAD PLANS	PRELIMINARY AGR
2		3/2/2017	REVIEWED BY				
1		7:06:34 PM dillonmclain	CHECKED BY			LAKE COUNTY	

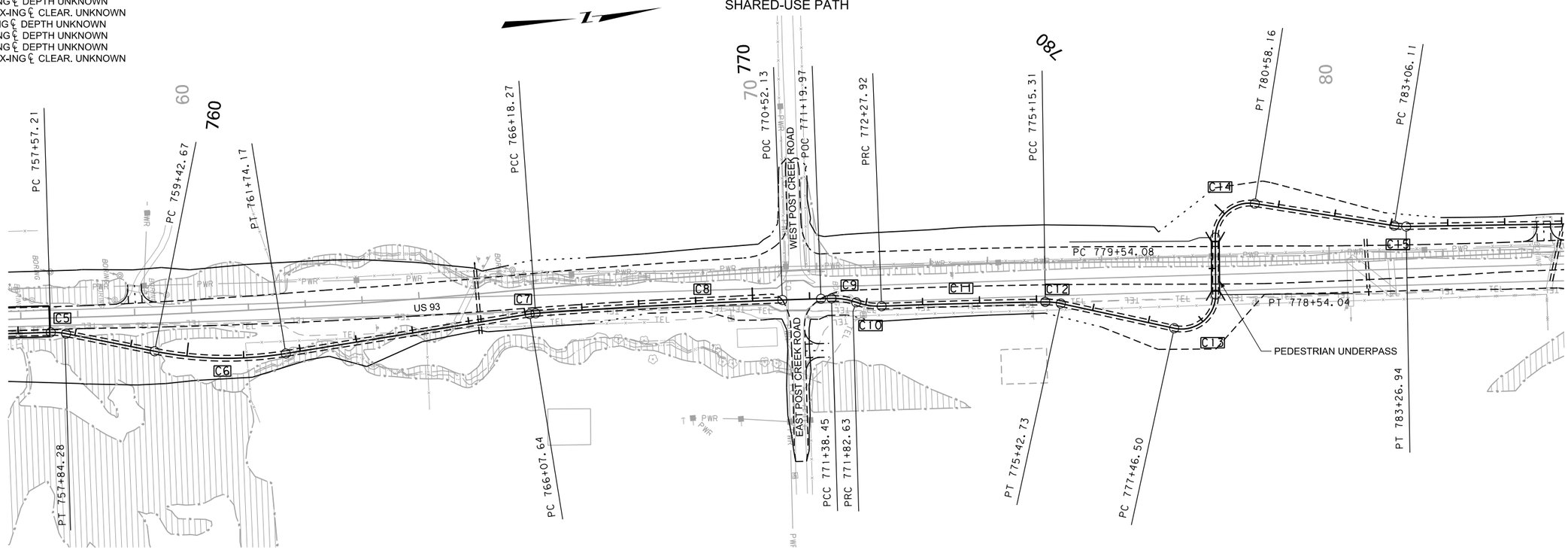
US 93 N – POST CREEK HILL		NH 5-2(160)37
CSF = 0.99928538	UPN 8008000	SHEET 20

UTILITY CROSSINGS

757+02.22 UG TEL. X-ING ℄ DEPTH UNKNOWN
764+84.95 UG TEL. X-ING ℄ DEPTH UNKNOWN
766+51.76 UG TEL. X-ING ℄ DEPTH UNKNOWN
770+59.91 OH POWER X-ING ℄ CLEAR. UNKNOWN
770+62.80 UG F.O. X-ING ℄ DEPTH UNKNOWN
775+34.48 UG TEL. X-ING ℄ DEPTH UNKNOWN
778+47.60 UG TEL. X-ING ℄ DEPTH UNKNOWN
779+21.93 OH POWER X-ING ℄ CLEAR. UNKNOWN

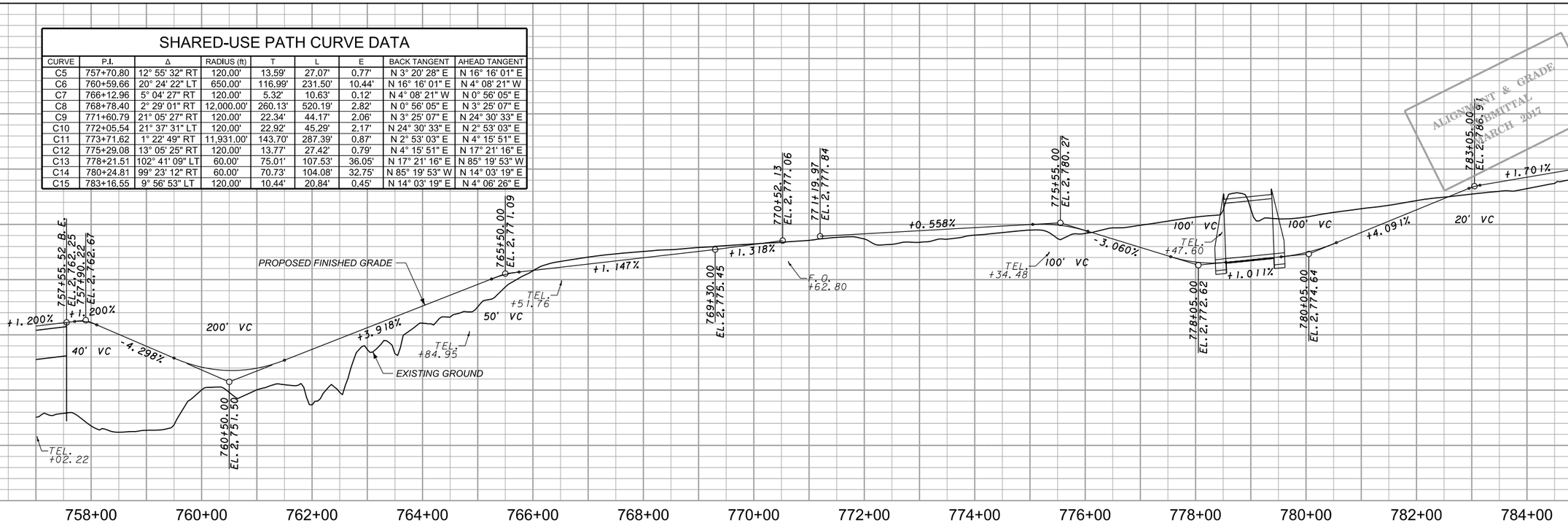
DETAIL

SHARED-USE PATH



SHARED-USE PATH CURVE DATA

CURVE	P.I.	Δ	RADIUS (ft)	T	L	E	BACK TANGENT	AHEAD TANGENT
C5	757+70.80	12° 55' 32" RT	120.00'	13.59'	27.07'	0.77'	N 3° 20' 28" E	N 16° 16' 01" E
C6	760+59.66	20° 24' 22" LT	650.00'	116.99'	231.50'	10.44'	N 16° 16' 01" E	N 4° 08' 21" W
C7	766+12.96	5° 04' 27" RT	120.00'	5.32'	10.63'	0.12'	N 4° 08' 21" W	N 0° 56' 05" E
C8	768+78.40	2° 29' 01" RT	12,000.00'	260.13'	520.19'	2.82'	N 0° 56' 05" E	N 3° 25' 07" E
C9	771+60.79	21° 05' 27" RT	120.00'	22.34'	44.17'	2.06'	N 3° 25' 07" E	N 24° 30' 33" E
C10	772+05.54	21° 37' 31" LT	120.00'	22.92'	45.29'	2.17'	N 24° 30' 33" E	N 2° 53' 03" E
C11	773+71.62	1° 22' 49" RT	11,931.00'	143.70'	287.39'	0.87'	N 2° 53' 03" E	N 4° 15' 51" E
C12	775+29.08	13° 05' 25" RT	120.00'	13.77'	27.42'	0.79'	N 4° 15' 51" E	N 17° 21' 16" E
C13	778+21.51	102° 41' 09" LT	60.00'	75.01'	107.53'	36.05'	N 17° 21' 16" E	N 85° 19' 53" W
C14	780+24.81	99° 23' 12" RT	60.00'	70.73'	104.08'	32.75'	N 85° 19' 53" W	N 14° 03' 19" E
C15	783+16.55	9° 56' 53" LT	120.00'	10.44'	20.84'	0.45'	N 14° 03' 19" E	N 4° 06' 26" E



ALIGNMENT & GRADE SUBMITTAL MARCH 2017

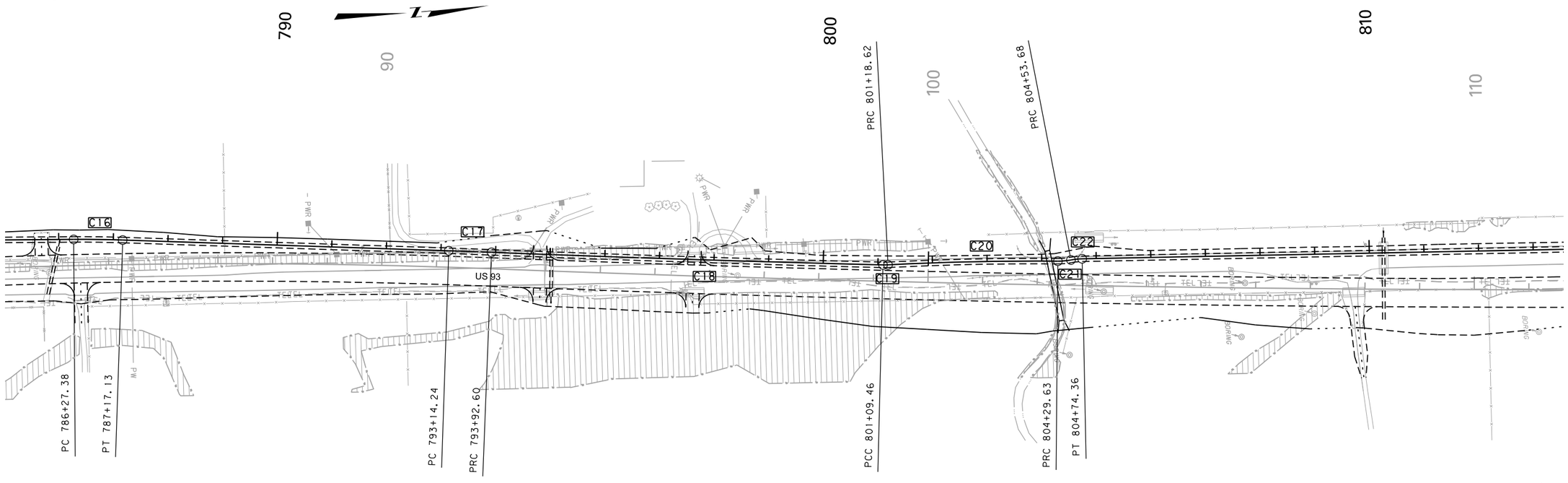
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ05.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5–2(160)37
2		3/2/2017	REVIEWED BY					
1		7:06:41 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 UPN 8008000	SHEET 21

UTILITY CROSSINGS

790+96.30 OH POWER X-ING ℄ CLEAR. UNKNOWN
793+53.64 OH POWER X-ING ℄ CLEAR. UNKNOWN
797+29.90 UG TEL. X-ING ℄ DEPTH UNKNOWN
802+16.51 OH POWER X-ING ℄ CLEAR. UNKNOWN

