

LAKE ELMO C. FLUMINEA ERADICATION PROJECT

FWP#21-21

Summary of Work:

PREPARED FOR:

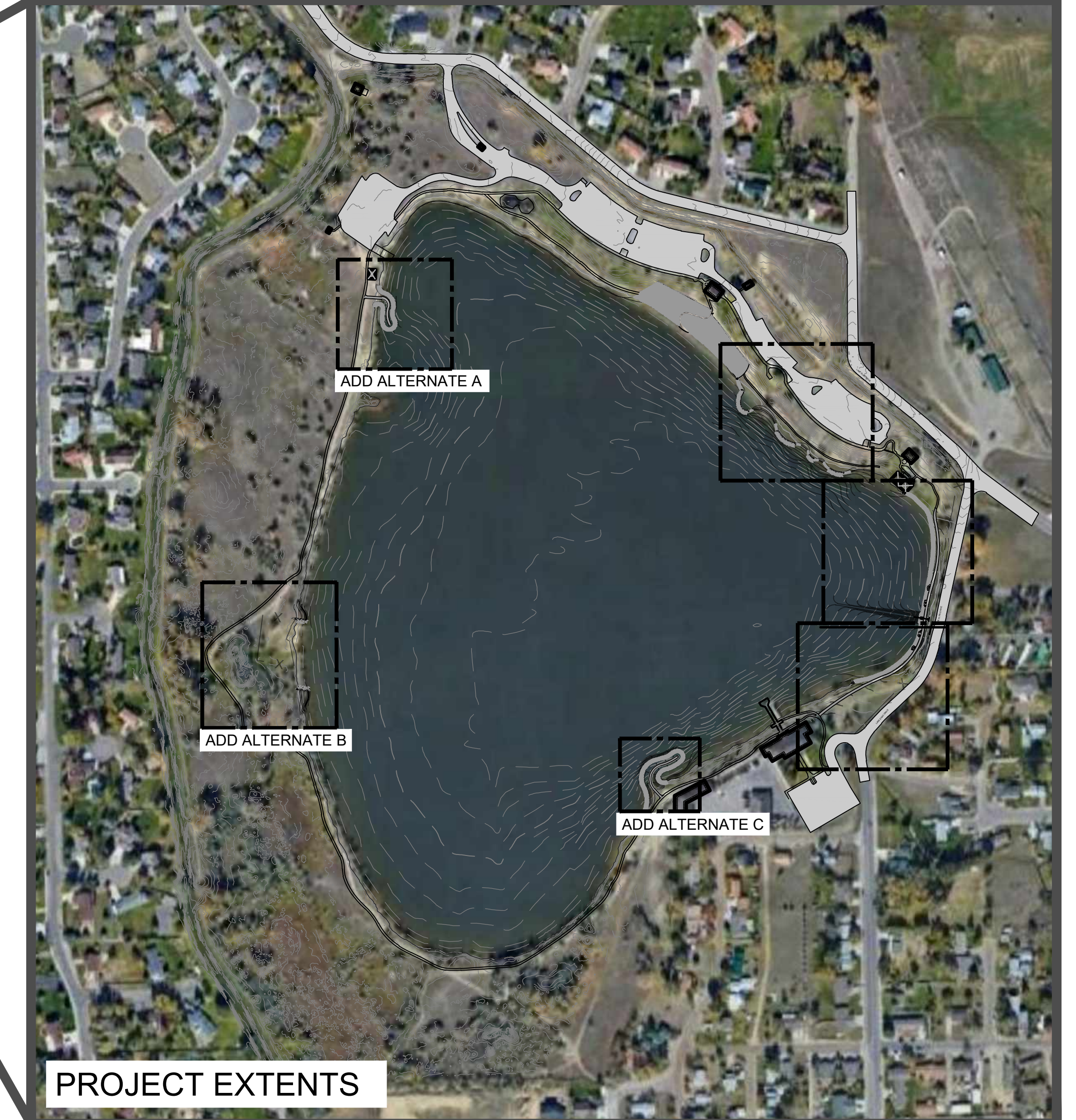
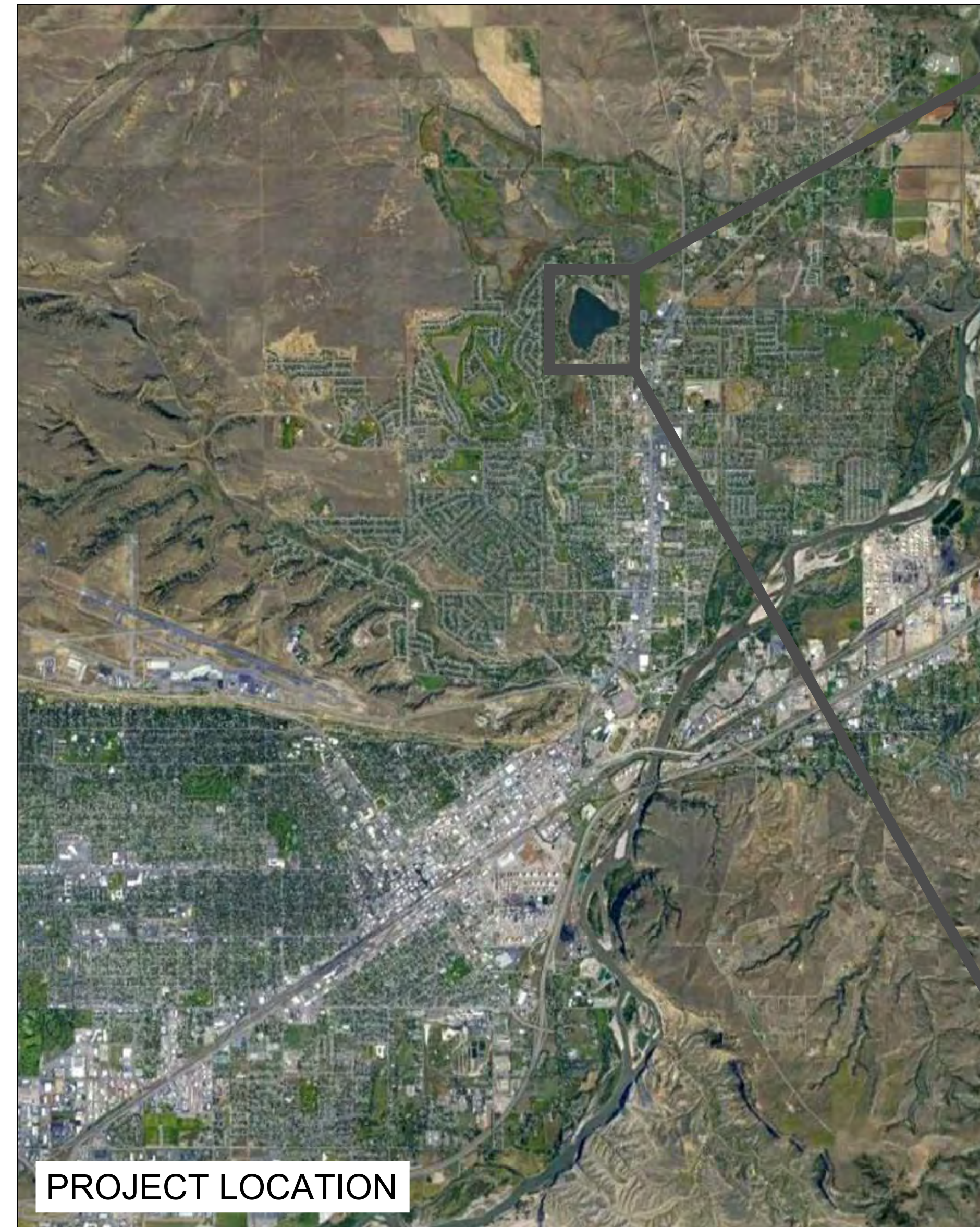


Base Bid: Base Bid construction includes the expansion and reinforcement of the east bank of Lake Elmo, the expansion and reinforcement of the north-east bank of Lake Elmo, and procurement and stockpiling of bulk stone materials onsite for use by FWP to construct fish habitat structures. The Base Bid items include demo, bank & basin grading, rip rap bank stabilization, block rock retaining wall construction, sandstone slab bank reinforcement, granite boulder placement, concrete pedestrian trail construction, topsoil import and placement, native seeding and site restoration, gravel & rip rap material supply and stockpile.

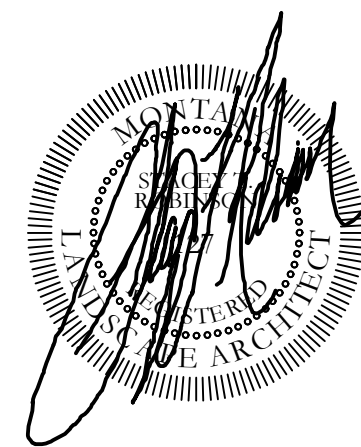
Additive Alternate A - West Jetty: Additive Alternate A is generally described as the construction of a new fishing jetty on the west bank of Lake Elmo. Additive Alternate A bid items include bank & basin grading, rip rap bank stabilization, concrete pedestrian trail construction, topsoil import and placement, native seeding and site restoration.

Additive Alternate B - West Bank Restoration: Additive Alternate B is generally described as the construction of bank projections to the north and south of the existing dog park on the west bank of Lake Elmo. Additive Alternate B bid items include bank & basin grading, block rock retaining wall construction, topsoil import and placement, native seeding and site restoration.

Additive Alternate C - South Jetty: Additive Alternate C is generally described as the construction of a new fishing jetty on the south bank of Lake Elmo west of the fishing pier. Additive Alternate C bid items include bank & basin grading, rip rap bank stabilization, gravel pedestrian trail construction, topsoil import and placement, native seeding and site restoration.



Prepared By:



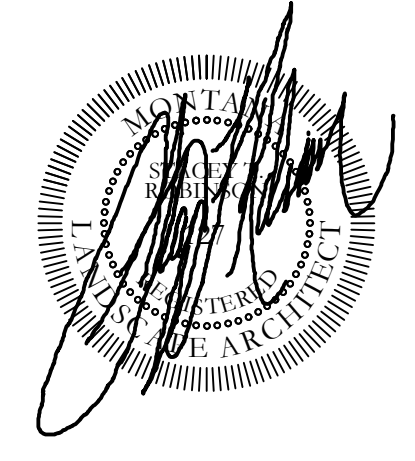
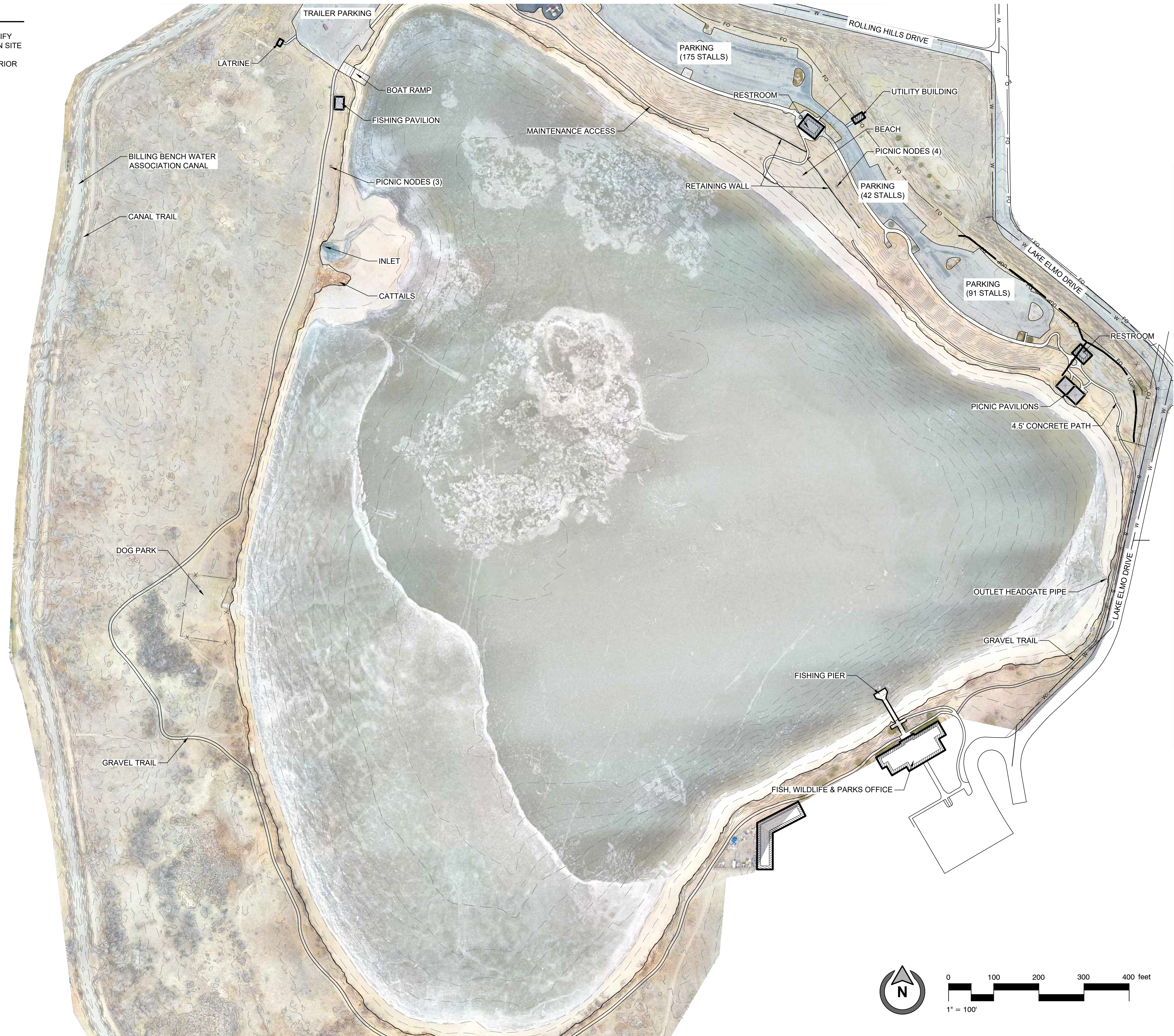
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SITE NOTES

1. SITE BASE INFORMATION AS PROVIDED BY OTHER, MAY NOT DEPICT ACTUAL SITE CONDITIONS. CONTRACTOR SHALL VERIFY ALL QUANTITIES, MEASUREMENTS, AND ELEVATIONS WITH ON SITE CONDITIONS.
2. CONTRACTOR SHALL VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. CALL FOR UTILITY LOCATES PRIOR TO COMMENCING WORK.



