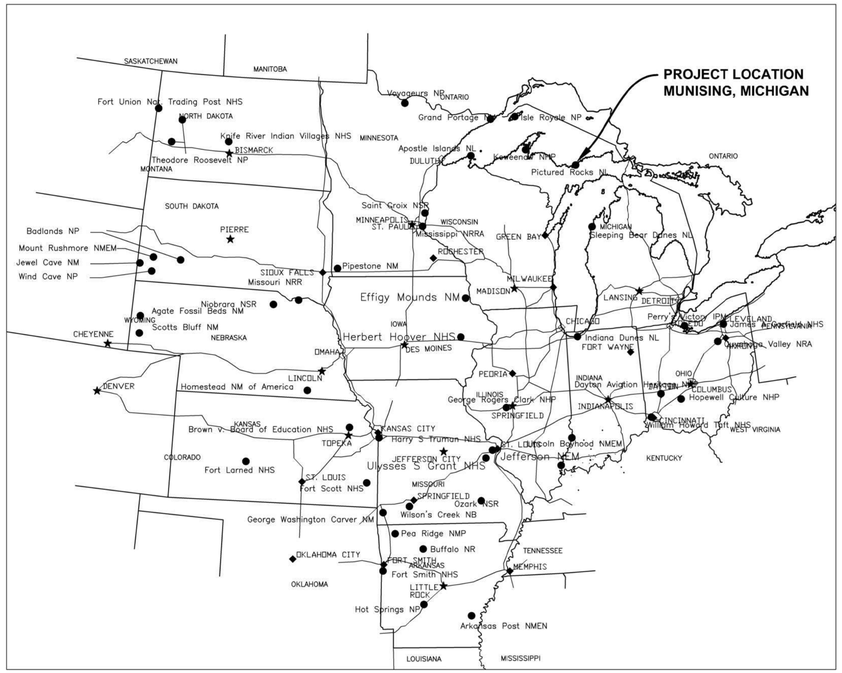
PICTURED ROCKS NATIONAL LAKESHORE

TRAIL REHABILITATION

FINAL SEALED CONSTRUCTION DRAWINGS



REGIONAL LOCATION

VICINITY MAP

SHEET INDEX

NO.	SUB NO.	TITLE
GENERAL		
1	G1.0	COVER
2	G2.0	SITE SURVEY
3	G3.1	REPRESENTATIONAL PHOTOS WEST
4	G3.2	REPRESENTATIONAL PHOTOS EAST
5	G4.0	GENERAL NOTES
CIVIL		
6	C1.1	EROSION AND SEDIMENT CONTROL PLAN WEST
7	C1.2	EROSION AND SEDIMENT CONTROL PLAN EAST
8	C2.1	EXISTING CONDITIONS AND DEMOLITION PLAN WEST
9	C2.2	EXISTING CONDITIONS AND DEMOLITION PLAN EAST
10	C3.0	LAYOUT PLAN OVERALL
11	C3.1	LAYOUT AND GRADING PLAN WEST
12	C3.2	LAYOUT AND GRADING PLAN EAST
13	C4.0	TRAIL PROFILE AND ALIGNMENT DATA
14	C5.0	TRAIL CROSS SECTIONS WEST
15	C5.1	TRAIL CROSS SECTIONS EAST
16	C6.0	DETAILS SHEET
LANDSCAPE		
17	L0.0	SITE NOTES AND ABBREVIATIONS
18	L0.1	CONSTRUCTION STAGING PLAN
19	L1.1	SITE PLAN WEST
20	L1.2	SITE PLAN EAST
21	L4.0	SITE SECTIONS A & B
22	L4.1	SITE SECTIONS C
23	L5.0	SITE DETAILS
24	L5.1	SITE DETAILS
25	L5.2	SITE DETAILS - WEST SLOPE RESTORATION
26	L6.0	BOARDWALK DETAILS
27	L6.1	BOARDWALK LAYOUT PLAN WEST
28	L6.2	BOARDWALK LAYOUT PLAN EAST
STRUCTURAL		
29	S0.1	STRUCTURAL GENERAL NOTES
30	S0.2	STRUCTURAL DESIGN INFORMATION
31	S1.1	STRUCTURAL SITE PLAN WEST
32	S1.2	STRUCTURAL SITE PLAN EAST
33	S2.0	STRUCTURAL TYPICAL DETAILS
34	S2.1	STRUCTURAL SECTIONS
35	S2.2	STRUCTURAL SECTIONS

PMIS PROJECT NUMBER 226930

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
REGISTERED LANDSCAPE ARCHITECT
06/23/2025

A/E FIRMS	
PRIME: **STRATA ARCHITECTURE INC** 1701 OAK STREET, SUITE 100 KANSAS CITY, MO	STRUCTURAL ENGINEERING: **SILMAN** 211 N. 4TH AVE, SUITE 2A ANN ARBOR, MI
LANDSCAPE ARCHITECTURE: **QUINN EVANS** 219 1/2 N. MAIN STREET ANN ARBOR, MI	CIVIL ENGINEERING: **STANTEC** 6800 COLLEGE BLVD, #750 OVERLAND PARK, KS

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

QUALITY DESIGN CERTIFICATION

- ☐ Prepared in Accordance with Design Development (Title I) _____ Drawing No. _____
  OR
- ☐ Variance from Design Development (Title I) Approved by Superintendent on _____ Date _____
  OR
- ☐ Construction Drawing Not Preceded by Design Development (Title I)

Project Manager _____ Date _____

FINAL SEALED CONSTRUCTION DRAWINGS

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
INTERIOR REGIONS 3, 4, AND 5

TITLE OF DRAWING
G1.0 – COVER
LOCATION WITHIN PARK
MUNISING FALLS TRAIL
NAME OF PARK
PICTURED ROCKS NATIONAL LAKESHORE

REGION MWR | COUNTY MUNISING | STATE MICHIGAN

DRAWING NO. 625 80067

PKG. NO. 22 69 30

SHEET 1 OF 35

NOTES

CONTROL POINTS

NAME: CP #2
DESCRIPTION: SET ½"X18" BAR AND CONTROL POINT CAP

N. 598382.42'
E. 26341613.12'
ELEV. 634.77'

NAME: CP 3
DESCRIPTION: SET ½"X18" BAR AND CONTROL POINT CAP

N. 598104.60'
E. 26342075.54'
ELEV. 659.67'

NAME: CP 4
DESCRIPTION: SET ½"X18" BAR AND CONTROL POINT CAP

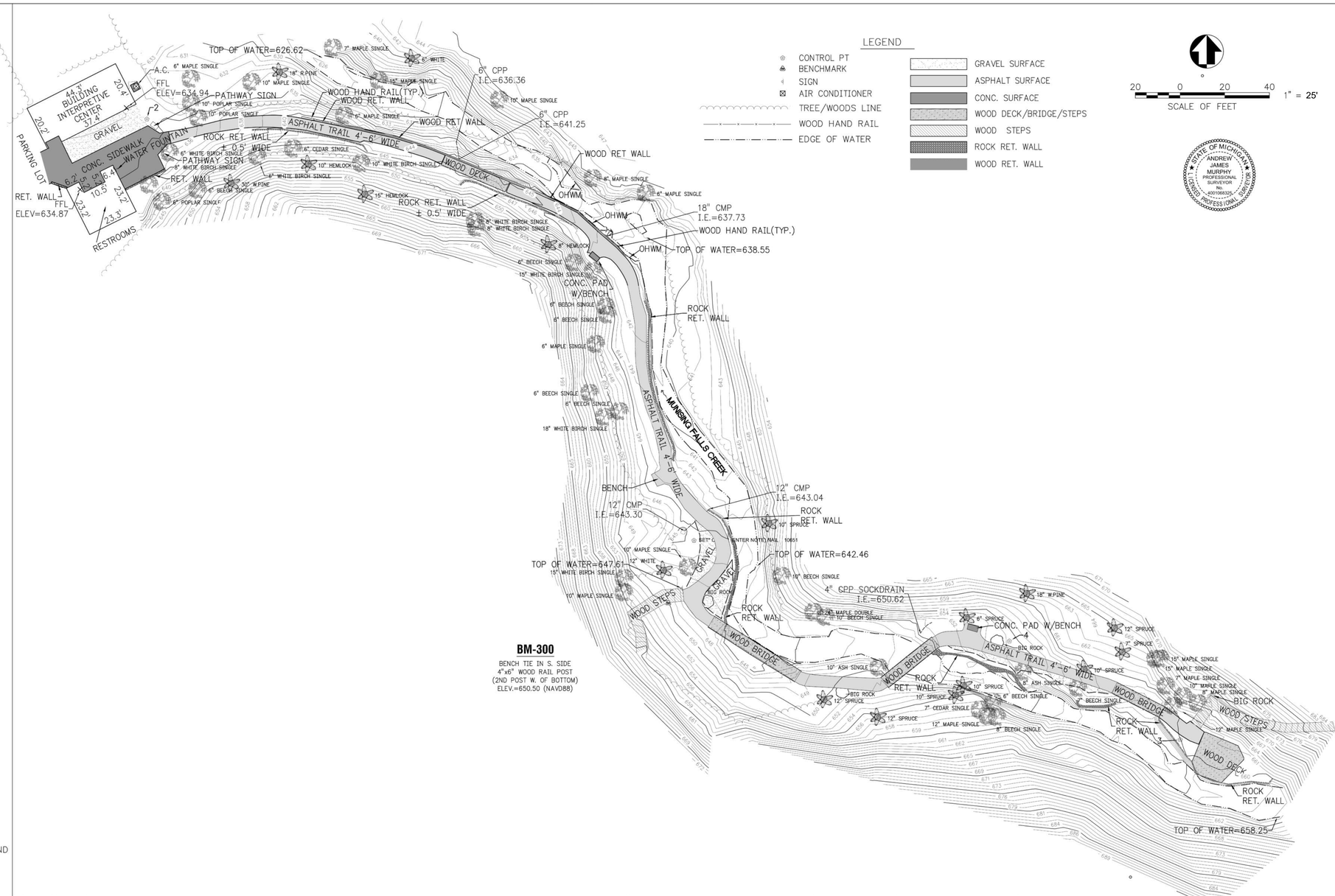
N. 598146.76'
E. 26341999.10'
ELEV. 653.99'

NAME: CP 5
DESCRIPTION: SET ½"X18" BAR AND CONTROL POINT CAP

N. 598327.82'
E. 26341470.50'
ELEV. 692.91'

NAME: BM300
DESCRIPTION: BENCH TIE IN S. SIDE 4"x6" WOOD RAIL POST (2ND POST W. OF BOTTOM)
N. 598166.09'
E. 26341846.51'
ELEV. 650.50'

THIS DRAWING ONLY REFLECTS AND VERIFIES THE FIELD SURVEY DATA OF THOSE FEATURES AND CONDITIONS PRESENT AS OF 10/09/2023



STATE OF MICHIGAN — ANDREW JAMES MURPHY — PROFESSIONAL SURVEYOR — No. 4001068325 — LICENSED PROFESSIONAL SURVEYOR

REVISIONS	BY	DATE	HORIZONTAL DATUM: MI. STATE PLANE COORD. SYSTEM, NORTH ZONE (2111), NAD83 (2011) INTERNATIONAL FEET VERTICAL DATUM: NAVD 88	GRAPHIC SCALE 1" = 20' CONTOUR INTERVAL = 1'	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE PICTURED ROCKS NATIONAL LAKESHORE	A–E FIRM NAME: GOURDIE–FRASER TRAVERSE CITY, MI CONTRACT NUMBER: PMIS 226930	FIELD WORK: T. MITCHELL/D. STOCKING DRAWN: M. FERENS CHECKED: A. MURPHY, P.S.	TOPOGRAPHIC SURVEY PICTURED ROCKS NATIONAL LAKESHORE MUNISING FALLS DAY USE TRAIL	PKG. NO. —	SHEET 2 OF 2	DRAWING NO. —

STATE OF MICHIGAN — Stephanie Redding — LANDSCAPE ARCHITECT — No. 3901001735 — LICENSED LANDSCAPE ARCHITECT

06/23/2025

NOTES

1. AT THE TIME THIS SURVEY WAS CONDUCTED, RENOVATIONS TO THE VISITORS CENTER WERE UNDER CONSTRUCTION. FOLLOWING THE DATE OF THIS SURVEY A NEW CONCRETE SIDEWALK SLAB WAS INSTALLED BETWEEN THE VISITORS CENTER AND RESTROOM BUILDINGS, EXTENDING TO THE BEGINNING OF THE MUNISING FALLS TRAIL. THE CURRENT LIMITS OF PAVING IN THIS AREA ARE NOT ACCURATELY REFLECTED ON THIS SURVEY. REFER TO THE PROJECT PLANS AND SHEET G3.1 FOR THE APPROXIMATE CURRENT PAVING LIMITS IN THIS AREA. ADDITIONAL DISCREPANCIES BETWEEN THIS SURVEY AND CURRENT CONDITIONS IN THIS AREA MAY EXIST .

Mark	Sheet	REVISION	Date	Initial
—	—	FINAL SEALED CD	06/23/25	—

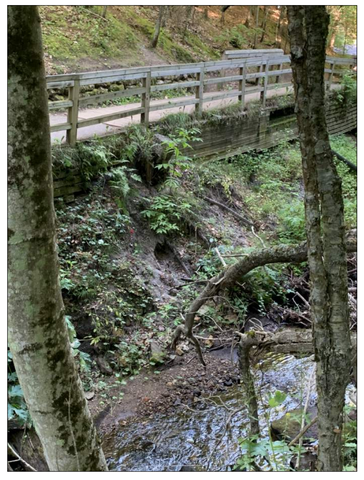
DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

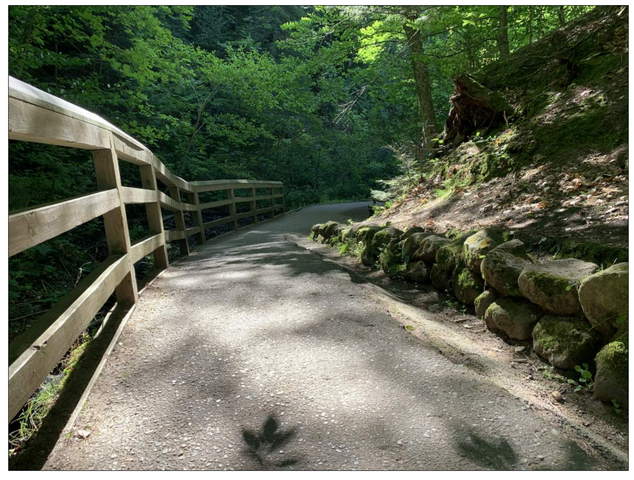
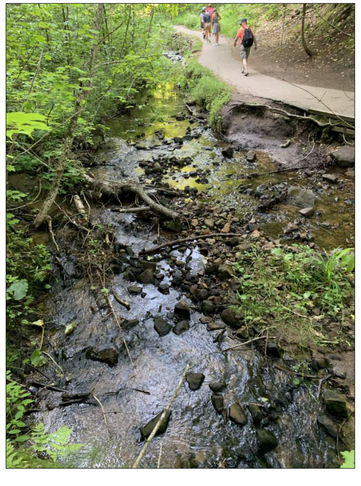
SUB SHEET NO. 01
G2.0

TITLE OF SHEET
SITE SURVEY
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 02 OF 35

TAKEN NOVEMBER 2024



NOTES

1. UNLESS OTHERWISE NOTED THE FOLLOWING PHOTOGRAPHS WERE TAKEN AUGUST 15 & 16, 2023. THESE PHOTOS ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND DO NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE PROJECT SITE PRIOR TO SUBMITTING THEIR BID. BIDDING CONTRACTORS ARE RESPONSIBLE FOR DEVELOPING AN UNDERSTANDING OF THE PROJECT SITE AND EXISTING CONDITIONS THEMSELVES TO THE EXTENT THEY DETERMINE ADEQUATE FOR PREPARATION OF THEIR BID.

2. THESE PHOTOS DEPICT GENERAL SITE CONDITIONS AND ARE FOR CONTRACTOR REFERENCE ONLY. THESE PHOTOS DO NOT FULLY PHOTO DOCUMENT THE ENTIRETY OF THE PROJECT SITE, NOR ANY CHANGES THAT MAY HAVE TAKEN PLACE SINCE THE DATE THESE PHOTOS WERE TAKEN. THESE PHOTOS DO NOT FULLY DEPICT THE VARIABLE TERRAIN THE CONTRACTOR SHALL BE EQUIPPED TO NAVIGATE IN ORDER TO PERFORM THE WORK.

3. THE AWARDED CONTRACTOR SHALL REMAIN RESPONSIBLE FOR TAKING PRE-CONSTRUCTION PHOTOGRAPHS AS REQUIRED BY THE CONTRACT DOCUMENTS.

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 390100173
LICENSED LANDSCAPE ARCHITECT
06/23/2025

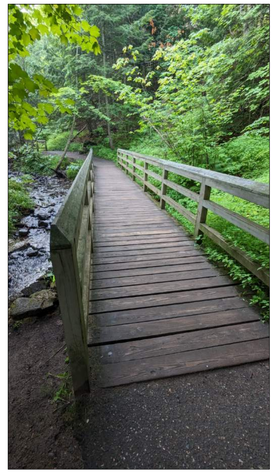
Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

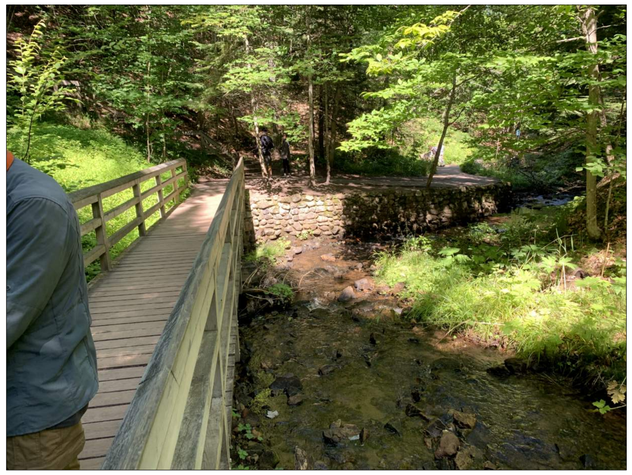
DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

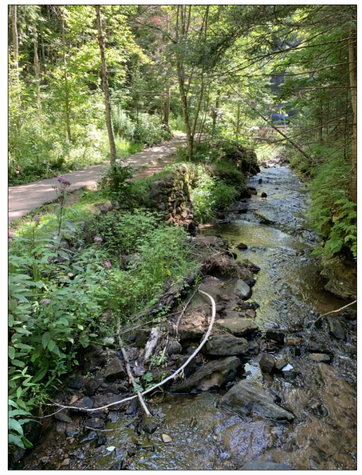
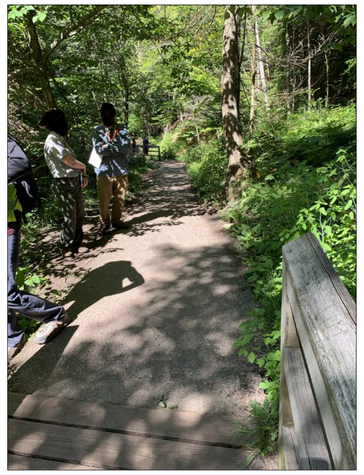
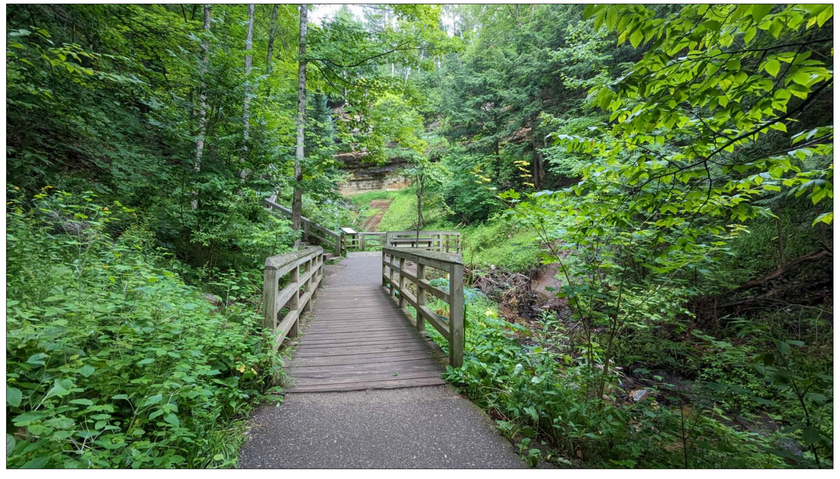
SUB SHEET NO. 01 G3.1

TITLE OF SHEET
REPRESENTATIONAL PHOTOS WEST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 03 OF 35





NOTES

1. REFER TO SHEET G3.1

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT

06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 G3.2

TITLE OF SHEET
REPRESENTATIONAL PHOTOS EAST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 04 OF 35

GENERAL PROTECTIVE MEASURES AND SIGNAGE

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL EXISTING AND PROPOSED SITE FEATURES. THIS INCLUDES BUT IS NOT LIMITED TO TREES, VEGETATION, FENCES, PAVEMENTS, FURNISHINGS, SIGNAGE, WALKWAYS, AND STRUCTURES.

2. CONTRACTOR SHALL PROVIDE APPROPRIATE MATS, PLYWOOD, AND/OR OTHER PROTECTIVE MEASURES FOR EQUIPMENT USE ON TURF AREAS AS REQUIRED TO REDUCE SOIL COMPACTION, AND ON PAVED AREAS AND AREAS OF COMPLETED WORK AS REQUIRED TO TO PREVENT MARRING AND/OR DAMAGE. PROTECTIVE MEASURES SHALL NOT BE FASTENED DIRECTLY TO DECKING OF PROPOSED BOARDWALKS.

3. WHERE SURFACE PROTECTION MEASURES, OR TEMPORARY ACCESS MEASURES (INCLUDING RAMPS OR OTHER GRADE TRANSITIONS), ARE REQUIRED ON WALKWAYS AND OTHER PEDESTRIAN ROUTES OPEN TO THE PUBLIC, THEY SHALL MEET ARCHITECTURAL BARRIERS ACT ACCESSIBILITY STANDARDS (ABAAS) FOR FACILITIES FOR VISITORS AND EMPLOYEES.

4. CONTRACTOR TO PROVIDE, INSTALL, AND MAINTAIN TWO WEATHERPROOF TRAIL CLOSURE SIGNS TO BE LOCATED AT THE VISITORS CENTER AREA. SIGNS TO BE MOUNTED TO TEMPORARY CONSTRUCTION FENCE, OR ON TEMPORARY SELF SUPPORTING POSTS IN A LOCATION APPROVED BY THE COR.

5. CONTRACTOR TO PROVIDE, INSTALL, AND MAINTAIN ALL TEMPORARY FENCING AND OTHER ACCESS CONTROL MEASURES AS SHOWN OR NOTED ON THE PLANS AND PROJECT SPECIFICATIONS.

6. REFER TO L0.1 FOR TEMPORARY ACCESSIBLE PARKING REQUIREMENTS.

7. CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROLS AND OTHER SAFETY MEASURES NECESSARY TO SAFELY EXECUTE THE WORK. WHEN MATERIALS, EQUIPMENT, OR OTHER CONSTRUCTION SUPPLIES ARE MOVED THOUGH AREAS OPEN TO THE PUBLIC, VEHICLES, PEDESTRIANS, AND OTHER PUBLIC ACTIVITIES SHALL BE MONITORED BY CONTRACTOR'S STAFF AT ALL TIMES. WHEN WORKING IN, OR TRAVELING THROUGH, AREAS OPEN TO THE PUBLIC, CONTRACTOR'S STAFF SHALL PROVIDE EQUIPMENT FLAGGERS AND OTHER SAFETY MEASURES AS NEEDED TO ENSURE PUBLIC SAFETY.