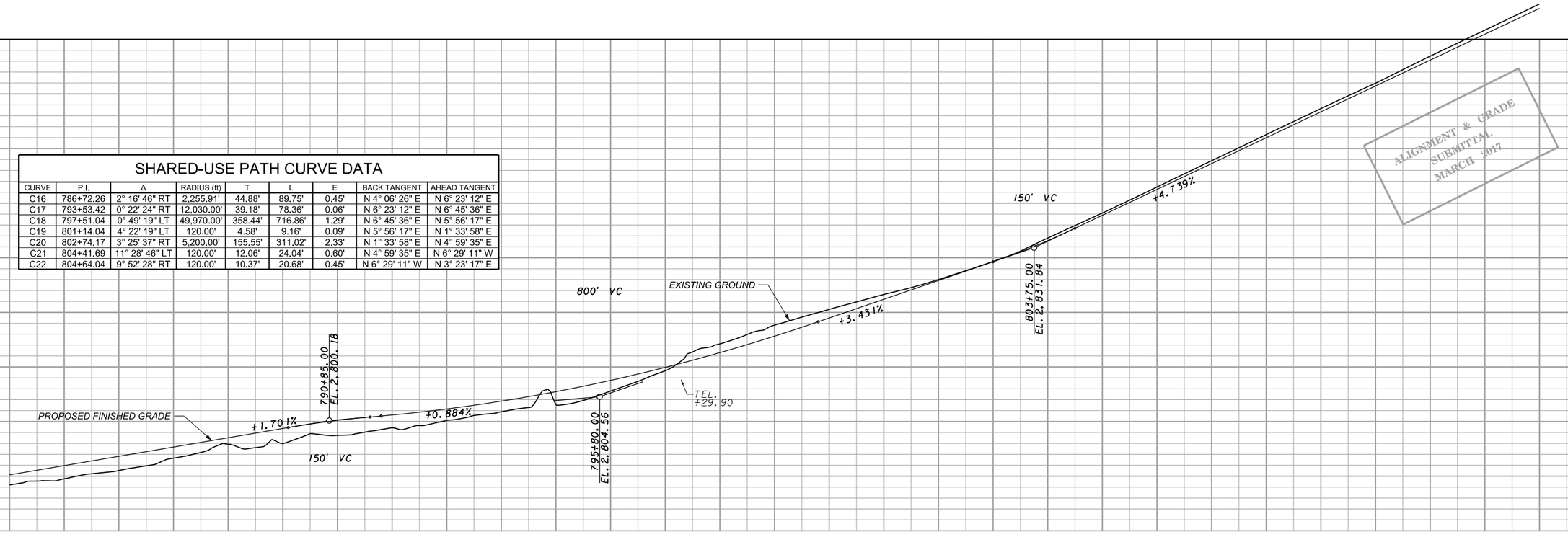
DETAIL

SHARED-USE PATH



SHARED-USE PATH CURVE DATA

CURVE	P.I.	Δ	RADIUS (ft)	T	L	E	BACK TANGENT	AHEAD TANGENT
C16	786+72.26	2° 16' 46" RT	2,255.91'	44.88'	89.75'	0.45'	N 4° 06' 26" E	N 6° 23' 12" E
C17	793+53.42	0° 22' 24" RT	12,030.00'	39.18'	78.36'	0.06'	N 6° 23' 12" E	N 6° 45' 36" E
C18	797+51.04	0° 49' 19" LT	49,970.00'	358.44'	716.86'	1.29'	N 6° 45' 36" E	N 5° 56' 17" E
C19	801+14.04	4° 22' 19" LT	120.00'	4.58'	9.16'	0.09'	N 5° 56' 17" E	N 1° 33' 58" E
C20	802+74.17	3° 25' 37" RT	5,200.00'	155.55'	311.02'	2.33'	N 1° 33' 58" E	N 4° 59' 35" E
C21	804+41.69	11° 28' 46" LT	120.00'	12.06'	24.04'	0.60'	N 4° 59' 35" E	N 6° 29' 11" W
C22	804+64.04	9° 52' 28" RT	120.00'	10.37'	20.68'	0.45'	N 6° 29' 11" W	N 3° 23' 17" E



ALIGNMENT & GRADE SUBMITTAL MARCH 2017

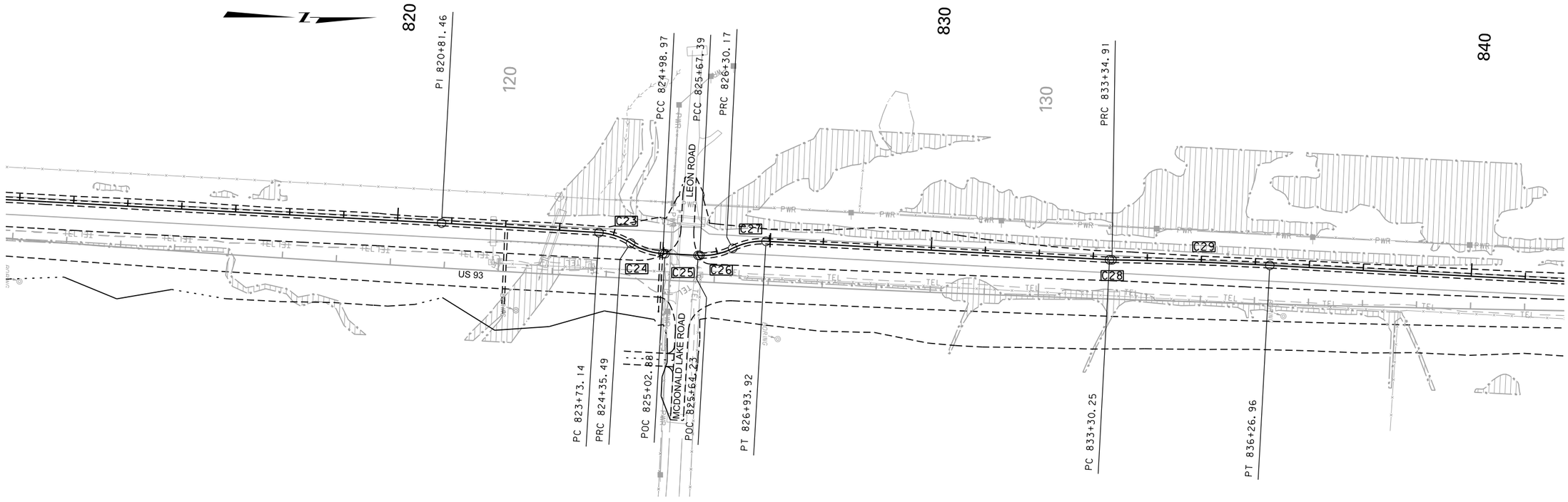
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ06.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY					
1		7:06:51 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF=0.99928538 UPN 8008000	SHEET 22

UTILITY CROSSINGS

825+13.53 OH POWER X-ING ℄ CLEAR. UNKNOWN

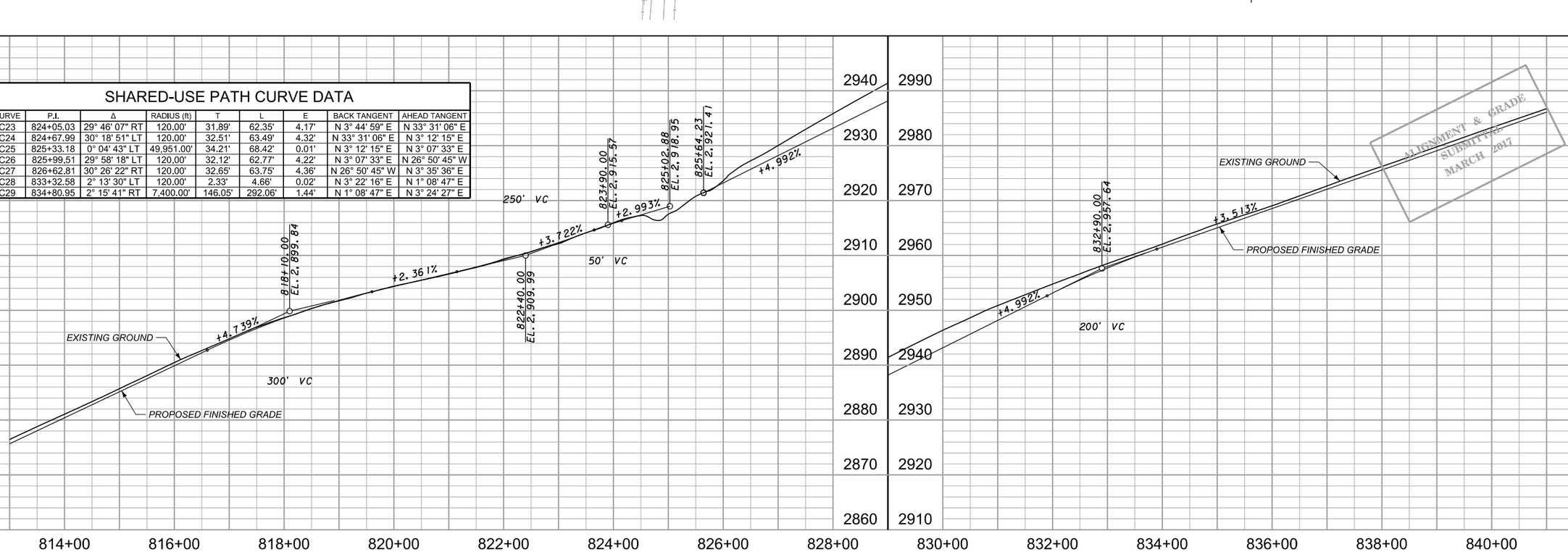
DETAIL

SHARED-USE PATH



SHARED-USE PATH CURVE DATA

CURVE	P.I.	Δ	RADIUS (ft)	T	L	E	BACK TANGENT	AHEAD TANGENT
C23	824+05.03	29° 46' 07" RT	120.00'	31.89'	62.35'	4.17'	N 3° 44' 59" E	N 33° 31' 06" E
C24	824+67.99	30° 18' 51" LT	120.00'	32.51'	63.49'	4.32'	N 33° 31' 06" E	N 3° 12' 15" E
C25	825+33.18	0° 04' 43" LT	49,951.00'	34.21'	68.42'	0.01'	N 3° 12' 15" E	N 3° 07' 33" E
C26	825+99.51	29° 58' 18" LT	120.00'	32.12'	62.77'	4.22'	N 3° 07' 33" E	N 26° 50' 45" W
C27	826+62.81	30° 26' 22" RT	120.00'	32.65'	63.75'	4.36'	N 26° 50' 45" W	N 3° 35' 36" E
C28	833+32.58	2° 13' 30" LT	120.00'	2.33'	4.66'	0.02'	N 3° 22' 16" E	N 1° 08' 47" E
C29	834+80.95	2° 15' 41" RT	7,400.00'	146.05'	292.06'	1.44'	N 1° 08' 47" E	N 3° 24' 27" E



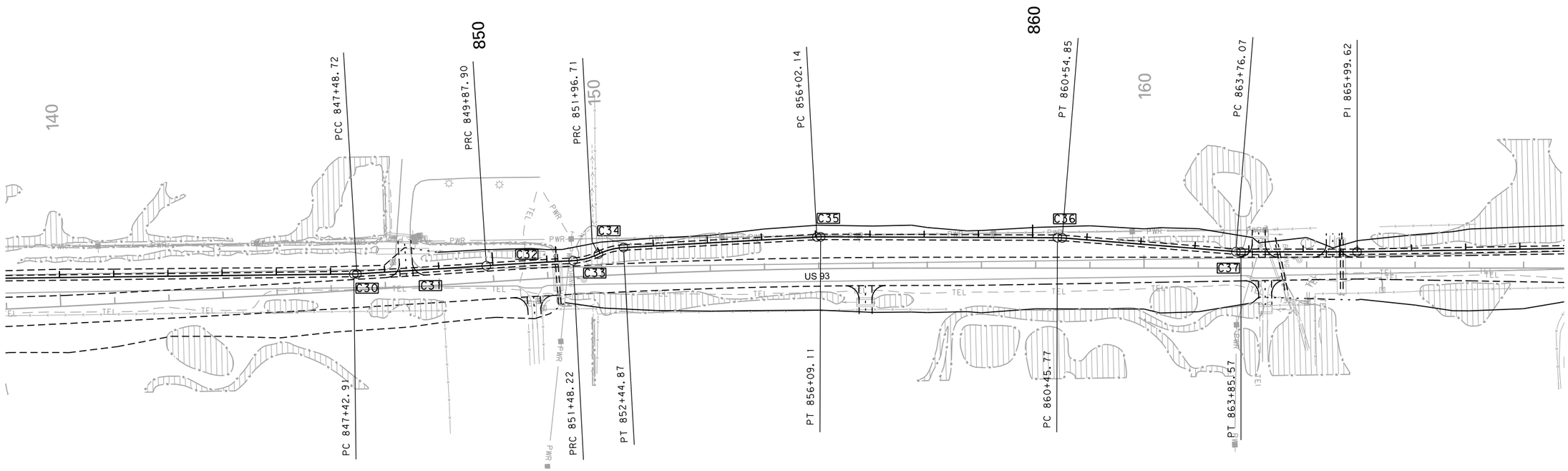
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ06.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5–2(160)37
2		3/2/2017	REVIEWED BY				
1		7:06:56 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 23

UTILITY CROSSINGS

850+58.36 UG TEL. X-ING ℄ DEPTH UNKNOWN
851+40.57 OH POWER X-ING ℄ CLEAR. UNKNOWN
864+18.03 OH POWER X-ING ℄ CLEAR. UNKNOWN