EXISTING CONDITIONS

FWP#21-21 LAKE ELMO PROJECT

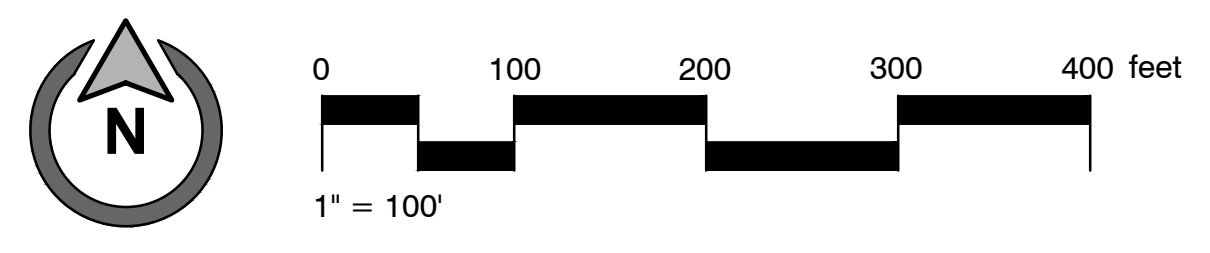
C. FLUMINEA ERADICATION, FISHERIES & PARKS - BILLINGS, MT

Issue Date:	9/10/2021
Revision	Date
BID DOCUMENTS	
Drawn By:	EM
Checked By:	MV
Job Code:	FWP#21-21

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L.O.0

EXISTING CONDITIONS

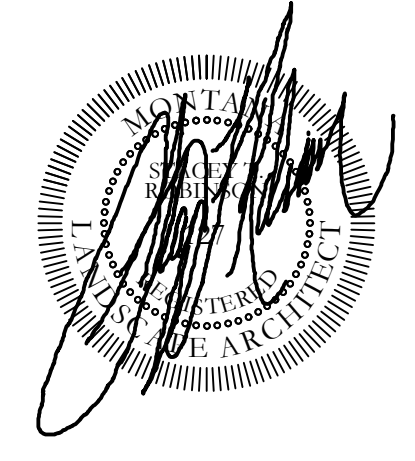
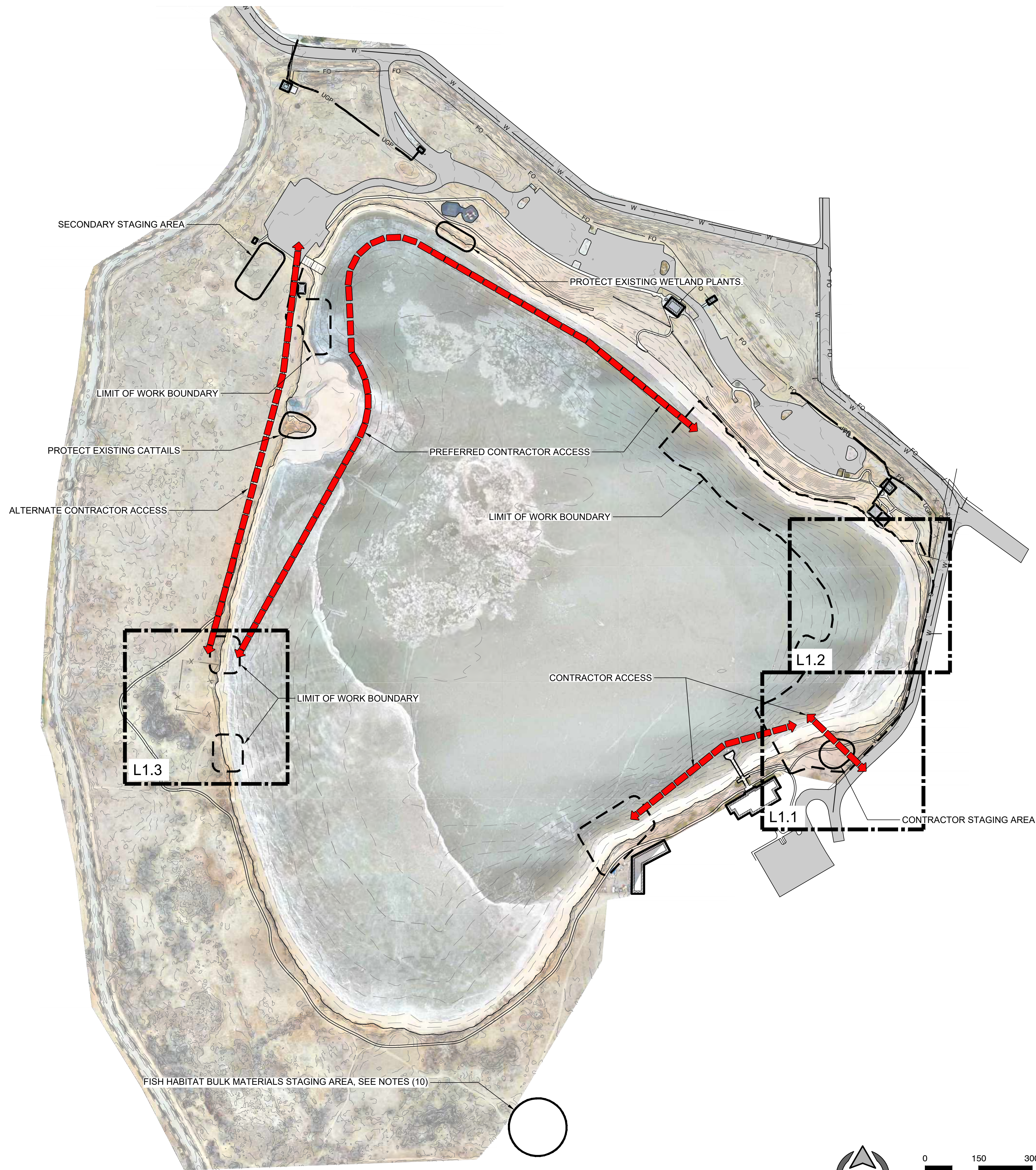


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DEMO NOTES

1. TREE PROTECTION:
CONTRACTOR SHALL PROTECT EXISTING TREES WITH A 4 FOOT MINIMUM HEIGHT CONSTRUCTION FENCE & TEE POSTS AS SHOWN ON PLANS. FENCE SHALL REMAIN STANDING IN PLACE THROUGHOUT CONSTRUCTION. NO MATERIAL STAGING OR VEHICLE PARKING IS PERMITTED WITHIN THE CANOPY DRIP EDGE ON ALL EXISTING TREES WITHIN THE PROJECT BOUNDARY.
2. DEMO TREES:
REMOVE TREE AND GRIND STUMP. REMOVE ALL ORGANIC MATERIAL AND WOOD CHIPS FOR PAVING PREP PER MPW SPEC. 02230-6TH EDITION. BACKFILL AND COMPACT STUMP CAVITIES AS REQUIRED.
3. PROTECT EXISTING LANDSCAPE WHEREVER POSSIBLE.
4. PROVIDE SITE USAGE PLAN FOR APPROVAL BY OWNER'S REPRESENTATIVE.
5. CONTRACTOR SHALL RECLAIM ALL DISTURBED AREAS PER SPECIFICATIONS.
6. DEMO AND HAUL DELETERIOUS MATERIAL SUCH AS CONCRETE CHUNKS, SCRAP METAL AND ABANDONED PIPING AS OCCURRING TO 24" BELOW EXISTING GROUND SURFACE.
7. STAGING AREAS REPRESENT ALLOWED LOCATION. ALTERNATIVE LOCATIONS WILL BE CONSIDERED UPON REQUEST.
8. CONTRACTOR ACCESS ROUTES ON-SITE SHOULD PRIORITIZE IN-BASIN TRAVEL LANES. ALTERNATE ROUTES WILL BE CONSIDERED IF ADVERSE CONDITIONS EXIST.
9. PRESERVE EXISTING WOODY VEGETATION AND WETLAND PLANTS UNLESS SPECIFICALLY NOTED IN PLANS. CONTACT OWNER'S REPRESENTATIVE IN CASE OF CONFLICTS.
10. OWNER TO STAKE EXACT LOCATION FOR FISH HABITAT BULK MATERIALS STAGING AREA.



DEMO PLAN OVERALL
FWP#21-21 LAKE ELMO PROJECT
 C. FLUMINEA ERADICATION, FISHERIES & PARKS - BILLINGS, MT

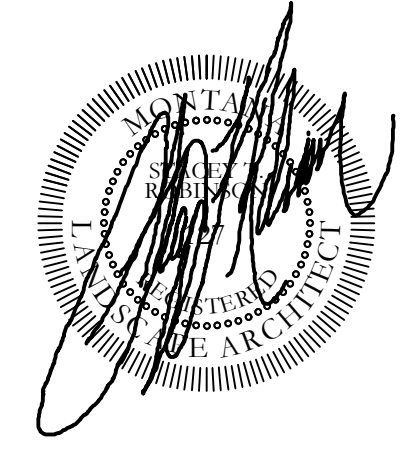
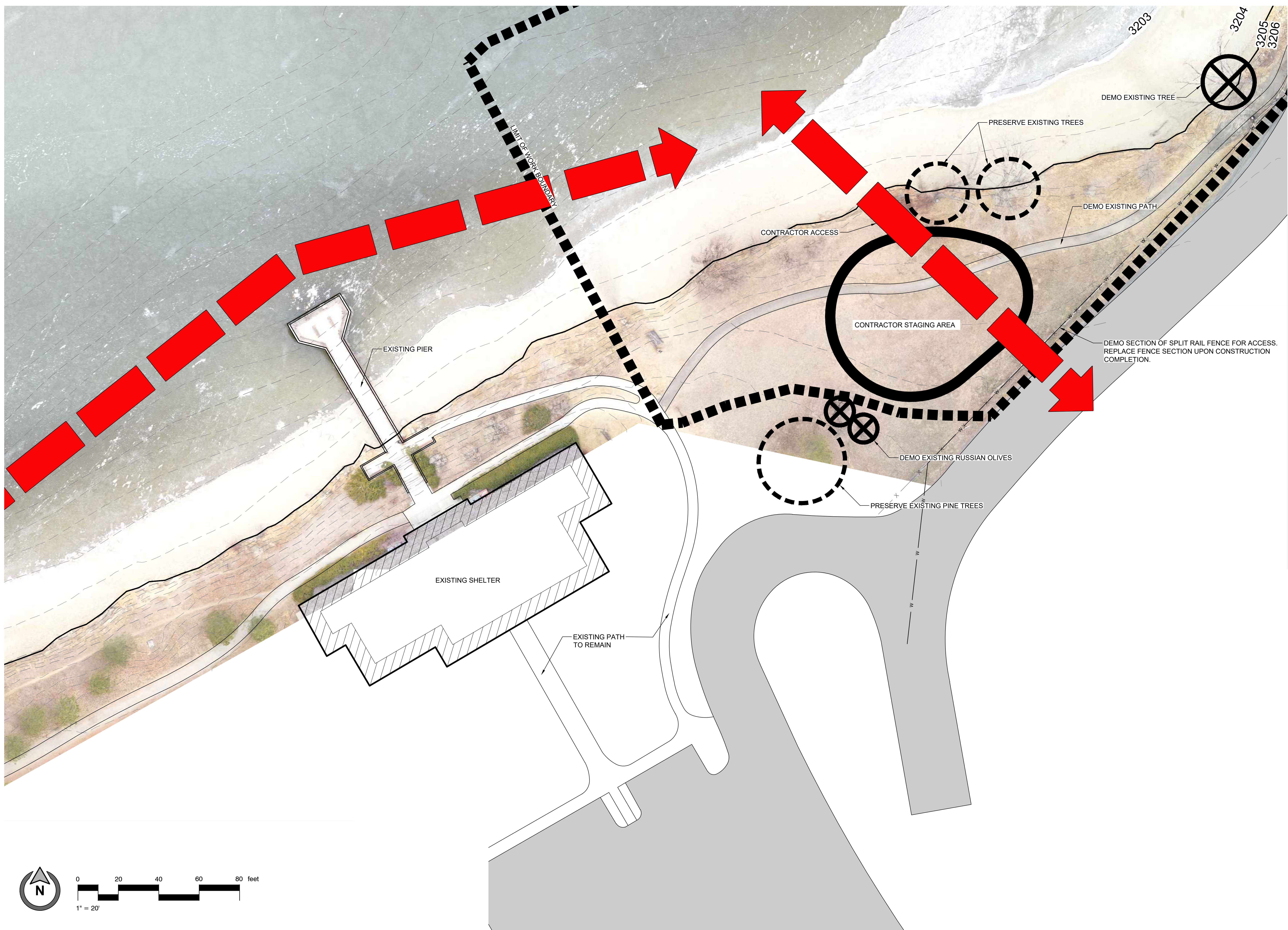
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BID DOCUMENTS	