8. THIS PROJECT REQUIRES WORK IN CLOSE PROXIMITY TO THE ORDINARY HIGH WATER MARK OF MUNISING FALLS CREEK. CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES DURING CONSTRUCTION TO ENSURE SEDIMENT, SOIL, AND DEBRIS DO NOT ENTER THE WATERWAY. REFER TO CIVIL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

9. IF REQUIRED TO FACILITATE CONSTRUCTION ACCESS OR COMPLETE OTHER ASPECTS OF THE WORK, CONTRACTOR SHALL PROVIDE TEMPORARY SHORING FOR THE EXISTING WOOD CRIB WALL. IF CONTRACTOR DETERMINES THAT TEMPORARY SHORING IS REQUIRED TO COMPLETE THE WORK, CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS AND SITE PLAN DIAGRAMS FOR COR APPROVAL PRIOR TO CONSTRUCTION. IF REQUIRED, TEMPORARY SHORING SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE GOVERNMENT

10. THIS PROJECT INCLUDES REMOVAL OF 3 EXISTING WOOD BRIDGES. THE GROUND SURFACE BELOW AND ADJACENT TO THESE BRIDGES INCLUDES A CREEK CROSSING AND CROSSING OF OTHER SENSITIVE AREAS THAT MUST BE PROTECTED FROM SOIL AND GROUND DISTURBANCE. EQUIPMENT TRAFFIC ON THE GROUND SURFACE BELOW AND ADJACENT TO ALL EXISTING BRIDGES IS PROHIBITED. IF EXISTING WOOD BRIDGES AND/OR PROPOSED BOARDWALKS CANNOT BE USED FOR EQUIPMENT ACCESS, CONTRACTOR SHALL PROVIDE TEMPORARY PROTECTIVE MEASURES FOR CROSSING THESE AREAS. TEMPORARY MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY SHORING / SUPPORT FOR EXISTING BRIDGES, AND/OR TEMPORARY ON-GRADE TIMBER CRIBBING AND BRIDGING. ANY TEMPORARY MEASURES REQUIRED TO CROSS MUNISING FALLS CREEK SHALL NOT BE PLACED ON THE GROUND SURFACE BELOW THE ORDINARY HIGH WATER MARK, AND SHALL PROVIDE ENOUGH CLEARANCE TO ALLOW SEASONALLY HIGH STREAM FLOWS TO PASS BELOW. IF CONTRACTOR DETERMINES THAT TEMPORARY CROSSING MEASURES ARE REQUIRED TO COMPLETE THE WORK, CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS AND SITE PLAN DIAGRAMS FOR COR APPROVAL PRIOR TO CONSTRUCTION. IF REQUIRED, TEMPORARY CROSSING MEASURES SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE GOVERNMENT.

11. THE COR RESERVES THE RIGHT TO REQUIRE ADDITIONAL PROTECTION MEASURES BE PROVIDED AT NO ADDITIONAL COST TO THE GOVERNMENT IF CONSTRUCTION PRACTICES PROVE TO PLACE THE LANDSCAPE, PUBLIC, AND/OR SITE FEATURES AT RISK TO DAMAGE; OR IF CONTRACTOR PROTECTION EFFORTS OTHERWISE PROVE TO BE INSUFFICIENT.

TREE, SOIL, AND VEGETATION PROTECTION

1. STAKE THE LIMITS OF WORK SHOWN ON THE DRAWINGS FOR COR REVIEW AND APPROVAL PRIOR TO BEGINNING WORK. USE SUFFICIENT NUMBER OF STAKES AND STAKE SPACING AS REQUIRED TO CLEARLY DEFINE AND DELINEATE THE LIMITS OF WORK, WITH A MAXIMUM STAKE SPACING OF 10 FT. MAINTAIN LIMITS OF WORK STAKES THROUGHOUT CONSTRUCTION AND REMOVE WHEN DIRECTED BY COR.

2. DO NOT DISTURB THE SITE OUTSIDE OF THE LIMITS OF WORK AND MINIMIZE SITE DISTURBANCE WITHIN THE LIMITS OF WORK TO THE GREATEST EXTENT FEASIBLE. ONLY DISTURB AREAS WITHIN THE LIMITS OF WORK AS REQUIRED TO COMPLETE THE WORK.

3. IF TREE ROOTS LARGER THAN 2" IN DIAMETER ARE ENCOUNTERED DURING EXCAVATION, LEAVE UNDISTURBED UNLESS REQUIRED TO CONSTRUCT WALKWAYS, WALLS, OR OTHER STRUCTURES. WHEN ROOT REMOVAL IS REQUIRED, CUT ROOT CLEANLY WITH A SANITIZED SAW AT THE EDGE OF THE REQUIRED EXCAVATION. SANITIZE SAW WITH 70% MIN ISOPROPYL ALCOHOL BEFORE ALL CUTS. ON SLOPES, ENSURE ROOTS ARE CUT AT LEAST 4" BELOW PROPOSED FINISH GRADE.

4. PROVIDE TEMPORARY PROTECTIVE MEASURES AT EXISTING BRIDGES AS NOTED ON THIS SHEET.

HISTORIC RESOURCE PROTECTION REQUIREMENTS

1. THIS PROJECT INCLUDES WORK IN CLOSE PROXIMITY TO REMNANTS OF A CORDUROY LOG ROAD THAT IS PART OF THE SCHOOLCRAFT FURNACE HISTORIC SITE LISTED ON THE NATIONAL HISTORIC REGISTER. REFER TO PLANS FOR APPROXIMATE LOCATION OF THE HISTORIC LOG ROAD.

2. ALL DEMOLITION, EXCAVATION, FOUNDATION, AND OTHER GROUND DISTURBING WORK WITHIN 15 FEET OF THE DELINEATED HISTORIC LOG ROAD AREAS SHALL BE IDENTIFIED AS SPECIFIC LINE ITEM(S) ON THE CONTRACTOR'S CONSTRUCTION SCHEDULE.

3. CONTRACTOR SHALL NOTIFY COR A MINIMUM OF 2 WEEKS IN ADVANCE OF ANY SCHEDULED GROUND DISTURBING ACTIVITY WITHIN 15 FEET OF THE DELINEATED HISTORIC LOG ROAD AREAS TO SCHEDULE REQUIRED ON-SITE ARCHAEOLOGICAL MONITORING.

4. NPS WILL PROVIDE CONTINUOUS ON-SITE ARCHAEOLOGICAL MONITORING DURING ALL GROUND DISTURBING ACTIVITIES WITHIN 15 FEET OF THE DELINEATED HISTORIC LOG ROAD AREAS. DO NOT PERFORM GROUND DISTURBING ACTIVITIES IN PROXIMITY TO THE HISTORIC LOG ROAD, UNLESS NPS ARCHAEOLOGIST OR THEIR REPRESENTATIVE IS PRESENT.

5. IF OR WHEN GROUND DISTURBANCE STOPS FOR ARCHEOLOGICAL DOCUMENTATION, WORK MAY CONTINUE IN ANOTHER PROJECT LOCATION OUTSIDE OF THE DELINEATED HISTORIC LOG ROAD AREA IDENTIFIED IN THE PROJECT. WORK STOPPAGE FOR ARCHEOLOGICAL DOCUMENTATION MAY VARY IN TIME DURATION, DEPENDING ON THE SIZE AND COMPLEXITY OF THE FEATURES ENCOUNTERED. FEATURE DOCUMENTATION IS MOST LIKELY ANTICIPATED TO TAKE 1-2 DAYS.

6. NONE OF THE INVESTIGATIONS BEING PROPOSED AS A PART OF THIS PROJECT ARE INTENDED OR DESIGNED TO EXCAVATE, UNCOVER, DISTURB, OR REMOVE NATIVE AMERICAN HUMAN REMAINS OR NAGPRA-RELATED CULTURAL ITEMS (I.E., FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY). IF HUMAN REMAINS OR CULTURAL ITEMS ARE DISCOVERED BY SOME ASPECT OF RESEARCH IN THIS STUDY, PROCEDURES IDENTIFIED IN THE NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT REGULATIONS (43 CFR 10.4(B); 10.5; 10.7) WILL BE FOLLOWED.

7. **IF NATIVE AMERICAN HUMAN REMAINS OR CULTURAL ITEMS ARE DISCOVERED ANYWHERE WITHIN THE PROJECT AREA, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND ALL OPERATIONS IN THE VICINITY OF THE DISCOVERY AND NOTIFY THE CONTRACTING OFFICER IMMEDIATELY. THE COR WILL THEN ENACT STANDARD NPS NAGPRA PROTOCOLS.**

8. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

TOPSOIL CONSERVATION AND SALVAGE

1. TO PREVENT THE INTRODUCTION OF WEEDS AND OTHER NON NATIVE PLANT SPECIES, IMPORTED TOPSOIL AND/OR OTHER SOILS IS STRICTLY PROHIBITED ON THIS PROJECT.

2. TO HELP FACILITATE NATURAL REGROWTH OF VEGETATION AND FUTURE PLANTING BY NPS, ALL TOPSOIL, FOREST DUFF, PLANT PARTS, WOODY DEBRIS, AND OTHER ORGANIC MATERIAL THAT MUST BE REMOVED TO ACCOMPLISH THE WORK SHALL BE STOCKPILED AND REUSED ON SITE.

3. PRIOR TO DEMOLITION OR OTHER SOIL DISTURBING ACTIVITIES, AS THE WORK PROGRESSES, STRIP AND STOCKPILE ALL TOPSOIL, FOREST DUFF, PLANT PARTS, WOODY DEBRIS, AND OTHER ORGANIC MATERIAL FROM AREAS THAT REQUIRE GRADING, EXCAVATION, OR OTHER SIGNIFICANT SOIL DISTURBANCE (FOOT TRAFFIC AND LIGHT EQUIPMENT TRACKING IS NOT CONSIDERED SIGNIFICANT DISTURBANCE; REPEATED EQUIPMENT TRACKING OR TURNING IS CONSIDERED SIGNIFICANT DISTURBANCE). A MINIMUM OF 6" OF SOIL SHALL BE STRIPPED AND STOCKPILED FROM THESE AREAS. THIS MATERIAL SHALL COLLECTIVELY BE REFERRED TO AS SITE TOPSOIL IN THE CONSTRUCTION DOCUMENTS.

4. ONLY REMOVE SITE TOPSOIL WHERE REQUIRED TO COMPLETE THE WORK. THE LIMITS OF WORK SHOWN ON THE DRAWINGS IS NOT THE LIMITS OF EXCAVATION. LIMIT THE DISTURBANCE OF EXISTING SOIL AND VEGETATION WITHIN THE LIMITS OF WORK TO THE MAXIMUM EXTENT FEASIBLE AND USE CARE TO ONLY REMOVE SOIL FROM AREAS DEFINED ABOVE; DO NOT OVER EXCAVATE. WHERE LIMITS OF SITE TOPSOIL REMOVAL IS UNCLEAR, REQUEST CLARIFICATION FROM COR.

5. LEAVE TOPSOIL STAGED FOR THE SHORTEST DURATION POSSIBLE. ENCIRCLE STOCKPILED SOIL WITH EROSION CONTROL WATTLES TO PREVENT SEDIMENT RUNOFF. IF STOCKPILED SOIL IS EXPECTED TO BE EXPOSED FOR LONGER THAN 1 MONTH OR IF HEAVY RAINS ARE EXPECTED, COMPLETELY COVER THE PILE WITH HEAVY DUTY PLASTIC SHEETING OR APPROVED EQUAL.

6. REFER TO TREE, SOIL, AND VEGETATION PROTECTION NOTES FOR REQUIREMENTS WHERE ROOTS OVER 2" Ø ARE ENCOUNTERED.

STAGING, ACCESS, EQUIPMENT, AND MATERIALS

1. THE CONTRACTOR SHALL LIMIT POINTS OF ACCESS TO THE SITE AND WORK AREAS TO THOSE SHOWN ON THE PLANS; OR AS OTHERWISE AUTHORIZED IN WRITING BY THE COR. ACCESS TO THE SITE, PARKING LOT, AND STAGING AREAS SHALL BE BY PUBLIC ROADS AND DRIVEWAYS ONLY.

2. THE CONTRACTOR SHALL LIMIT STAGING AND STORAGE OF MATERIALS, EQUIPMENT, AND STOCKPILED REMOVALS TO WITHIN THE LIMITS OF WORK AND OTHER STAGING AREAS SHOWN ON THE PLANS; OR AS OTHERWISE AUTHORIZED IN WRITING BY NPS. NO PARKING OR STAGING IS ALLOWED WITHIN PUBLIC ROAD RIGHT-OF-WAYS OR OTHER AREAS TO REMAIN OPEN TO THE PUBLIC DURING CONSTRUCTION.

3. ALL VEHICLES AND EQUIPMENT ACCESSING PICTURED ROCKS NATIONAL LAKESHORE GROUNDS SHALL BE IN PROPER WORKING ORDER WITH NO VISIBLE SIGN OF FUEL OR FLUID LEAK OR INAPPROPRIATE DISCHARGE. THE COR AND PARK STAFF RESERVE THE RIGHT TO REFUSE ENTRY OR REQUIRE REMOVAL OF ANY VEHICLE OR EQUIPMENT DEMONSTRATING DISREPAIR OR MALFUNCTION.

4. ALL VEHICLES AND EQUIPMENT SHALL BE OF A SIZE AND MANEUVERABILITY TO NAVIGATE THE EXISTING PARK ROADS, TRAILS, AND PROJECT WORK AREAS WITH MINIMAL OVERRUN INTO UNDISTURBED ADJACENT AREAS. ALL DAMAGE TO PAVEMENT, STRUCTURES, OR PARK LANDSCAPE SHALL BE REPAIRED, REPLACED, OR RESTORED TO EXISTING CONDITIONS OR BETTER AT NO ADDITIONAL COST TO THE GOVERNMENT.

5. ALL CONSTRUCTION EQUIPMENT WILL BE INSPECTED PRIOR TO ENTERING THE PROJECT AREA BY THE COR OR THEIR DESIGNEE TO ENSURE THEY ARE FREE OF WEED MATERIALS AND SEED.

6. THE CONTRACTOR SHALL ADHERE TO PARK DEFINED EXOTIC PLANT BEST MANAGEMENT PRACTICES TO AVOID INTRODUCTION INTO THE ECOSYSTEM. THIS INCLUDES CHECK OF TOOLS, VEHICLES AND EQUIPMENT, STAFF WORK SHOES AND CLOTHING TO AVOID MUD, SEED, OR PLANT MATERIAL FROM OFF SITE. CONSTRUCTION MATERIALS STOCKPILED OFF SITE AT POINT OF PROCUREMENT (AGGREGATE) SHALL ALSO AVOID INTRODUCTION OF EXOTIC PLANT MATERIAL INTO THE PARK.

7. CONTRACTOR SHALL SUBMIT LIST OF SOURCES FOR ALL IMPORTED AGGREGATE AND OTHER BULK MATERIALS FOR APPROVAL. BULK MATERIAL SOURCES SHALL BE INSPECTED BY NPS STAFF AT LEAST 30 DAYS BEFORE THEIR DELIVERY TO THE SITE. NPS WILL INSPECT QUARRIES AND STOCK PILES FOR FEDERALLY OR MI LISTED NOXIOUS WEEDS AND RECOMMEND MITIGATION MEASURES IF ANY ARE FOUND. NPS RESERVES THE RIGHT TO REJECT AGGREGATE SOURCES IF THE RISK OF NOXIOUS WEED INTRODUCTION CANNOT BE MITIGATED.

8. THIS PROJECT DOES NOT REQUIRE IN WATER WORK. IF IN WATER WORK IS DEEMED NECESSARY BY THE CONTRACTOR DURING CONSTRUCTION, OBTAIN WRITTEN APPROVAL FROM COR PRIOR TO OPERATING ANY CONSTRUCTION EQUIPMENT WITHIN THE WATER OR BELOW THE ORDINARY HIGH WATER MARK. IF IN WATER WORK IS APPROVED BY THE COR, ALL VEHICLES OR EQUIPMENT THAT WILL BE WITHIN THE WATER SHALL BE INSPECTED FOR ABSENCE OF AQUATIC INVASIVE SPECIES. PROCESS OF DECONTAMINATION SHALL INCLUDE REMOVAL OF ANY VISUAL AQUATIC PLANTS OR INVASIVE SPECIES FROM EQUIPMENT, REQUIRE EQUIPMENT TO BE DRAINED AND DRY FOR A PERIOD OF 5 CALENDAR DAYS IF PREVIOUSLY WITHIN WATERBODIES OUTSIDE THE PROJECT SITE LIMITS. ONCE MOBILIZED TO THE MUNISING FALLS PROJECT SITE AND OPERATING EXCLUSIVELY WITHIN THE MUNISING FALLS SITE, ADDITIONAL INSPECTIONS FOR AQUATIC OR INVASIVE SPECIES ARE NOT REQUIRED WHILE DEDICATED PRESENCE ON THIS SITE ONLY.

CONSTRUCTION LAYOUT AND STAKING

1. PROPOSED FEATURES INCLUDING RETAINING WALLS, WALKWAYS, AND BOARDWALKS SHALL BE LOCATED AND STAKED BY A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF MICHIGAN.

2. CONTRACTOR SHALL PROVIDE ALL NECESSARY FIELD SURVEYING AND CONSTRUCTION STAKING NECESSARY TO LAYOUT PROPOSED IMPROVEMENTS AND COMPLETE THE WORK.

3. STAKE THE LIMITS OF WORK FOR APPROVAL AS NOTED UNDER TREE, SOIL, AND VEGETATION PROTECTION.

4. AS A MEANS OF IDENTIFYING DISTANCES AND KEY POINTS ALONG THE EXISTING AND PROPOSED TRAIL ALIGNMENT, A STATIONING METHOD IS BEING USED AS NOTATED ON THE DRAWINGS. THIS METHOD IS INTENDED AS A COMMUNICATION AND EXTENTS OF PROGRESS COMPLETION TOOL ONLY.

5. THE STATIONING METHOD (XX+XX) IS MEASURING FOOT DISTANCES FROM THE POINT OF BEGINNING WITH THE FIRST PAIR OF NUMBERS BEING INCREMENTS OF 100'S AND SECOND PAIR AS DISTANCE BETWEEN EACH HUNDRED FOOT INCREMENT. EXAMPLES: 1+00 READS AS 100', 10+00 READS AS 1000', AND 5+25 READS AS 525 FEET.

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT
06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

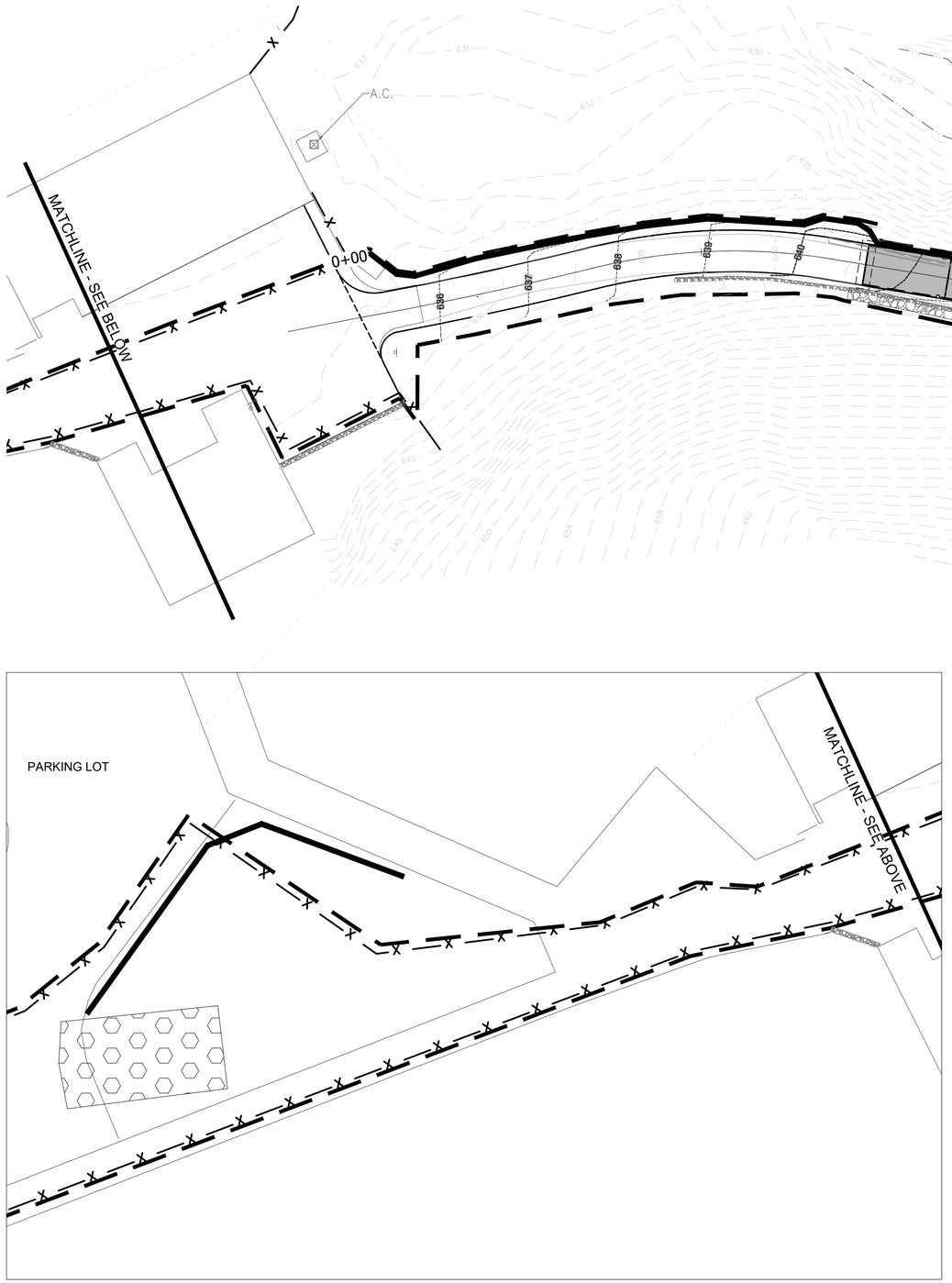
DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

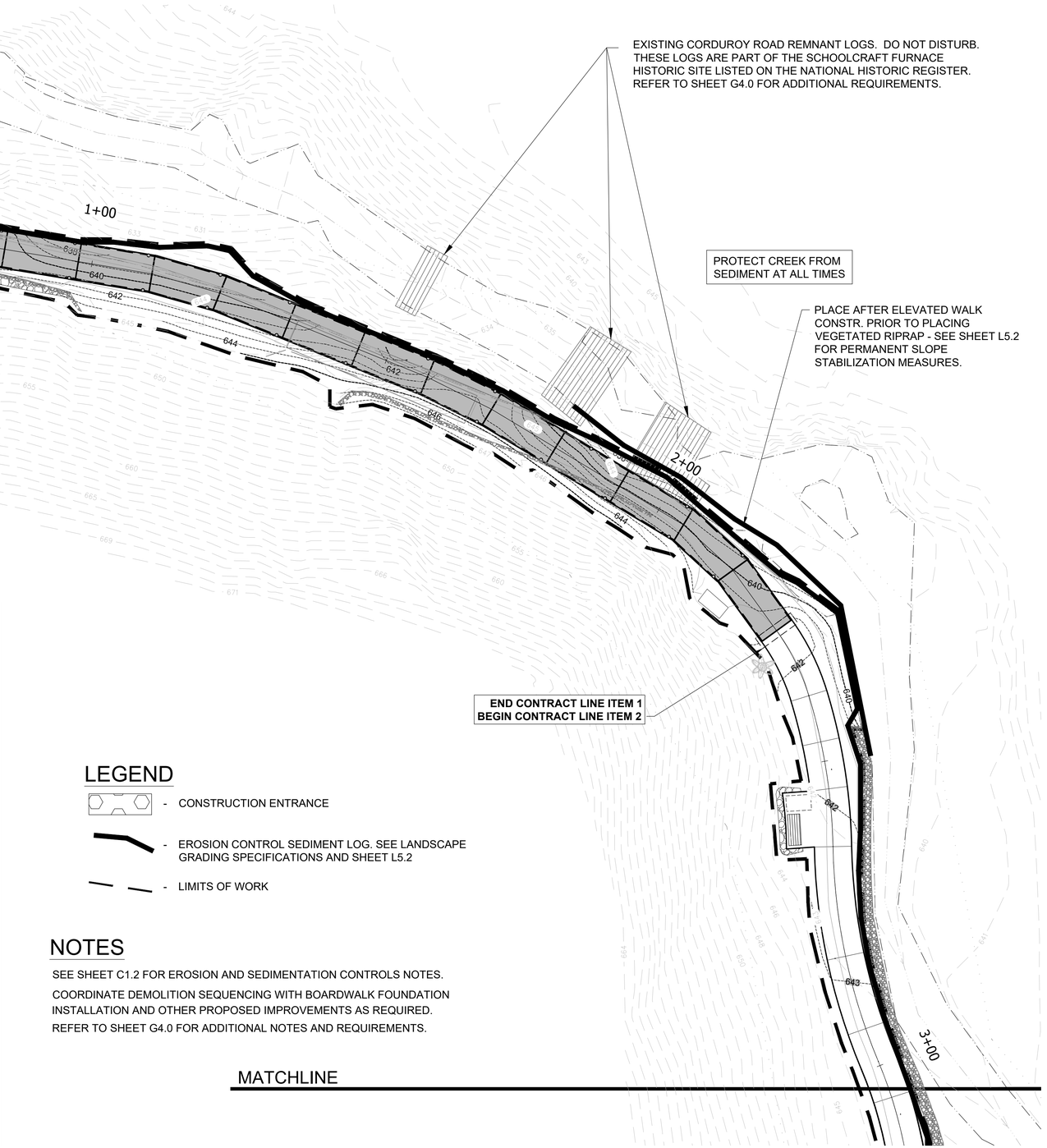
SUB SHEET NO. 01 G4.0

TITLE OF SHEET: GENERAL NOTES

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 05 OF 35





LEGEND

- CONSTRUCTION ENTRANCE
- EROSION CONTROL SEDIMENT LOG. SEE LANDSCAPE GRADING SPECIFICATIONS AND SHEET L5.2
- LIMITS OF WORK

NOTES

SEE SHEET C1.2 FOR EROSION AND SEDIMENTATION CONTROLS NOTES.