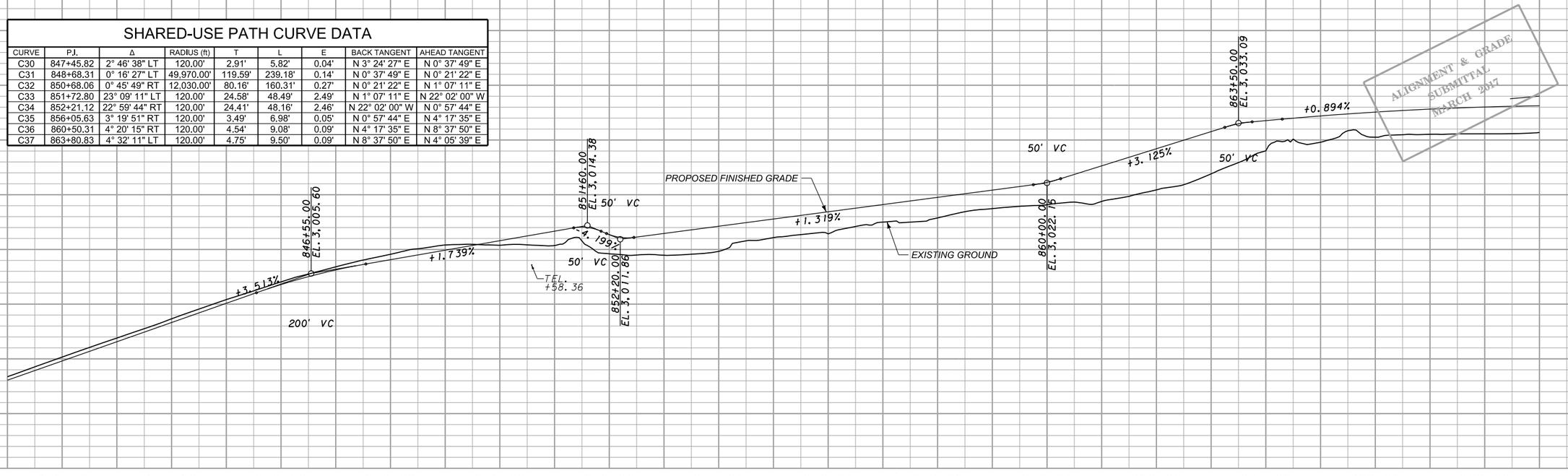
DETAIL

SHARED-USE PATH



SHARED-USE PATH CURVE DATA

CURVE	P.I.	Δ	RADIUS (ft)	T	L	E	BACK TANGENT	AHEAD TANGENT
C30	847+45.82	2° 46' 38" LT	120.00'	2.91'	5.82'	0.04'	N 3° 24' 27" E	N 0° 37' 49" E
C31	848+68.31	0° 16' 27" LT	49,970.00'	119.59'	239.18'	0.14'	N 0° 37' 49" E	N 0° 21' 22" E
C32	850+68.06	0° 45' 49" RT	12,030.00'	80.16'	160.31'	0.27'	N 0° 21' 22" E	N 1° 07' 11" E
C33	851+72.80	23° 09' 11" LT	120.00'	24.58'	48.49'	2.49'	N 1° 07' 11" E	N 22° 02' 00" W
C34	852+21.12	22° 59' 44" RT	120.00'	24.41'	48.16'	2.46'	N 22° 02' 00" W	N 0° 57' 44" E
C35	856+05.63	3° 19' 51" RT	120.00'	3.49'	6.98'	0.05'	N 0° 57' 44" E	N 4° 17' 35" E
C36	860+50.31	4° 20' 15" RT	120.00'	4.54'	9.08'	0.09'	N 4° 17' 35" E	N 8° 37' 50" E
C37	863+80.83	4° 32' 11" LT	120.00'	4.75'	9.50'	0.09'	N 8° 37' 50" E	N 4° 05' 39" E



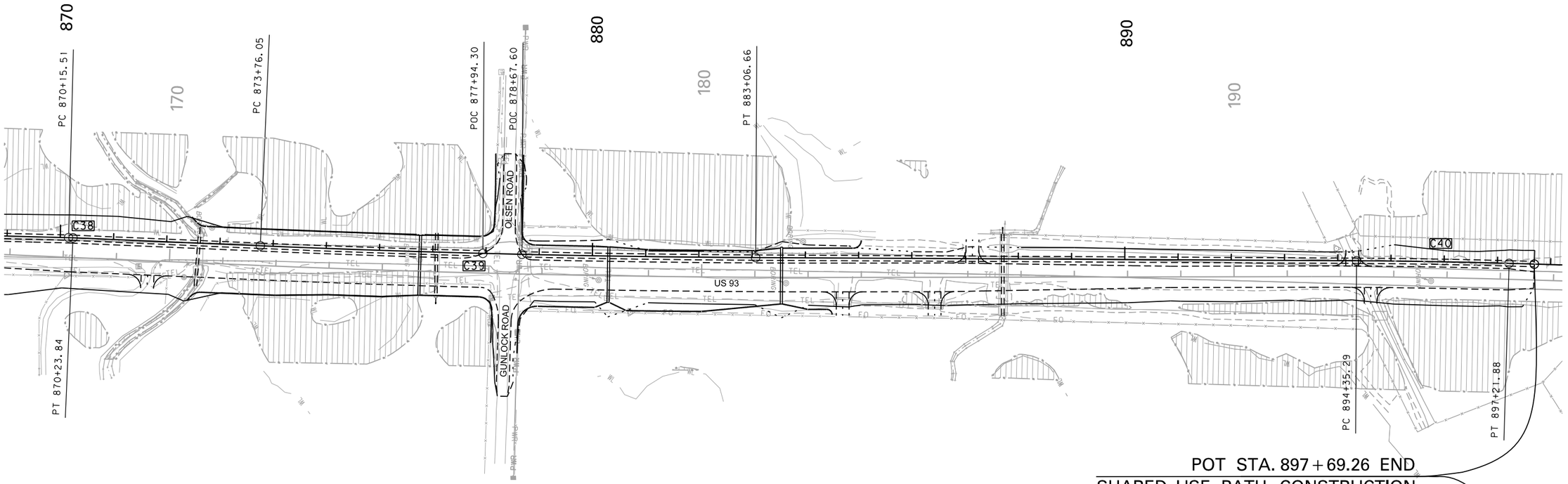
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ06.dgn	DESIGNED BY			ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY						
1		7:07:01 PM dillonmclain	CHECKED BY			LAKE COUNTY		CSF=0.99928538 UPN 8008000	SHEET 24

UTILITY CROSSINGS

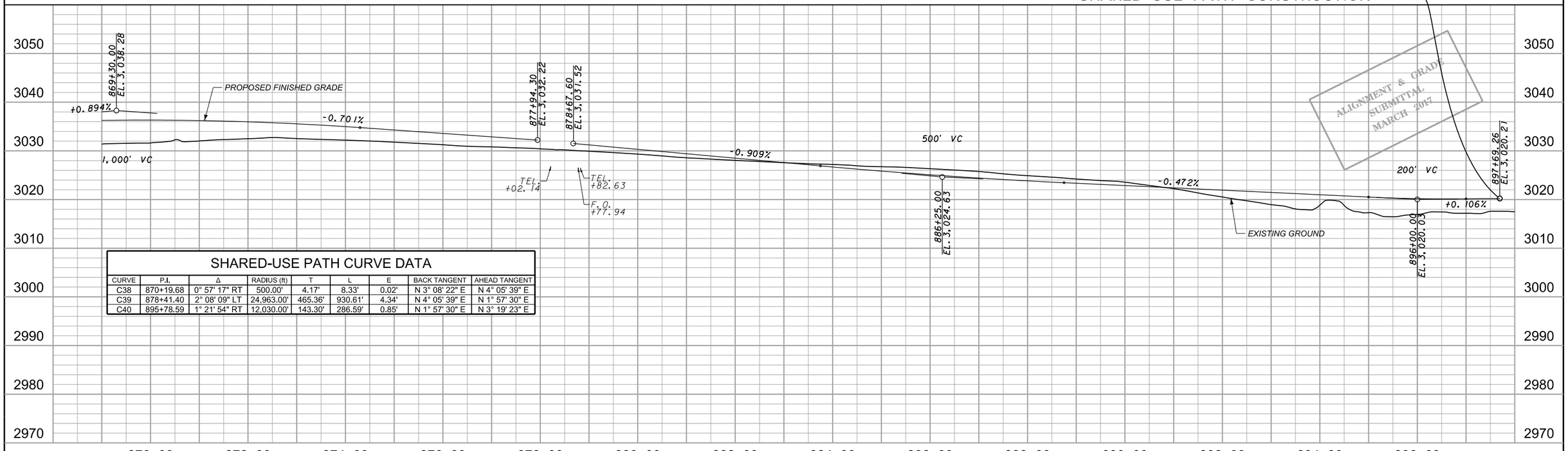
878+21.13 UG TEL. X-ING ℄ DEPTH UNKNOWN
878+64.17 OH POWER X-ING ℄ CLEAR, UNKNOWN
878+77.94 UG F.O. X-ING ℄ DEPTH UNKNOWN
878+82.63 UG TEL. X-ING ℄ DEPTH UNKNOWN

DETAIL

SHARED-USE PATH



POT STA. 897+69.26 END
SHARED-USE PATH CONSTRUCTION



SHARED-USE PATH CURVE DATA

CURVE	P.I.	Δ	RADIUS (ft)	T	L	E	BACK TANGENT	AHEAD TANGENT
C38	870+19.68	0° 57' 17" RT	500.00'	4.17'	8.33'	0.02'	N 3° 08' 22" E	N 4° 05' 39" E
C39	878+41.40	2° 08' 09" LT	24,963.00'	465.36'	930.61'	4.34'	N 4° 05' 39" E	N 1° 57' 30" E
C40	895+78.59	1° 21' 54" RT	12,030.00'	143.30'	286.59'	0.85'	N 1° 57' 30" E	N 3° 19' 23" E

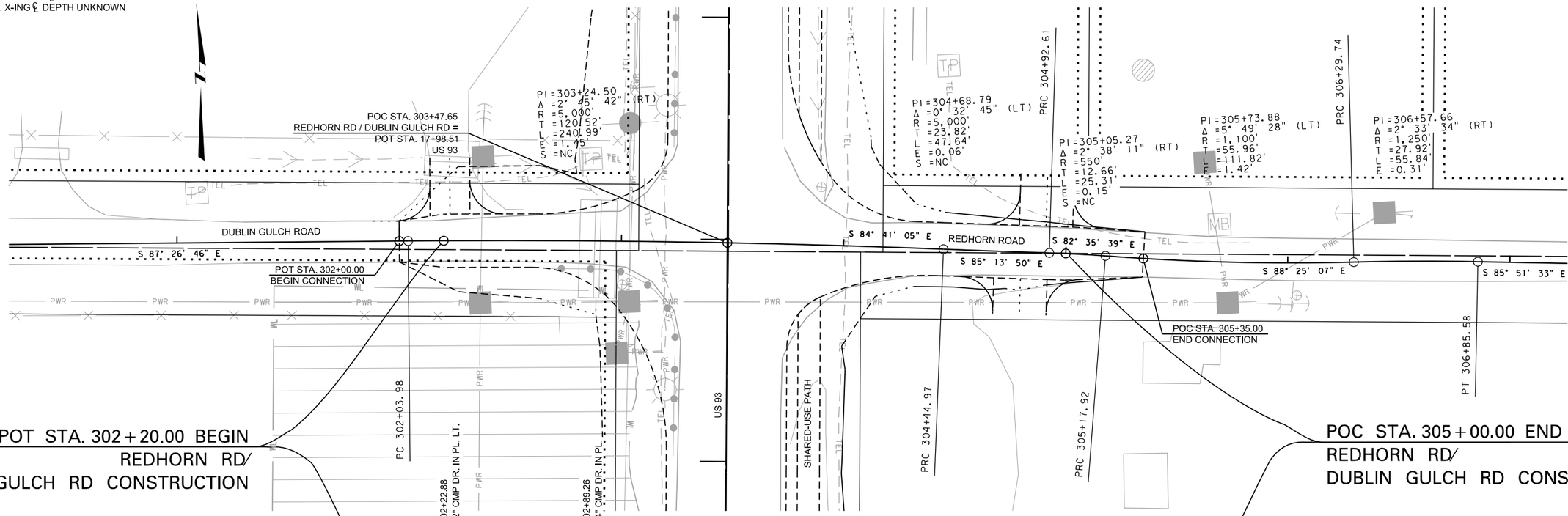
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ07.dgn	DESIGNED BY			ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY						
1		7:07:05 PM dillonmclain	CHECKED BY			LAKE COUNTY		CSF=0.99928538 UPN 8008000	SHEET 25