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L1.0
 DEMO PLAN OVERALL
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DEMO PLAN SOUTHEAST BANK

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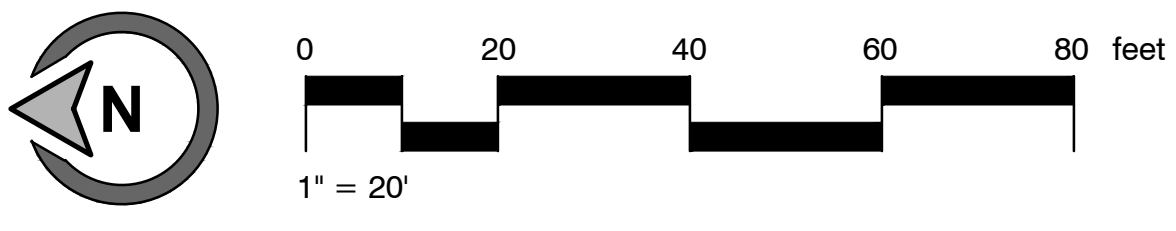
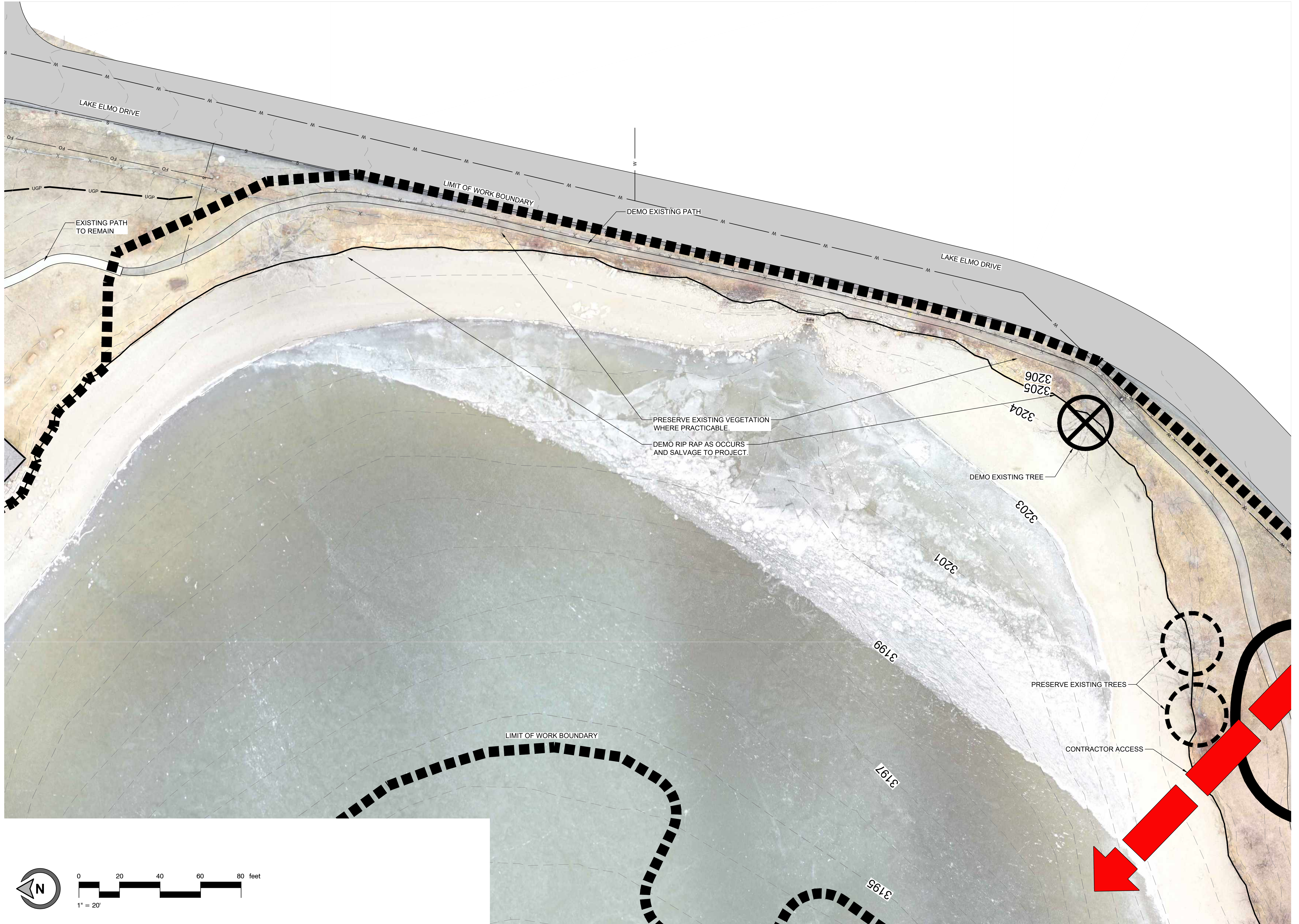
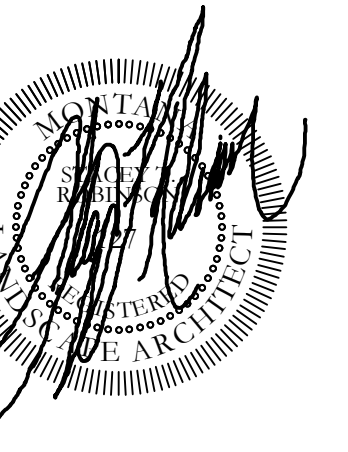
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L1.1

DEMO PLAN SOUTHEAST BANK



DEMO PLAN EAST BANK

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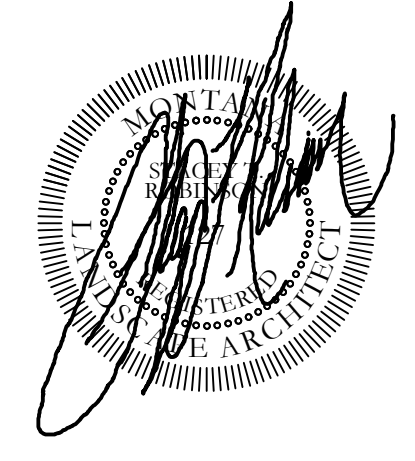
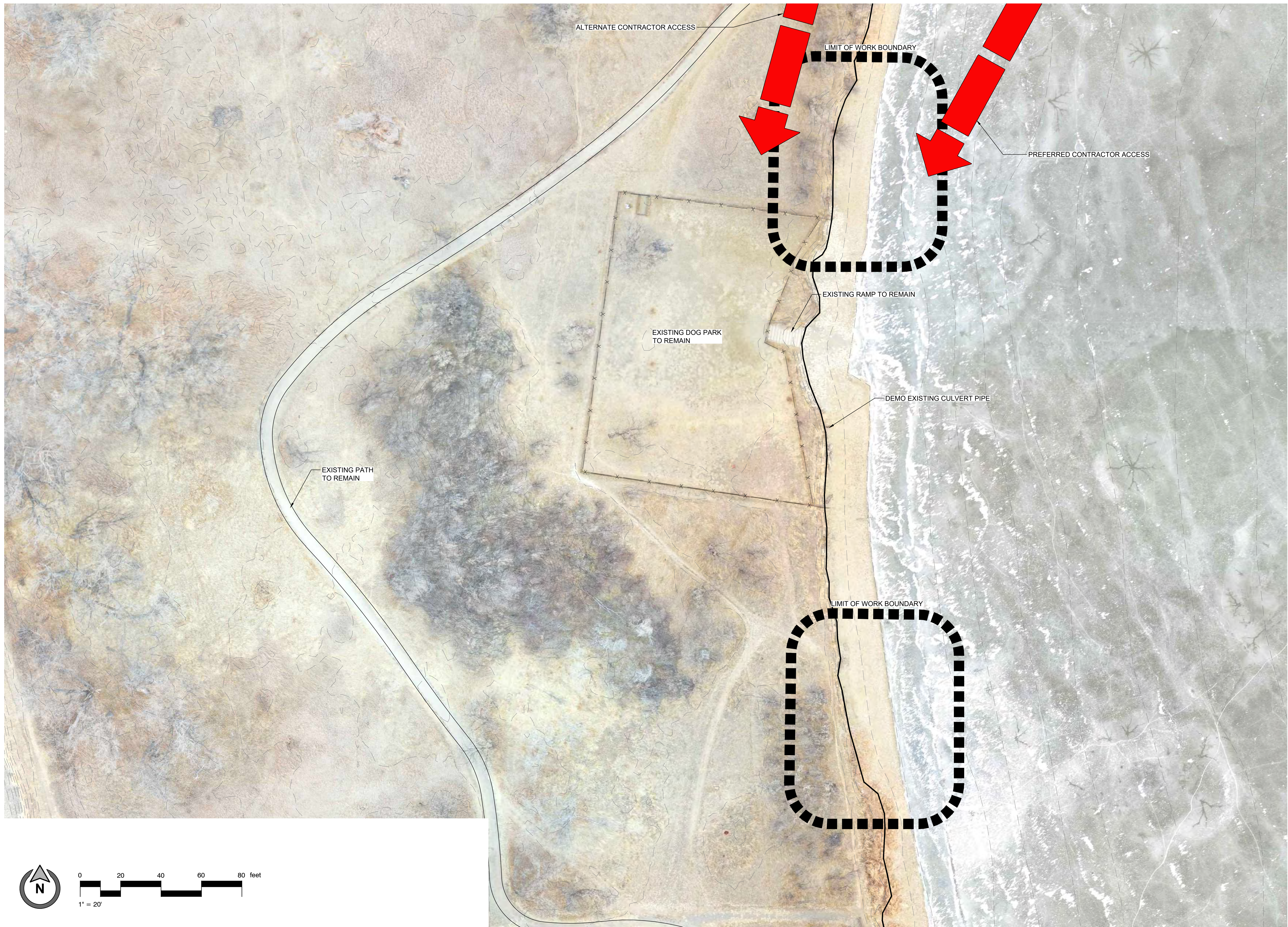
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L1.2