COORDINATE DEMOLITION SEQUENCING WITH BOARDWALK FOUNDATION INSTALLATION AND OTHER PROPOSED IMPROVEMENTS AS REQUIRED.

REFER TO SHEET G4.0 FOR ADDITIONAL NOTES AND REQUIREMENTS.

MATCHLINE

10 0 10 20

SCALE OF FEET

STATE OF MICHIGAN
Theresa Maahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01 C1.1

TITLE OF SHEET
EROSION AND SEDIMENT CONTROL PLAN WEST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 6 OF 35

\ACCDocs\Stantec Consulting\20372375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C2.1_SWPPP.dwg 6/24/2025

MATCHLINE

EROSION AND SEDIMENT CONTROL

THE PROJECT WORK AREA IS WITHIN 500 FEET OF A LAKE OR STREAM AND AN EROSION AND SEDIMENTATION PERMIT FROM ALGER COUNTY IS REQUIRED. THE CONTRACTOR SHALL OBTAIN THE EROSION AND SEDIMENTATION PERMIT AND CONDUCT THE WORK IN ACCORDANCE WITH PERMIT REQUIREMENTS.

THE CONTRACTOR SHALL ENSURE THE BMPS AND/OR POLLUTION CONTROLS ARE PROPERLY INSTALLED AND MAINTAINED. MARGIN OR BORDER BMPS, SUCH AS A BUFFER AREA OR VEGETATION STRIPS, TO CONTROL STORMWATER RUNOFF WHERE IT LEAVES THE SITE BOUNDARY, SHALL BE INSTALLED OR MARKED FOR PRESERVATION BEFORE GENERAL SITE CLEARING IS STARTED. STORMWATER RUNOFF FROM DISTURBED AREAS WHICH LEAVE THE SITE SHALL PASS THROUGH AN APPROPRIATE SEDIMENT CONTROL, SUCH AS A SEDIMENTATION BASIN, SEDIMENT TRAP, OR SILT FENCE PRIOR TO LEAVING THE CONSTRUCTION SITE.

PROVIDE BMPS AND/OR POLLUTION CONTROLS THAT. AT A MINIMUM, ARE DESIGNED, INSTALL, AND MAINTAINED TO:

1. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION IN ORDER TO MINIMIZE POLLUTANT DISCHARGE.
2. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE CHANNEL AND STREAMBANK EROSION AND SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS;
3. MINIMIZE THE AMOUNT OF SOIL EXPOSED DURING CONSTRUCTION ACTIVITY;
4. MINIMIZE THE DISTURBANCE OF STEEP SLOPED;
5. MINIMIZE SEDIMENT DISCHARGES FROM THE SITE.
6. PROVIDE AND MAINTAIN NATURAL BUFFERS AROUND WATER OF THE UNITED STATES, DIRECT STORMWATER TO VEGETATED AREAS AND MAXIMIZE STORMWATER INFILTRATION TO REDUCE POLLUTANT DISCHARGES, UNLESS INFEASIBLE;
7. MINIMIZE SOIL COMPACTION.
8. UNLESS INFEASIBLE, PRESERVE TOPSOIL.
9. MINIMIZE DISCHARGES FROM STREAM CROSSINGS BY IMMEDIATELY STABILIZING AREAS FROM BANK TO BANK AND PROVIDING CONTROLS TO MINIMIZE ANY STREAM SCOUR AND PROVIDING SEDIMENT CONTROL FROM BORE PIT STOCKPILES
10. CONTROL DISCHARGES FROM SEDIMENT OR SOIL STOCKPILES
11. MINIMIZE THE GENERATION OF DUST THROUGH THE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES;
12. MINIMIZE OFF-SITE TRACKING OF SOILS BY UTILIZING WHEEL WASHING FACILITIES OR AN APPROPRIATELY
13. DESIGNED CONSTRUCTION ENTRANCE AND EXIT. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE. OFF-SITE TRACK OUT SHALL BE CLEANED UP AT THE END OF EACH WORK DAY. SITES WITH CONTAMINATED SOILS MUST PROVIDE WHEEL WASHING AND TANKS FOR HOLDING OF THE WASH WATER, IF FEASIBLE, OR OTHER EQUIVALENT PRACTICES IF THE VEHICLES CAN TRACK THE CONTAMINATED SOIL FROM THE SITE;
14. PROVIDE STRUCTURES TO DIVERT SIGNIFICANT FLOWS OF STORMWATER FROM OFF-SITE DRAINAGE, IF FEASIBLE;
15. REDUCE EROSION OF CONCENTRATED FLOWS OF STORMWATER IN CHANNELIZED DRAINAGE THROUGH THE USE OF VELOCITY DISSIPATION DEVICES, (E.G., CHECK DAMS, RIPRAP, AND WATTLES), INSTALLATION OF CHANNEL LINERS (E.G., RIPRAP, GEOTEXTILES, AND EROSION CONTROL BLANKETS), OR THE COMBINED USE OF BOTH METHODS OF EROSION CONTROL; AND
16. PROVIDE STORM DRAIN INLET PROTECTION (SUCH AS ROCK BAGS) FOR INLETS DOWN GRADIENT OF DISTURBED PROJECT AREAS THAT ARE NOT FULLY STABILIZED OR WHERE CONSTRUCTION ACTIVITY WILL SOON BE STARTED

EXISTING VEGETATION IS TO BE PRESERVED WHERE PRACTICAL, AND THE TIME PERIOD FOR SOIL AREAS TO BE WITHOUT VEGETATIVE COVER IS TO BE MINIMIZED TO THE EXTENT PRACTICAL. CLEARING AND GRUBBING WITHIN 50 FEET OF A DEFINED DRAINAGE COURSE SHALL BE AVOIDED, IF FEASIBLE.

STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPS. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.

POLLUTION PREVENTION MEASURES

ADDRESS OTHER BMPS, AS REQUIRED BY SITE ACTIVITIES, TO MINIMIZE OR ELIMINATE CONTAMINATION OF STORMWATER RUNOFF. AT A MINIMUM, SUCH MEASURES MUST BE DESIGNED, INSTALLED, IMPLEMENTED AND MAINTAINED TO:

1. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE FREE OF DETERGENTS, SOAPS, OR SOLVENTS AND MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE
2. MINIMIZE THE EXPOSURE OF BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS PRESENT ON THE SITE TO PRECIPITATION AND TO STORMWATER EXCEPT WHERE THE EXPOSURE TO PRECIPITATION AND TO STORMWATER WILL NOT RESULT IN A DISCHARGE OF POLLUTANTS, OR WHERE EXPOSURE OF A SPECIFIC MATERIAL OR PRODUCT POSES LITTLE RISK OF STORMWATER CONTAMINATION (SUCH AS FINAL PRODUCTS AND MATERIALS INTENDED FOR OUTDOOR USE)
3. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM SPILLS AND LEAKS AND IMPLEMENT CHEMICAL SPILL AND LEAK PREVENTION AND RESPONSE PROCEDURES;
4. REQUIRE THE CONTRACTOR TO PROVIDE SOLID AND HAZARDOUS WASTE MANAGEMENT INCLUDING: PROVIDING TRASH CONTAINERS AND REGULAR SITE CLEAN-UP FOR PROPER DISPOSAL OF SOLID WASTE SUCH AS SCRAP BUILDING MATERIAL, PRODUCT/MATERIAL SHIPPING WASTE, FOOD CONTAINERS, AND CUPS; AND PROVIDING CONTAINERS AND PROPER DISPOSAL FOR WASTE PAINTS, SOLVENTS, AND CLEANING COMPOUNDS;
5. REQUIRE PORTABLE TOILETS FOR PROPER DISPOSAL OF SANITARY SEWAGE;
6. REQUIRE STORING CONSTRUCTION MATERIALS AWAY FROM DRAINAGE COURSES AND LOW AREAS;
7. REQUIRE CONTAINMENT BERMS AND DRIP PANS AT FUEL AND LIQUID STORAGE TANKS AND CONTAINERS;
8. PROVIDE PROCEDURES TO ELIMINATE OR MINIMIZE THE POTENTIAL TO DISCHARGE ENVIRONMENTAL CONTAMINANTS FROM CONTAMINATED SOIL OR GROUNDWATER
9. PROVIDE PROCEDURES AND PRACTICES TO ELIMINATE THE POTENTIAL TO DISCHARGE WASH AND/OR RINSE WATERS FROM CONCRETE MIXING EQUIPMENT INCLUDING READY MIX CONCRETE TRUCKS.

GENERAL NOTES

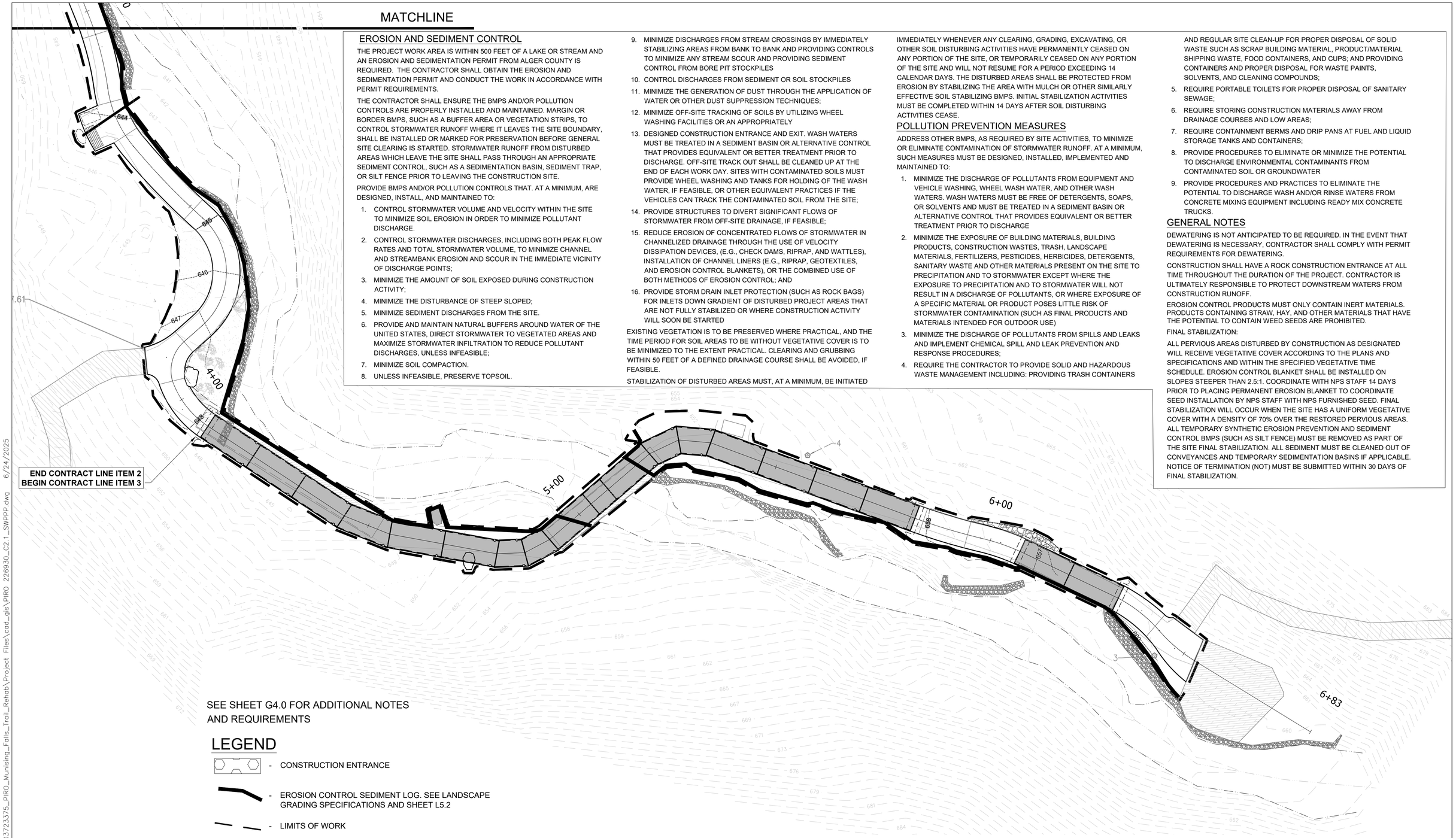
DEWATERING IS NOT ANTICIPATED TO BE REQUIRED. IN THE EVENT THAT DEWATERING IS NECESSARY, CONTRACTOR SHALL COMPLY WITH PERMIT REQUIREMENTS FOR DEWATERING.

CONSTRUCTION SHALL HAVE A ROCK CONSTRUCTION ENTRANCE AT ALL TIME THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR IS ULTIMATELY RESPONSIBLE TO PROTECT DOWNSTREAM WATERS FROM CONSTRUCTION RUNOFF.

EROSION CONTROL PRODUCTS MUST ONLY CONTAIN INERT MATERIALS. PRODUCTS CONTAINING STRAW, HAY, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO CONTAIN WEED SEEDS ARE PROHIBITED.

FINAL STABILIZATION:

ALL PERVIOUS AREAS DISTURBED BY CONSTRUCTION AS DESIGNATED WILL RECEIVE VEGETATIVE COVER ACCORDING TO THE PLANS AND SPECIFICATIONS AND WITHIN THE SPECIFIED VEGETATIVE TIME SCHEDULE. EROSION CONTROL BLANKET SHALL BE INSTALLED ON SLOPES STEEPER THAN 2.5:1. COORDINATE WITH NPS STAFF 14 DAYS PRIOR TO PLACING PERMANENT EROSION BLANKET TO COORDINATE SEED INSTALLATION BY NPS STAFF WITH NPS FURNISHED SEED. FINAL STABILIZATION WILL OCCUR WHEN THE SITE HAS A UNIFORM VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE RESTORED PERVIOUS AREAS. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS (SUCH AS SILT FENCE) MUST BE REMOVED AS PART OF THE SITE FINAL STABILIZATION. ALL SEDIMENT MUST BE CLEANED OUT OF CONVEYANCES AND TEMPORARY SEDIMENTATION BASINS IF APPLICABLE. NOTICE OF TERMINATION (NOT) MUST BE SUBMITTED WITHIN 30 DAYS OF FINAL STABILIZATION.



SEE SHEET G4.0 FOR ADDITIONAL NOTES AND REQUIREMENTS

LEGEND

- CONSTRUCTION ENTRANCE
- EROSION CONTROL SEDIMENT LOG. SEE LANDSCAPE GRADING SPECIFICATIONS AND SHEET L5.2
- LIMITS OF WORK

10 0 10 20
SCALE OF FEET

STATE OF MICHIGAN
Theresa Maahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

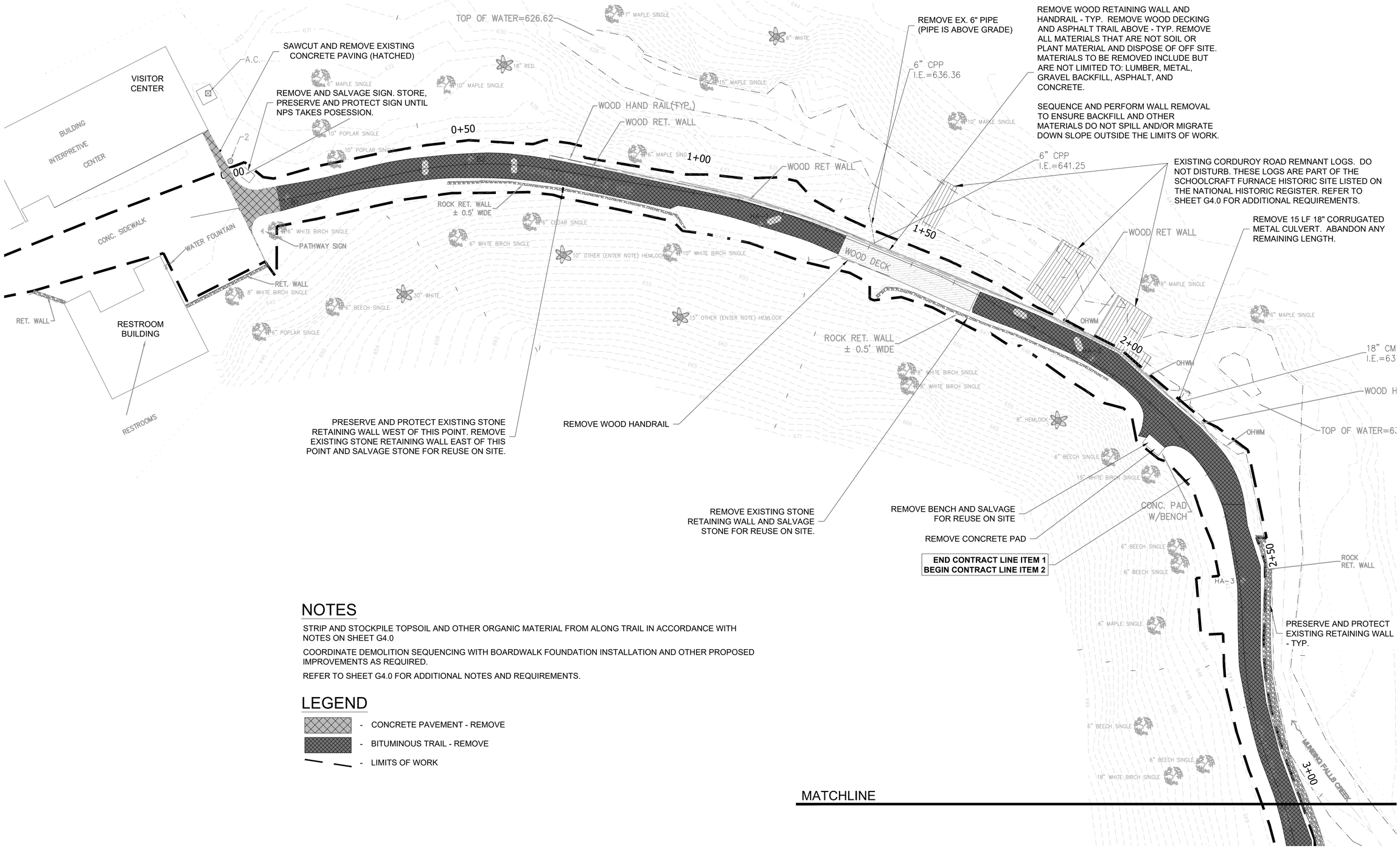
DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01
C1.2

TITLE OF SHEET
EROSION AND SEDIMENT CONTROL PLAN EAST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 7 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C2.1_SWPPP.dwg 6/24/2025



NOTES

STRIP AND STOCKPILE TOPSOIL AND OTHER ORGANIC MATERIAL FROM ALONG TRAIL IN ACCORDANCE WITH NOTES ON SHEET G4.0

COORDINATE DEMOLITION SEQUENCING WITH BOARDWALK FOUNDATION INSTALLATION AND OTHER PROPOSED IMPROVEMENTS AS REQUIRED.

REFER TO SHEET G4.0 FOR ADDITIONAL NOTES AND REQUIREMENTS.

LEGEND

- CONCRETE PAVEMENT - REMOVE
- BITUMINOUS TRAIL - REMOVE
- LIMITS OF WORK

10 0 10 20
SCALE OF FEET

STATE OF MICHIGAN
Theresa Maahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01 C2.1

TITLE OF SHEET
EXISTING CONDITIONS AND DEMOLITION PLAN WEST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 8 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO_226930_C5.1_DEMO.dwg 6/24/2025

MATCHLINE

REMOVE BENCH AND SALVAGE FOR REUSE ON SITE

REMOVE ASPHALT TRAIL.

BENCH

12" CMP
I.E.=643.04

12" CMP
I.E.=643.30

3+50

ROCK
RET. WALL

PRESERVE AND PROTECT EXISTING RETAINING WALL - TYP.

10" SPRUCE

SEE SHEET G4.0 FOR TEMP PROTECTIVE MEASURES AT EXISTING BRIDGE AREAS

TOP OF WATER=642.46

REMOVE WOOD BRIDGE AND (3) WOOD PILES. REMOVE WESTERN CONCRETE ABUTMENT. EASTERN CONCRETE ABUTMENTS TO BE LEFT IN PLACE. CUT ALL ABUTMENT ANCHOR BOLTS AND ANY OTHER PROTRUDING HARDWARE FLUSH WITH CONCRETE SURFACE.

REMOVE WOOD BRIDGE. CONCRETE ABUTMENTS TO BE LEFT IN PLACE. CUT ALL ABUTMENT ANCHOR BOLTS AND ANY OTHER PROTRUDING HARDWARE FLUSH WITH CONCRETE SURFACE.

REMOVE SOCK DRAIN

REMOVE CONCRETE PAD

REMOVE BENCH AND SALVAGE FOR REUSE BY NPS

PRESERVE AND PROTECT EXISTING WOOD STAIRWAY

EXISTING ROCK TO REMAIN

4" CPP SOCKDRAIN
I.E.=650.62

4+00

ROCK
RET. WALL

WOOD STEPS

WOOD BRIDGE

4+50

5+00

5+50

CONC. PAD W/BENCH

6+00

6+50

WOOD BRIDGE

ROCK
RET. WALL

PRESERVE AND PROTECT EXISTING RETAINING WALL - TYP.

PRESERVE AND PROTECT EXISTING RETAINING WALLS - TYP.

REMOVE WOOD BRIDGE AND (2) CONCRETE ABUTMENTS

REMOVE ASPHALT TRAIL.

PRESERVE AND PROTECT WOOD DECK AND STAIRS

BIG ROCK

WOOD STEPS

WOOD DECK

ROCK
RET. WALL

END CONTRACT LINE ITEM 2
BEGIN CONTRACT LINE ITEM 3

RELOCATE EXISTING ROCK AS DIRECTED BY COR IN THE FIELD. PLACE IN DISTURBED / ERODED AREA BETWEEN CREEK AND WALKWAY. REFER TO LANDSCAPE DRAWINGS

REPLACEMENT OF EXISTING WOOD DECK SPECIFIED IN SEPARATE SUPPLEMENTAL DOCUMENTS AND TO BE INCLUDED AS SEPARATE BID ITEM. REFER TO SUPPLEMENTAL DRAWINGS AND COORDINATE THE WORK OF BOTH BID ITEMS AS REQUIRED.

NOTES

STRIP AND STOCKPILE TOPSOIL AND OTHER ORGANIC MATERIAL FROM ALONG TRAIL IN ACCORDANCE WITH NOTES ON SHEET G4.0

COORDINATE DEMOLITION SEQUENCING WITH BOARDWALK FOUNDATION INSTALLATION AND OTHER PROPOSED IMPROVEMENTS AS REQUIRED.

REFER TO SHEET G4.0 FOR ADDITIONAL NOTES AND REQUIREMENTS.