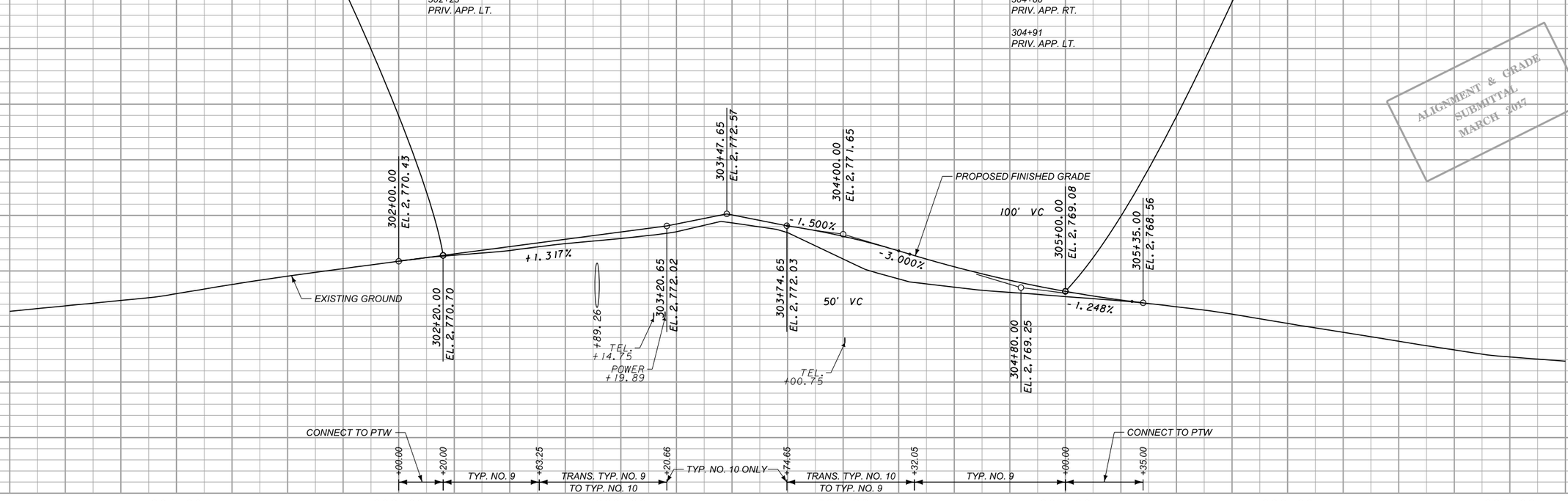
UTILITY CROSSINGS

303+03.60 OH TEL. X-ING ℄ CLEAR. UNKNOWN
303+04.27 OH POWER X-ING ℄ CLEAR. UNKNOWN
303+14.75 UG TEL. X-ING ℄ DEPTH UNKNOWN
303+19.89 UG POWER X-ING ℄ DEPTH UNKNOWN
304+00.75 UG TEL. X-ING ℄ DEPTH UNKNOWN

DETAIL

REDHORN ROAD / DUBLIN GULCH ROAD





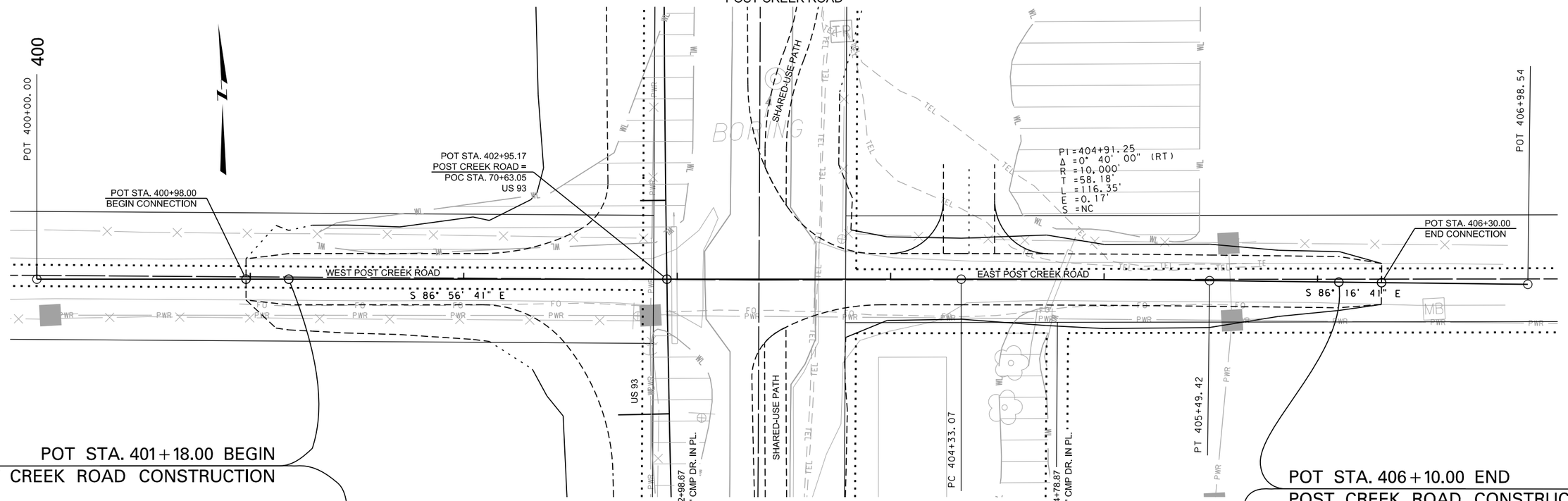
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ12.dgn	DESIGNED BY			ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5-2(160)37
2		3/2/2017	REVIEWED BY			LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 26
1		7:07:10 PM dillonmclain	CHECKED BY					

UTILITY CROSSINGS

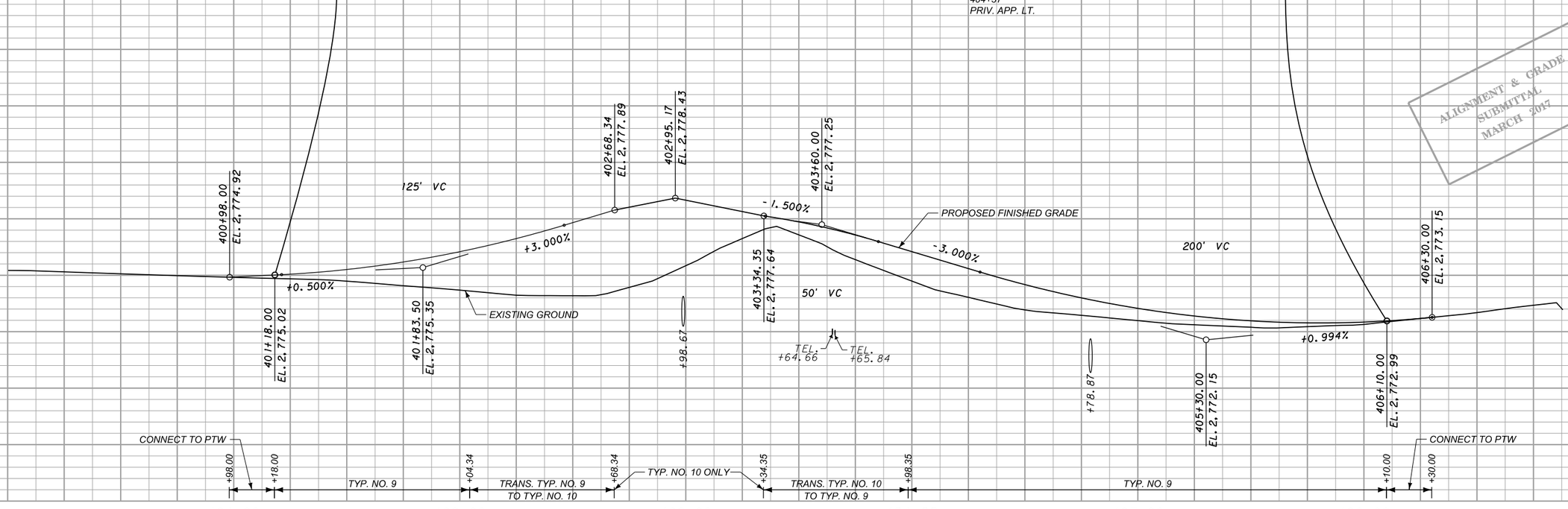
402+87.81 OH POWER X-ING ℄ CLEAR. UNKNOWN
403+64.66 UG TEL. X-ING ℄ DEPTH UNKNOWN
403+65.84 UG TEL. X-ING ℄ DEPTH UNKNOWN

DETAIL

POST CREEK ROAD



404+37
PRIV. APP. LT.



ALIGNMENT & GRADE SUBMITTAL MARCH 2017

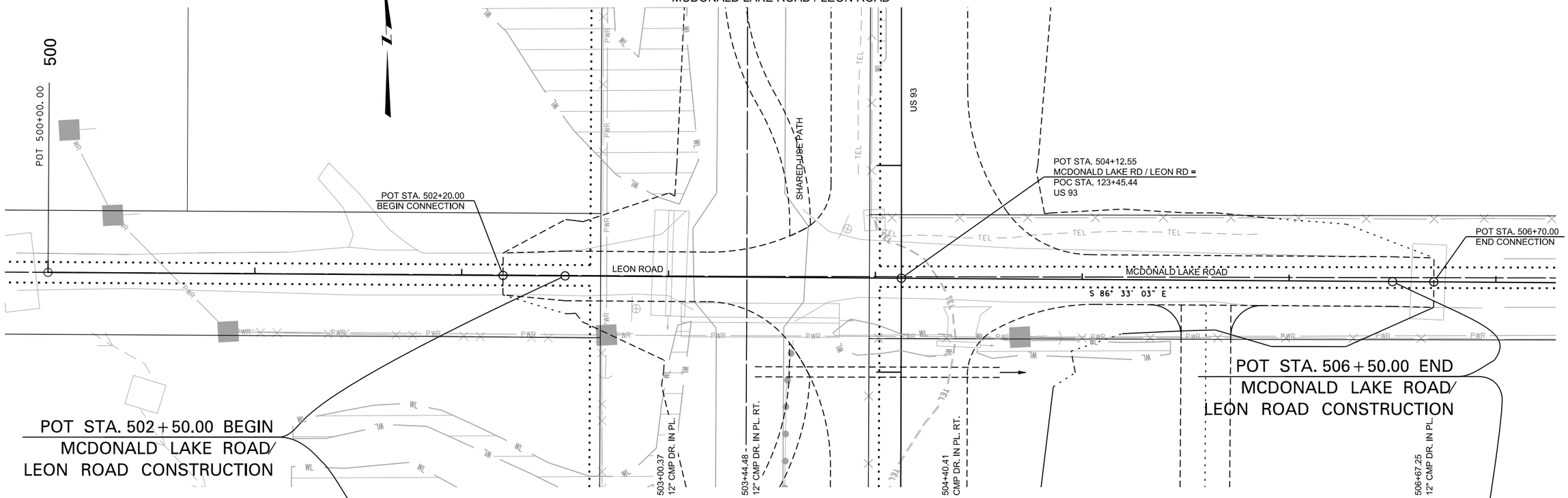
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ11.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY					
1		7:07:16 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 / UPN 8008000	SHEET 27

UTILITY CROSSINGS

502+70.09 OH POWER X-ING ℄ CLEAR. UNKNOWN
504+30.55 UG TEL. X-ING ℄ DEPTH UNKNOWN

DETAIL

MCDONALD LAKE ROAD / LEON ROAD



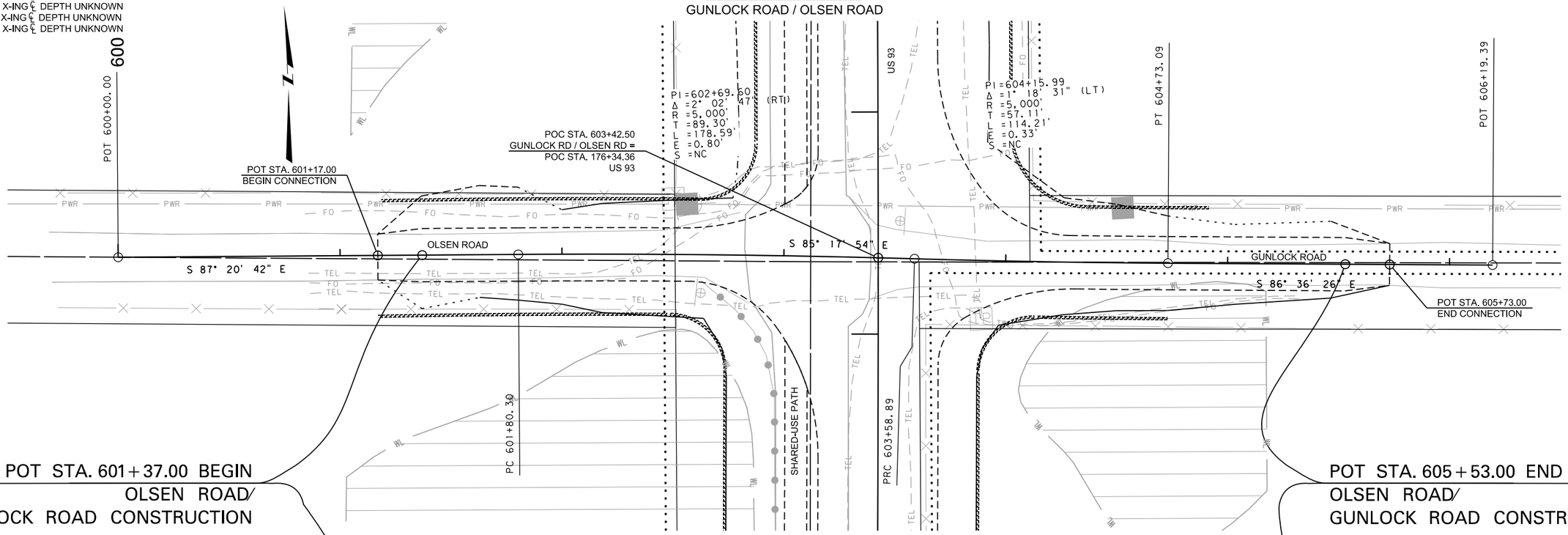
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ11.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5-2(160)37
2		3/2/2017	REVIEWED BY				CSF=0.99928538 / UPN 8008000
1		7:07:21 PM dillonmclain	CHECKED BY		LAKE COUNTY		SHEET 28