DEMO PLAN EAST BANK



DEMO PLAN WEST BANK

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L1.3

DEMO PLAN WEST BANK

NORTHING/EASTING POINT SCHEDULE

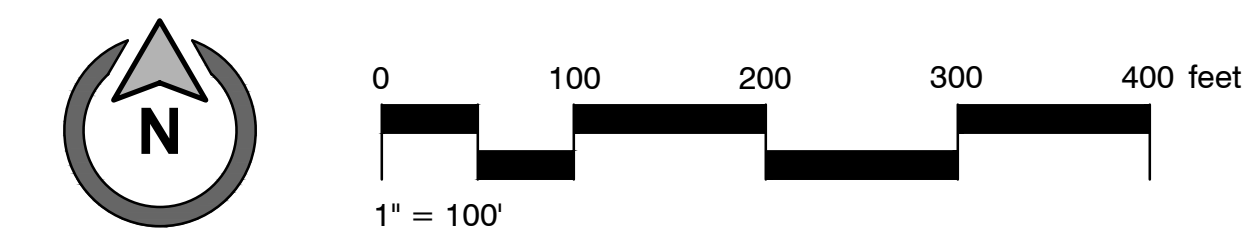
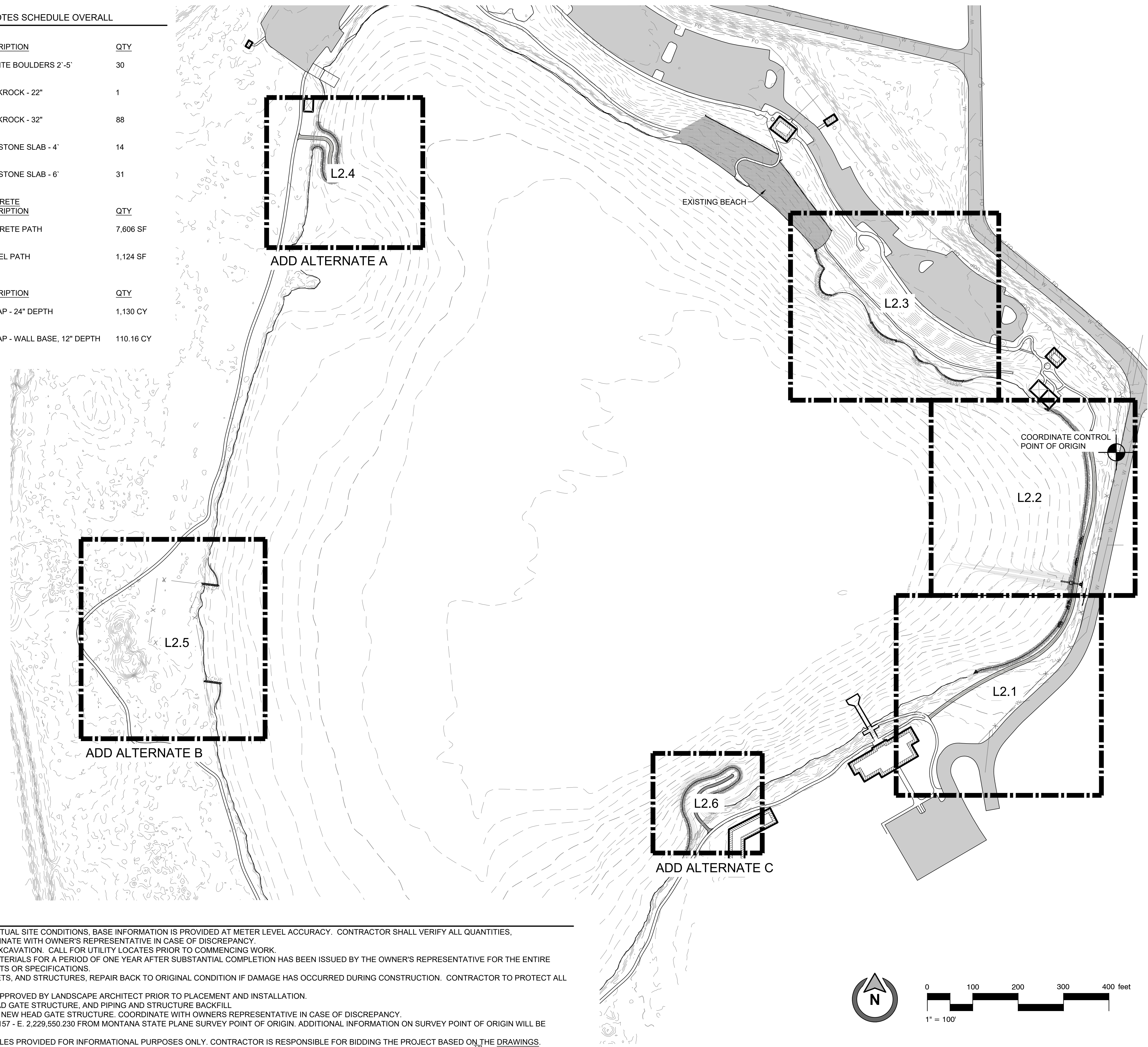
POINT	NORTHING	EASTING
1	S 584.114	W 412.482
2	S 553.604	W 372.881
3	S 525.762	W 331.361
4	S 500.707	W 288.101
5	S 478.547	W 243.290
6	S 458.887	W 197.325
7	S 431.579	W 155.621
8	S 394.161	W 122.684
9	S 349.331	W 100.886
10	S 300.468	W 90.597
11	S 251.131	W 82.482
12	S 202.269	W 71.956
13	S 154.233	W 58.102
14	S 105.030	W 49.468
15	S 55.093	W 48.073
16	S 5.484	W 53.948
17	N 43.726	W 57.188
18	N 49.049	W 55.391
19	S 483.387	W 308.654
20	S 378.242	W 122.704
21	S 335.263	W 102.763
22	S 287.726	W 95.125
23	S 242.331	W 86.641
24	S 193.369	W 76.734
25	N 94.967	W 151.586
26	N 161.632	W 316.621
27	N 156.849	W 340.333
28	N 159.833	W 361.377
29	N 170.063	W 380.858
30	N 189.104	W 397.921
31	N 196.818	W 414.439
32	N 203.923	W 436.337
33	N 199.518	W 427.521
34	N 212.478	W 441.608
35	N 224.377	W 445.454
36	N 242.230	W 468.567
37	N 246.107	W 485.681
38	N 251.808	W 504.850
39	N 264.173	W 523.113
40	N 284.825	W 537.994
41	N 306.474	W 545.663
42	N 350.281	W 615.952
43	N 345.996	W 631.372
44	N 351.102	W 645.058
45	N 364.687	W 653.270
46	N 384.955	W 652.907
47	N 404.557	W 643.144
48	N 411.760	W 648.892
49	N 444.818	W 662.135
50	N 694.720	W 1801.929
51	N 693.506	W 1781.969
52	N 692.292	W 1762.006
53	N 690.010	W 1742.221
54	N 675.731	W 1729.217
55	N 656.166	W 1731.219
56	N 636.277	W 1732.420
57	N 616.923	W 1727.686
58	N 609.845	W 1724.277
59	N 728.416	W 1760.456
60	N 691.653	W 1720.208
61	N 641.184	W 1716.174
62	N 596.901	W 1719.853
63	N 626.482	W 1748.930
64	N 666.564	W 1747.879
65	N 673.214	W 1759.930
66	N 664.345	W 1770.545
67	S 230.257	W 1999.281
68	S 288.240	W 2013.782
69	S 292.963	W 1976.776
70	S 503.117	W 2008.746
71	S 508.139	W 1971.111
72	S 574.416	W 1984.916
73	S 834.077	W 895.017
74	S 819.437	W 908.643
75	S 804.361	W 921.741
76	S 785.763	W 928.655
77	S 765.984	W 927.069
78	S 748.725	W 917.280
79	S 737.214	W 901.119
80	S 730.992	W 882.125
81	S 722.744	W 863.920
82	S 712.194	W 846.946
83	S 709.737	W 843.450
84	S 845.011	W 939.196
85	S 805.181	W 948.223
86	S 758.956	W 953.461
87	S 721.862	W 917.576
88	S 711.483	W 881.367
89	S 694.173	W 851.206
90	S 701.597	W 830.949
91	S 721.535	W 833.114
92	S 750.200	W 883.392
93	S 780.252	W 903.450
94	S 787.981	W 877.622

REFERENCE NOTES SCHEDULE OVERALL

SYMBOL	ROCK DESCRIPTION	QTY
	GRANITE BOULDERS 2'-5'	30
	BLOCKROCK - 22"	1
	BLOCKROCK - 32"	88
	SANDSTONE SLAB - 4'	14
	SANDSTONE SLAB - 6'	31
SYMBOL	CONCRETE DESCRIPTION	QTY
	CONCRETE PATH	7,606 SF
	GRAVEL PATH	1,124 SF
SYMBOL	ROCK DESCRIPTION	QTY
	RIP RAP - 24" DEPTH	1,130 CY
	RIP RAP - WALL BASE, 12" DEPTH	110.16 CY

SITE NOTES

- SITE BASE INFORMATION AS PROVIDED BY OTHER, MAY NOT DEPICT ACTUAL SITE CONDITIONS, BASE INFORMATION IS PROVIDED AT METER LEVEL ACCURACY. CONTRACTOR SHALL VERIFY ALL QUANTITIES, MEASUREMENTS, AND ELEVATIONS WITH ON SITE CONDITIONS. COORDINATE WITH OWNER'S REPRESENTATIVE IN CASE OF DISCREPANCY.
- CONTRACTOR SHALL VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. CALL FOR UTILITY LOCATES PRIOR TO COMMENCING WORK.
- THE CONTRACTOR SHALL WARRANT ALL CONTRACTED WORK AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION HAS BEEN ISSUED BY THE OWNER'S REPRESENTATIVE FOR THE ENTIRE PROJECT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS OR SPECIFICATIONS.
- CONTRACTOR TO PROTECT ALL EXISTING UTILITIES, ROADS AND STREETS, AND STRUCTURES, REPAIR BACK TO ORIGINAL CONDITION IF DAMAGE HAS OCCURRED DURING CONSTRUCTION. CONTRACTOR TO PROTECT ALL EXISTING LANDSCAPE AND IRRIGATION ON ADJACENT PROPERTIES.
- LOCATION OF TREES, BOULDERS, AND TRAIL ALIGNMENT TO BE FIELD APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLACEMENT AND INSTALLATION.
- WORK NOT IN CONTRACT - DRAINAGE CUT, HEAD GATE PIPING AND HEAD GATE STRUCTURE, AND PIPING AND STRUCTURE BACKFILL
- CONTRACTOR SHALL CONFIRM WATER ELEVATION IN FIELD BASED OFF NEW HEAD GATE STRUCTURE. COORDINATE WITH OWNERS REPRESENTATIVE IN CASE OF DISCREPANCY.
- COORDINATE CONTROL POINT SHOWN ON DRAWING SET AT N. 581,942.157 - E. 2,229,550.230 FROM MONTANA STATE PLANE SURVEY POINT OF ORIGIN. ADDITIONAL INFORMATION ON SURVEY POINT OF ORIGIN WILL BE PROVIDED ON REQUEST.
- DIGITAL DRAWING FILES WILL BE PROVIDED UPON REQUEST. DIGITAL FILES PROVIDED FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR BIDDING THE PROJECT BASED ON THE DRAWINGS.



HARDSCAPE PLAN OVERALL

FWP#21-21 LAKE ELMO PROJECT

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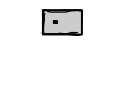



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HARDSCAPE PLAN OVERALL

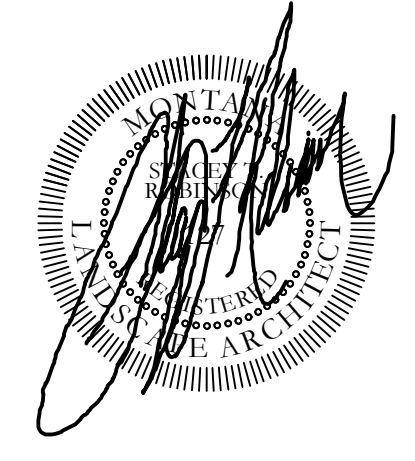
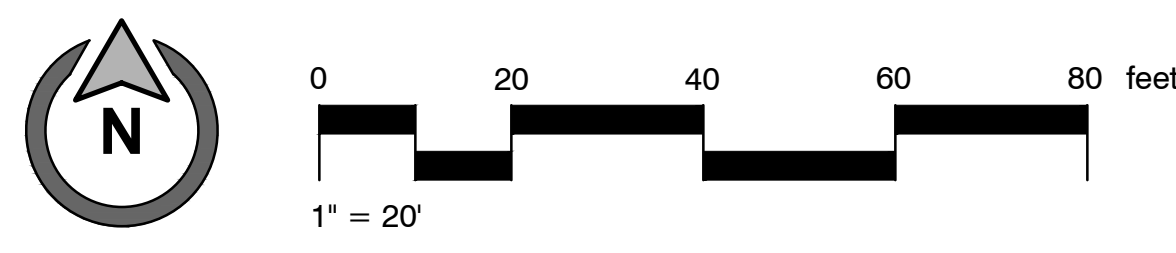
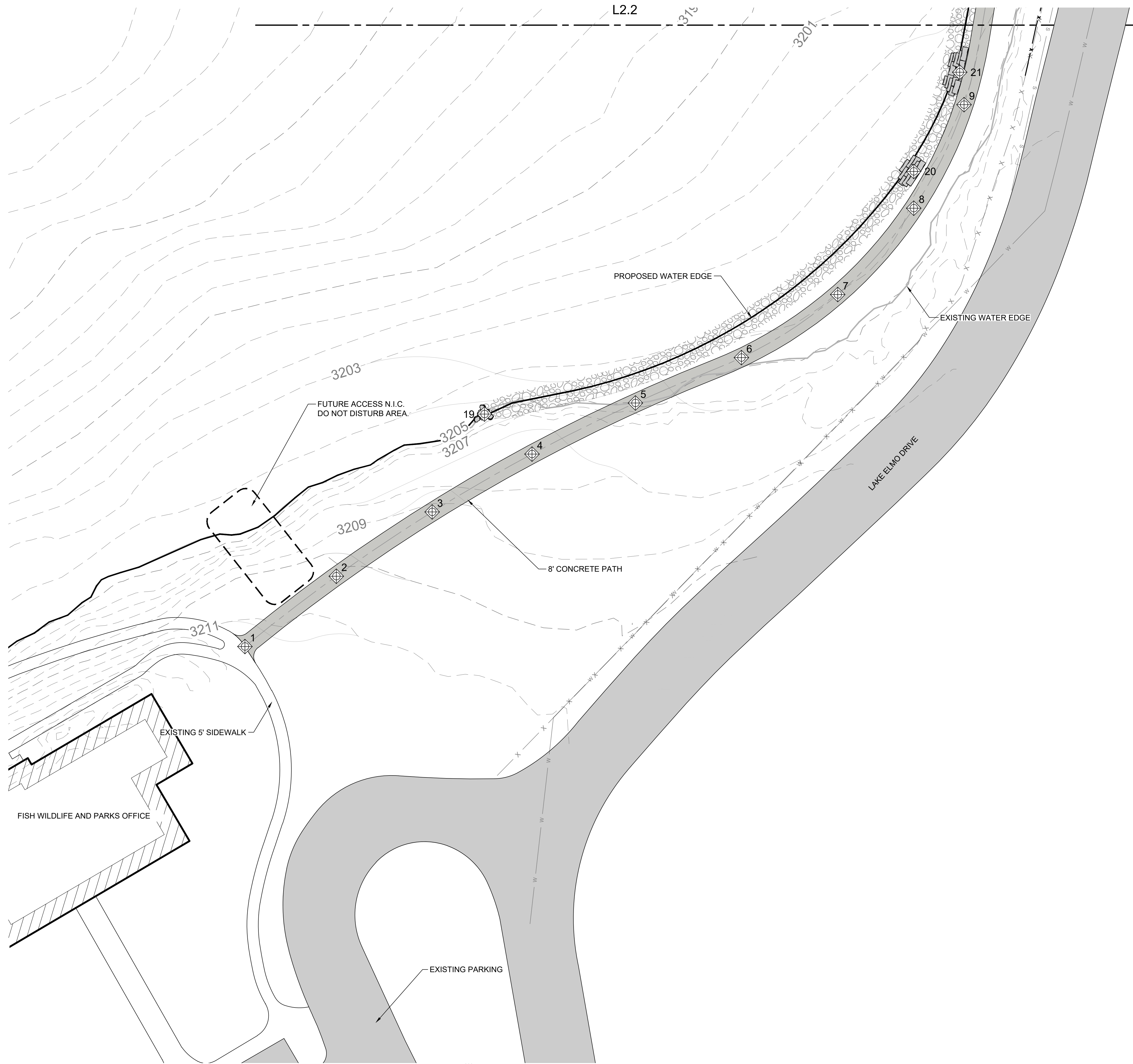
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REFERENCE NOTES SCHEDULE EAST BANK