LEGEND

- CONCRETE PAVEMENT - REMOVE
- BITUMINOUS TRAIL - REMOVE (4+50 TO 6+60 - REMOVE ASPHALT ONLY)
- LIMITS OF WORK

10 0 10 20
SCALE OF FEET

STATE OF MICHIGAN
Theresa Moahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

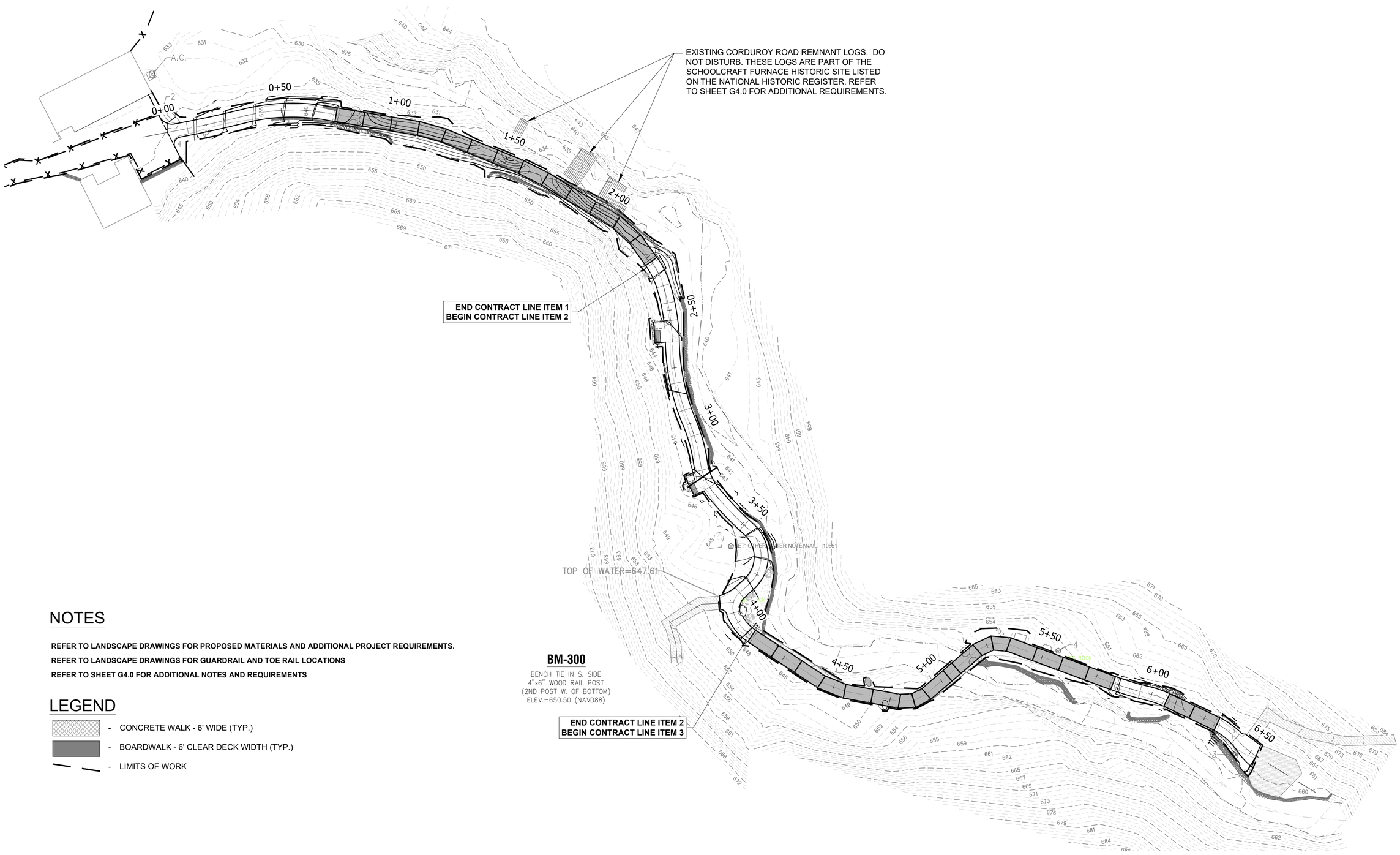
DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01 C2.2

TITLE OF SHEET
EXISTING CONDITIONS AND DEMOLITION PLAN EAST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 9 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C5.1_DEMO.dwg 6/24/2025



NOTES

REFER TO LANDSCAPE DRAWINGS FOR PROPOSED MATERIALS AND ADDITIONAL PROJECT REQUIREMENTS.

REFER TO LANDSCAPE DRAWINGS FOR GUARDRAIL AND TOE RAIL LOCATIONS

REFER TO SHEET G4.0 FOR ADDITIONAL NOTES AND REQUIREMENTS

LEGEND

- CONCRETE WALK - 6' WIDE (TYP.)
- BOARDWALK - 6' CLEAR DECK WIDTH (TYP.)
- LIMITS OF WORK

20 0 20 40
SCALE OF FEET

STATE OF MICHIGAN
Theresa Moahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

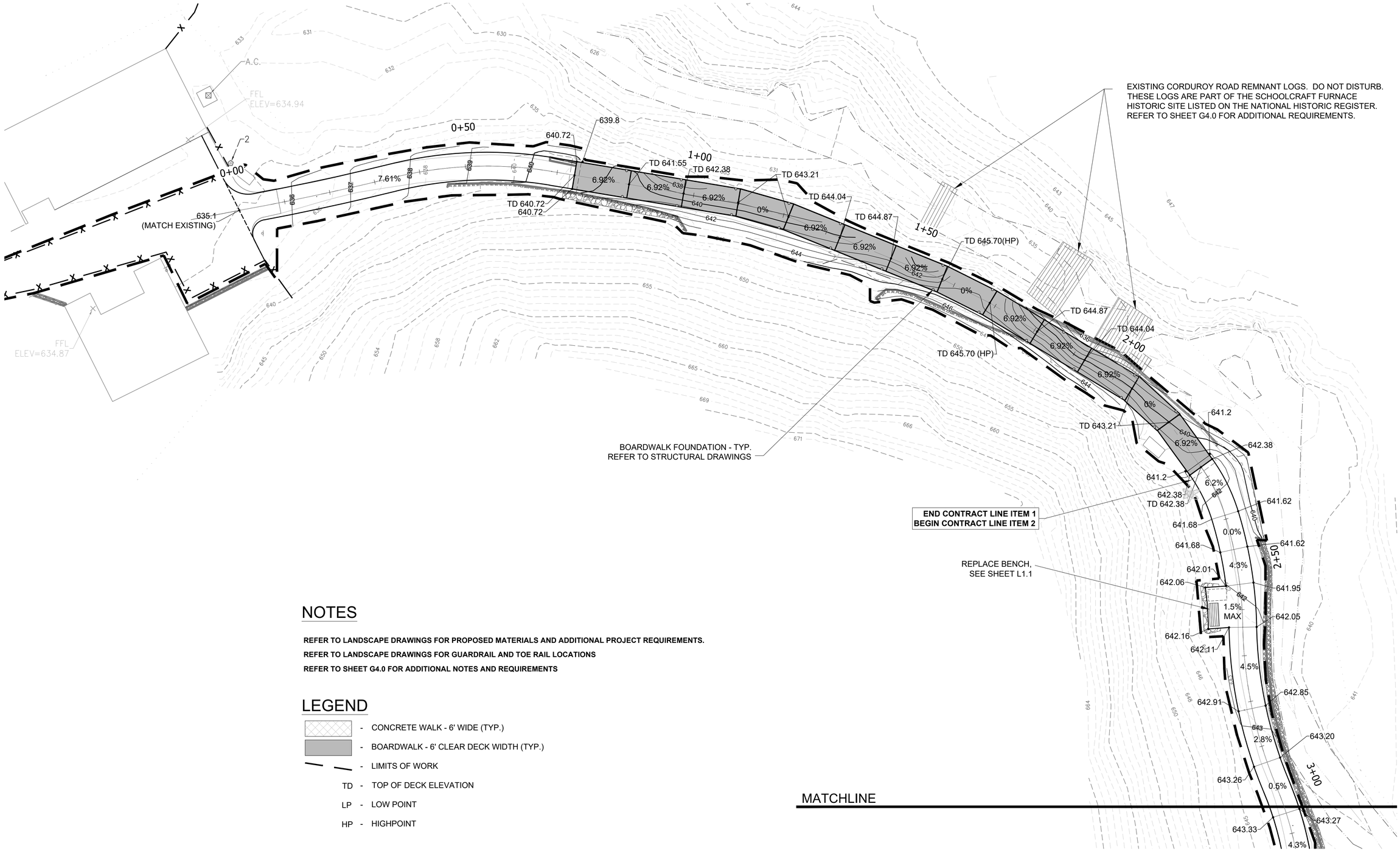
DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01 C3.0

TITLE OF SHEET
LAYOUT PLAN OVERALL
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 10 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C6.1_Plan-Profile.dwg 6/24/2025



NOTES

REFER TO LANDSCAPE DRAWINGS FOR PROPOSED MATERIALS AND ADDITIONAL PROJECT REQUIREMENTS.

REFER TO LANDSCAPE DRAWINGS FOR GUARDRAIL AND TOE RAIL LOCATIONS

REFER TO SHEET G4.0 FOR ADDITIONAL NOTES AND REQUIREMENTS

LEGEND

- CONCRETE WALK - 6' WIDE (TYP.)
- BOARDWALK - 6' CLEAR DECK WIDTH (TYP.)
- LIMITS OF WORK
- TD - TOP OF DECK ELEVATION
- LP - LOW POINT
- HP - HIGHPOINT

10 0 10 20
SCALE OF FEET

STATE OF MICHIGAN
Theresa Maahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01

C3.1

TITLE OF SHEET
LAYOUT AND GRADING PLAN WEST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067

PMIS NO. 22 69 30

SHEET 11 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C6.3_Plan_Detail.dwg 6/24/2025

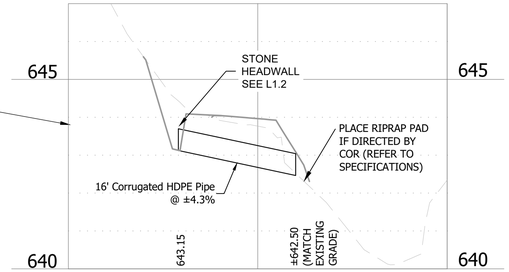
MATCHLINE

643.26 | 0.5% | 643.27 | 643.33 | 4.3% | 643.92 | 643.98 | IE ±642.5 (MATCH EXISTING GRADE) | 644.03 | INSTALL 6" CORR HDPE PIPE. | STONE HEADWALL SEE L1.2 | 1.5% MAX | 644.04 | LP / IE 643.15 | 644.15 | 644.10 | 2.5% | 3+50 | 644.60 | GRADE AREA AROUND INLET TO ALLOW DRAINAGE TO INLET. | 644.66 | SET OTHER (ENTER NOTE) CIVIL 10651 | 8.2% | =647.61 | 647.49 | 647.60 | 1.5% MAX | 4+00 | 647.49 | 647.60 | 647.66 | 3.5% | 648.08 | 647.60 | TD 648.08 | 648.08 | TD 648.96 | 7.35% | 7.35% | TD 649.84 | 4+50 | 7.35% | TD 650.73 | 0% | 7.35% | 7.35% | TD 651.61 | 0% | 5+00 | 6.5% | TD 652.49 | TD 652.49 | 0% | TD 654.38 | 5+50 | 0% | 7.35% | TD 655.26 | 4 | 7.35% | TD 656.14 | 7.35% | TD 657.02 | 7.35% | 657.90 | 657.99 | 6+00 | 658.17 | 658.74 | TD 658.74 | 1.5% MAX | TD 657.90 | 657.90 | 4.5% | 657.99 | 658.13 | 5.0% | 658.74 | 5.35% | TD 659.39 | 660.03 | 5.35% | 660.52 | 660.54 | 4.5% | 660.60 | 6+50 | 660.62 (Match Deck) | TD 660.03 | 660.03 | 1.5% MAX | 660.46 | 660.62 (Match Deck) | 660.62 (Match Deck)

END CONTRACT LINE ITEM 2
BEGIN CONTRACT LINE ITEM 3

BOARDWALK FOUNDATION - TYP.
REFER TO STRUCTURAL DRAWINGS

BOARDWALK FOUNDATION - TYP.
REFER TO STRUCTURAL DRAWINGS



NOTES

REFER TO LANDSCAPE DRAWINGS FOR PROPOSED MATERIALS AND ADDITIONAL PROJECT REQUIREMENTS.
REFER TO LANDSCAPE DRAWINGS FOR GUARDRAIL AND TOE RAIL LOCATIONS
REFER TO SHEET G4.0 FOR ADDITIONAL NOTES AND REQUIREMENTS

LEGEND

- CONCRETE WALK - 6' WIDE (TYP.)
- BOARDWALK - 6' CLEAR DECK WIDTH (TYP.)
- LIMITS OF WORK
- TD - TOP OF DECK ELEVATION
- LP - LOW POINT
- HP - HIGHPOINT

10 0 10 20
SCALE OF FEET

Theresa Maahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
STATE OF MICHIGAN
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

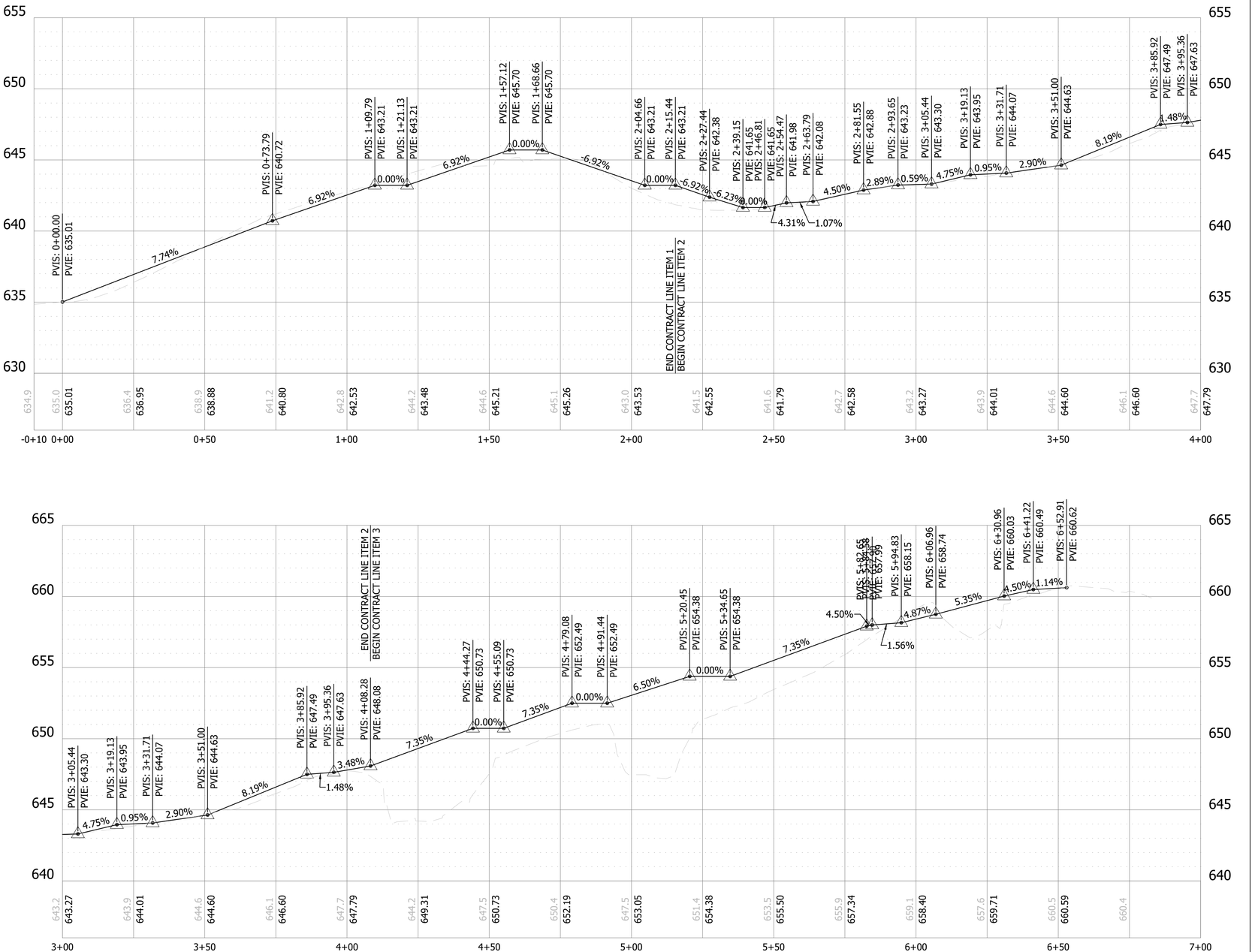
SUB SHEET NO. 01 C3.2

TITLE OF SHEET
LAYOUT AND GRADING PLAN EAST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 12 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C6.3_Plan_Detail.dwg 6/24/2025

TRAIL								
BEGIN STATION	END STATION	DELTA	RADIUS	LENGTH	BEGIN (NORTH,EAST)	END (NORTH,EAST)	BEGIN DIRECTION	END DIRECTION
-0+10.68	0+00				598370.18, 26341604.52	598372.21, 26341615.00	N79°04'55"E	
0+00	0+34.09	3°46'17"	517.96	34.09	598372.21, 26341615.00	598379.30, 26341648.34	N79°52'34"E	N76°06'17"E
0+34.09	0+68.79	23°21'30"	85.10	34.69	598379.30, 26341648.34	598380.63, 26341682.77	N76°06'17"E	S80°32'12"E
0+68.79	0+73.79				598380.63, 26341682.77	598379.81, 26341687.70	S80°32'12"E	
0+73.79	1+09.79				598379.81, 26341687.70	598373.89, 26341723.21	S80°32'12"E	
1+09.79	1+21.13				598373.89, 26341723.21	598370.81, 26341734.13	S74°14'02"E	
1+21.13	1+57.13				598370.81, 26341734.13	598357.28, 26341767.49	S67°55'49"E	
1+57.13	1+68.66				598357.28, 26341767.49	598352.13, 26341777.80	S63°28'21"E	
1+68.66	2+04.66				598352.13, 26341777.80	598333.55, 26341808.64	S58°55'21"E	
2+04.66	2+15.44				598333.55, 26341808.64	598326.26, 26341816.58	S47°25'35"E	
2+15.44	2+27.44				598326.26, 26341816.58	598316.54, 26341823.62	S35°55'26"E	
2+27.44	2+39.15	18°35'52"	36.09	11.71	598316.54, 26341823.62	598306.09, 26341828.80	S35°41'37"E	S17°05'46"E
2+39.15	2+63.80	16°00'17"	88.23	24.65	598306.09, 26341828.80	598281.84, 26341832.68	S17°05'45"E	S1°05'28"E
2+63.80	2+99.32	21°39'50"	93.94	35.52	598281.84, 26341832.68	598247.29, 26341839.98	S1°05'28"E	S22°45'18"E
2+99.32	3+17.58	14°47'13"	70.78	18.27	598247.29, 26341839.98	598229.72, 26341844.80	S22°45'18"E	S7°58'05"E
3+17.58	3+31.90	31°55'24"	25.69	14.32	598229.72, 26341844.80	598216.81, 26341850.53	S7°58'05"E	S39°53'29"E
3+31.90	3+53.77	8°07'50"	154.15	21.87	598216.81, 26341850.53	598201.07, 26341865.71	S39°53'29"E	S48°01'19"E
3+53.77	3+80.57	96°31'49"	15.91	26.80	598201.07, 26341865.71	598177.34, 26341865.60	S48°01'19"E	S48°30'31"W
3+80.57	3+85.90	0°03'35"	5113.87	5.33	598177.34, 26341865.60	598173.81, 26341861.61	S48°32'14"W	S48°28'39"W
3+85.90	3+95.24	62°25'31"	8.57	9.34	598173.81, 26341861.61	598165.31, 26341859.02	S48°12'10"W	S14°13'21"E
3+95.24	4+08.28	37°31'57"	19.91	13.04	598165.31, 26341859.02	598155.19, 26341866.88	S19°06'09"E	S56°38'06"E
4+08.28	4+44.28				598155.19, 26341866.88	598135.39, 26341896.95	S56°38'06"E	
4+44.28	4+55.09				598135.39, 26341896.95	598131.37, 26341906.97	S68°08'03"E	
4+55.09	4+79.09				598131.37, 26341906.97	598127.05, 26341930.58	S79°38'18"E	
4+79.09	4+85.26				598127.05, 26341930.58	598127.31, 26341936.76	N87°36'42"E	
4+85.26	4+91.44				598127.31, 26341936.76	598130.20, 26341942.22	N62°06'38"E	
4+91.44	5+20.45				598130.20, 26341942.22	598149.09, 26341964.23	N49°21'39"E	
5+20.45	5+27.55				598149.09, 26341964.23	598152.14, 26341970.64	N64°32'47"E	
5+27.55	5+34.65				598152.14, 26341970.64	598151.52, 26341977.72	S84°57'13"E	
5+34.65	5+82.65				598151.52, 26341977.72	598134.87, 26342022.73	S69°42'13"E	
5+82.65	5+97.70	6°26'17"	133.96	15.05	598134.87, 26342022.73	598130.53, 26342037.14	S70°01'52"E	S76°28'09"E
5+97.70	6+06.97	11°31'42"	46.03	9.26	598130.53, 26342037.14	598127.59, 26342045.90	S77°11'07"E	S65°39'25"E
6+06.97	6+30.97				598127.59, 26342045.90	598117.27, 26342067.57	S64°31'23"E	
6+30.97	6+42.57	21°08'42"	31.43	11.60	598117.27, 26342067.57	598110.10, 26342076.61	S62°10'47"E	S41°02'05"E
6+42.57	6+52.85	17°44'18"	33.21	10.28	598110.10, 26342076.61	598103.46, 26342084.41	S40°42'46"E	S58°27'04"E
6+52.85	6+82.80				598103.46, 26342084.41	598087.79, 26342109.93	S58°27'04"E	



\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C6.1_Plan-Profile.dwg 6/24/2025

STATE OF MICHIGAN
Theresa Moohs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

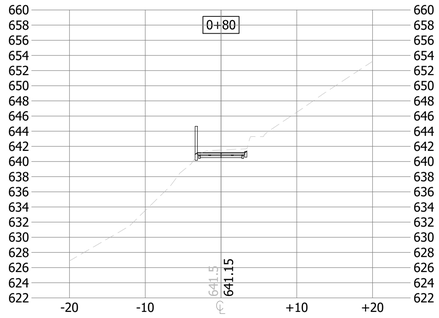
Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

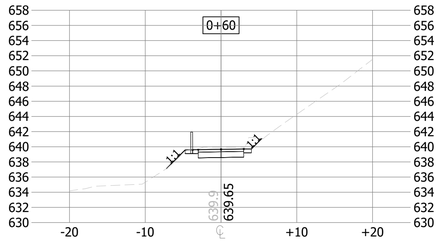
DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

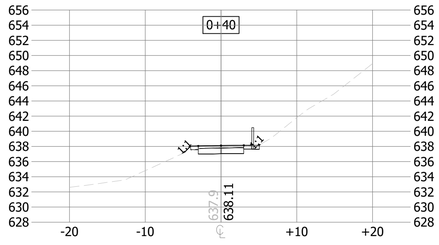
SUB SHEET NO. 01
C4.0

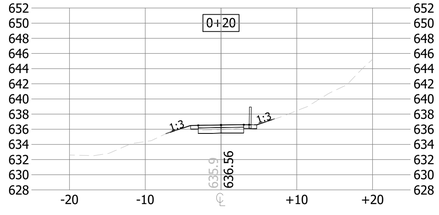
TITLE OF SHEET
TRAIL PROFILE AND ALIGNMENT DATA
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

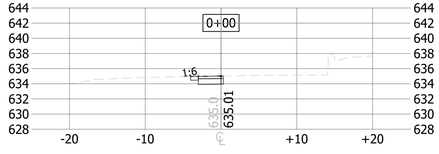
DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 13 OF 35