UTILITY CROSSINGS

602+37.77 UG TEL. X-ING ℄ DEPTH UNKNOWN
602+45.87 UG F.O. X-ING ℄ DEPTH UNKNOWN
603+42.46 UG TEL. X-ING ℄ DEPTH UNKNOWN
603+71.78 UG F.O. X-ING ℄ DEPTH UNKNOWN
603+86.49 UG TEL. X-ING ℄ DEPTH UNKNOWN

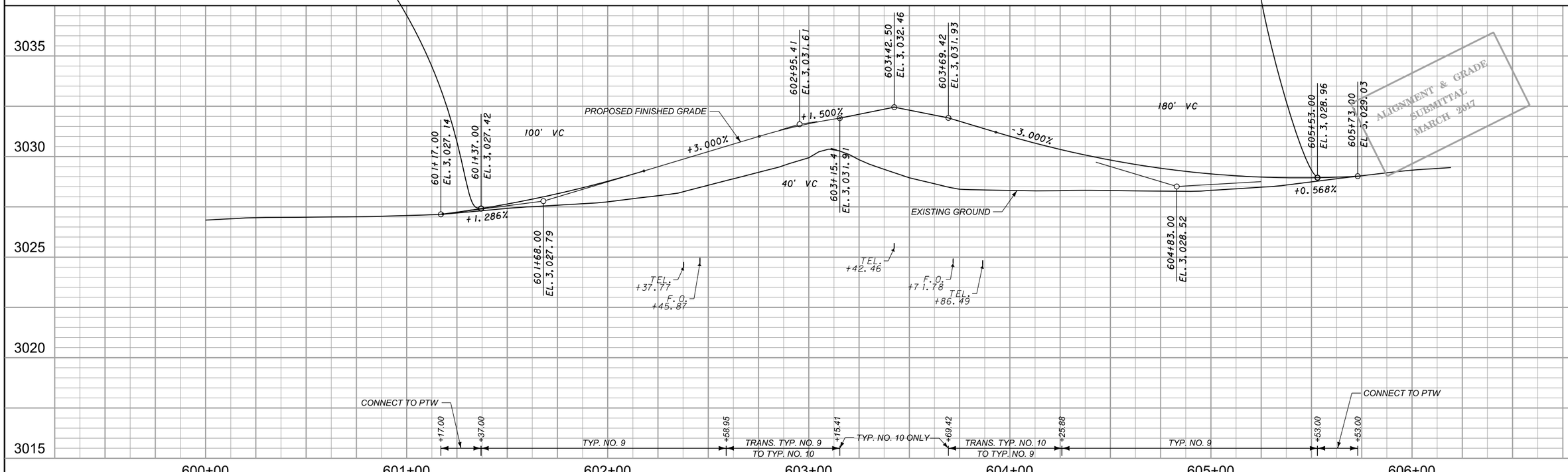
DETAIL

GUNLOCK ROAD / OLSEN ROAD



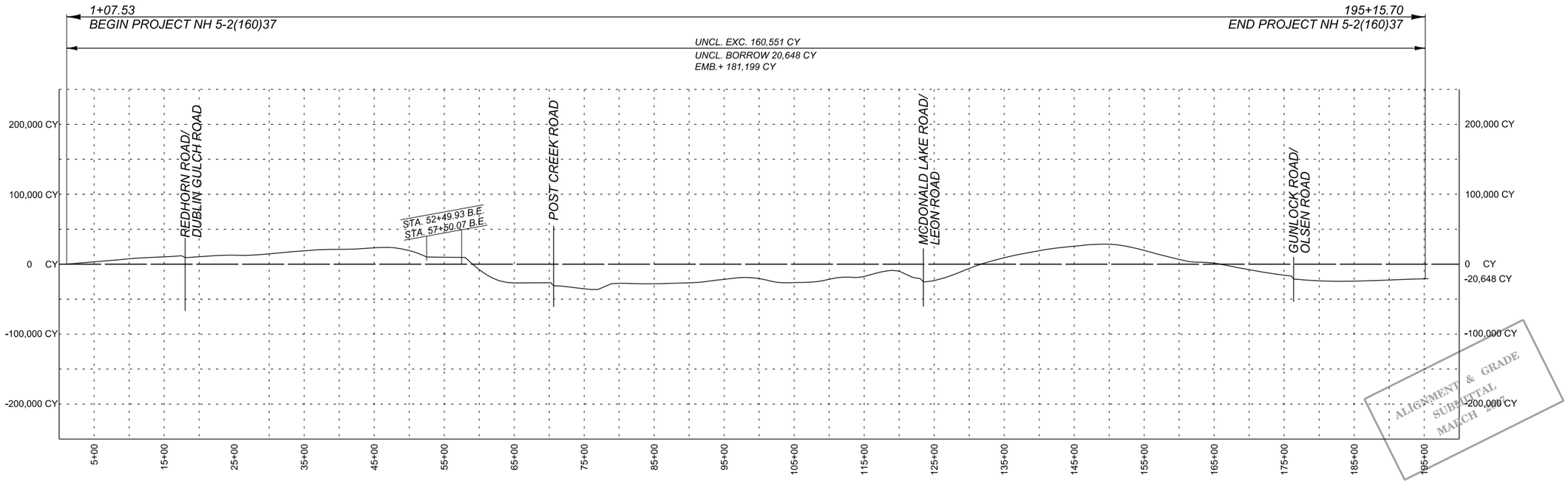
POT STA. 601+37.00 BEGIN
OLSEN ROAD/
GUNLOCK ROAD CONSTRUCTION

POT STA. 605+53.00 END
OLSEN ROAD/
GUNLOCK ROAD CONSTRUCTION



3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ11.dgn	DESIGNED BY		ROAD PLANS	US 93 N – POST CREEK HILL
2		3/2/2017	REVIEWED BY		LAKE COUNTY	CSF=0.99928538 / UPN 8008000
1		7:07:27 PM dillonmclain	CHECKED BY		PRELIMINARY AGR	NH 5–2(160)37 / SHEET 29

MASS DIAGRAM



ALIGNMENT & GRADE SUBMITTAL MARCH 2017

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdmasz01.dgn	DESIGNED BY			ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5–2(160)37
2		3/2/2017	REVIEWED BY						
1		7:09:47 PM dillonmclain	CHECKED BY			LAKE COUNTY		CSF = 0.99928538 UPN 8008000	SHEET 29A

UTILITY CROSSINGS

4+37.41 OH POWER X-ING ℄ CLEAR. UNKNOWN
7+29.71 UG TEL. X-ING ℄ DEPTH UNKNOWN
17+71.89 OH POWER X-ING ℄ CLEAR. UNKNOWN
20+05.33 UG TEL. X-ING ℄ DEPTH UNKNOWN
27+33.78 UG TEL. X-ING ℄ DEPTH UNKNOWN
27+42.74 OH POWER X-ING ℄ CLEAR. = 15'

POT 0+00.00

WL# W-3C-14
DELINEATED AREA = 0.108 ac
IMPACTED AREA = 0.000 ac

WL# W-3B-14
DELINEATED AREA = 0.533 ac
IMPACTED AREA = 0.053 ac

WL# W-3A-14
DELINEATED AREA = 1.165 ac
IMPACTED AREA = 0.176 ac

PI 16+95.06

POT STA. 17+98.51
US 93 =
POC STA. 303+47.65
DUBLIN GULCH RD/
REDHORN RD

WL# W-4B-14
DELINEATED AREA = 0.639 ac
IMPACTED AREA = 0.070 ac

N 3° 20' 06" E

US 93

SHARED-USE PATH

DUBLIN GULCH ROAD

REDHORN ROAD

WL# W-1-14
DELINEATED AREA = 0.868 ac
IMPACTED AREA = 0.207 ac

WL# W-2A-14
DELINEATED AREA = 1.235 ac
IMPACTED AREA = 0.004 ac

WL# W-2B-14
DELINEATED AREA = 0.136 ac
IMPACTED AREA = 0.104 ac

WL# W-4A-14
DELINEATED AREA = 0.706 ac
IMPACTED AREA = 0.260 ac

POT STA. 1+07.35 BEGIN
PROJECT NO. NH 5–2(160)37

7+71.80 APP. PIPE IN PL. LT.
7+87.57 PIPE IN PL.
13+34.47 20" CMP APP. PIPE IN PL. RT.
14+72.63 24" CMP IRR. IN PL.
17+95.45 24" CMP APP. PIPE IN PL. RT.
20+61.84 14" CMP APP. PIPE IN PL. RT.
26+59.00 6' X 5' RCP IN PL.
27+94.77 18" CMP DR. IN PL.

7+50 PRIV. APP. RT.
7+73 PRIV. APP. LT.
13+35 PRIV. APP. RT.
17+99 PUBLIC APP. LT. & RT. (DUBLIN GULCH RD / REDHORN RD)
17+02 TO 17+87 EXIST. GUARDRAIL LT. REMOVE
18+41 TO 24+57 EXIST. GUARDRAIL LT. REMOVE
20+80 PRIV. APP. RT.
22+20 TO 27+03 EXIST. GUARDRAIL RT. REMOVE
23+66 TO 26+49 EXIST. STEEL PILE WALL RT. REMOVE
24+86 PRIV. APP. LT.
25+20 TO 28+73 EXIST. GUARDRAIL LT. REMOVE
25+32 TO 26+49 EXIST. STEEL PILE WALL LT. REMOVE
27+11 PRIV. APP. RT.

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

1+07.35 EL. 2,774.73
5+80.00 EL. 2,777.94
18+00.00 EL. 2,773.06
24+00.00 EL. 2,764.62

PROPOSED FINISHED GRADE
EXISTING GROUND

+0.678%
-0.400%
-1.407%
-0.659%

400' VC
400' VC
400' VC

TEL. +29.71
+72.63
TEL. +05.33
+59.00
+94.77
TEL. +33.78

TYP. NO. 1 ONLY
+07.35
TRANS. TYPICAL NO. 1 TO TYPICAL NO. 2
+27.35
TYPICAL NO. 2

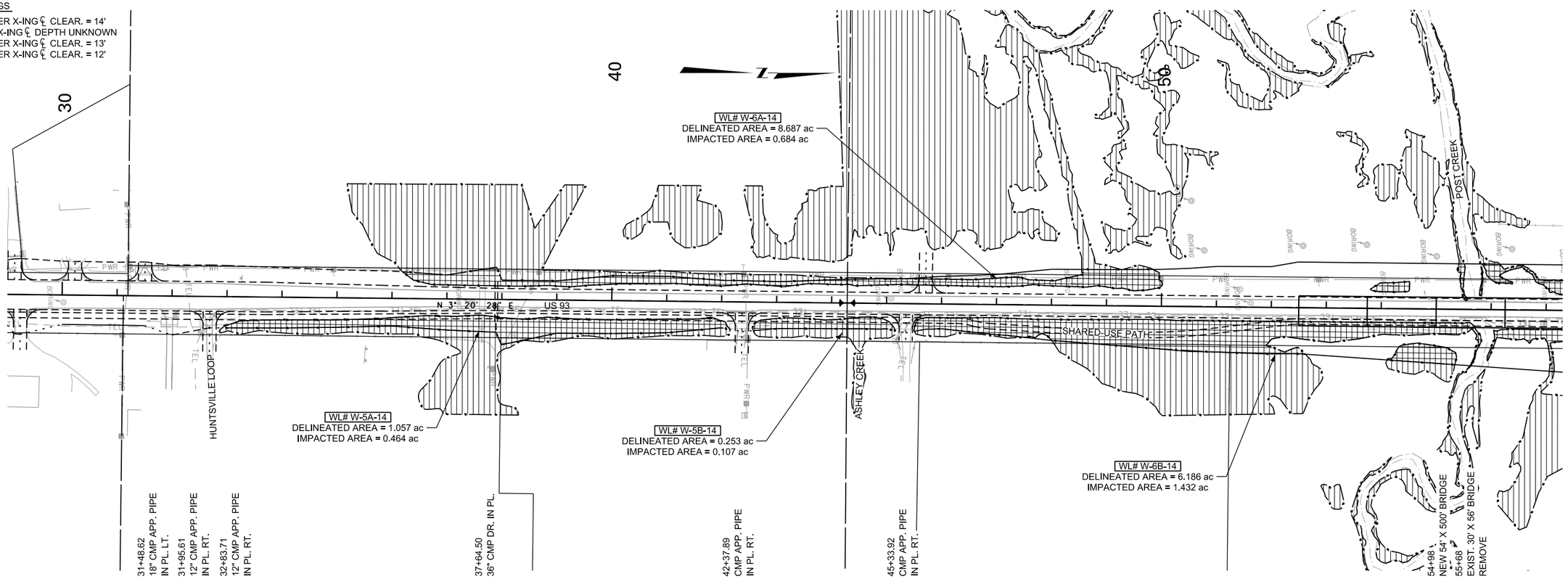
2810 2800 2790 2780 2770 2760 2750 2740 2730