SYMBOL	ROCK DESCRIPTION	QTY
	GRANITE BOULDERS 2'-5'	14
	SANDSTONE SLAB - 4'	14
	SANDSTONE SLAB - 6'	31
SYMBOL	CONCRETE DESCRIPTION	QTY
	CONCRETE PATH	6,409 SF
SYMBOL	ROCK DESCRIPTION	QTY
	RIP RAP - 24" DEPTH	543.77 CY

NORTHING/EASTING POINT SCHEDULE

POINT	DESCRIPTION	NORTHING	EASTING
1		S 584.114	W 412.482
2		S 553.604	W 372.881
3		S 525.762	W 331.361
4		S 500.707	W 288.101
5		S 478.547	W 243.290
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HARDSCAPE PLAN SOUTHEAST BANK

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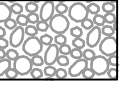
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HARDSCAPE PLAN SOUTHEAST BANK

REFERENCE NOTES SCHEDULE EAST BANK

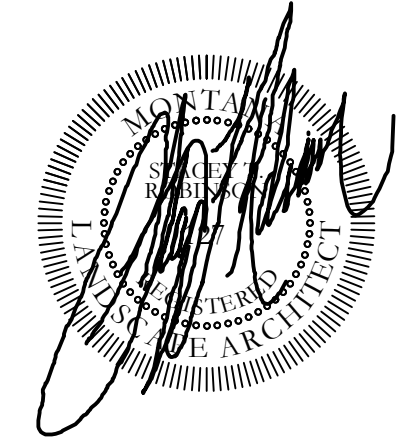
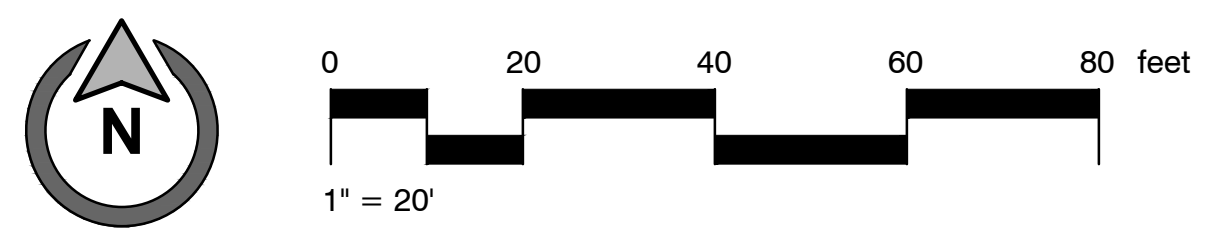
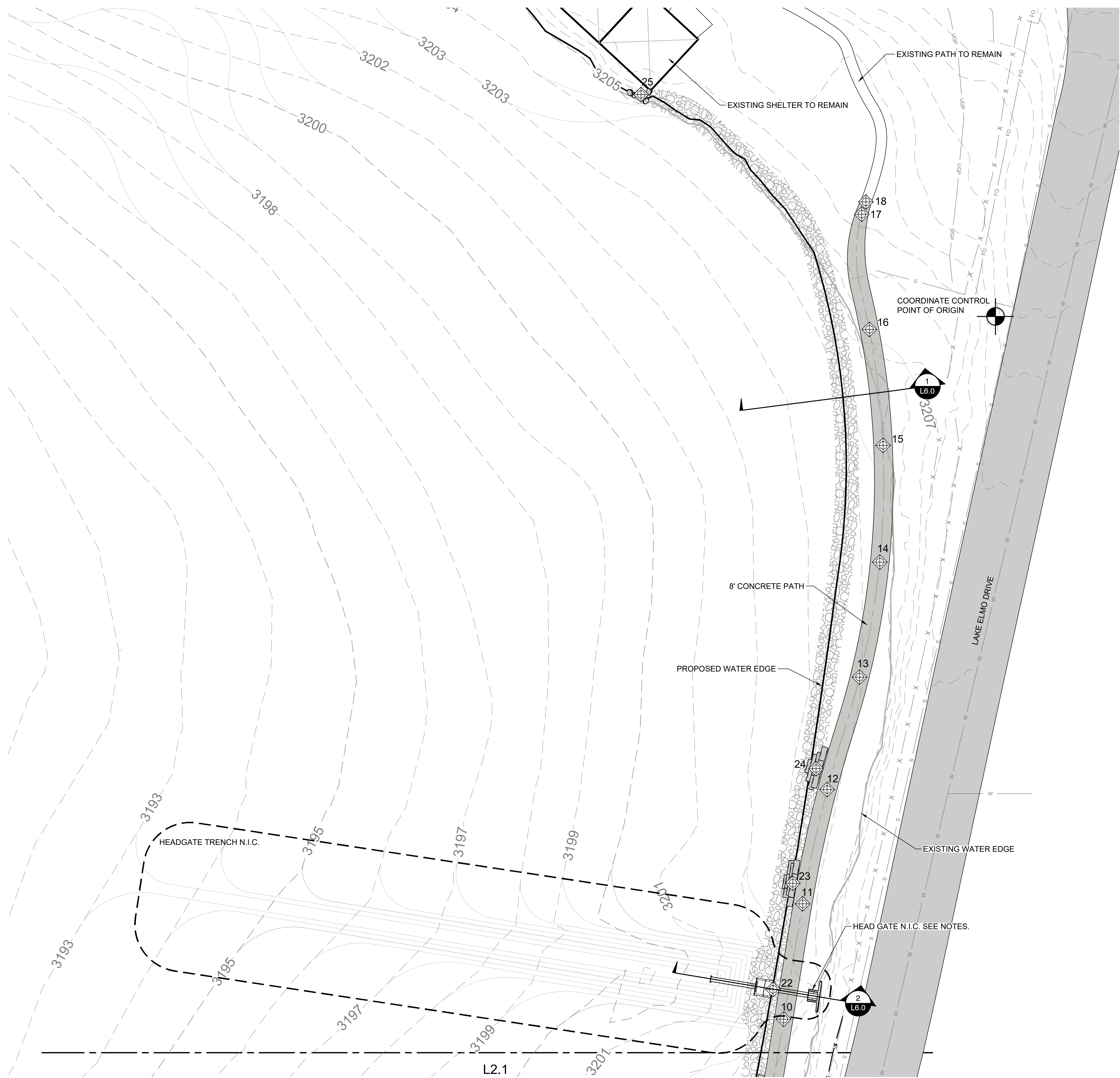
SYMBOL	ROCK DESCRIPTION	QTY
	GRANITE BOULDERS 2'-5'	14
	SANDSTONE SLAB - 4'	14
	SANDSTONE SLAB - 6'	31

SYMBOL	CONCRETE DESCRIPTION	QTY
	CONCRETE PATH	6,409 SF

SYMBOL	ROCK DESCRIPTION	QTY
	RIP RAP - 24" DEPTH	543.77 CY

NORTHING/EASTING POINT SCHEDULE

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HARDSCAPE PLAN EAST BANK

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L2.2

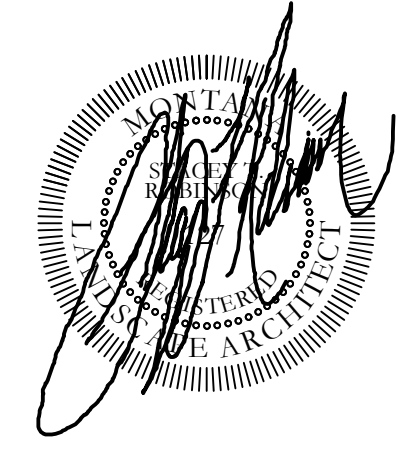
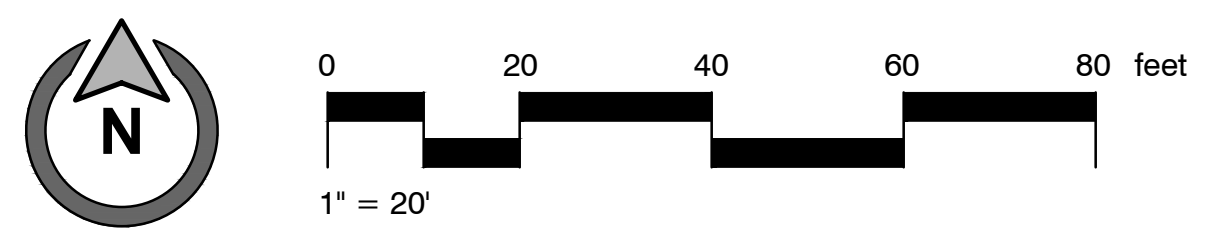
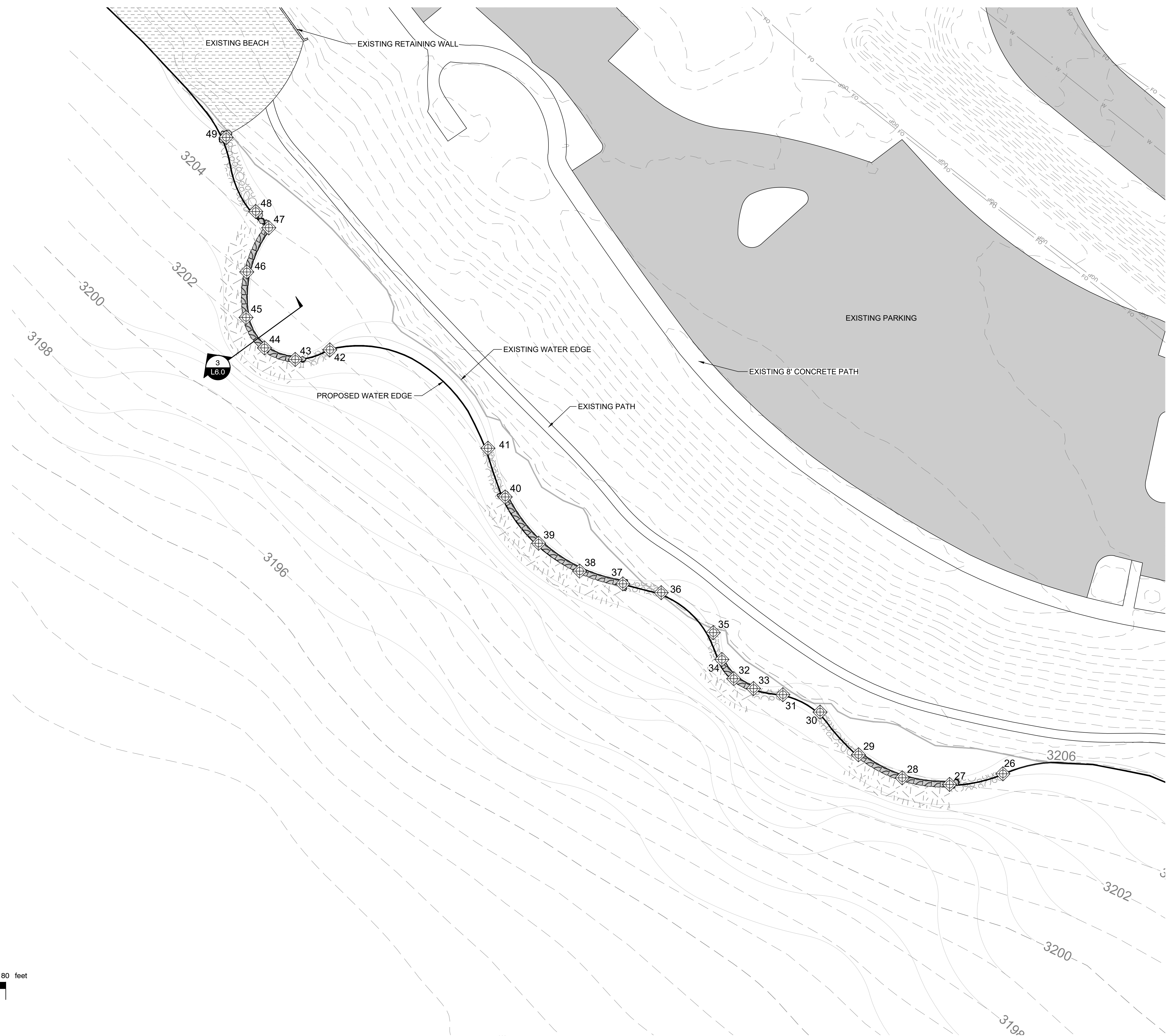
HARDSCAPE PLAN EAST BANK