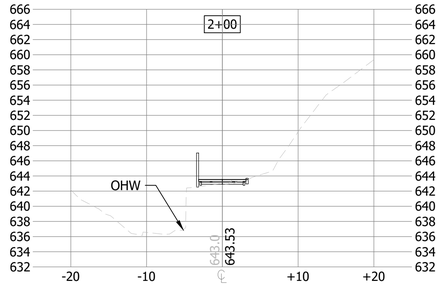


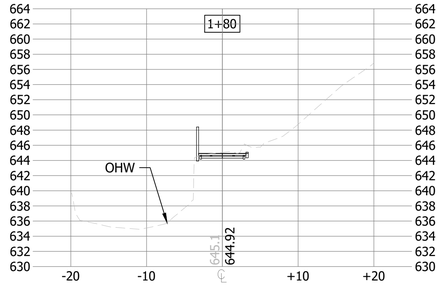


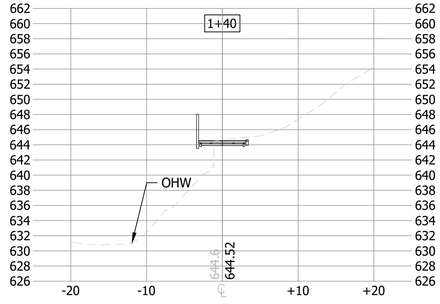


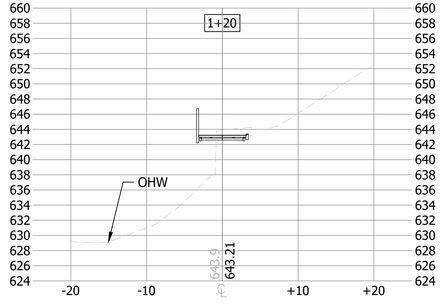


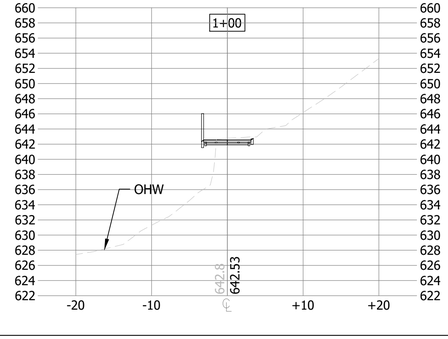


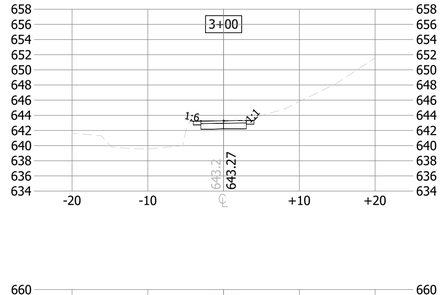


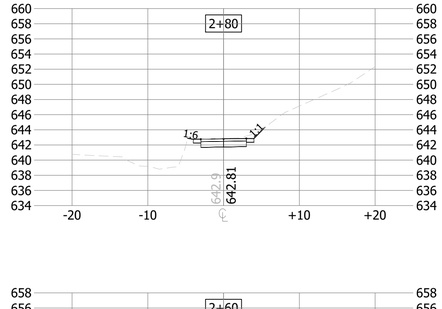


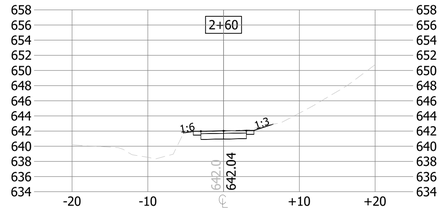


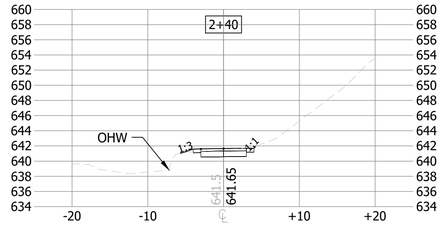


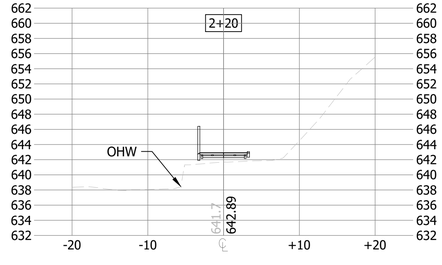


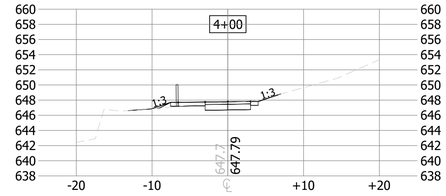


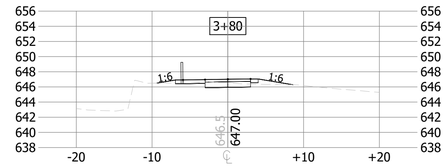


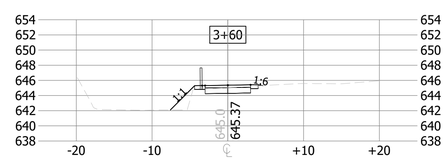


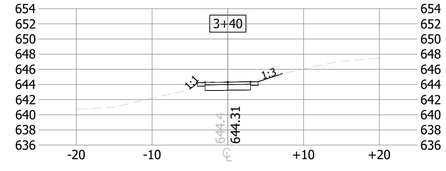


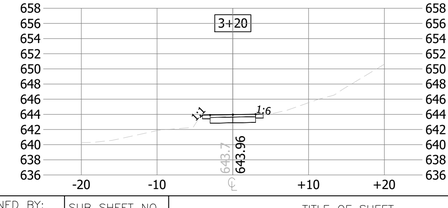












STATE OF MICHIGAN
Theresa Marie Moahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

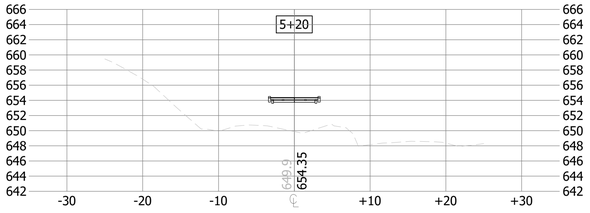
DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

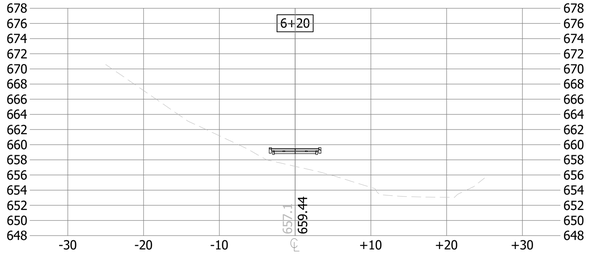
SUB SHEET NO. 01
C5.0

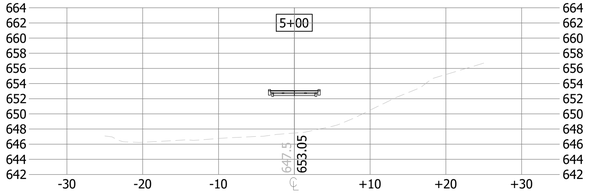
TITLE OF SHEET
TRAIL CROSS SECTION WEST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

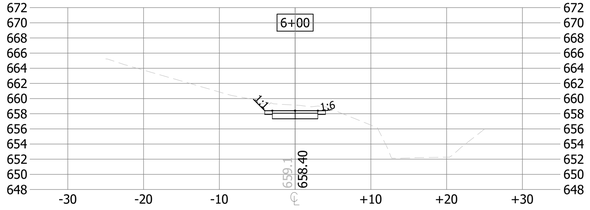
DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 14 OF 35

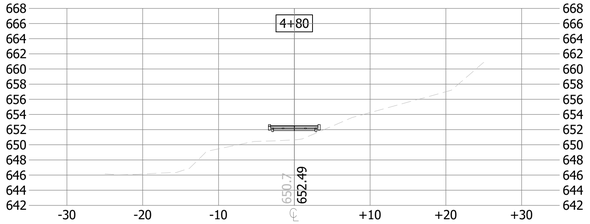
\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C7.1_SECTIONS.dwg 6/24/2025

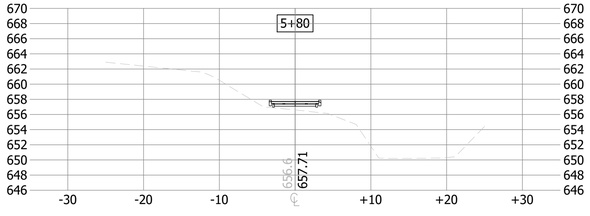


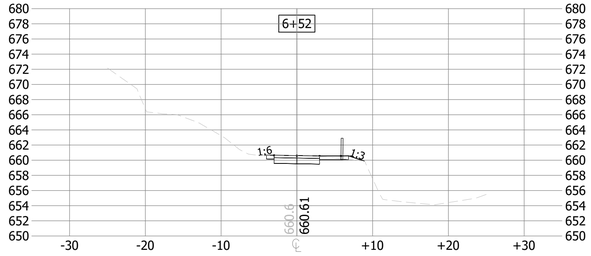


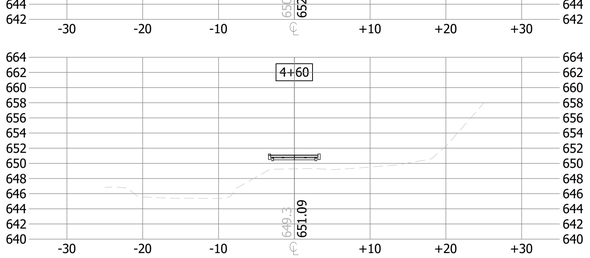


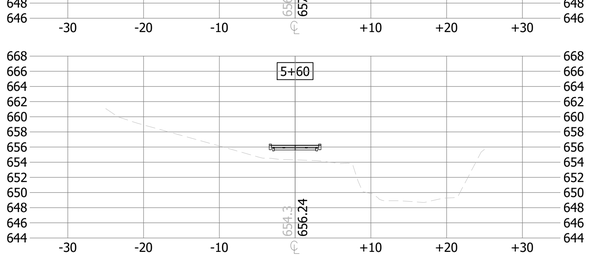


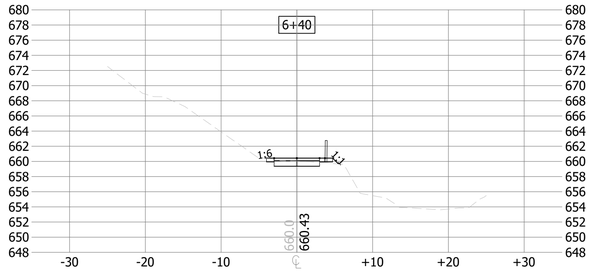


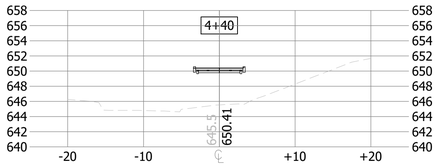


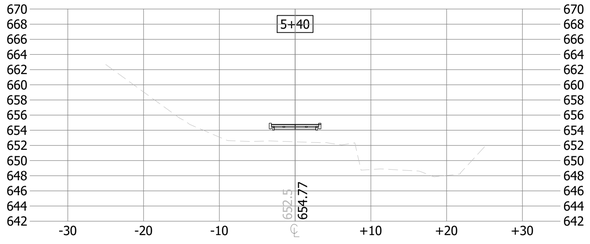


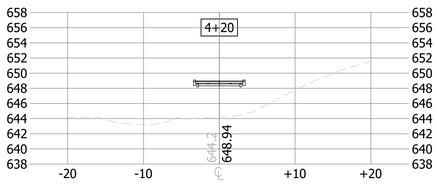












STATE OF MICHIGAN
Theresa Maahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

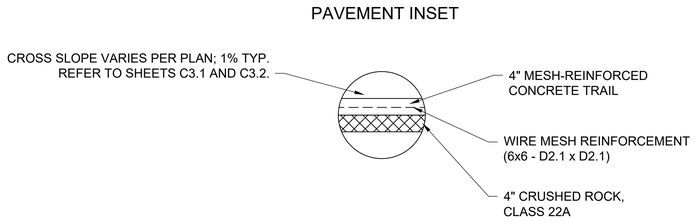
DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01 C5.1

TITLE OF SHEET
TRAIL CROSS SECTION EAST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

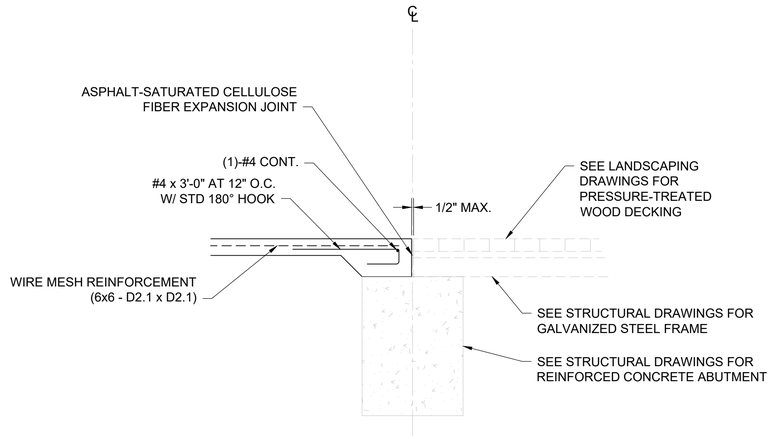
DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 15 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C7.1_SECTIONS.dwg 6/24/2025



CONCRETE PAVEMENT

N.T.S.



CONCRETE WALK AT BOARDWALK ABUTMENTS

N.T.S.

NOTES

REFER TO LANDSCAPE DRAWINGS FOR TYPICAL ON GRADE WALKWAY SECTION AND OTHER TYPICAL WALKWAY DETAILS.

ALL CONCRETE FOR PAVED TRAIL TO INCLUDE INTEGRAL COLOR; REFER TO LANDSCAPE DRAWINGS

STATE OF MICHIGAN
Theresa Moahs-Henderson
License No. 6201312820
LICENSED PROFESSIONAL ENGINEER
6/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	6/23/25	

DESIGNED BY: TF
DRAWN BY: WF
REVIEWED BY: TF
DATE: 6/23/2025

SUB SHEET NO. 01

C6.0

TITLE OF SHEET
DETAILS SHEET

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067

PMIS NO. 22 69 30

SHEET 16 OF 35

\ACCDocs\Stantec Consulting\203723375_PIRO_Munising_Falls_Trail_Rehab\Project Files\cad_gis\PIRO 226930_C1.1_TYPICALS.dwg 6/24/2025

NOTES

1. REFER TO SHEET G4.0 FOR GENERAL NOTES AND REQUIREMENTS
2. REFER TO CIVIL DRAWINGS FOR DEMOLITION PLANS
3. REFER TO CIVIL DRAWINGS FOR HORIZONTAL LAYOUT, GRADING AND OTHER IMPROVEMENTS.
4. REFER TO STRUCTURAL DRAWINGS FOR BOARDWALK FOUNDATIONS, ABUTMENTS AND OTHER DETAILS.
5. COORDINATE WITH NPS STAFF 14 DAYS PRIOR TO PLACING PERMANENT EROSION BLANKET TO COORDINATE SEED INSTALLATION BY NPS STAFF WITH NPS FURNISHED SEED.

ABBREVIATIONS

ALLOW	ALLOWANCE
ALT	ALTERNATIVE
AVG	AVERAGE
BC	BOTTOM OF CURB
BET	BETWEEN
BLDG	BUILDING
BIT	BITUMINOUS
BS	BOTTOM OF STAR
BTD	BOTTOM OF TRENCH DRAIN
BW	BOTTOM OF WALL
CAL	CALIPER
CB	CATCH BASIN
CJ	CONTROL JOINT / CONTRACTION JOINT
CL	CENTER LINE
CLI	CONTRACT LINE ITEM
CLR	CLEAR
CO	CLEAN OUT
COR	CONTRACTING OFFICER REPRESENTATIVE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CIP	CAST IN PLACE
CY	CUBIC YARD
DEG	DEGREE
DEMO	DEMOLITION
DIA OR Ø	DIAMETER
DIM	DIMENSION
DS	DOWN SPOUT
E	EAST
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EQ	EQUAL
EX	EXISTING
EXT	EXTERIOR
FDN	FOUNDATION
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FT	FEET
FTG	FOOTING
GALV	GALVANIZED
HORIZ	HORIZONTAL
HDPE	HIGH DENSITY POLYETHYLENE
HT	HEIGHT
HP	HIGH POINT ELEVATION
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INCL	INCLUDE, INCLUDING
INFO	INFORMATION
INT	INTERIOR
JB	JUNCTION BOX
LB	POUND
LP	LOW POINT ELEVATION
LT	LIGHT
LOW	LIMIT OF WORK
MATL	MATERIAL
MAX	MAXIMUM
ME	MATCH EXISTING
MDD	MAXIMUM DRY DENSITY
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
N	NORTH
NOM	NOMINAL
NIC	NOT IN CONTRACT
NO	NUMBER
NPS	NATIONAL PARK SERVICE
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OC	ON CENTER
OHWM	ORDINARY HIGH WATER MARK
PERF	PERFORATED
PC	POINT OF CURVATURE
PL	PROPERTY LINE
POB	POINT OF BEGINNING
PREFAB	PREFABRICATED
PROJ	PROJECT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RECD	RECEIVED
REF	REFERENCE
REBAR	REINFORCING BAR
REINF	REINFORCED
REQD	REQUIRED
RIM	RIM ELEVATION
ROW	RIGHT OF WAY
S	SOUTH
SECT	SECTION
SCH	SCHEDULE
SF	SQUARE FEET
SHT	SHEET
SIM	SIMILAR
SOG	SLAB ON GRADE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STR	STRUCTURE, STRUCTURAL
SY	SQUARE YARD
TC	TOP OF CURB
TEMP	TEMPORARY
T&B	TOP AND BOTTOM
THK	THICK
THRU	THROUGH
TOS	TOP OF SLAB
TS	TOP OF STAIR
TYP	TYPICAL
TW	TOP OF WALL
W	WEST
VERT	VERTICAL
VIF	VERIFY IN FIELD DO NOT PROCEED WITHOUT APPROVAL
W	WIDTH
W/	WITH
W/O	WITHOUT

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
REGISTERED LANDSCAPE ARCHITECT
06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01
L0.0

TITLE OF SHEET
SITE NOTES AND ABBREVIATIONS
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

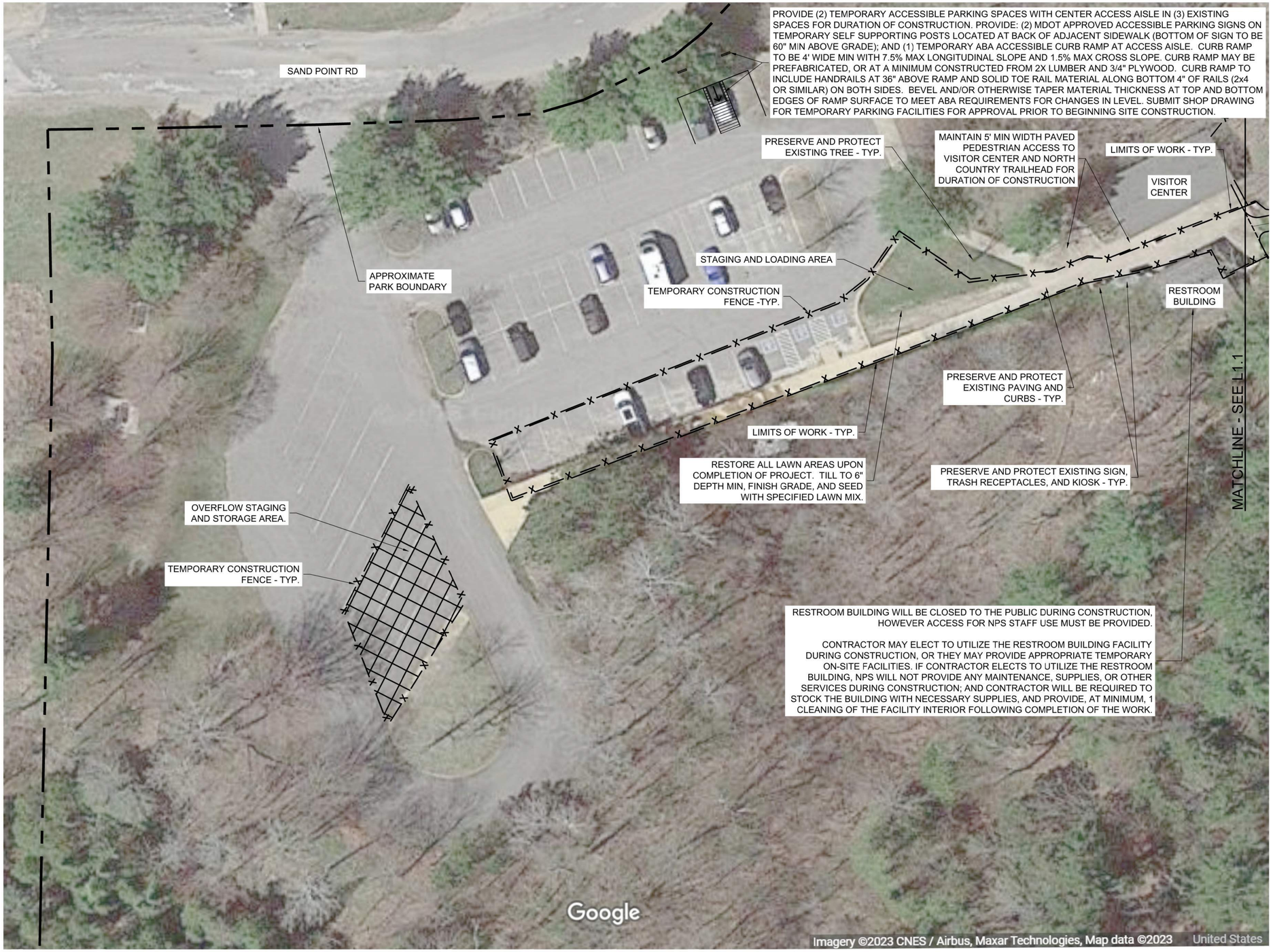
DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 17 OF 35

NOTES

1. ALL TEMPORARY SIGN POSTS SHALL BE SELF SUPPORTING AND SHALL NOT REQUIRE EXCAVATION OR GROUND PENETRATION.

2. TEMPORARY CONSTRUCTION FENCING SHALL BE SELF SUPPORTING AND SHALL NOT REQUIRE EXCAVATION OR GROUND PENETRATION. TEMPORARY FENCING SHALL BE A MINIMUM HEIGHT OF 4 FT. TEMPORARY FENCING SHALL BE PORTABLE CHAIN LINK FENCING OR APPROVED EQUAL. EQUIVALENT MATERIALS OTHER THAN STANDARD CHAIN LINK SITE FENCING SHALL BE SUBMITTED FOR COR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

3. REFER TO SHEETS G4.0 AND L0.0 FOR ADDITIONAL NOTES.



STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT
06/23/2025

20 0 20 40
SCALE OF FEET

Mark	Sheet	REVISION	Date	Initial
—	—	FINAL SEALED CD	06/23/25	—

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 LO.1

TITLE OF SHEET
CONSTRUCTION STAGING PLAN
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 18 OF 35

TEMPORARY CONSTRUCTION FENCE EXTENSION 20 LF MIN.

3 / L5.0 SPLIT RAIL FENCE

1 / L6.1 BOARDWALK (#1)

LIMITS OF WORK - TYP.

WALKWAY CENTER LINE - TYP.

BEGIN GUARDRAIL

BOARDWALK GUARDRAIL - TYP.

(1) 24 FT CLEAR SPAN WITH I-BEAM ON CREEK SIDE OF BOARDWALK (TO CLEAR VERTICAL FACE BELOW). SEE DETAIL 1/L6.0

WALKWAY CENTER LINE - TYP.

BOARDWALK FOUNDATION - TYP. REFER TO STRUCTURAL DRAWINGS

EXISTING CORDUROY ROAD REMNANT LOGS. DO NOT DISTURB. THESE LOGS ARE PART OF THE SCHOOLCRAFT FURNACE HISTORIC SITE LISTED ON THE NATIONAL HISTORIC REGISTER. REFER TO SHEET G4.0 FOR ADDITIONAL REQUIREMENTS.

VISITOR CENTER

CONC. SIDEWALK

WATER FOUNTAIN

PATHWAY SIGN

RET. WALL

FFL ELEV=634.87

RESTROOM BUILDING

TEMPORARY CONSTRUCTION FENCE EXTENSION 10 LF MIN.

TEMPORARY CONSTRUCTION FENCE - TYP.

SPLIT RAIL FENCE 3 / L5.0

ON GRADE WALKWAY 1 / L5.1

FFL ELEV=634.94

TOP OF WATER=626.62

ROCK RET. WALL ± 0.5' WIDE

BEGIN TOE RAIL

BOARDWALK ABUTMENT - REFER TO STRUCTURAL DRAWINGS

SECTION A 1 / L4.0

STONE RETAINING WALL - TYPE 1 1 / L5.0

SLOPE STABILIZATION - BOARDWALK #1 1 / L5.2

SECTION B 2 / L4.0

(2) 18 FT CLEAR SPANS WITH I-BEAMS ON CREEK SIDE OF BOARDWALK (TO CLEAR HISTORIC LOGS BELOW). SEE DETAIL 1/L6.0

SECTION 3 1 / L4.1

BOARDWALK ABUTMENT - REFER TO STRUCTURAL DRAWINGS

END GUARDRAIL

END TOE RAIL

4 / L5.0 VEGETATED RIPRAP EMBANKMENT

END CONTRACT LINE ITEM 1
BEGIN CONTRACT LINE ITEM 2

ON GRADE WALKWAY 1 / L5.1

ON GRADE TRAIL BUMPOUT W/ SALVAGED BENCH AND 30" x 48" MIN CLEAR SPACE FOR ACCESSIBLE COMPANION SEATING. MOUNT BENCH TO CONC SLAB USING (4) EXISTING ANGLE BRACKETS AND (8) CONCRETE EXPANSION ANCHORS. ALL FASTENERS SHALL BE GALVANIZED AND APPROVED BY THE MANUFACTURER FOR INSTALLATION IN EXTERIOR CONCRETE. UTILIZE THE LARGEST Ø BOLT THAT WILL FIT IN PRE-DRILLED BRACKET HOLES. PLACE BENCHES FOR REVIEW AND APPROVAL BY COR PRIOR TO DRILLING ANY HOLES.