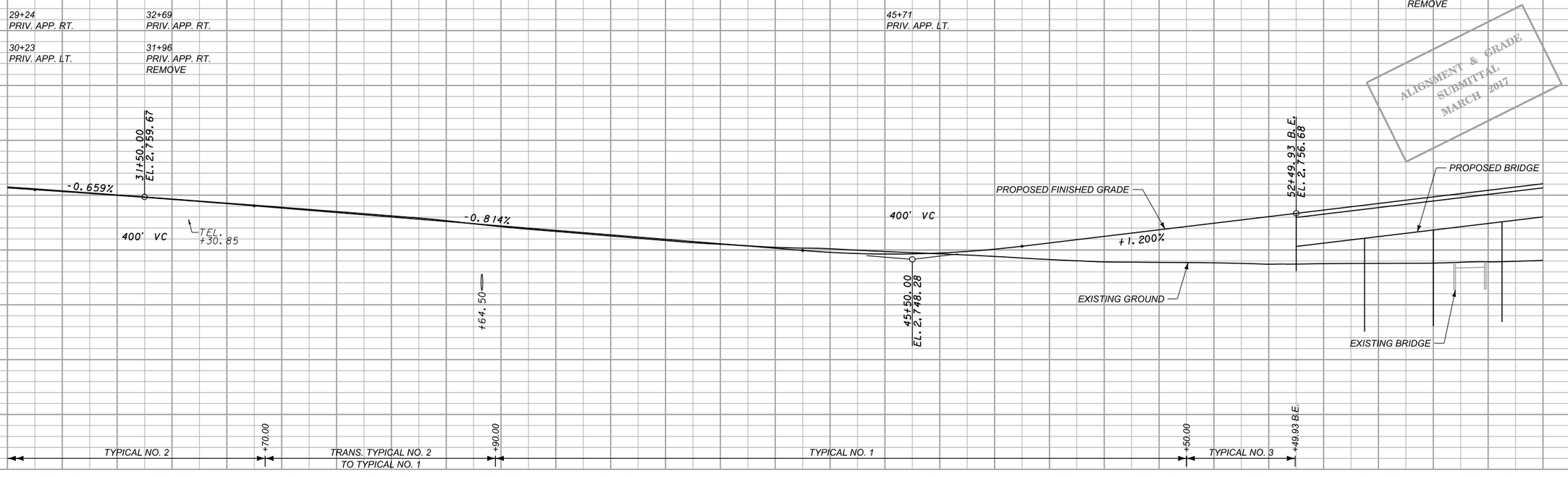
2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ01.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5–2(160)37
2		3/2/2017	REVIEWED BY				CSF = 0.99928538 / UPN 8008000 / SHEET 30
1		7:21:20 PM dillonmclain	CHECKED BY		LAKE COUNTY		

UTILITY CROSSINGS

31+17.37 OH POWER X-ING ℄ CLEAR. = 14'
32+30.85 UG TEL. X-ING ℄ DEPTH UNKNOWN
38+43.82 OH POWER X-ING ℄ CLEAR. = 13'
42+43.55 OH POWER X-ING ℄ CLEAR. = 12'





ALIGNMENT & GRADE
SUBMITTAL
MARCH 2017

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ01.dgn	DESIGNED BY	ROAD PLANS	PRELIMINARY AGR	US 93 N - POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY				
1		7:07:44 PM dillonmclain	CHECKED BY	LAKE COUNTY		CSF = 0.99928538	UPN 8008000	SHEET 31

UTILITY CROSSINGS

70+45.97 OH POWER X-ING ℄ CLEAR. UNKNOWN
70+47.96 UG F.O. X-ING ℄ DEPTH UNKNOWN

60

70

80

PC 58+09.59

PRC 65+58.31

PRC 82+80.86

WL# W-7A-14
DELINEATED AREA = 0.623 ac
IMPACTED AREA = 0.527 ac

WL# W-6A-14
DELINEATED AREA = 8.687 ac
IMPACTED AREA = 0.684 ac

POC STA. 70+63.05
US 93 =
POT STA. 402+95.17
POST CREEK ROAD

PI = 71+25.84
Δ = 5° 24' 56" (RT)
R = 12,000'
T = 567.53'
L = 1,134.21'
E = 13.41'
S = NC

WEST POST CREEK ROAD

WL# W-7B-14
DELINEATED AREA = 0.530 ac
IMPACTED AREA = 0.518 ac

WL# W-7C-14
DELINEATED AREA = 0.582 ac
IMPACTED AREA = 0.433 ac

US 93

SHARED-USE PATH

PI = 61+84.07
Δ = 3° 34' 30" (LT)
R = 12,000'
T = 374.48'
L = 748.72'
E = 5.84'
S = NC

WL# W-8A-14
DELINEATED AREA = 0.636 ac
IMPACTED AREA = 0.177 ac

WL# W-8B-14
DELINEATED AREA = 0.380 ac
IMPACTED AREA = 0.000 ac

EAST POST CREEK ROAD

PI = 79+86.75
Δ = 2° 48' 33" (LT)
R = 12,000'
T = 294.23'
L = 588.34'
E = 3.61'
S = NC

WL# W-6B-14
DELINEATED AREA = 6.186 ac
IMPACTED AREA = 1.432 ac

WL# W-9A-14
DELINEATED AREA = 0.283 ac
IMPACTED AREA = 0.000 ac

PRC 76+92.52

59+01.75 CMP-APP. PIPE IN PL. LT.

64+89.39 24" CMP DR. IN PL.

70+59.83 DR. IN PL. RT.

70+60.17 DR. IN PL. RT.

78+00.00 NEW 14' X 10' RCP (PEDESTRIAN UNDERPASS)

80+35.83 24" CMP DR. IN PL.

81+09.46 24" CMP DR. IN PL.

83+77.36 18" CMP DR. IN PL. LT.

83+91.04 18" CMP DR. IN PL. RT.

59+02
PRIV. APP. LT.

70+63
PUBLIC APP. LT. & RT.
(POST CREEK RD)

83+78
PRIV. APP. LT.

84+48
PRIV. APP. RT.

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

PROPOSED FINISHED GRADE

+1.200%

57+50.07 B.E.
EL. 2,762.68

+89.39

F.O.
+47.96

+35.83

+09.46

EXISTING GROUND

+50.07 B.E.

+58.09

+48.00

+36.00

+56.00

+85.00

+05.00

TYP. NO. 3

TRANS. TYP. NO. 3 TO TYP. NO. 4

TYP. NO. 4 & 5 ONLY

TYP. NO. 2 ONLY

TRANS. TYP. NO. 5 TO TYP. NO. 2

TRANS. TYPICAL NO. 2 TO TYPICAL NO. 6

TYPICAL NO. 6

TRANS. TYPICAL NO. 6 TO TYPICAL NO. 7

TYPICAL NO. 7

2800 2790 2780 2770 2760 2750 2740 2730 2720

58+00 60+00 62+00 64+00 66+00 68+00 70+00 72+00 74+00 76+00 78+00 80+00 82+00 84+00

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ01.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY					
1		7:07:51 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 UPN 8008000	SHEET 32

UTILITY CROSSINGS

85+42.35 OH POWER X-ING ℄ CLEAR. UNKNOWN
95+32.07 UG TEL. X-ING ℄ DEPTH UNKNOWN
100+48.76 OH POWER X-ING ℄ CLEAR. UNKNOWN
101+15.44 UG TEL. X-ING ℄ DEPTH UNKNOWN
104+34.74 UG TEL. X-ING ℄ DEPTH UNKNOWN

90 100 110

N

WL# W-7C-14
DELINEATED AREA = 0.582 ac
IMPACTED AREA = 0.433 ac

US 93

SHARED-USE PATH

PI = 87+40.53
Δ = 4° 23' 14" (RT)
R = 12,000'
T = 459.66'
L = 918.88'
E = 8.80'
S = NC

PRC 91+99.74

WL# W-9A-14
DELINEATED AREA = 0.283 ac
IMPACTED AREA = 0.000 ac

WL# W-9B-14
DELINEATED AREA = 2.714 ac
IMPACTED AREA = 0.629 ac

WL# W-10A-14
DELINEATED AREA = 0.551 ac
IMPACTED AREA = 0.263 ac

92+83.03 18" CMP APP. PIPE IN PL. LT.
92+89.74 18" CMP APP. PIPE IN PL. RT.
93+04.64 18" CMP DR. IN PL.
95+66.41 18" CMP APP. PIPE IN PL. LT.
95+70.96 18" CMP APP. PIPE IN PL. RT.
96+70.18 18" CMP APP. PIPE IN PL. LT.
102+20.17 CMP IRR. IN PL. LT. REMOVE
102+30.25 NEW 8' X 4' RCP
102+93.53 15" CMP APP. PIPE IN PL. LT.
103+14.26 15" CMP APP. PIPE IN PL. RT.
107+79.30 12" CMP APP. PIPE IN PL. RT.
108+33.93 12" CMP DR. IN PL. LT.

92+88 PRIV. APP. LT.
92+91 PRIV. APP. RT.
95+71 PRIV. APP. LT.
95+70 PRIV. APP. RT.
96+75 PRIV. APP. LT. REMOVE
100+72 TO 103+08 EXIST. GUARDRAIL RT. REMOVE
101+61 TO 102+87 EXIST. GUARDRAIL LT. REMOVE
107+82 PRIV. APP. RT.

2870 2860 2850 2840 2830 2820 2810 2800 2790

PROPOSED FINISHED GRADE
EXISTING GROUND
+4.000%
+1.200%
800' VC
+04.64
95+00.00
EL. 2,807.66
TEL +32.07
TEL +15.44
TEL +34.74
+34.00
TYPICAL NO. 7
TRANS. TYPICAL NO. 7 TO TYP. NO. 8

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

86+00 88+00 90+00 92+00 94+00 96+00 98+00 100+00 102+00 104+00 106+00 108+00 110+00 112+00

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ02.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5-2(160)37
2		3/2/2017	REVIEWED BY				
1		7:07:57 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 33

UTILITY CROSSINGS

122+57.10 UG TEL. X-ING ℄ DEPTH UNKNOWN
123+63.34 UG TEL. X-ING ℄ DEPTH UNKNOWN
137+45.76 UG TEL. X-ING ℄ DEPTH UNKNOWN

120 130 140

WL# W-10A-14
DELINEATED AREA = 0.551 ac
IMPACTED AREA = 0.263 ac

WL# W-11A-14
DELINEATED AREA = 0.440 ac
IMPACTED AREA = 0.009 ac

WL# W-10B-14
DELINEATED AREA = 0.314 ac
IMPACTED AREA = 0.263 ac

WL# W-11B-14
DELINEATED AREA = 4.040 ac
IMPACTED AREA = 0.113 ac

LEON ROAD

SHARED-USE PATH

US 93

PI = 119+96.88
Δ = 6° 24' 14" (LT)
R = 50.000'
T = 2,797.14'
L = 5,588.45'
E = 78.18'
S = NC

POC STA. 123+45.44
US 93 =

POT STA. 504+12.55
MCDONALD LAKE RD / LEON RD

MCDONALD LAKE ROAD

WL# W-12A-14
DELINEATED AREA = 0.389 ac
IMPACTED AREA = 0.364 ac

WL# W-12B-14
DELINEATED AREA = 0.507 ac
IMPACTED AREA = 0.159 ac

WL# W-10A-14
DELINEATED AREA = 0.551 ac
IMPACTED AREA = 0.263 ac

119+87.07 14" CMP DR. IN PL. LT.
120+83.26 14" CMP IRR. IN PL. LT.
120+99.20 36" CMP IRR. IN PL. LT.
123+13.55 CMP DR. IN PL, RT.
123+25.02 12" CMP DR. IN PL. LT.
123+44.12 12" CMP APP. PIPE IN PL. RT.