REFERENCE NOTES SCHEDULE NORTHEAST BANK

SYMBOL	ROCK DESCRIPTION	QTY
	GRANITE BOULDERS 2'-5"	17
	BLOCKROCK - 32"	52
SYMBOL	ROCK DESCRIPTION	QTY
	RIP RAP - 24" DEPTH	68.02 CY
	RIP RAP - WALL BASE, 12" DEPTH	85.97 CY

NORTHING/EASTING POINT SCHEDULE

POINT	DESCRIPTION	NORTHING	EASTING
26		N 161.632	W 316.621
27		N 156.849	W 340.333
28		N 159.833	W 361.377
29		N 170.063	W 380.858
30		N 189.104	W 397.921
31		N 196.818	W 414.439
32		N 203.923	W 436.337
33		N 199.518	W 427.521
34		N 212.478	W 441.608
35		N 224.377	W 445.454
36		N 242.230	W 468.567
37		N 246.107	W 485.681
38		N 251.808	W 504.850
39		N 264.173	W 523.113
40		N 284.825	W 537.994
41		N 306.474	W 545.663
42		N 350.281	W 615.952
43		N 345.996	W 631.372
44		N 351.102	W 645.058
45		N 364.687	W 653.270
46		N 384.955	W 652.907
47		N 404.557	W 643.144
48		N 411.760	W 648.892
49		N 444.818	W 662.135



HARDSCAPE PLAN NORTHEAST BANK

FWP#21-21 LAKE ELMO PROJECT

C. FLUMINEA ERADICATION, FISHERIES & PARKS - BILLINGS, MT

Issue Date:	9/10/2021
Revision	Date
BID DOCUMENTS	
Drawn By:	EM
Checked By:	MV
Job Code:	FWP#21-21

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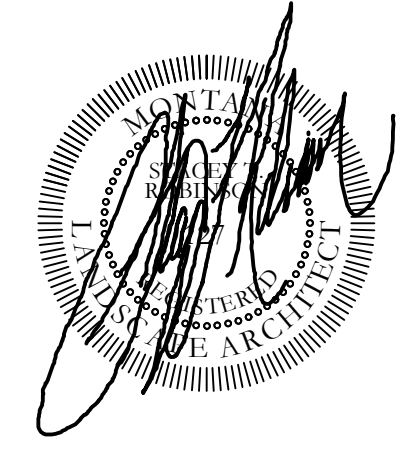
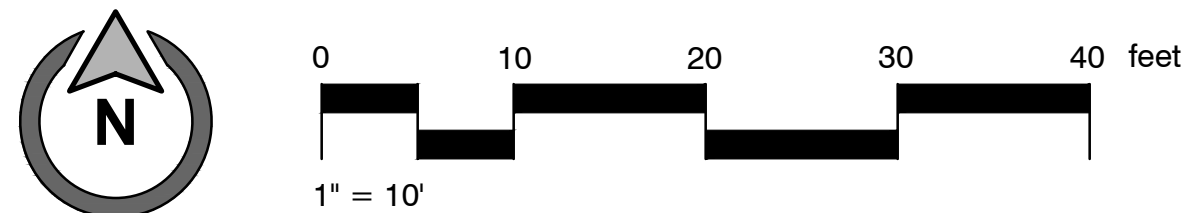
L2.3
 HARDSCAPE PLAN
 NORTHEAST BANK

REFERENCE NOTES SCHEDULE WEST JETTY

SYMBOL	CONCRETE DESCRIPTION	QTY
	CONCRETE PATH	1,197 SF
SYMBOL	ROCK DESCRIPTION	QTY
	RIP RAP - 24" DEPTH	208.43 CY

NORTHING/EASTING POINT SCHEDULE

POINT	DESCRIPTION	NORTHING	EASTING
50		N 694.720	W 1801.929
51		N 693.506	W 1781.969
52		N 692.292	W 1762.006
53		N 690.010	W 1742.221
54		N 675.731	W 1729.217
55		N 656.166	W 1731.219
56		N 636.277	W 1732.420
57		N 616.923	W 1727.686
58		N 609.845	W 1724.277
59		N 728.179	W 1757.487
60		N 691.653	W 1720.208
61		N 641.184	W 1716.174
62		N 596.901	W 1719.853
63		N 626.482	W 1748.930
64		N 666.564	W 1747.879
65		N 673.214	W 1759.930
66		N 664.345	W 1770.545



ADD ALT A - HARDSCAPE PLAN WEST JETTY

FWP#21-21 LAKE ELMO PROJECT

C. FLUMINEA ERADICATION, FISHERIES & PARKS - BILLINGS, MT


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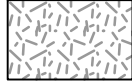
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L2.4

WEST JETTY
ADD ALT. A

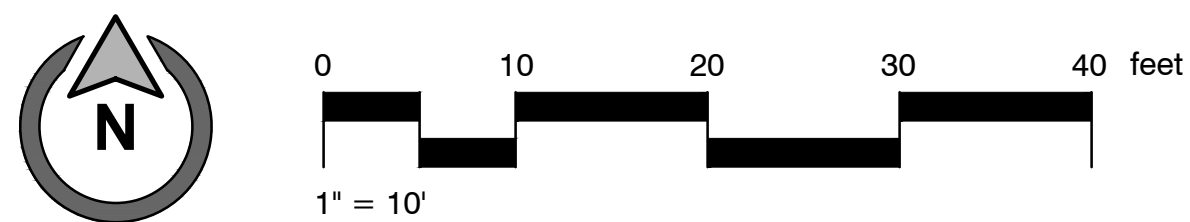
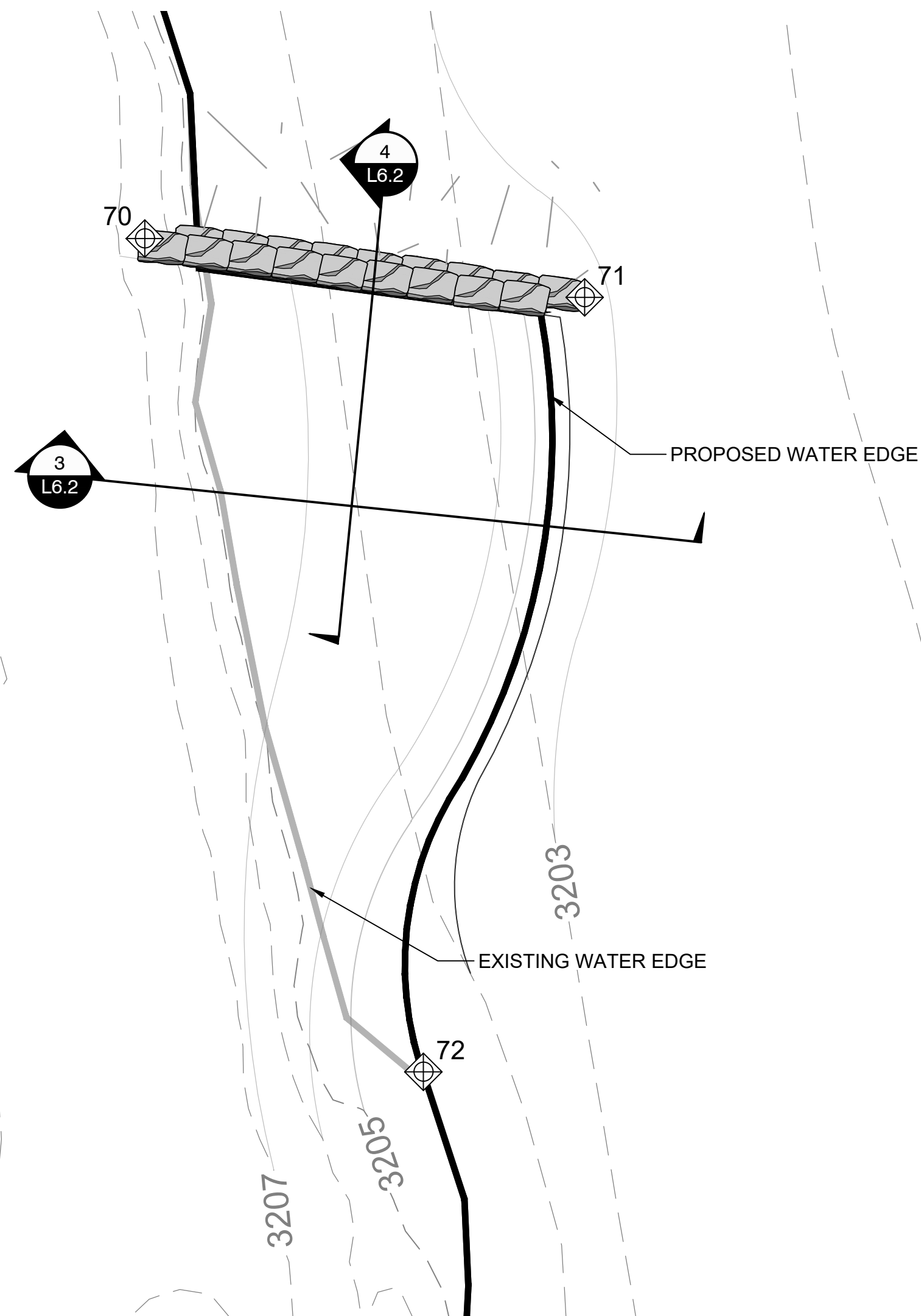
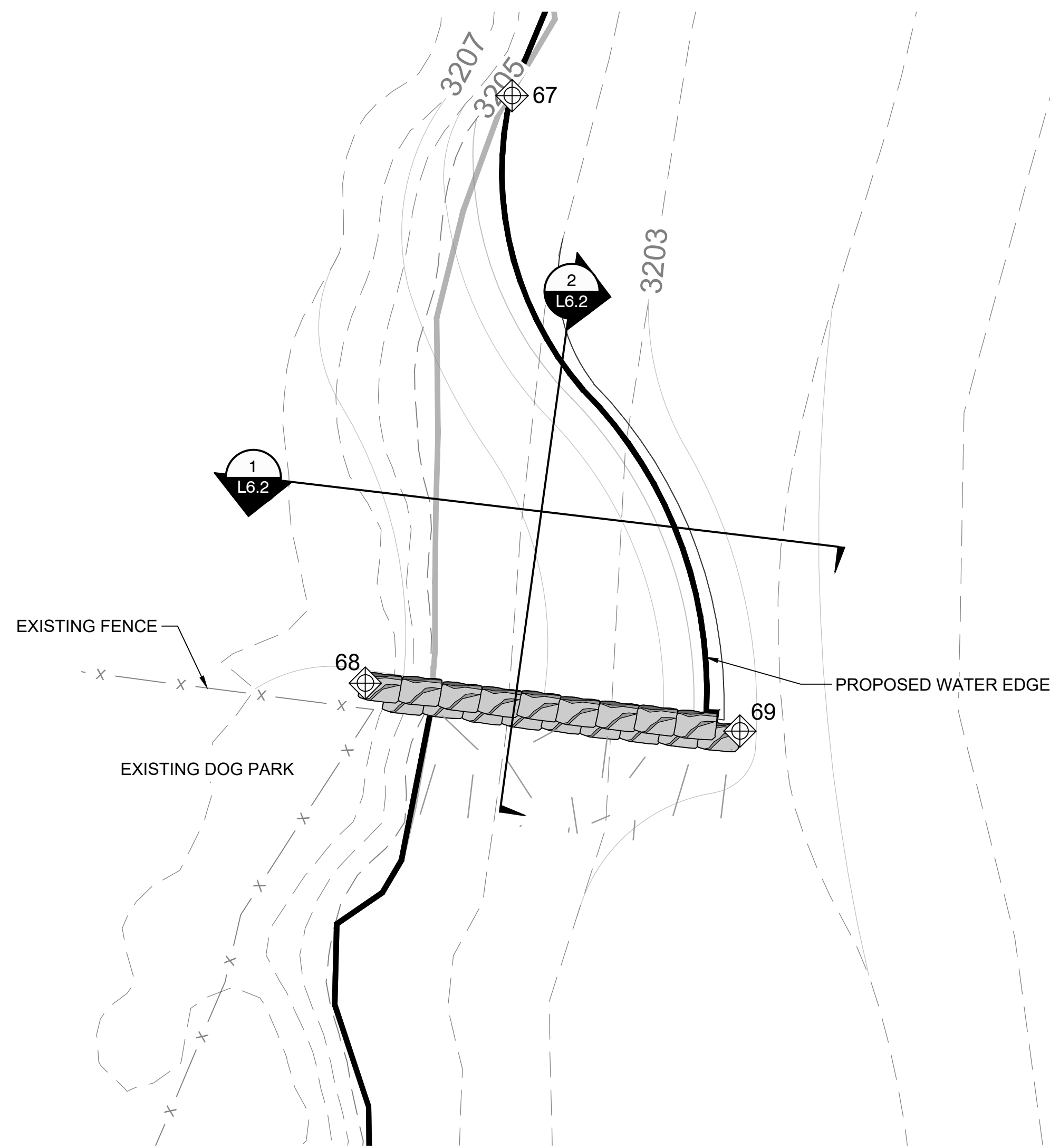
REFERENCE NOTES SCHEDULE WEST BANK