ROCK RET. WALL

GRADE BREAK - TYP.

STONE RETAINING WALL - TYPE 2 2 / L5.0

WALKWAY CENTER LINE - TYP.

LIMITS OF WORK - TYP.

MUNISING FALLS CREEK

OHWM

MATCHLINE - SEE L1.2

NOTES

1. REFER TO SHEETS L0.0 AND L0.1 FOR NOTES

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT
06/23/2025

10 0 10 20
SCALE OF FEET

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01
L1.1

TITLE OF SHEET
SITE PLAN WEST

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 19 OF 35

MATCHLINE - SEE L1.1

INSTALL CULVERT REFER TO CIVIL DRAWINGS. EXCAVATE SMALL DEPRESSION / COLLECTION POINT ON UPHILL END.

ON GRADE TRAIL BUMPOUT W/ SALVAGED BENCH AND 30" x 48" MIN CLEAR SPACE FOR ACCESSIBLE COMPANION SEATING. MOUNT BENCH TO CONC SLAB USING (4) EXISTING ANGLE BRACKETS AND (8) CONCRETE EXPANSION ANCHORS. ALL FASTENERS SHALL BE GALVANIZED AND APPROVED BY THE MANUFACTURER FOR INSTALLATION IN EXTERIOR CONCRETE. UTILIZE THE LARGEST Ø BOLT THAT WILL FIT IN PRE-DRILLED BRACKET HOLES. PLACE BENCHES FOR REVIEW AND APPROVAL BY COR PRIOR TO DRILLING ANY HOLES.

CULVERT HEADWALL (CONSTRUCT PER DETAIL 2/L5.0)

GRADE BREAK - TYP.

LOOSEN EXISTING COMPACTED SOILS PER DETAIL 2/L5.1 - TYP.

1/L5.1 ON GRADE WALKWAY

3/L5.0 SPLIT RAIL FENCE

LIMITS OF WORK - TYP.

LOOSEN EXISTING COMPACTED SOILS PER DETAIL 2/L5.1 - TYP.

WALKWAY CENTER LINE - TYP.

EXISTING ROCK TO REMAIN

PRESERVE AND PROTECT RETAINING WALLS AND OTHER FEATURES TO REMAIN - TYP.

PRESERVE AND PROTECT STAIRS AND OTHER FEATURES TO REMAIN - TYP.

BEGIN GUARDRAIL

END CONTRACT LINE ITEM 2
BEGIN CONTRACT LINE ITEM 3

SEE SHEET G4.0 FOR TEMP PROTECTIVE MEASURES AT EXISTING BRIDGE AREAS

BEGIN GUARDRAIL

BOARDWALK ABUTMENT. REFER TO STRUCTURAL DRAWINGS

BOARDWALK FOUNDATION - TYP. REFER TO STRUCTURAL DRAWINGS

BOARDWALK GUARDRAIL - TYP.

BOARDWALK (#2) 1/L6.0

END GUARDRAIL / BEGIN TOE RAIL

RELOCATE EXISTING ROCK AS DIRECTED BY COR IN THE FIELD. PLACE IN DISTURBED / ERODED AREA BETWEEN CREEK AND WALKWAY AND BURRY BOTTOM 1/3 (APPROXIMATELY) TO STABILIZE AND PROVIDE NATURAL APPEARANCE

END TOE RAIL / BEGIN GUARDRAIL

(1) 29 FT CLEAR SPAN WITH I-BEAMS ON BOTH SIDES OF BOARDWALK (TO CLEAR CREEK BELOW). SEE DETAIL 1/L6.0

LIMIT WORK AND VEGETATION DISTURBANCE IN THIS AREA TO REMOVAL OF EXISTING SOCK DRAIN ONLY. REFER TO CIVIL DRAWINGS FOR DEMO.

LOOSEN EXISTING COMPACTED SOILS PER DETAIL 3/L5.1 - TYP.

END GUARDRAIL / BEGIN TOE RAIL

WALKWAY CENTER LINE - TYP.

END TOE RAIL

GRADE BREAK - TYP.

BEGIN TOE RAIL

END GUARDRAIL

PRESERVE AND PROTECT RETAINING WALLS AND OTHER FEATURES TO REMAIN - TYP.

ON GRADE WALKWAY 1/L5.1

BEGIN GUARDRAIL

BOARDWALK (#3) 1/L6.0

END GUARDRAIL

LIMITS OF WORK - TYP.

ON GRADE WALKWAY 1/L5.1

SPLIT RAIL FENCE 3/L5.0

BOARDWALK ABUTMENT. REFER TO STRUCTURAL DRAWINGS

2/L5.0 STONE RETAINING WALL - TYPE 2

BOARDWALK ABUTMENT. REFER TO STRUCTURAL DRAWINGS

SEE SHEET G4.0 FOR TEMP PROTECTIVE MEASURES AT EXISTING BRIDGE AREA

BOARDWALK ABUTMENT. REFER TO STRUCTURAL DRAWINGS

END TOE RAIL

PRESERVE AND PROTECT STAIRS, DECK, AND OTHER FEATURES TO REMAIN - TYP.

REPLACEMENT OF EXISTING WOOD DECK SPECIFIED IN SEPARATE SUPPLEMENTAL DOCUMENTS AND TO BE INCLUDED AS SEPARATE BID ITEM. REFER TO SUPPLEMENTAL DRAWINGS AND COORDINATE THE WORK AS REQUIRED.

NOTES

1. REFER TO SHEET L0.0 FOR NOTES

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT
06/23/2025

10 0 10 20
SCALE OF FEET

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

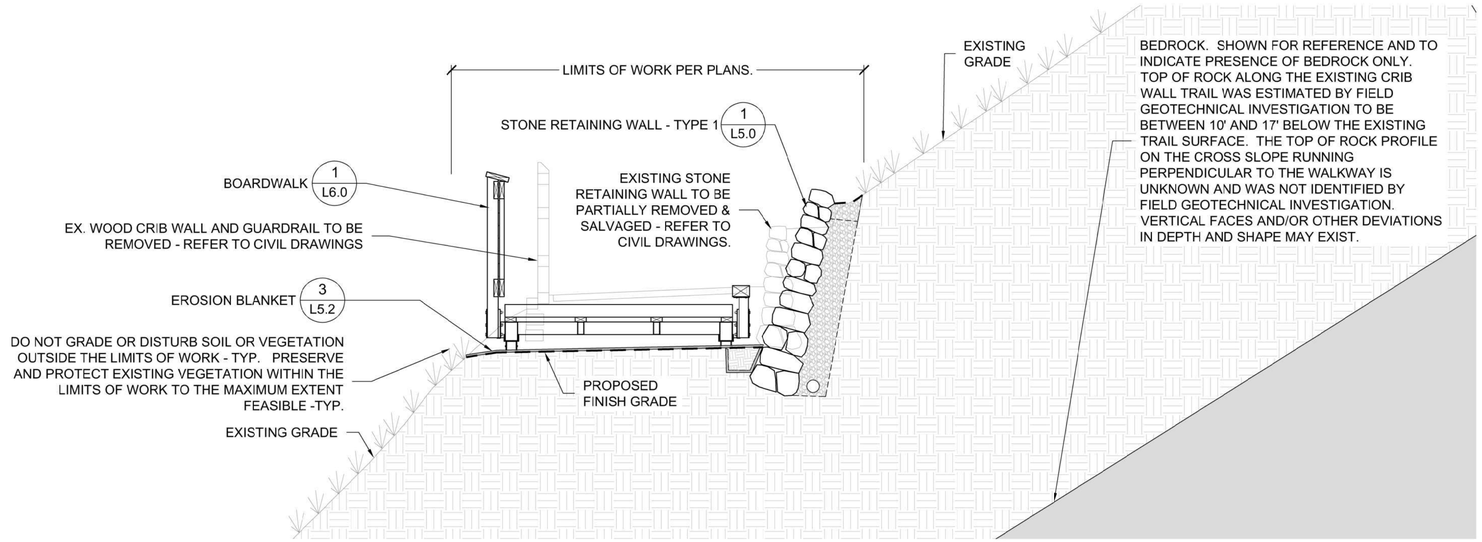
DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 L1.2

TITLE OF SHEET
SITE PLAN EAST

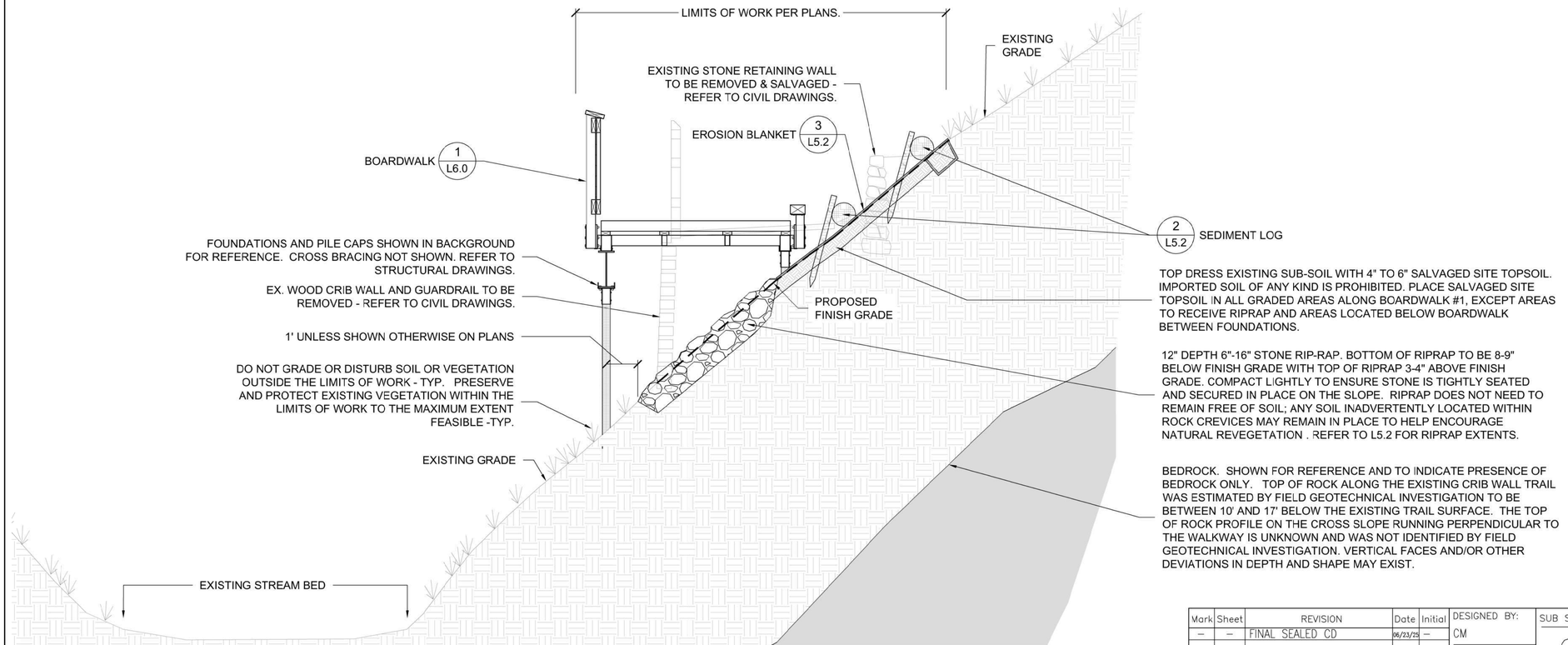
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 20 OF 35



1 L4.0 SECTION A

SCALE 1/2" = 1'-0"



TOP DRESS EXISTING SUB-SOIL WITH 4" TO 6" SALVAGED SITE TOPSOIL. IMPORTED SOIL OF ANY KIND IS PROHIBITED. PLACE SALVAGED SITE TOPSOIL IN ALL GRADED AREAS ALONG BOARDWALK #1, EXCEPT AREAS TO RECEIVE RIPRAP AND AREAS LOCATED BELOW BOARDWALK BETWEEN FOUNDATIONS.

12" DEPTH 6"-16" STONE RIP-RAP. BOTTOM OF RIPRAP TO BE 8-9" BELOW FINISH GRADE WITH TOP OF RIPRAP 3-4" ABOVE FINISH GRADE. COMPACT LIGHTLY TO ENSURE STONE IS TIGHTLY SEATED AND SECURED IN PLACE ON THE SLOPE. RIPRAP DOES NOT NEED TO REMAIN FREE OF SOIL; ANY SOIL INADVERTENTLY LOCATED WITHIN ROCK CREVICES MAY REMAIN IN PLACE TO HELP ENCOURAGE NATURAL REVEGETATION . REFER TO L5.2 FOR RIPRAP EXTENTS.

BEDROCK. SHOWN FOR REFERENCE AND TO INDICATE PRESENCE OF BEDROCK ONLY. TOP OF ROCK ALONG THE EXISTING CRIB WALL TRAIL WAS ESTIMATED BY FIELD GEOTECHNICAL INVESTIGATION TO BE BETWEEN 10' AND 17' BELOW THE EXISTING TRAIL SURFACE. THE TOP OF ROCK PROFILE ON THE CROSS SLOPE RUNNING PERPENDICULAR TO THE WALKWAY IS UNKNOWN AND WAS NOT IDENTIFIED BY FIELD GEOTECHNICAL INVESTIGATION. VERTICAL FACES AND/OR OTHER DEVIATIONS IN DEPTH AND SHAPE MAY EXIST.

2 L4.0 SECTION B

SCALE 1/2" = 1'-0"

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT

06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 L4.0

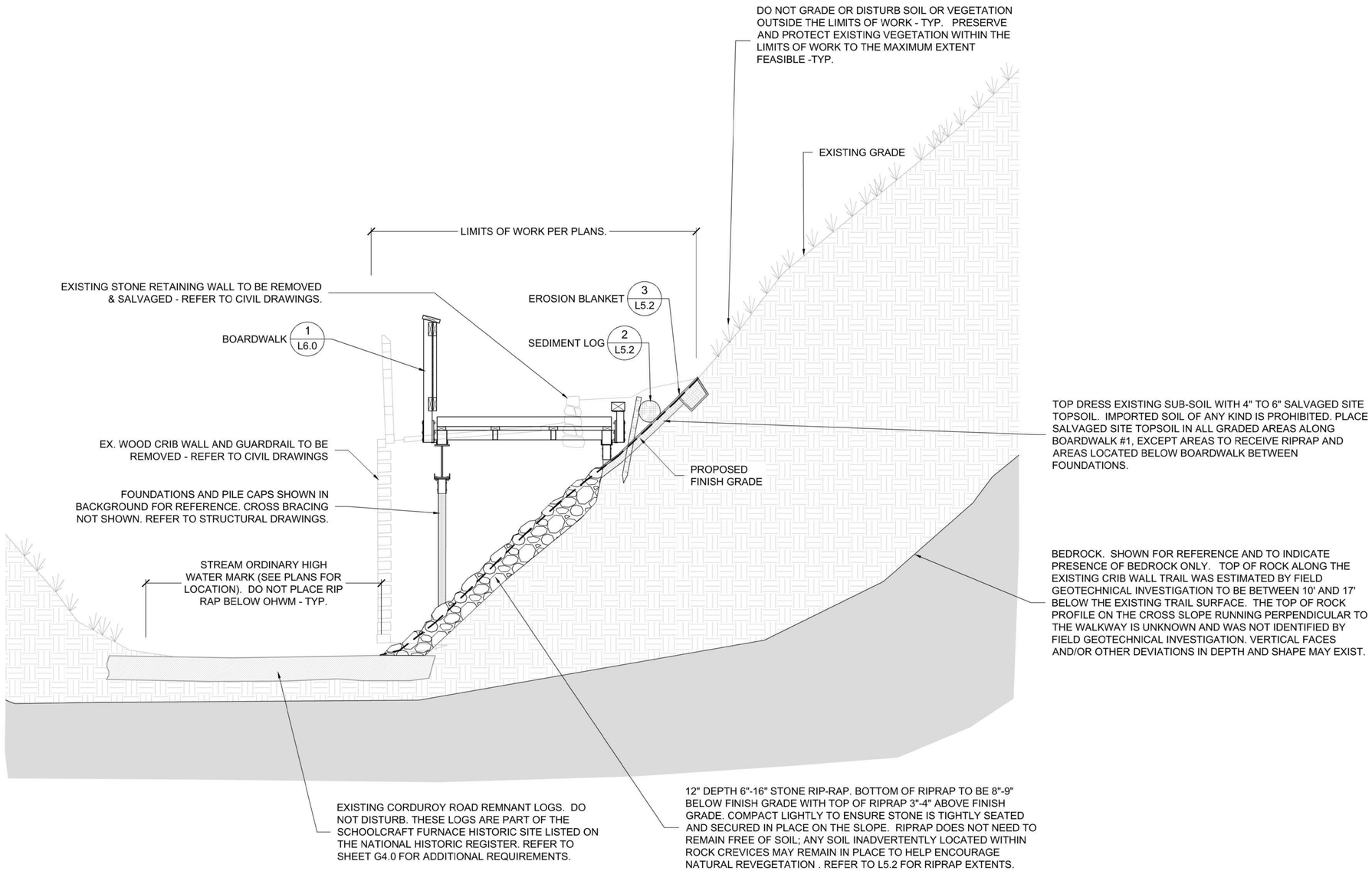
TITLE OF SHEET
SITE SECTIONS A & B

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067

PMIS NO. 22 69 30

SHEET 21 OF 35



1 L4.1 SECTION C

SCALE 1/2" = 1'-0"

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
REGISTERED LANDSCAPE ARCHITECT
06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 L4.1

TITLE OF SHEET
SITE SECTIONS C

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

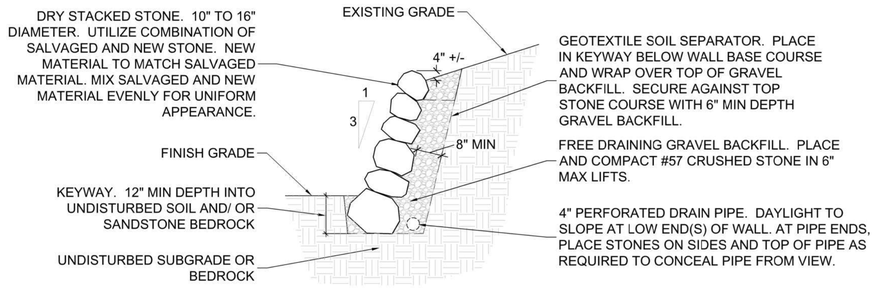
DRAWING NO. 625 80067

PMIS NO. 22 69 30

SHEET 22 OF 35

NOTES:

1. STAKE LOCATION OF WALL FOR APPROVAL PRIOR TO EXCAVATION
2. EACH ROCK SHALL BE SEATED TIGHTLY AGAINST ADJACENT ROCKS. ALL VOIDS GREATER THAT 2" x 2" SHALL BE CHINKED ON THE BACK WITH SMALLER STONE PRIOR TO BACKFILL.
3. MAXIMUM WALL HEIGHT 4 FEET ABOVE FINISH GRADE ON LOW SIDE.

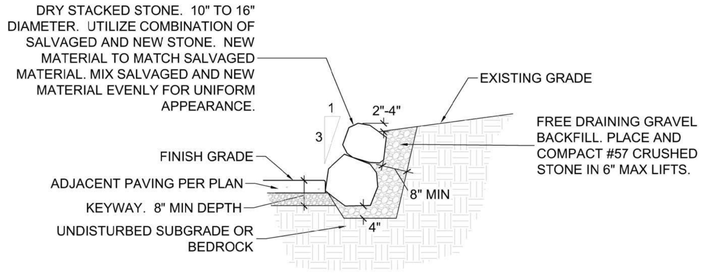


1 L5.0 STONE RETAINING WALL - TYPE 1

SCALE 1/2" = 1'-0"

NOTES:

1. STAKE LOCATION OF WALL FOR APPROVAL PRIOR TO EXCAVATION
2. EACH ROCK SHALL BE SEATED TIGHTLY AGAINST ADJACENT ROCKS. ALL VOIDS GREATER THAT 2" x 2" SHALL BE CHINKED ON THE BACK WITH SMALLER STONE PRIOR TO BACKFILL.
3. MAXIMUM WALL HEIGHT 2 FEET ABOVE FINISH GRADE ON LOW SIDE

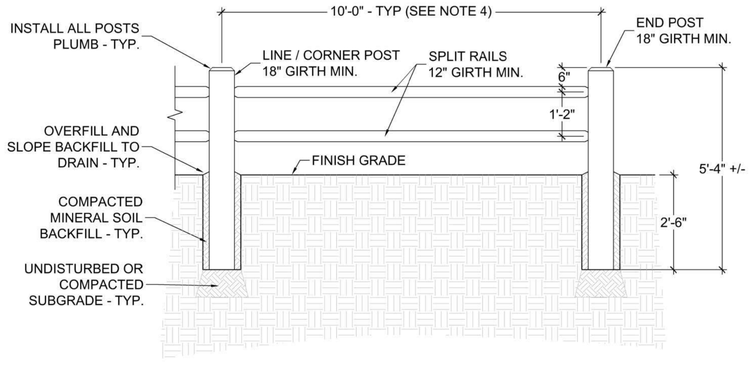


2 L5.0 STONE RETAINING WALL - TYPE 2

SCALE 1/2" = 1'-0"

NOTES:

1. STAKE LOCATION OF FENCE FOR APPROVAL PRIOR TO EXCAVATION.
2. ALL FENCE AND POSTS TO BE WESTERN RED CEDAR (THUJA PLICATA) OR APPROVED EQUAL.
3. TOP OF ALL POSTS TO BE CHAMFERED
4. PROVIDE CUSTOM LENGTH RAILS WHERE REQUIRED TO MEET LAYOUT SHOWN ON PLANS.

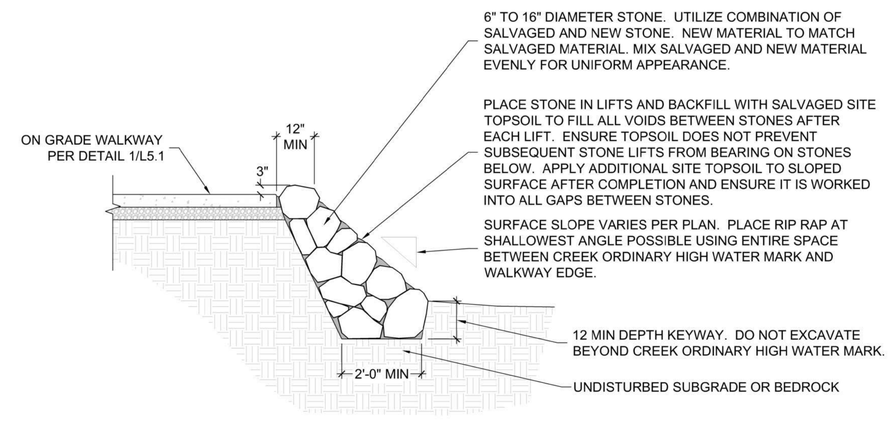


3 L5.0 SPLIT RAIL FENCE

SCALE 1/2" = 1'-0"

NOTES:

1. AT INTERFACE WITH EXISTING STONE RETAINING WALL, STACK STONE TO MEET FACE OF WALL WITH A SMOOTH EVEN TRANSITION.
2. PROVIDE ALL TEMPORARY PROTECTIVE MEASURES NECESSARY TO PREVENT SEDIMENT AND DEBRIS FROM ENTERING CREEK. REFER TO CIVIL.
3. PLANTING NOT IN CONTRACT. PLANTING TO BE PERFORMED BY NPS AND/OR THOUGH NATURAL SUCCESSION.