119+77 TO 123+15
EXIST. GUARDRAIL LT. REMOVE

123+45
PUBLIC APP. LT. & RT. (MCDONALD LAKE RD/ LEON RD)

2940 2930 2920 2910 2900 2890 2880 2870 2860

PROPOSED FINISHED GRADE
+4.000%
TEL. +63.34
TEL. +57.10
EXISTING GROUND

TRANS. TYPICAL NO. 7 TO TYP. NO. 8 | *+74.00* | TYPICAL NO. 8

3000 2990 2980 2970 2960 2950 2940 2930 2920

EXISTING GROUND
+4.000%
TEL. +45.76
PROPOSED FINISHED GRADE

TYPICAL NO. 8 | *+70.00* | TRANS. TYPICAL NO. 8 TO TYPICAL NO. 7 | *+10.00* | TYP. NO. 7

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

114+00 116+00 118+00 120+00 122+00 124+00 126+00 128+00 130+00 132+00 134+00 136+00 138+00 140+00

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ02.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL	NH 5-2(160)37
2		3/2/2017	REVIEWED BY					
1		7:08:02 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 UPN 8008000	SHEET 34

UTILITY CROSSINGS

143+73.21 UG TEL. X-ING ℄ DEPTH UNKNOWN
145+89.76 UG TEL. X-ING ℄ DEPTH UNKNOWN
148+49.06 UG TEL. X-ING ℄ DEPTH UNKNOWN
149+35.84 OH POWER X-ING ℄ CLEAR. UNKNOWN
162+02.20 OH POWER X-ING ℄ CLEAR. UNKNOWN
168+47.34 UG TEL. X-ING ℄ DEPTH UNKNOWN
168+81.06 UG TEL. X-ING ℄ DEPTH UNKNOWN

WL# W-11B-14
DELINEATED AREA = 4.040 ac
IMPACTED AREA = 0.113 ac

WL# W-13A-14
DELINEATED AREA = 0.079 ac
IMPACTED AREA = 0.064 ac

PRC 147+88.19

150

WL# W-13C-14
DELINEATED AREA = 0.306 ac
IMPACTED AREA = 0.273 ac

PT 155+71.09

160

WL# W-15B-14
DELINEATED AREA = 0.008 ac
IMPACTED AREA = 0.008 ac

WL# W-15A-14
DELINEATED AREA = 0.386 ac
IMPACTED AREA = 0.066 ac

WL# W-16C-14
DELINEATED AREA = 2.747 ac
IMPACTED AREA = 0.447 ac

SHARED-USE PATH

US 93

N 4° 08' 39" E

PI = 151+79.78
Δ = 3° 44' 17" (RT)
R = 12,000'
T = 391.59'
L = 782.90'
E = 6.39'
S = NC

WL# W-12B-14
DELINEATED AREA = 0.507 ac
IMPACTED AREA = 0.159 ac

WL# W-13B-14
DELINEATED AREA = 0.270 ac
IMPACTED AREA = 0.239 ac

WL# W-14A-14
DELINEATED AREA = 0.950 ac
IMPACTED AREA = 0.106 ac

WL# W-14B-14
DELINEATED AREA = 0.358 ac
IMPACTED AREA = 0.007 ac

WL# W-16A-14
DELINEATED AREA = 0.200 ac
IMPACTED AREA = 0.159 ac

WL# W-16B-14
DELINEATED AREA = 0.091 ac
IMPACTED AREA = 0.000 ac

WL# W-16D-14
DELINEATED AREA = 1.200 ac
IMPACTED AREA = 0.391 ac

146+35.37 18" CMP APP. PIPE IN PL. LT.
146+37.06 PVC APP. PIPE IN PL. LT.
148+72.24 CMP APP. PIPE IN PL. RT.
149+18.33 18" CMP DR. IN PL.
154+85.62 18" CMP APP. PIPE IN PL. RT.
162+14.06 17" CMP APP. PIPE IN PL. LT.
162+24.03 18" CMP APP. PIPE IN PL. RT.
162+47.51 17" CMP DR. IN PL.
163+63.82 24" CMP DR. IN PL.

146+40 PRIV. APP. LT.
148+72 PRIV. APP. RT.
149+29 PRIV. APP. LT. REMOVE
154+86 PRIV. APP. RT.
162+11 PRIV. APP. LT.
162+23 PRIV. APP. RT.
163+48 PRIV. APP. LT.

145+20.00 EL. 3,008.46
165+50.00 EL. 3,041.39

+4.000%
+1.622%
-0.823%

PROPOSED FINISHED GRADE
EXISTING GROUND

TEL. +73.21
TEL. +89.76
TEL. +49.06
+18.33
+47.51
+63.82
TEL. +47.34
TEL. +81.06

800' VC
1,500' VC

ALIGNMENT & GRADE SUBMITTAL MARCH 2017

3050 3040 3030 3020 3010 3000 2990 2980 2970

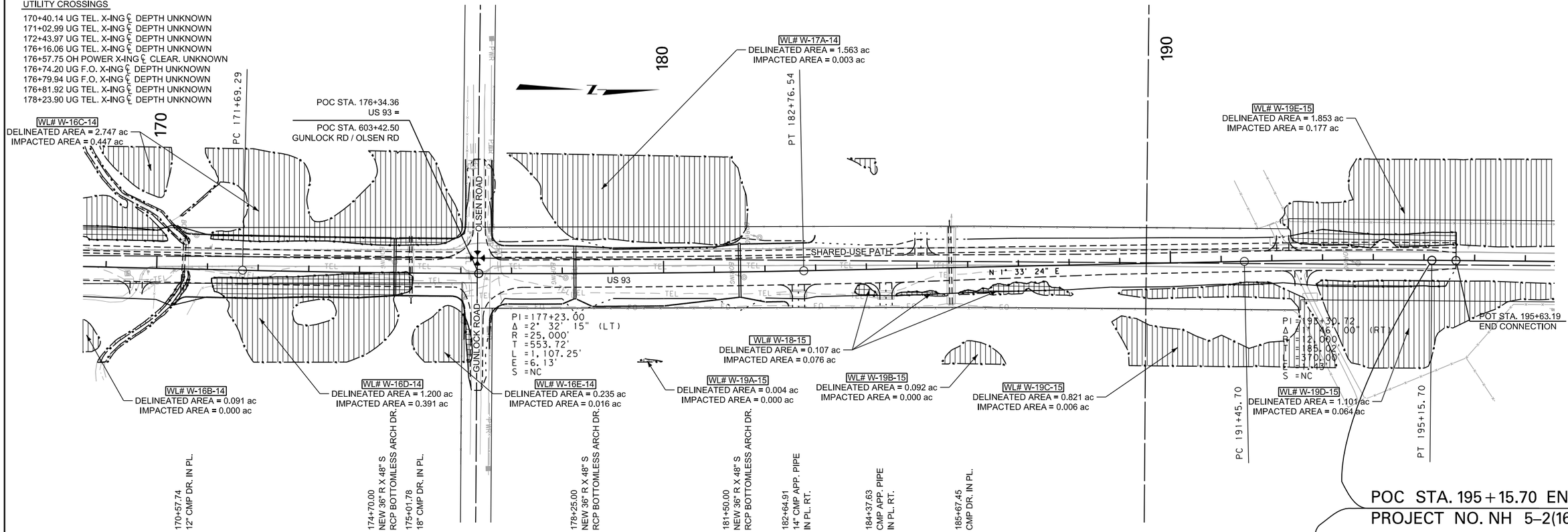
TYPICAL NO. 7
+73.00
TRANS. TYPICAL NO. 7 TO TYPICAL NO. 1
+93.00
TYP. NO. 1 ONLY
TRANS. TYPICAL NO. 1 TO TYPICAL NO. 2
+13.00
TYP. NO. 2

142+00 144+00 146+00 148+00 150+00 152+00 154+00 156+00 158+00 160+00 162+00 164+00 166+00 168+00

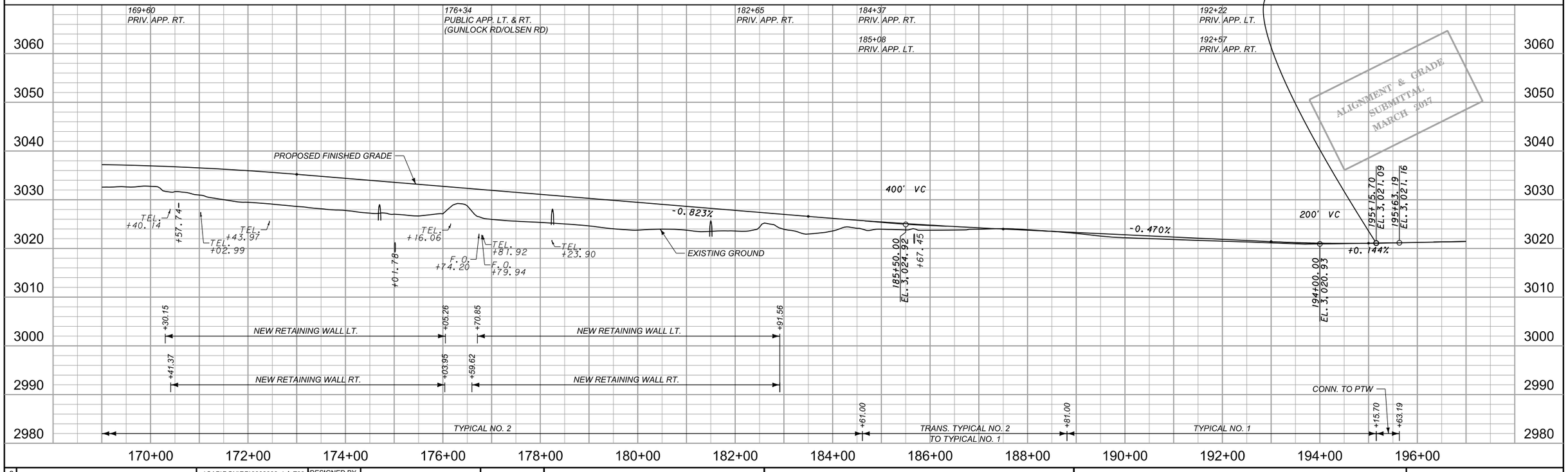
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ02.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5-2(160)37
2		3/2/2017	REVIEWED BY				
1		7:08:07 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 35

UTILITY CROSSINGS

170+40.14 UG TEL. X-ING ℄ DEPTH UNKNOWN
171+02.99 UG TEL. X-ING ℄ DEPTH UNKNOWN
172+43.97 UG TEL. X-ING ℄ DEPTH UNKNOWN
176+16.06 UG TEL. X-ING ℄ DEPTH UNKNOWN
176+57.75 OH POWER X-ING ℄ CLEAR. UNKNOWN
176+74.20 UG F.O. X-ING ℄ DEPTH UNKNOWN
176+79.94 UG F.O. X-ING ℄ DEPTH UNKNOWN
176+81.92 UG TEL. X-ING ℄ DEPTH UNKNOWN
178+23.90 UG TEL. X-ING ℄ DEPTH UNKNOWN



POC STA. 195+15.70 END
PROJECT NO. NH 5–2(160)37



3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\CAD\DGN\RD\8008000rdplpZ03.dgn	DESIGNED BY		ROAD PLANS	PRELIMINARY AGR	US 93 N – POST CREEK HILL / NH 5–2(160)37
2		3/2/2017	REVIEWED BY				
1		7:08:12 PM dillonmclain	CHECKED BY		LAKE COUNTY		CSF = 0.99928538 / UPN 8008000 / SHEET 36

ASSOCIATED PROJECT AGREEMENT NUMBERS	
P. E.	NH 5-2(159)37

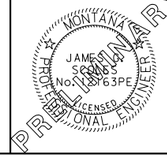
Morrison Maierle

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS AND QUANTITIES
FEDERAL AID PROJECT NH 5-2(160)37
US 93 N - POST CREEK HILL
LAKE COUNTY

BY _____

DATE _____



SHEET NO. B1

PRELIMINARY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
BRIDGE DRAWINGS		
B2	XXXXX	GENERAL LAYOUT AT STA. 55+00.00
B3	XXXXX	TYPICAL SECTION

DWG. NO.	TITLE
STANDARD DRAWINGS	
PSD (APPROVED 1-30-15)	STANDARD PILE SPLICE DETAILS AND PILE TIPS
MTS (REVISED 5-20-14)	STANDARD PRESTRESSED CONCRETE BEAM TYPE MTS
SL-8 (REVISED 5-20-14)	STANDARD SLAB AND DIAPHRAGM DETAILS
SBR-W830 (REVISED 5-20-14)	STANDARD BRIDGE RAIL TYPE W830
SBR-PED (REVISED 6-24-14)	STANDARD BRIDGE RAIL TYPE PEDESTRIAN