SYMBOL	ROCK DESCRIPTION	QTY
	BLOCKROCK - 32"	37

SYMBOL	ROCK DESCRIPTION	QTY
	RIP RAP - WALL BASE, 12" DEPTH	24.18 CY

NORTHING/EASTING POINT SCHEDULE

POINT	DESCRIPTION	NORTHING	EASTING
67		S 230.257	W 1999.281
68		S 288.240	W 2013.782
69		S 292.963	W 1976.776
70		S 503.117	W 2008.746
71		S 508.139	W 1971.111
72		S 574.416	W 1984.916



ADD ALT B - HARDSCAPE PLAN WEST BANK

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L2.5

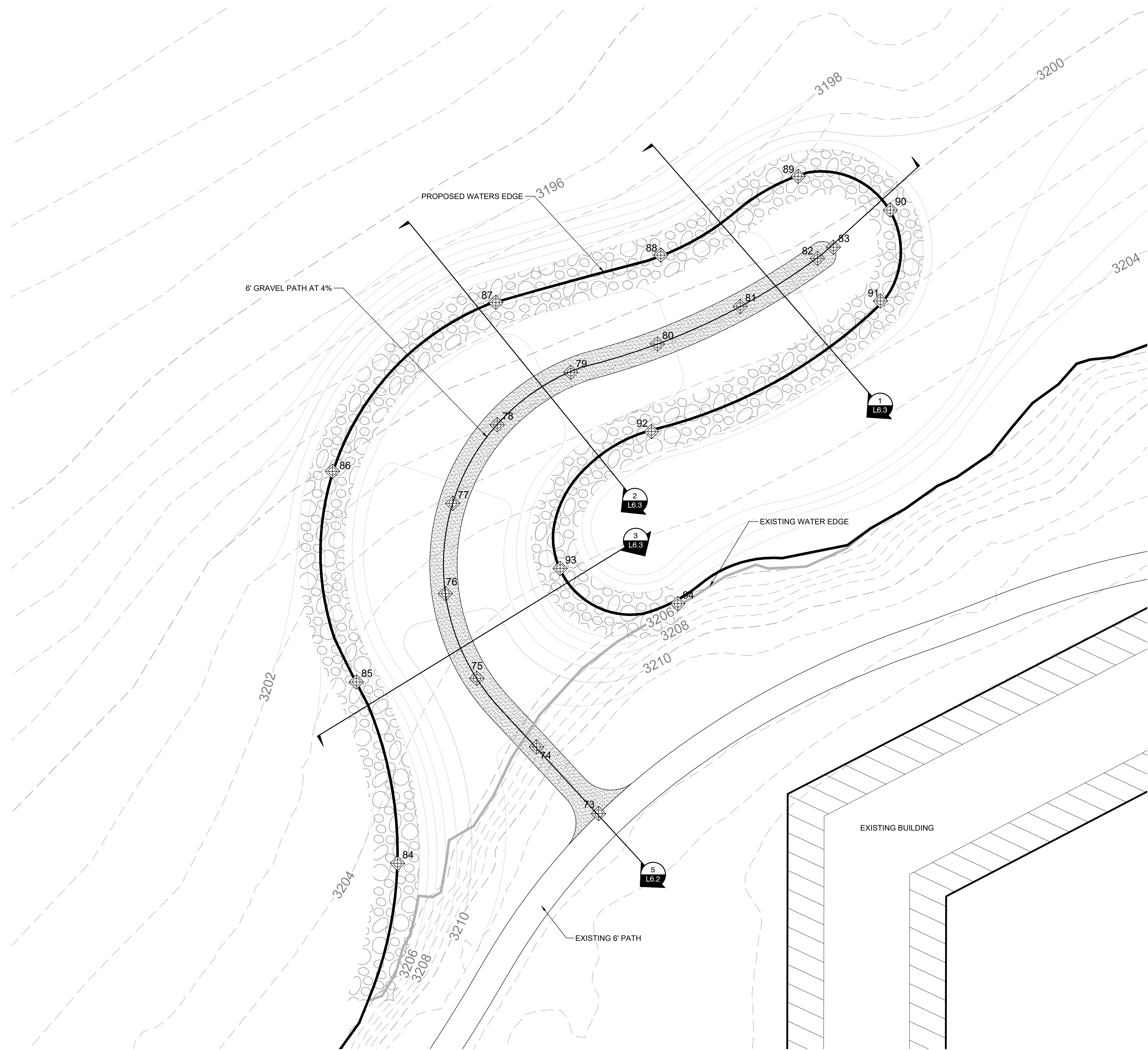
WEST BANK
 ADD ALT. B

REFERENCE NOTES SCHEDULE SOUTH JETTY

SYMBOL	CONCRETE DESCRIPTION	QTY
	CONCRETE	
	GRAVEL PATH	1,124 SF
SYMBOL	ROCK DESCRIPTION	QTY
	RIP RAP - 24" DEPTH	311.63 CY

NORTHING/EASTING POINT SCHEDULE

POINT	DESCRIPTION	NORTHING	EASTING
73		S 834.077	W 895.017
74		S 819.437	W 908.643
75		S 804.361	W 921.741
76		S 785.763	W 928.655
77		S 765.984	W 927.069
78		S 748.725	W 917.280
79		S 737.214	W 901.119
80		S 730.992	W 882.125
81		S 722.744	W 863.920
82		S 712.194	W 846.946
83		S 709.737	W 843.450
84		S 845.011	W 939.196
85		S 805.181	W 948.223
86		S 758.956	W 953.461
87		S 721.862	W 917.576
88		S 711.483	W 881.367
89		S 694.173	W 851.206
90		S 701.597	W 830.949
91		S 721.535	W 833.114
92		S 750.200	W 883.392
93		S 780.252	W 903.450
94		S 787.981	W 877.622



ADD ALT C - HARDSCAPE PLAN SOUTH JETTY

FWP#21-21 LAKE ELMO PROJECT

C. FLUMINEA ERADICATION, FISHERIES & PARKS - BILLINGS, MT

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L2.6

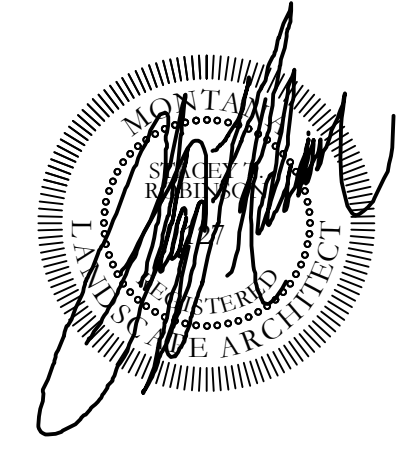
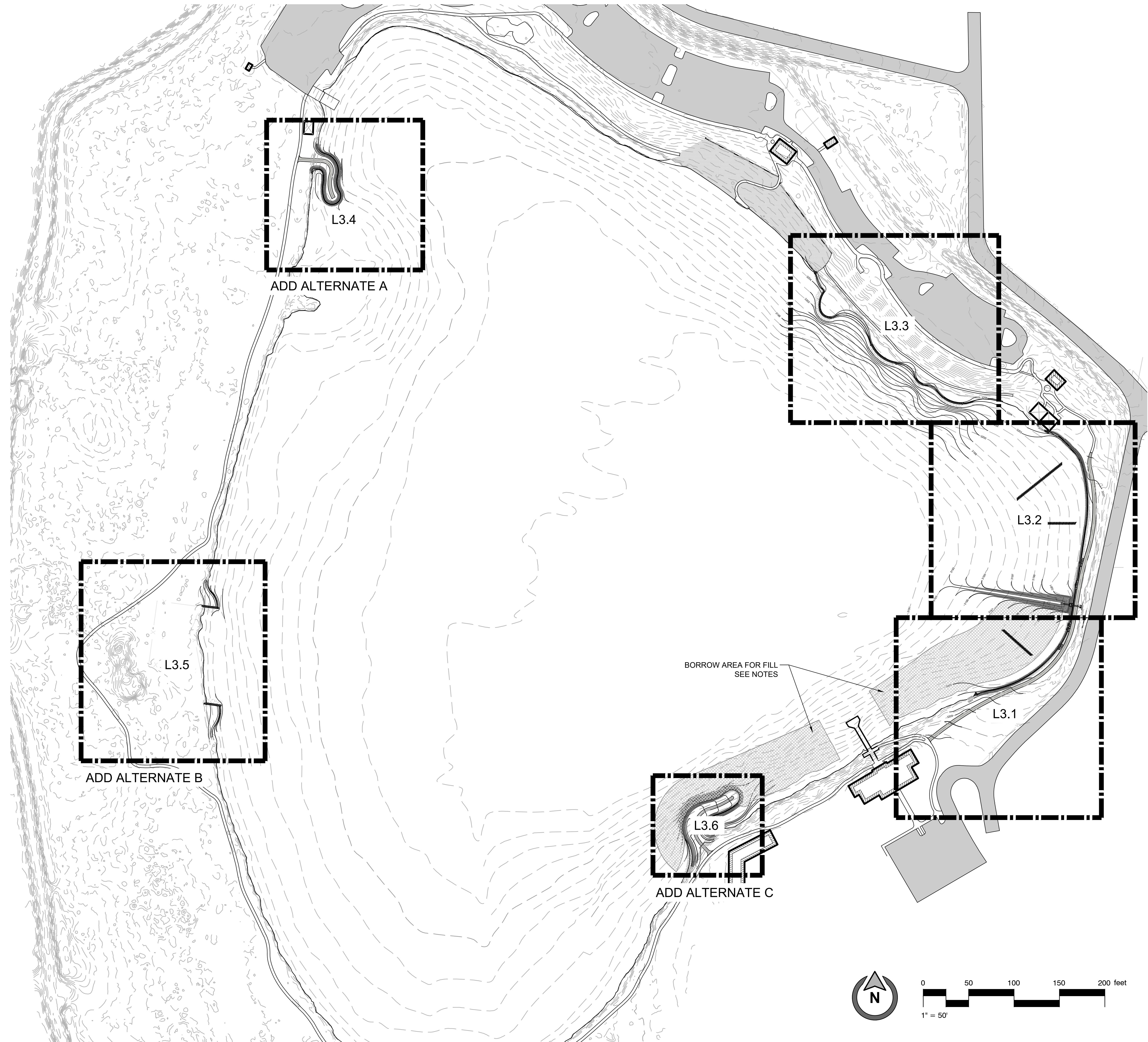
SOUTH JETTY
 ADD ALT. C