4 L5.0 VEGETATED RIPRAP EMBANKMENT

SCALE 1/2" = 1'-0"

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
REGISTERED LANDSCAPE ARCHITECT
06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 L5.0

TITLE OF SHEET
SITE DETAILS

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067

PMIS NO. 22 69 30

SHEET 23 OF 35

CONCRETE COLOR AND FINISH SCHEDULE:

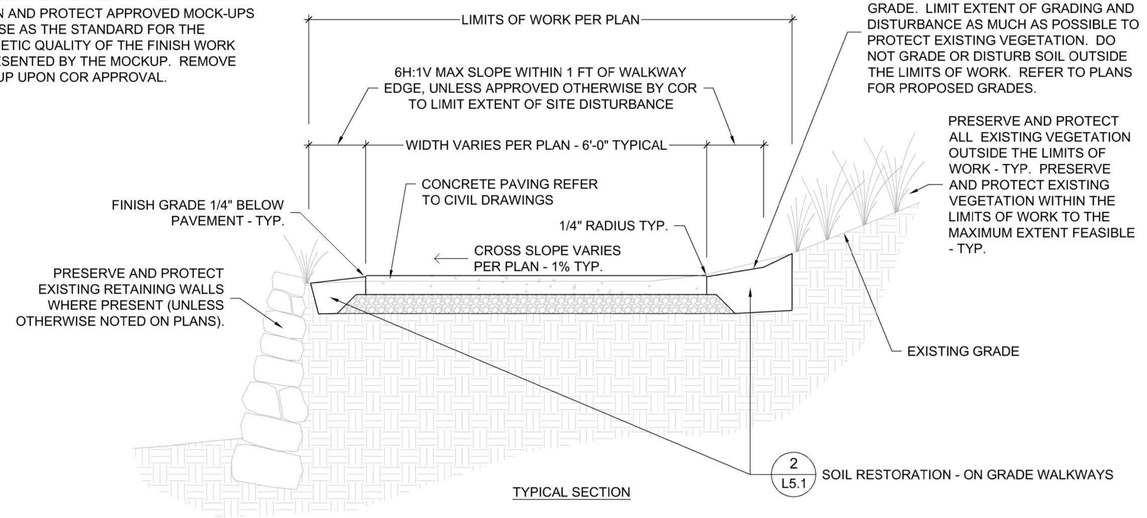
1. CONCRETE WALKWAYS TO RECEIVE A UNIFORM LIGHT BROOM FINISH. ALL BROOM LINES TO RUN PERPENDICULAR TO WALKWAY CENTER LINE.
2. ALL CONCRETE WALKWAY PAVING SHALL INCLUDE INTEGRAL COLOR. SUBMIT FULL RANGE OF MANUFACTURER'S STANDARD COLORS FOR APPROVAL.
3. CONCRETE COLOR MOCKUP:
   A. CONSTRUCT ON SITE 5'X5' TEMPORARY CONCRETE MOCKUP FOR APPROVAL 2 WEEKS MINIMUM PRIOR TO CONSTRUCTION OF WALKWAY. MOCKUP MAY BE SMALLER IN SIZE IF APPROVED BY COR.
   B. MOCKUP SHALL BE DIVIDED INTO 2 EQUALLY SIZED SAMPLES. THE SAMPLES SHALL INCLUDE TWO DIFFERENT COLORS. FINISH AS SPECIFIED ABOVE.
   C. PLACE MOCKUP IN THE PROJECT STAGING AREA IN A LOCATION APPROVED BY THE THE COR.
   D. RETAIN AND PROTECT APPROVED MOCK-UPS AND USE AS THE STANDARD FOR THE AESTHETIC QUALITY OF THE FINISH WORK REPRESENTED BY THE MOCKUP. REMOVE MOCKUP UPON COR APPROVAL.

CONCRETE JOINT NOTES:

1. PROVIDE CONCRETE JOINTS EVERY 6 FEET ALONG ENTIRE LENGTH OF WALKWAY. PROVIDE FULL DEPTH 1/2" EXPANSION JOINTS EVERY 30 LINEAL FEET; AND AT INTERFACE WITH ALL VERTICAL SURFACES, INCLUDING AT ALL EXISTING PAVED SURFACES AND BOARDWALKS. PROVIDE CONTROL JOINTS AT 6 FOOT SPACING BETWEEN EXPANSION JOINTS. ADJUST SPACING AS REQUIRED TO PREVENT PAVING PANELS THAT EXCEED A MAXIMUM HORIZONTAL SIZE RATIO OF 1 : 1.2
2. ALL CONTROL JOINTS TO BE SAW CUT, 1/8" WIDE, DEPTH TO BE 1/4 OF SLAB DEPTH OF PLUS 1/2" MINIMUM.
3. SAWED CONTROL JOINTS SHALL BE SAWED NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED.
4. UNLESS OTHERWISE INDICATED, CONTROL JOINTS TO BE EQUALLY SPACED WITHIN EACH SECTION OF WALKWAY.
5. SAW CUTS TO BE CONTINUOUS AND FREE OF ANY IRREGULARITIES. EXTENT OF SAW CUT SHALL MEET ALL PERPENDICULAR JOINTS COMPLETELY WITHOUT EXTENDING BEYOND.

GENERAL NOTES:

1. OBTAIN FIELD INSPECTION OF CONSTRUCTION STAKING AND LAYOUT PRIOR TO CONSTRUCTION CONCRETE FORMS.
2. OBTAIN APPROVAL OF REINFORCEMENT AND FORMS PRIOR TO PLACEMENT OF CONCRETE.

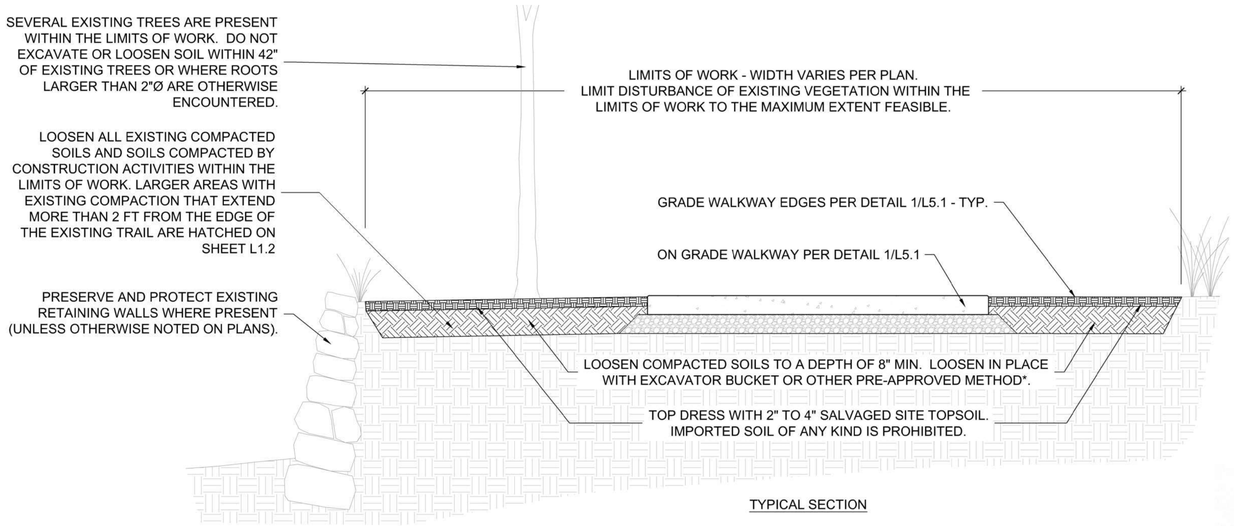


TYPICAL SECTION

2 L5.1 SOIL RESTORATION - ON GRADE WALKWAYS

1 L5.1 ON GRADE WALKWAY

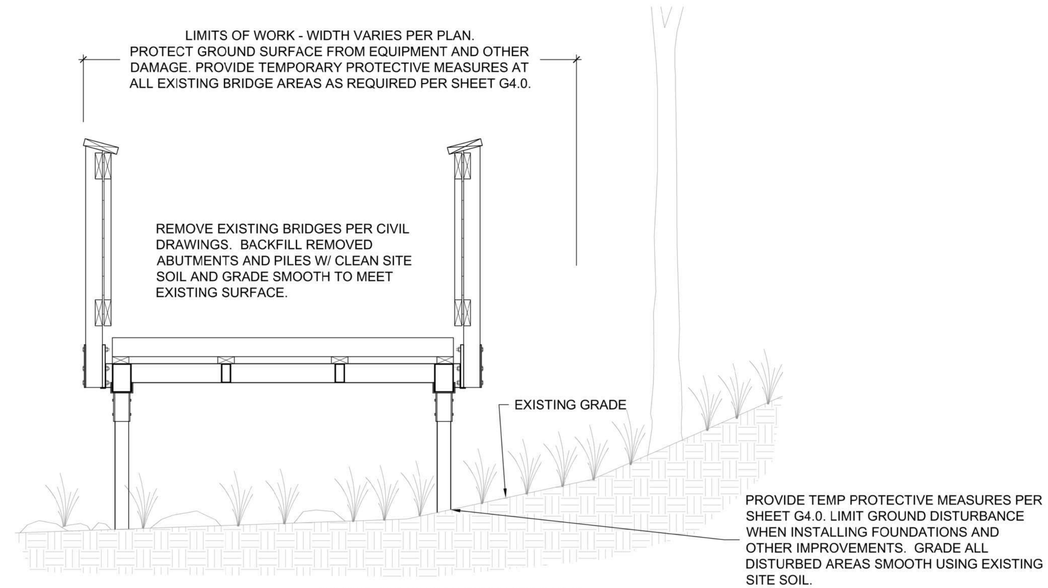
SCALE - 3/4" = 1'-0"



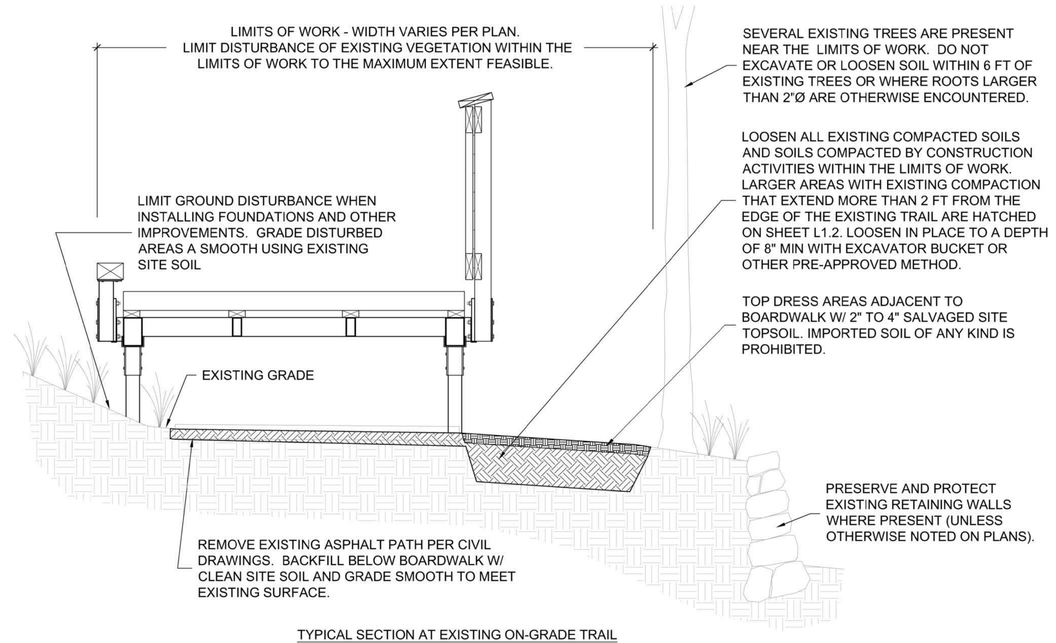
TYPICAL SECTION

2 L5.1 SOIL RESTORATION - ON GRADE WALKWAYS

SCALE - 3/4" = 1'-0"



TYPICAL SECTION AT EXISTING BRIDGES



TYPICAL SECTION AT EXISTING ON-GRADE TRAIL

3 L5.1 SOIL RESTORATION - BOARDWALKS #2 AND #3

SCALE - 3/4" = 1'-0"

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT
06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

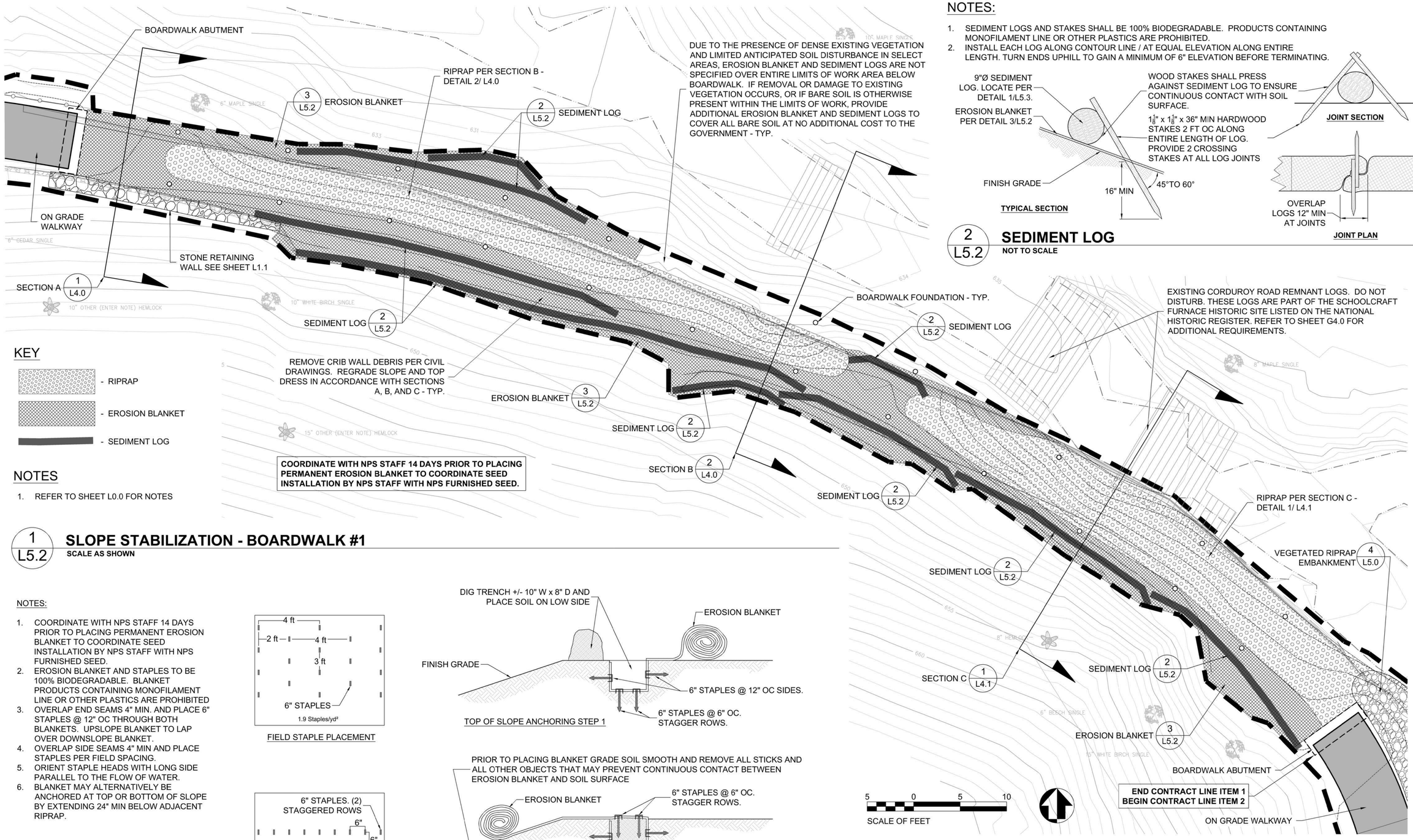
DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 L5.1

TITLE OF SHEET: SITE DETAILS

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 24 OF 35



KEY

- RIPRAP
- EROSION BLANKET
- SEDIMENT LOG

NOTES

1. REFER TO SHEET L0.0 FOR NOTES

COORDINATE WITH NPS STAFF 14 DAYS PRIOR TO PLACING PERMANENT EROSION BLANKET TO COORDINATE SEED INSTALLATION BY NPS STAFF WITH NPS FURNISHED SEED.

NOTES:

1. SEDIMENT LOGS AND STAKES SHALL BE 100% BIODEGRADABLE. PRODUCTS CONTAINING MONOFILAMENT LINE OR OTHER PLASTICS ARE PROHIBITED.
2. INSTALL EACH LOG ALONG CONTOUR LINE / AT EQUAL ELEVATION ALONG ENTIRE LENGTH. TURN ENDS UPHILL TO GAIN A MINIMUM OF 6" ELEVATION BEFORE TERMINATING.

2 L5.2 SEDIMENT LOG

NOT TO SCALE

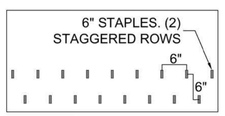
1 L5.2 SLOPE STABILIZATION - BOARDWALK #1

SCALE AS SHOWN

NOTES:

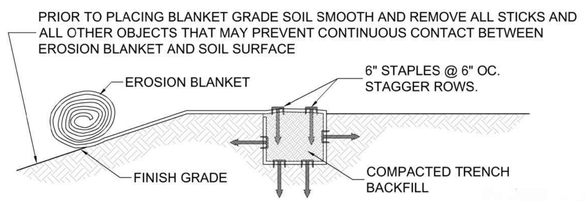
1. COORDINATE WITH NPS STAFF 14 DAYS PRIOR TO PLACING PERMANENT EROSION BLANKET TO COORDINATE SEED INSTALLATION BY NPS STAFF WITH NPS FURNISHED SEED.
2. EROSION BLANKET AND STAPLES TO BE 100% BIODEGRADABLE. BLANKET PRODUCTS CONTAINING MONOFILAMENT LINE OR OTHER PLASTICS ARE PROHIBITED
3. OVERLAP END SEAMS 4" MIN. AND PLACE 6" STAPLES @ 12" OC THROUGH BOTH BLANKETS. UPSLOPE BLANKET TO LAP OVER DOWNSLOPE BLANKET.
4. OVERLAP SIDE SEAMS 4" MIN AND PLACE STAPLES PER FIELD SPACING.
5. ORIENT STAPLE HEADS WITH LONG SIDE PARALLEL TO THE FLOW OF WATER.
6. BLANKET MAY ALTERNATIVELY BE ANCHORED AT TOP OR BOTTOM OF SLOPE BY EXTENDING 24" MIN BELOW ADJACENT RIPRAP.

FIELD STAPLE PLACEMENT



BOTTOM OF SLOPE STAPLE PLACEMENT

TOP OF SLOPE ANCHORING STEP 1



TOP OF SLOPE ANCHORING STEP 2

3 L5.2 EROSION BLANKET

NOT TO SCALE

06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

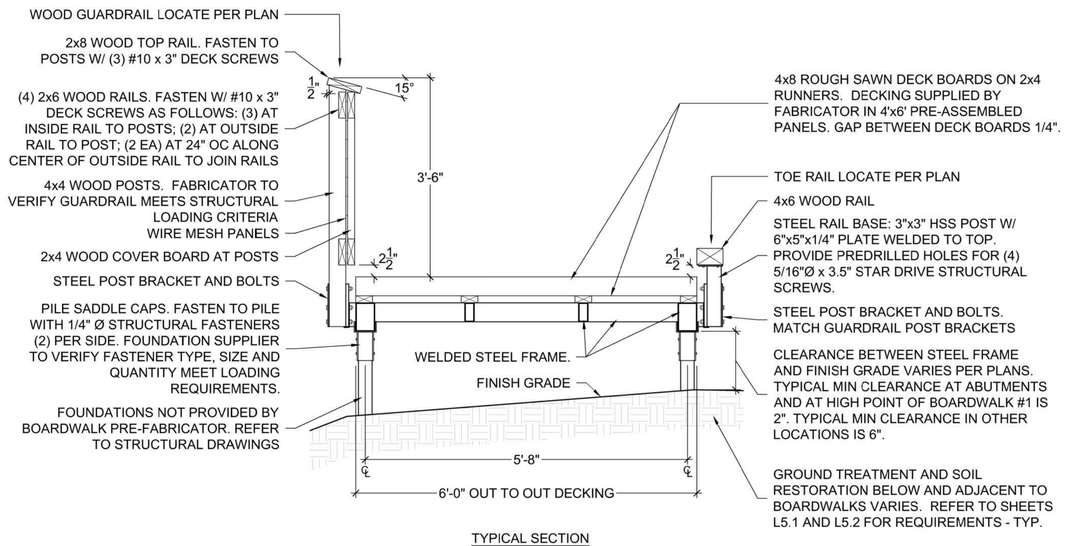
SUB SHEET NO. 01 L5.2

TITLE OF SHEET
SITE DETAILS – WEST SLOPE RESTORATION
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

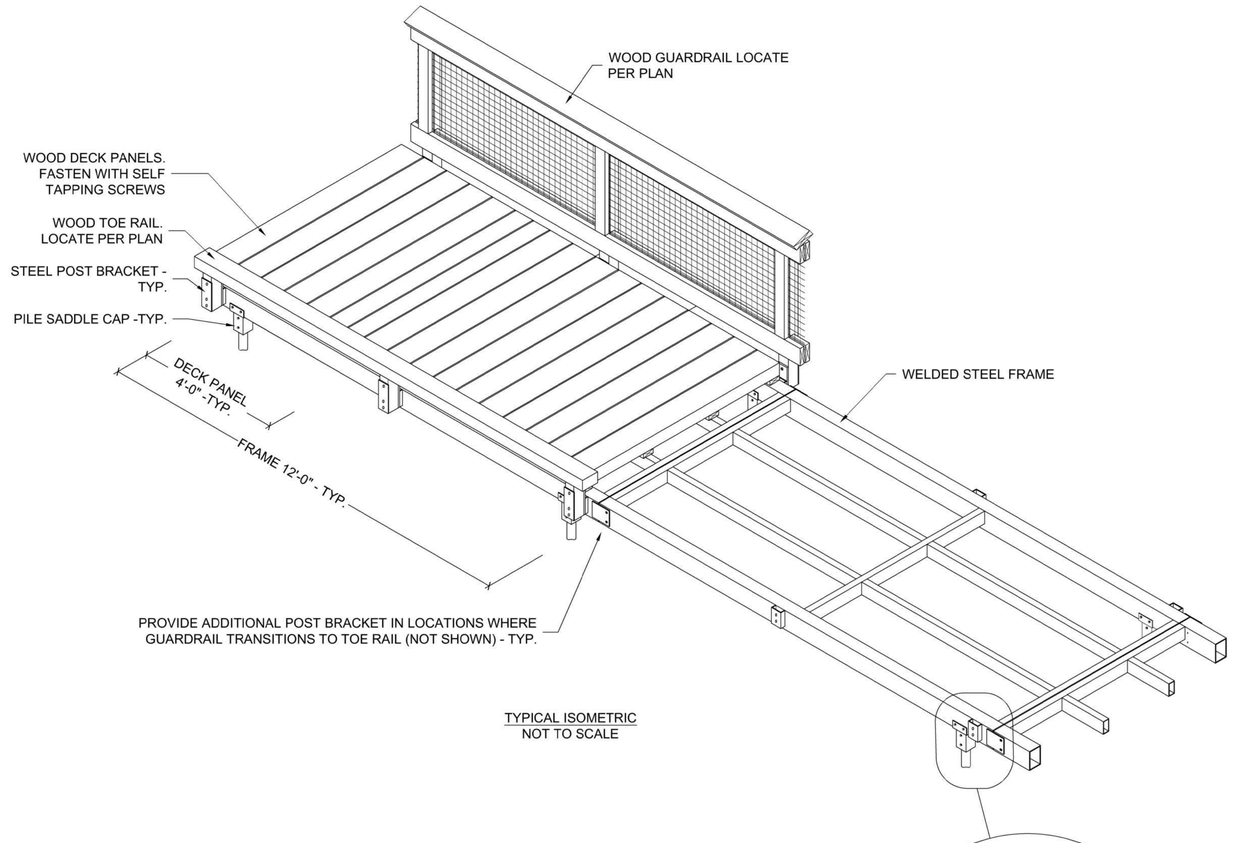
DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 25 OF 35

NOTES:

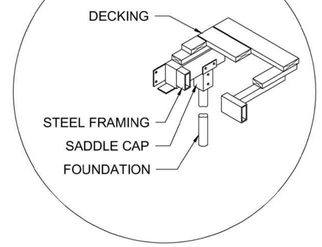
1. REFER TO STRUCTURAL DRAWINGS FOR REQUIRED LOADING CRITERIA. FABRICATOR TO VERIFY BOARDWALK AND GUARDRAIL MEET LOADING CRITERIA.
2. REFER TO SHEETS L6.1 AND L6.2 FOR BOARDWALK LAYOUT PLANS.
3. BOARDWALK IS SLOPED BETWEEN LEVEL LANDINGS. REFER TO CIVIL DRAWINGS FOR PROPOSED ELEVATIONS AND SLOPES.
4. REFER TO L1.1 AND L1.2 FOR GUARDRAIL AND TOE RAIL LOCATIONS.
5. STEEL FRAME MEMBER AND GUARDRAIL POST SIZE AND SPACING SHOWN ARE FOR EXAMPLE ONLY. FABRICATOR TO PROVIDE MEMBERS SIZED AND SPACED TO MEET PROJECT LOADING REQUIREMENTS.
7. BOARDWALK FRAMES AND ALL OTHER STEEL COMPONENTS TO BE HOT-DIP GALVANIZED AFTER FABRICATION.
8. ALL BOARDWALK COMPONENTS, INCLUDING BUT NOT LIMITED TO PILE CAPS, FRAMES, I-BEAMS, DECKING, GUARDRAILS, TOE RAILS, HARDWARE, AND FASTENERS TO BE FABRICATED AND SUPPLIED AS A COMPLETE SYSTEM BY A SINGLE PRE-FABRICATOR. FOUNDATIONS NOT PROVIDED BY PRE-FABRICATOR.
9. UNLESS OTHERWISE NOTED, ALL WOOD FOR BOARDWALK SHALL BE PRESSURE TREATED.
10. ALL WOOD FASTENERS SHALL BE APPROVED FOR EXTERIOR USE IN ALL TYPES OF TREATED LUMBER.
11. COUNTERSINK ALL WOOD FASTENERS FLUSH WITH BOARD SURFACE. DO NOT OVER DRIVE.
12. INSTALL BOARDWALK IN ACCORDANCE WITH FABRICATOR INSTRUCTIONS AND RECOMMENDATIONS.