MDT MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

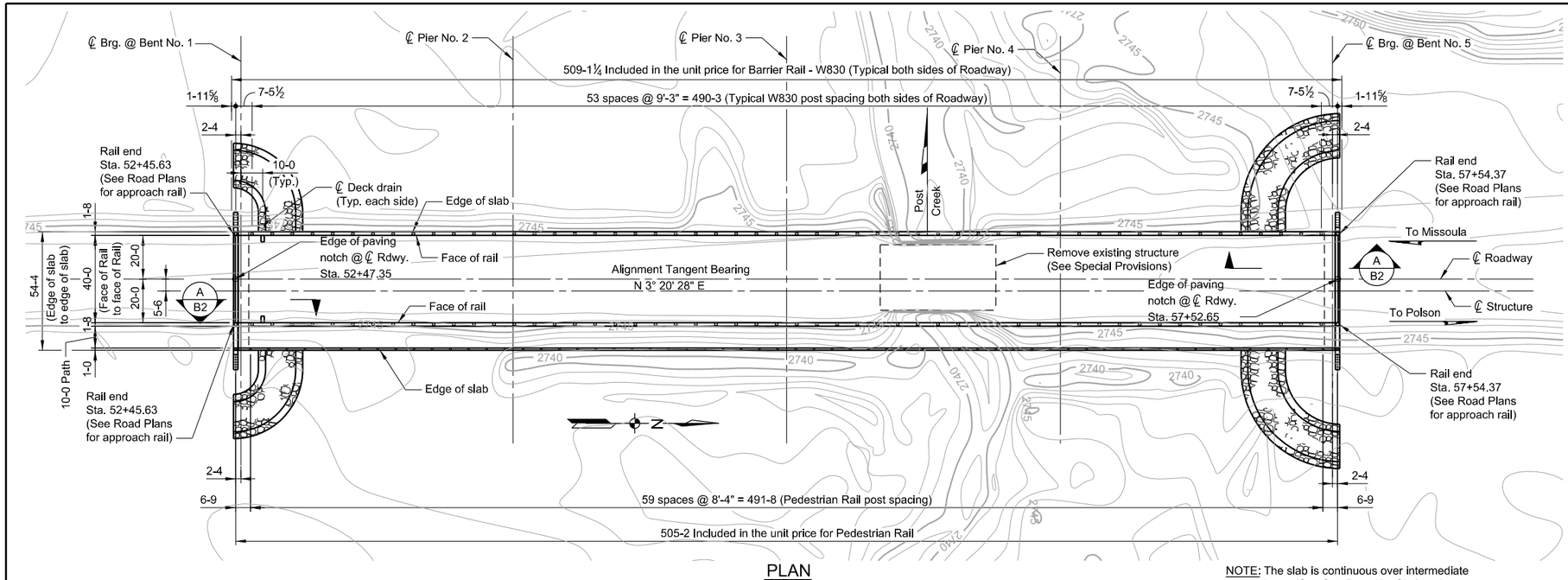
REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	XX-XX-XX	X.X.X.
DRAWN	10-20-15	D.A.D.
DESIGNED	10-15-15	J.G.S.
2/9/2017	8:25:14 AM	...\8008000\br\8008000BRQSHZ01.dgn

UPN NUMBER
8008000

MDT STRUCTURE
05245

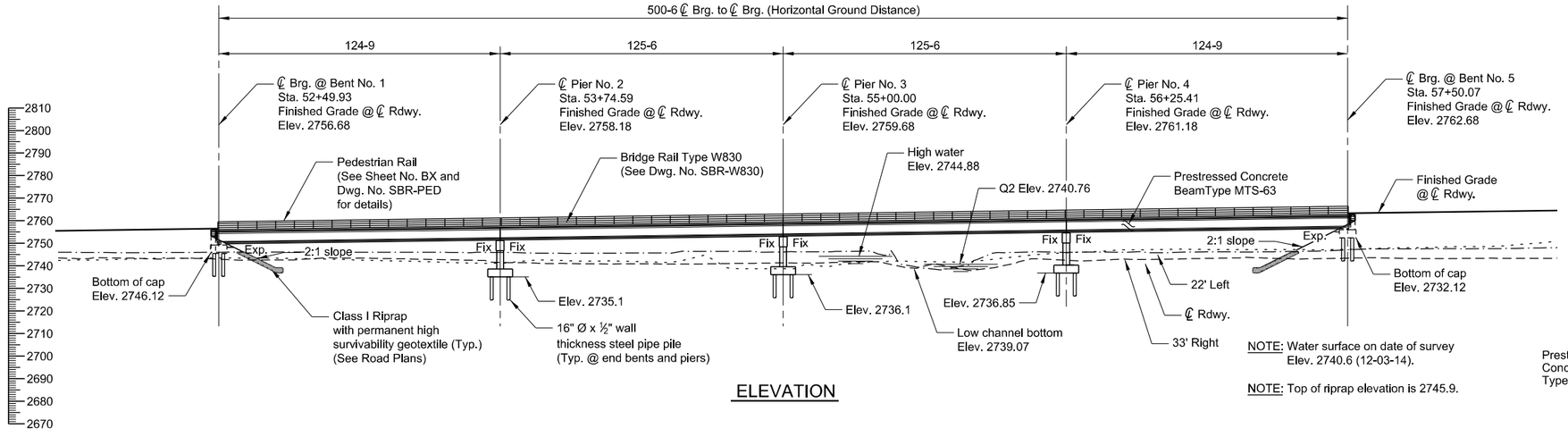
DRAWING NO.
XXXXX

Morrison Maierle



PLAN

NOTE: The slab is continuous over intermediate bents (See Std. Dwg. No. SL-8 and Sheet No. BXX)



ELEVATION

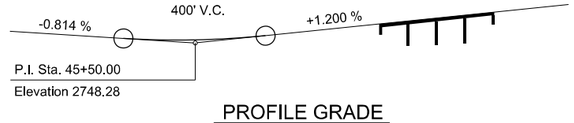
NOTE: Water surface on date of survey Elev. 2740.6 (12-03-14).

NOTE: Top of riprap elevation is 2745.9.

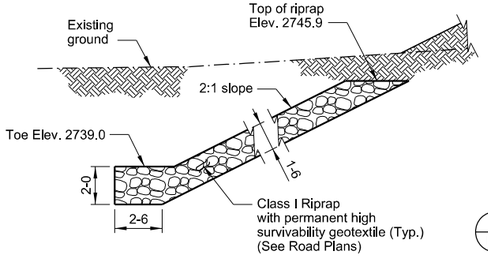
HYDRAULIC DATA

Drift:	Moderate
Pier Scour (Q100):	1.2'
Contraction Scour (Q100):	0.0'
Ice:	Minor
Drainage Area:	63.65 sq. mi.
2-year Stage (Q2):	2,740.76
Base Flood Flow (Q100):	3,205 cfs
✱ Base Flood Stage:	2,744.88
Base Flood Velocity:	6.1 fps
Actual Low Beam Elevation:	2749.79
Allowable Low Beam Elevation:	2,745.88

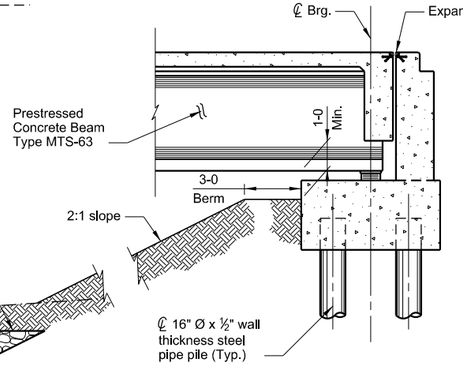
Also see Hydraulic Data Summary sheet.
✱ Base Flood Stage elevation includes backwater



PROFILE GRADE
No Scale



A B2 SECTION A
Scale ~ ¼" = 1'-0"
(Bent No. 5 shown, Bent No. 1 similar)



NOTES

FINISHED GRADE: Finished grade of bridge at centerline roadway is the same as the Profile Grade shown on Road Plans.

LIVE LOAD: Standard HL-93 loading.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard Specifications for Road and Bridge Construction, 2012 edition, and any amendments thereto, and the Special Provisions govern unless otherwise noted. The design was prepared in accordance with AASHTO LRFD Bridge Design Specifications, Seventh edition - 2015 with XXXX Interim revisions.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31 Grade 60 or ASTM Specification A 706 Grade 60 as specified. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for either Reinforcing Steel, Reinforcing Steel - Epoxy or Reinforcing Steel - Seismic.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Concrete Class Structure for all substructure concrete and Concrete Class Deck for all superstructure concrete.

CONCRETE STRENGTH: Use f'c = 4000 p.s.i. for Concrete Class Structure. Use f'c = 4000 p.s.i. for Concrete Class Deck.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Concrete Class Structure at end bents. Structure excavation at piers will be calculated from natural ground lines as they exist prior to construction.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATIONS: See Special Provisions.

UTILITIES: Call 1-800-424-5555 for utility locates at least two working days prior to starting any construction activity that could disturb the utility.

EXISTING STRUCTURE: Remove the existing structure (see Road Plans sheets and Special Provisions).

STATE PLANE COORDINATES: Stations shown on the bridge plans are state plane grid stations based on (NAD83-1992). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this locations is 0.99928538.
Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake.

SHEET NO. B2

GENERAL LAYOUT

SCALE: 1" = 30'-0" Except as noted

BRIDGE OVER POST CREEK

REFERENCE POINT 37.79

ROUTE P-5

AT STA. 55+00.00

FEDERAL AID PROJECT NO. NH 5-2(160)37

LAKE COUNTY

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE BUREAU

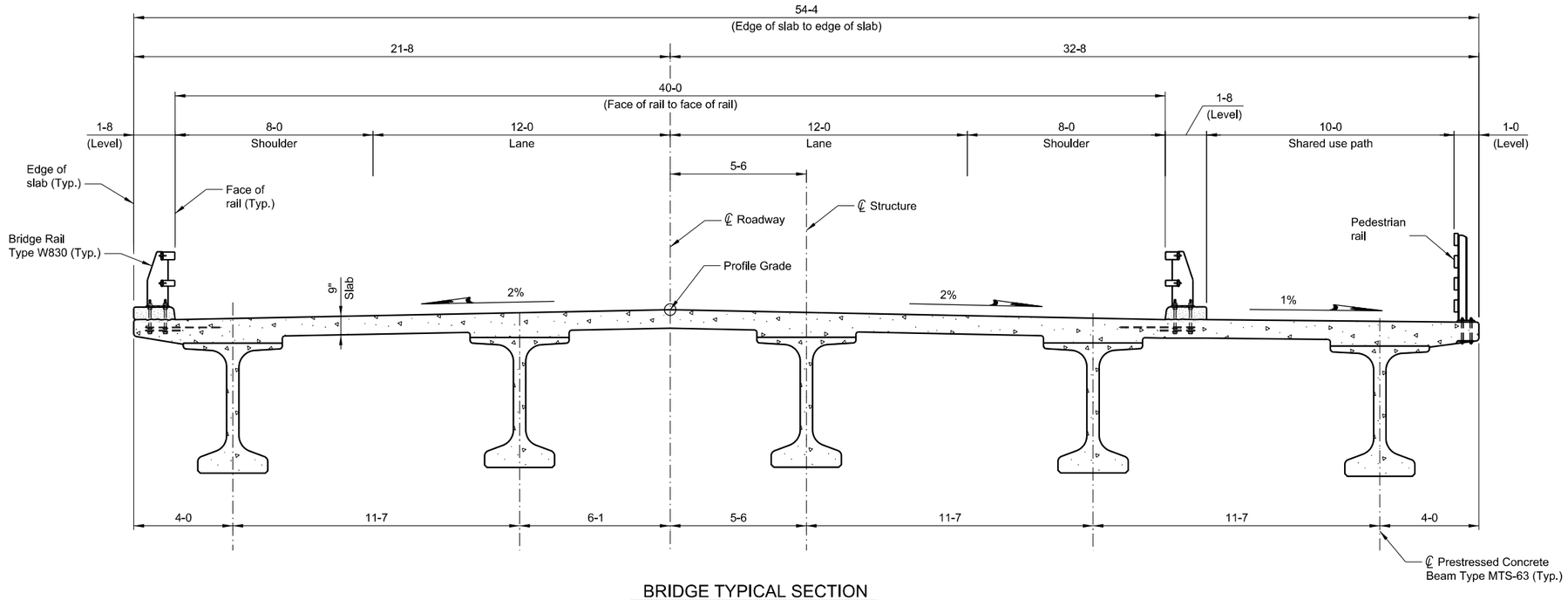
REVISED							
REVISED							
REVISED							
REVISED				XX-XX-XX	X.X.X.		
CHECKED				10-21-15	D.A.D.		
DRAWN				10-15-15	J.G.S.		
DESIGNED				2/9/2017	8:32:25 AM	...\br80080000BRGENZ01.dgn	

UPN NUMBER 8008000

MDT STRUCTURE 05245

DRAWING NO. XXXXX

Morrison Maierle



BRIDGE TYPICAL SECTION
(Ahead on line)

Bridge rail type to be determined at AGR 2 ie W830 Rail vs. Concrete Barrier

SHEET NO.
B3

TYPICAL SECTION

SCALE: 3/8" = 1'-0"

BRIDGE OVER POST CREEK
AT STA. 55+00.00

REFERENCE POINT
37.79

ROUTE
P-5

PRELIMINARY

FEDERAL AID PROJECT NO.
NH 5-2(160)37

LAKE COUNTY

MDT
MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

REVISED					
REVISED					
REVISED					
REVISED					
CHECKED	XX-XX-XX	X.X.X.			
DRAWN	09-15-15	D.A.D.			
DESIGNED	09-15-15	J.G.S.			
2/9/2017	8:30:43 AM	...\8008000\br\8008000BRGENZ02.dgn			

UPN NUMBER
8008000

MDT STRUCTURE
05245

DRAWING NO.
XXXXX