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GRADING NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO GRADING OPERATIONS.
2. CONTRACTOR SHALL SUBMIT IN WRITING ANY CHANGES TO THE GRADING PLAN FROM THE ORIGINALLY SUBMITTED PLAN TO THE LANDSCAPE ARCHITECT FOR APPROVAL. LAND DESIGN, INC. IS NOT LIABLE FOR FLOODING OR PROPERTY DAMAGE THAT RESULTS FROM CONSTRUCTION OF DRAINAGE FEATURES THAT DIFFER FROM THOSE SHOWN ON THIS DRAWING OR FOR POTENTIAL CHANGES IN HYDROLOGICAL CONDITIONS OF THIS SITE OR SURROUNDING PROPERTIES.
3. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES BOTH ON SITE AND OFF SITE.
4. ASSUMED FINISHED WATER ELEVATION IS 3204.50. CONTRACTOR TO CONFIRM ELEVATION WITH NEW HEADGATE STRUCTURE.
5. FILL FOR ALL EARTHEN IMPROVEMENTS TO BE OBTAINED FROM AREA SHOWN ON PLAN. REFER TO GEOTECH REPORT FOR USEFUL STRATA DEPTHS. REMOVE ORGANIC SEDIMENT FROM BORROW AREAS PRIOR TO CUTTING. CONTRACTOR IS REQUIRED TO RESTORE BORROW AREA TO SLOPES NO GREATER THAN 3:1. MAINTAIN A MINIMUM 20' OFFSET FROM THE EXISTING SHORELINE AND 50' FROM ANY EXISTING STRUCTURES.
6. SPREAD ORGANIC SEDIMENT OVERBURDEN GENERATED FROM EARTH WORK OPERATIONS IN BORROW AREA. COORDINATE PLACEMENT WITH OWNERS REPRESENTATIVE.
7. UNDERWATER BASIN GRADING SHOWN FOR ILLUSTRATIVE PURPOSES. INTENT IS TO PROVIDE UNDULATING DEPTH FOR FISH HABITAT IN ALL IMPACTED BASIN AREAS.
8. DEFINITIONS

TW = TOP OF WALL ELEVATION
 BW = FINISH GRADE ELEVATION AT BOTTOM OF WALL
 BR = BOTTOM OF ROCK ELEVATION



GRADING PLAN OVERALL

FWP#21-21 LAKE ELMO PROJECT

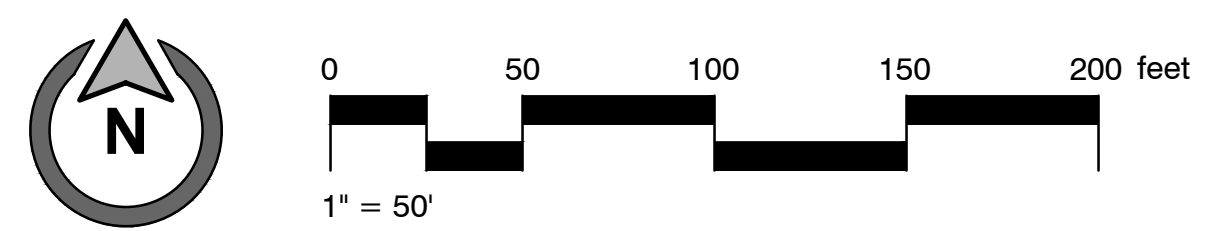
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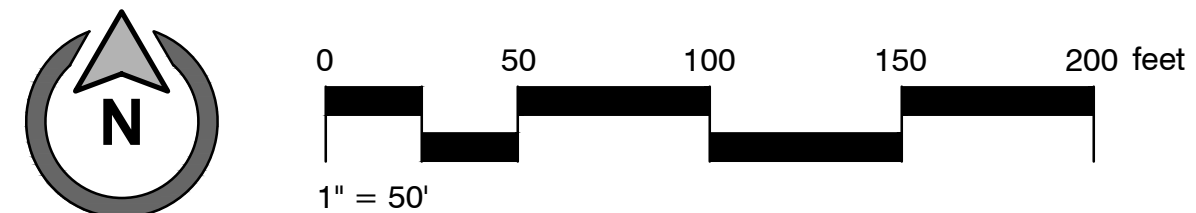
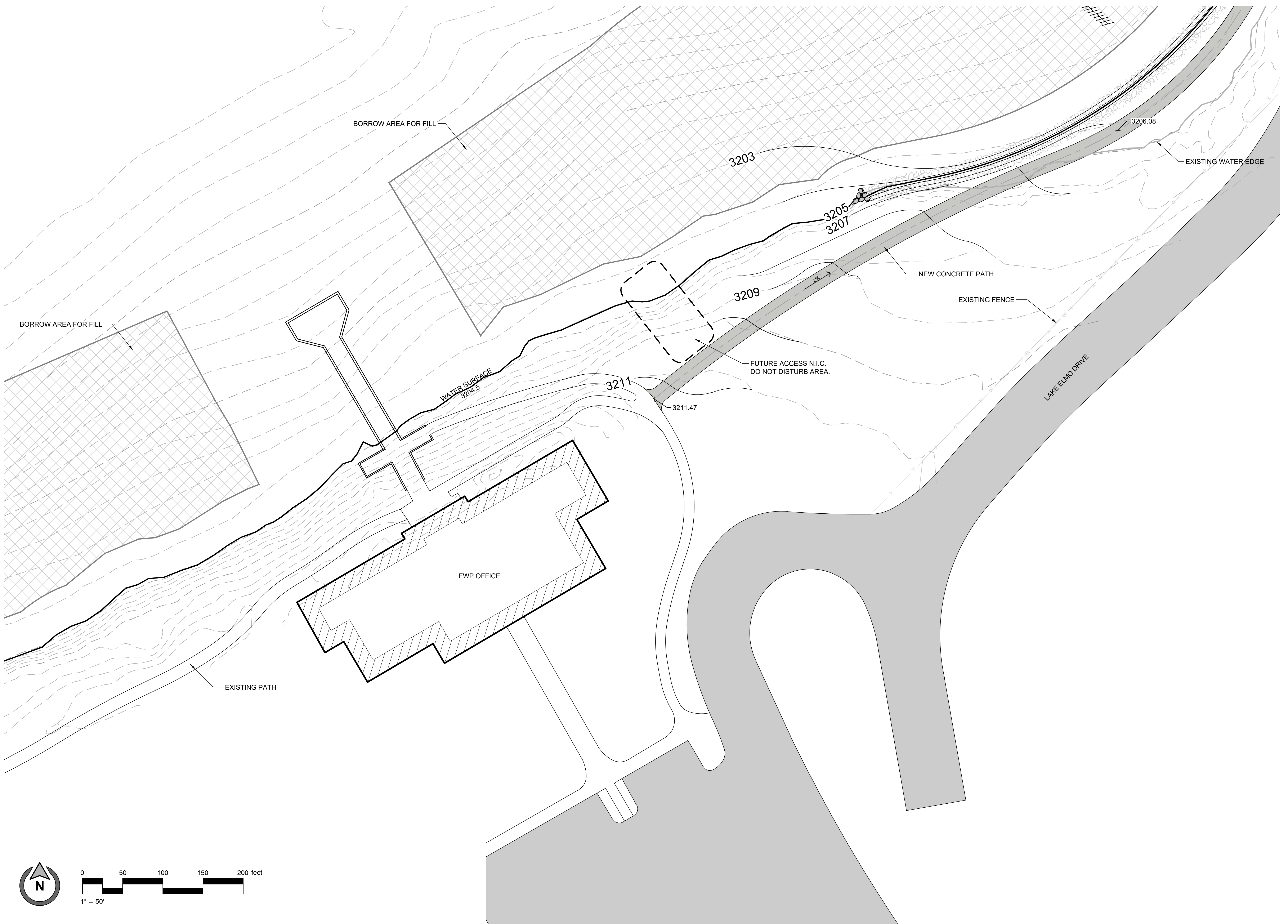
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L3.0

GRADING PLAN OVERALL





GRADING PLAN SOUTHEAST BANK

FWP#21-21 LAKE ELMO PROJECT

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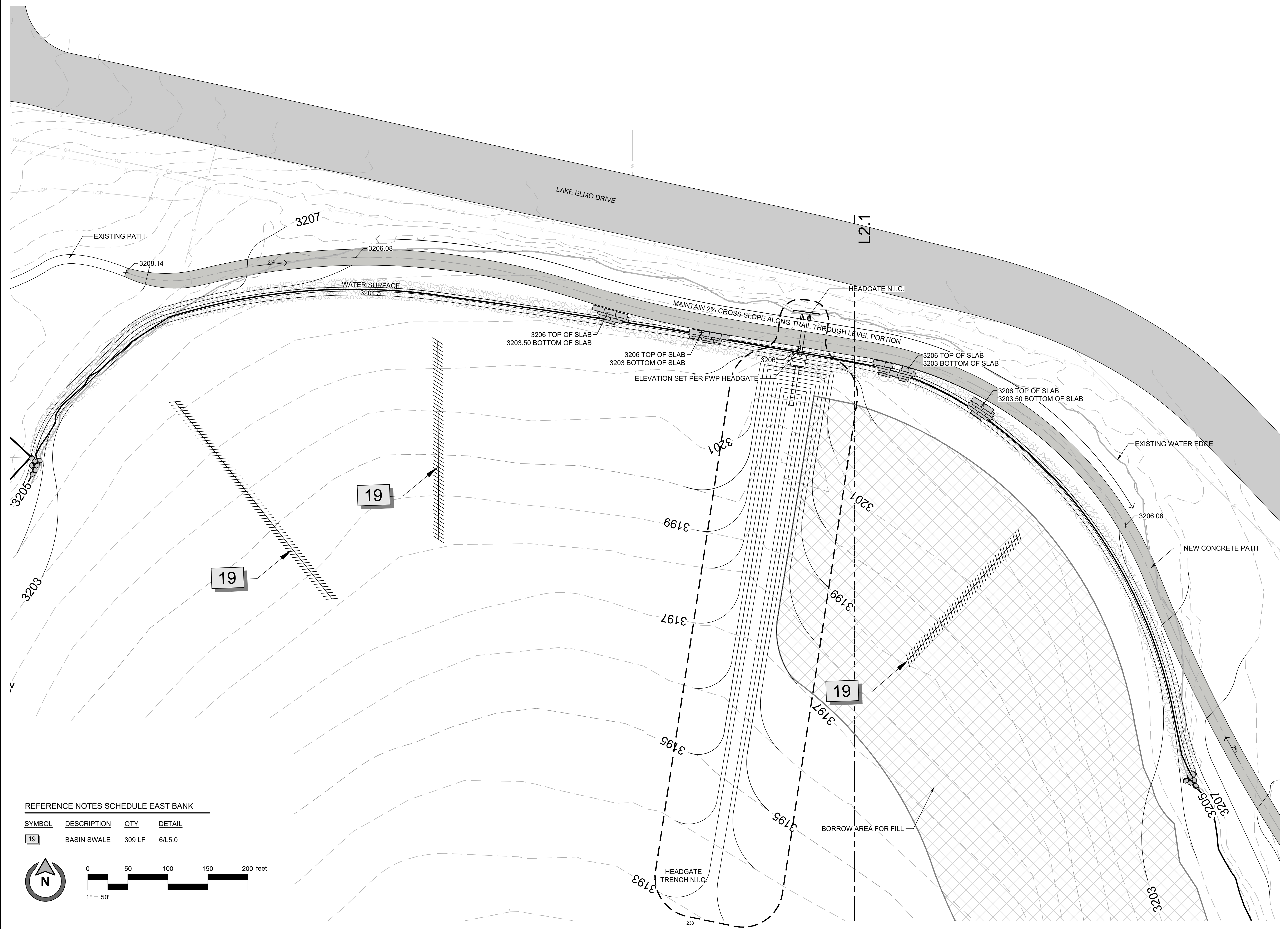
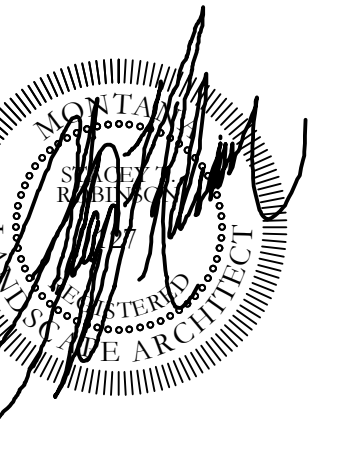
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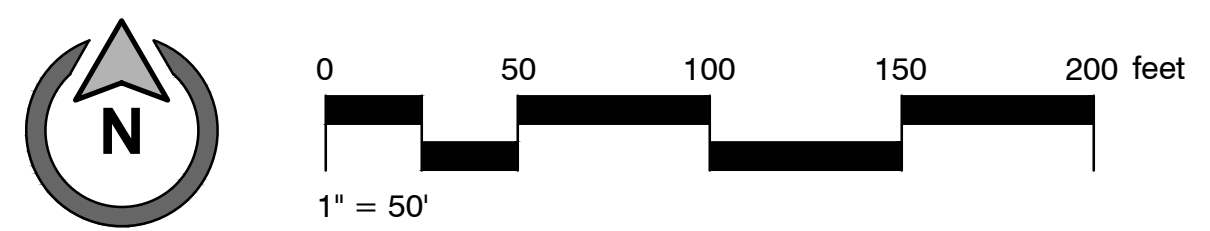
L3.1

GRADING PLAN
SOUTHEAST BANK



REFERENCE NOTES SCHEDULE EAST BANK

SYMBOL	DESCRIPTION	QTY	DETAIL
19	BASIN SWALE	309 LF	6/L5.0



GRADING PLAN EAST BANK

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L3.2

GRADING PLAN
EAST BANK