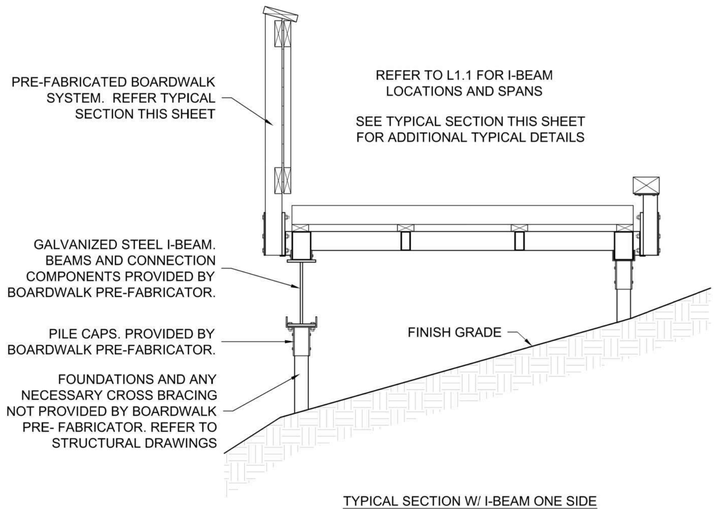


TYPICAL SECTION
SCALE - 3/4"= 1'-0"

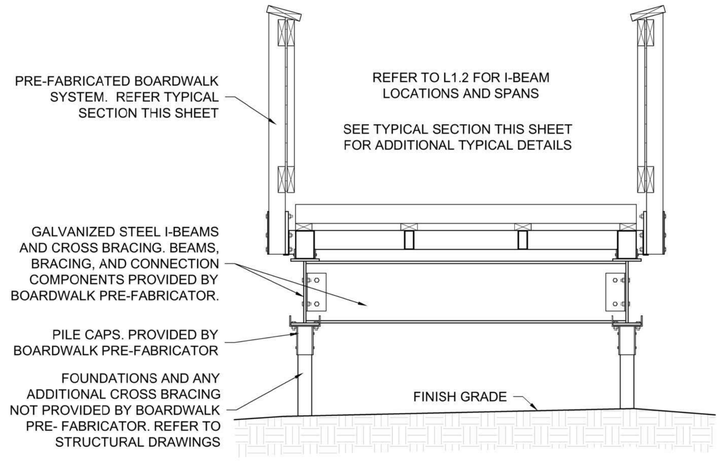


TYPICAL ISOMETRIC
NOT TO SCALE





TYPICAL SECTION W/ I-BEAM ONE SIDE
SCALE - 3/4"= 1'-0"



TYPICAL SECTION W/ I-BEAM BOTH SIDES
SCALE - 3/4"= 1'-0"

1
L6.0

BOARDWALK
SCALE - AS NOTED

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT
06/23/2025

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

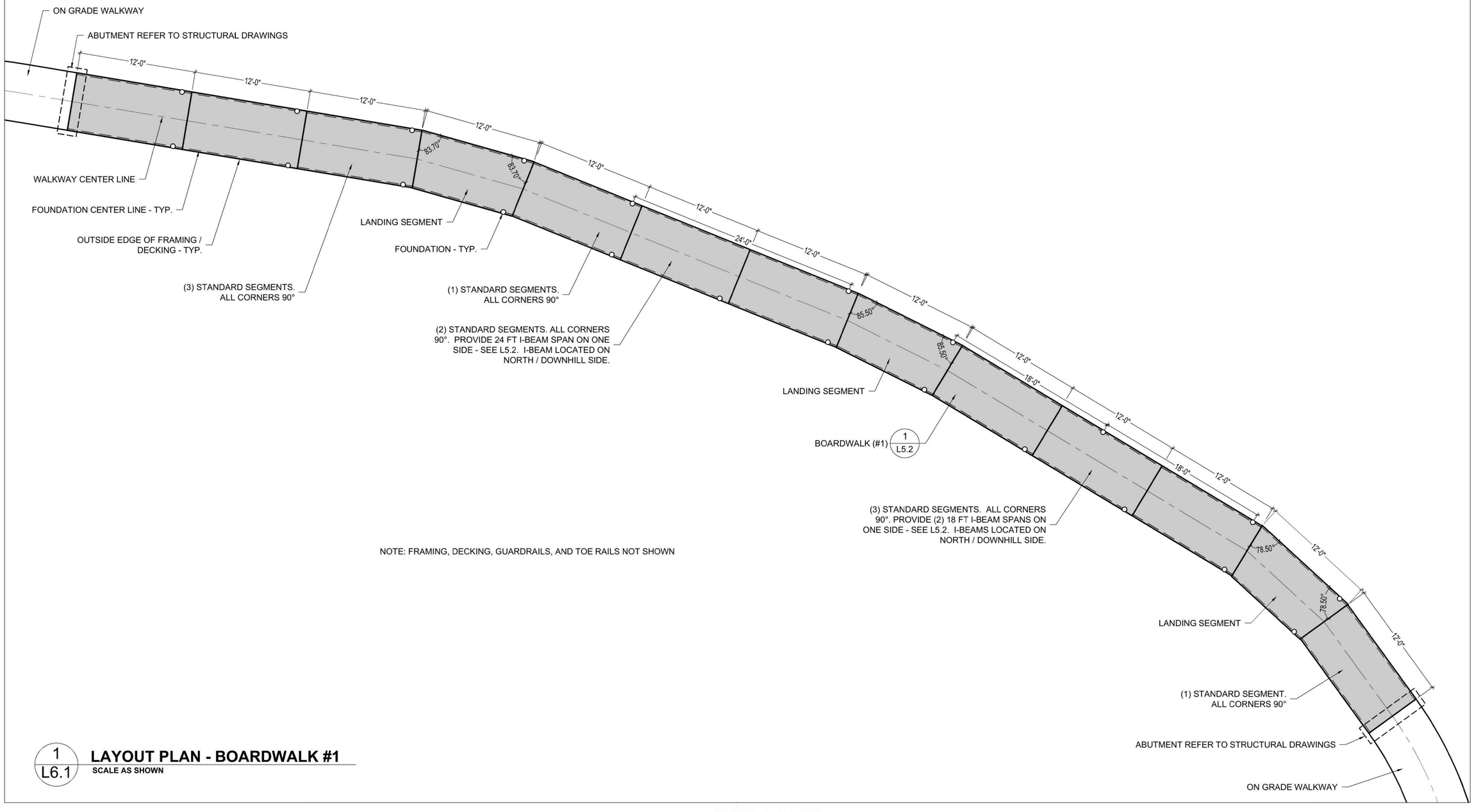
DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 L6.0

TITLE OF SHEET
BOARDWALK DETAILS

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 26 OF 35



NOTE: FRAMING, DECKING, GUARDRAILS, AND TOE RAILS NOT SHOWN

1 / L6.1 **LAYOUT PLAN - BOARDWALK #1**
SCALE AS SHOWN

NOTES

1. BOARDWALK IS SLOPED BETWEEN LEVEL LANDINGS. REFER TO CIVIL DRAWINGS FOR PROPOSED ELEVATIONS AND SLOPES.
2. BOARDWALK DIMENSIONS SHOWN ARE PROVIDED TO FACILITATE PRODUCTION OF FABRICATOR SHOP DRAWINGS. REFER TO APPROVED SHOP DRAWINGS FOR FINAL DIMENSIONS AND LAYOUT.
3. FOUNDATION LOCATIONS SHOWN ARE APPROXIMATE. REFER TO APPROVED SHOP DRAWINGS FOR FOUNDATION LOCATION DIMENSIONS.
4. REFER TO L1.1 FOR GUARDRAIL AND TOE RAIL LOCATIONS.
5. REFER TO SHEET L6.0 FOR BOARDWALK DETAILS.
6. REFER TO SHEET L0.0 FOR ADDITIONAL NOTES.
7. REFER TO SHEET G4.0 FOR ADDITIONAL REQUIREMENTS INCLUDING CONSTRUCTION SURVEYING AND STAKING

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
LICENSED LANDSCAPE ARCHITECT
06/23/2025

5 0 5 10
SCALE OF FEET

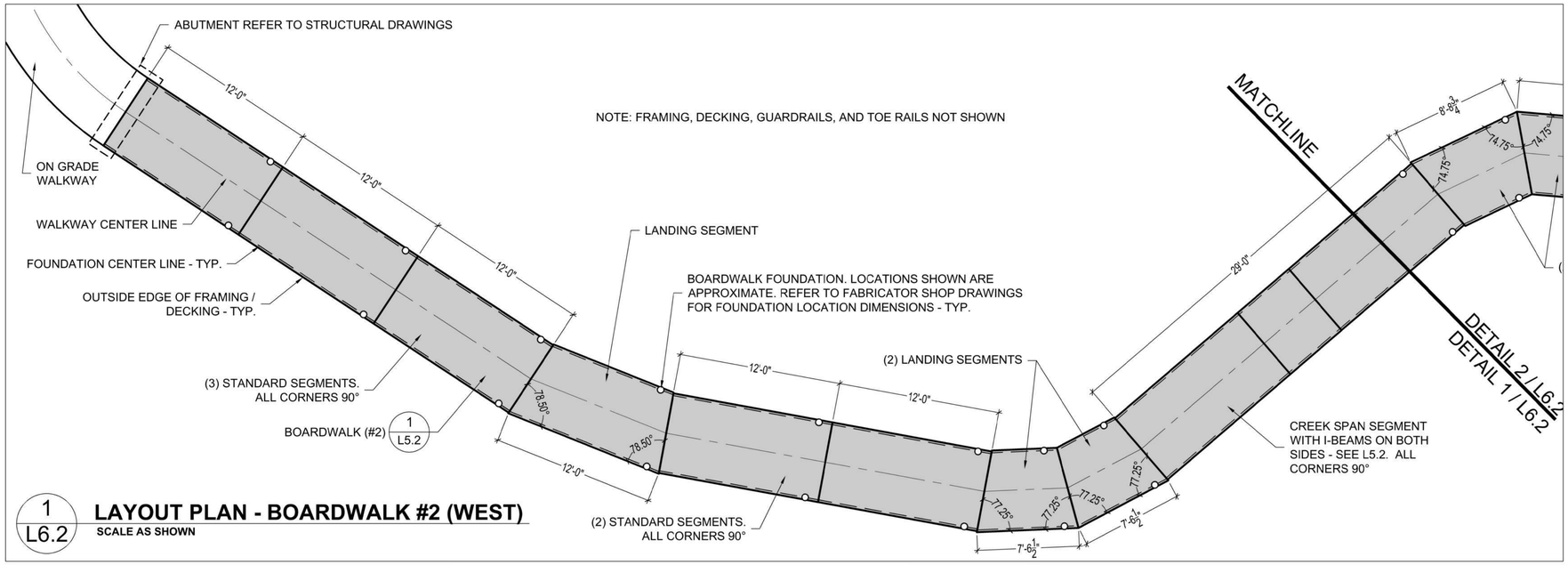
Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

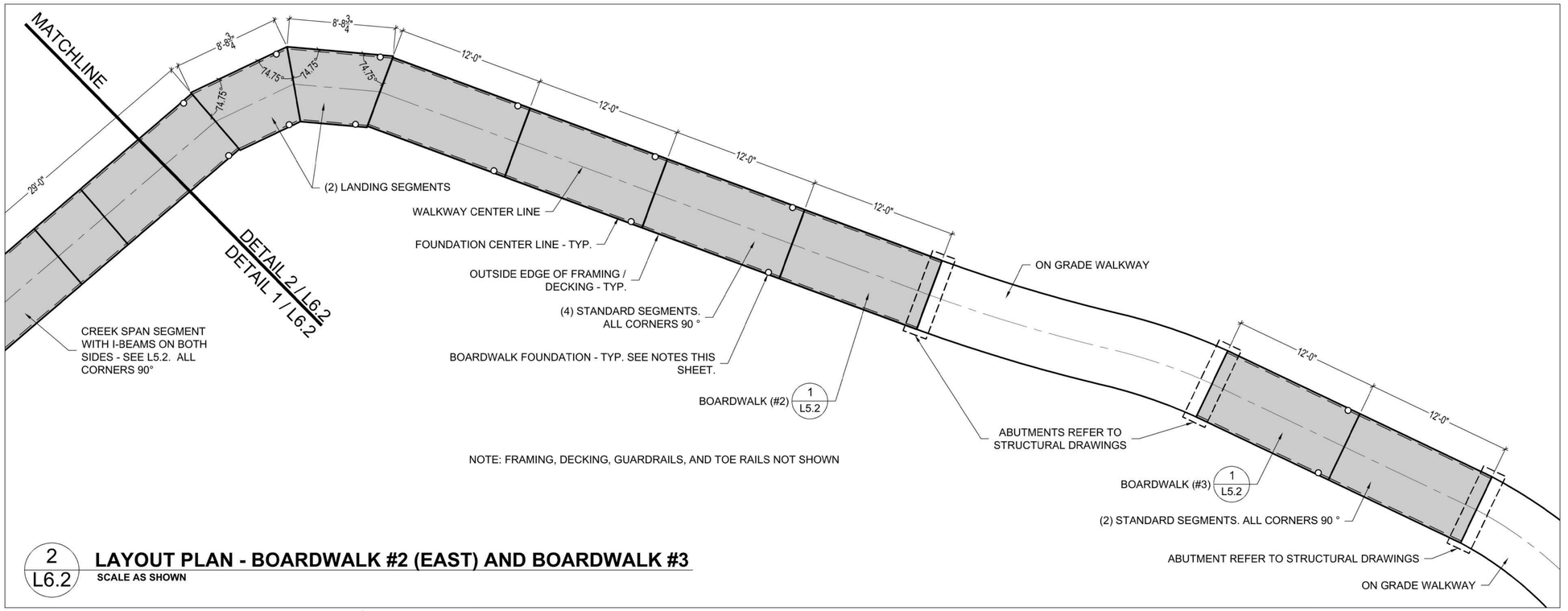
SUB SHEET NO. 01 L6.1

TITLE OF SHEET
BOARDWALK LAYOUT PLAN WEST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 27 OF 35



1 L6.2 **LAYOUT PLAN - BOARDWALK #2 (WEST)**
SCALE AS SHOWN



2 L6.2 **LAYOUT PLAN - BOARDWALK #2 (EAST) AND BOARDWALK #3**
SCALE AS SHOWN

NOTES

1. BOARDWALK IS SLOPED BETWEEN LEVEL LANDINGS. REFER TO CIVIL DRAWINGS FOR PROPOSED ELEVATIONS AND SLOPES.
2. BOARDWALK DIMENSIONS SHOWN ARE PROVIDED TO FACILITATE PRODUCTION OF FABRICATOR SHOP DRAWINGS. REFER TO APPROVED SHOP DRAWINGS FOR FINAL DIMENSIONS AND LAYOUT.
3. FOUNDATION LOCATIONS SHOWN ARE APPROXIMATE. REFER TO APPROVED SHOP DRAWINGS FOR FOUNDATION LOCATION DIMENSIONS.
4. REFER TO L1.2 FOR GUARDRAIL AND TOE RAIL LOCATIONS
5. REFER TO SHEET L6.0 FOR BOARDWALK DETAILS.
6. REFER TO SHEET L0.0 FOR ADDITIONAL NOTES.
7. REFER TO SHEET G4.0 FOR ADDITIONAL REQUIREMENTS INCLUDING CONSTRUCTION SURVEYING AND STAKING.

STATE OF MICHIGAN
Stephanie Redding
LANDSCAPE ARCHITECT
No. 3901001735
REGISTERED LANDSCAPE ARCHITECT
06/23/2025

5 0 5 10
SCALE OF FEET

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: CM
DRAWN BY: CM/RL
REVIEWED BY: CM
DATE: 06/23/2025

SUB SHEET NO. 01 L6.2

TITLE OF SHEET
BOARDWALK LAYOUT PLAN EAST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 28 OF 35

GENERAL NOTES

1. ALL STRUCTURAL WORK, INCLUDING DELEGATED DESIGN ITEMS SUCH AS HANDRAILS AND ELEVATED BOARDWALK, SHALL BE COORDINATED WITH LANDSCAPE AND CIVIL DRAWINGS AND SHALL CONFORM TO THE PROJECT SPECIFICATIONS, INCLUDING THE 2024 INTERNATIONAL BUILDING CODE. THE FOLLOWING STANDARDS WERE USED AS SPECIFIED IN THE GOVERNING BUILDING CODES:
   a. ASCE 7-22 MINIMUM DESIGN LOADS (AND ASSOCIATED CRITERIA) FOR BUILDINGS AND OTHER STRUCTURES
   b. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
   c. NDS 2024 NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION WITH 2024 SUPPLEMENT.
   d. AISC 360-22 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.

   NOTE: AASHTO LRFD GUIDE SPECIFICATION FOR THE DESIGN OF PEDESTRIAN BRIDGES 2014 WITH 2015 INTERIM REVISIONS WAS REFERENCED BUT NOT REQUIRED PER NATIONAL PARK SERVICE DIRECTION.

2. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING, BRACING AND SHEETING AND SHALL MAKE SAFE ALL SOIL GRADES AND EXISTING TRAIL FEATURES (INCLUDING BUT NOT LIMITED TO CRIB WALL, RETAINING WALLS, BRIDGES, ETC.) AS PROJECT AND CONSTRUCTION CONDITIONS REQUIRE. SHORING AND SHEETING SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE PROJECT JURISDICTION, HIRED BY THE CONTRACTOR, WHO SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE CONTRACTING OFFICER REPRESENTATIVE'S REVIEW.

3. DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION GIVEN IN STRUCTURAL DRAWINGS ARE BASED ON INFORMATION CONTAINED IN 1982 AS CONSTRUCTED DRAWINGS FOR PARKING, TRAILS, COMFORT STATION, AND UTILITIES AT MUNISING FALLS (PROJECT NO. 6320-79A) PROVIDED BY THE GOVERNMENT AND LIMITED FIELD OBSERVATIONS AND MEASUREMENTS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY ACTUAL MEASUREMENT AND OBSERVATION AT THE SITE. ALL DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE SHOWN IN THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE CONTRACTING OFFICER REPRESENTATIVE FOR EVALUATION BEFORE THE AFFECTED CONSTRUCTION IS PUT IN PLACE.

4. THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. THESE NOTES HIGHLIGHT RATHER THAN REPLACE THE SPECIFICATIONS CONTAINED IN THE PROJECT MANUAL. CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER REPRESENTATIVE OF ANY CONFLICTS FOR GUIDANCE.

FOUNDATIONS

1. FOUNDATIONS SHALL BEAR ON UNDISTURBED SOIL HAVING A MINIMUM BEARING CAPACITY OF 2,500 PSF, AS SPECIFIED BY THE GEOTECHNICAL CONSULTANT REPORT, TERRACON PROJECT NO. N6235258, DATED 01/18/2024 AND MEMO DATED 06/21/2024. FOUNDATIONS BEARING ON BEDROCK HAVE A MINIMUM BEARING CAPACITY OF 10,000 PSF. ADEQUACY OF BEARING STRATUM SHALL BE VERIFIED IN FIELD PRIOR TO PLACING CONCRETE. ALL NECESSARY ADJUSTMENTS TO THE BOTTOM OF FOOTINGS TO BE REVIEWED AND APPROVED BY THE CONTRACTING OFFICER REPRESENTATIVE. REQUIRED BEARING STRATUM CONSISTS OF MEDIUM DENSE, BETTER GRANULAR SOILS, OR ENGINEERED SOILS THAT ACHIEVE THE MINIMUM SPECIFIED BEARING CAPACITY.

2. DUE TO STEEP GRADES, DEEP FOUNDATIONS ARE EXPECTED ALONG THE WESTERN SECTION OF TRAIL (ALIGNED WITH THE EXISTING CRIB WALL). SEE S0.2 FOR DESIGN PARAMETERS AS SPECIFIED BY THE GEOTECHNICAL CONSULTANT, TERRACON.

3. DO NOT PLACE BACKFILL AGAINST NEW CAST-IN-PLACE CONCRETE ABUTMENTS ARE IN PLACE AND HAVE ATTAINED THEIR 28 DAY STRENGTH.

4. ALL FOOTINGS SHALL BE PLACED A MINIMUM OF 3'-6" BELOW FINAL GRADE OR ERECTED ON SOLID ROCK WITH CONSISTENT BEARING ELEVATION PER 2024 INTERNATIONAL BUILDING CODE SECTION 1809.5. IF UNABLE TO MEET FROST COVER DUE TO SHALLOW BEDROCK, AND/OR FOR ADDITIONAL POTENTIAL SLIDING RESISTANCE, BEDROCK PINNING OR EMBEDMENT IS TO BE REVIEWED BY THE GEOTECHNICAL ENGINEER FOR SHALLOW FOUNDATIONS. NOTE: FOR SLOPING GROUND, BOTTOM OF FOUNDATION SHALL MAINTAIN DEPTH BELOW THE LOWEST ADJACENT GRADE WITHIN 5 HORIZONTAL FEET OF THE FOUNDATION.

5. CONCRETE SHALL BE POURED IN DRY EXCAVATIONS. CONTRACTOR SHALL NOTE SOIL AND WATER CONDITIONS AS SHOWN BY BORINGS INCLUDED IN THE REFERENCED GEOTECHNICAL SUBSURFACE INVESTIGATION REPORT(S) AND DEPTHS OF FOOTING AS SHOWN ON FOUNDATION PLANS.

6. THE GEOTECHNICAL CONSULTANT TERRACON, RECOMMENDS EXCAVATION, SUBGRADE PREPARATION, AND FOUNDATION INSTALLATION BE PERFORMED UNDER THE OBSERVATION OF A GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER SHALL BE HIRED BY THE CONTRACTOR.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING GOVERNING STANDARDS.
   A. AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).
   B. ACI "MANUAL OF CONCRETE PRACTICE" LATEST EDITION
   C. CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE".

2. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.

3. CONTRACTOR SHALL SUBMIT A PROJECT-SPECIFIC SIGNED AND SEALED CONCRETE MIX DESIGN FOR EACH CONCRETE TYPE SPECIFIED IN THE CONTRACT DOCUMENTS. WHERE 033000 SPECIFICATIONS HAVE BEEN INCLUDED IN THE CONTRACT DOCUMENTS, REFER TO THAT SPECIFICATION SECTION FOR BALANCE OF MIX DESIGN REQUIREMENTS (AGGREGATES, ADMIXTURES, W/C RATIO, AIR CONTENT, ETC.)

4. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 OR A775 EPOXY COATED WHEN CALLED OUT ON PLAN. REINFORCING STEEL SHALL BE DETAILED ACCORDING TO THE ACI "DETAILS AND DETAILING OF REINFORCEMENT", (ACI 315).

5. WELDED WIRE REINFORCEMENT (WWR) SHALL CONFORM TO ASTM A1064, WITH A MINIMUM YIELD STRENGTH OF 65,000 PSI.

6. REINFORCING STEEL TO BE WELDED TO CONFORM TO ASTM A706 GRADE 60.

7. ALL GROUT SHALL BE NONSHRINK WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.

8. MINIMUM CONCRETE COVER FOR REINFORCING STEEL IN CAST-IN-PLACE NON-PRESTRESSED MEMBERS SHALL BE AS FOLLOWS:
   A. ALL CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND: 3"
   B. ALL CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
      a. 2" (#6 THROUGH #18 BARS)
      b. 1½" (#5 BAR, W31 OR D31 WIRE, AND SMALLER)

9. SHOP DRAWINGS SHALL BE SUBMITTED TO THE CONTRACTING OFFICER REPRESENTATIVE FOR REVIEW AND APPROVAL. NO CONCRETE WORK SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS.

10. CLEAN AND ROUGHEN TO ¼" AMPLITUDE ALL EXISTING CONCRETE SURFACES TO RECEIVE NEW CONCRETE PRIOR TO PLACEMENT.

11. SEE OTHER DRAWINGS IN THIS PROJECT FOR SIZE AND LOCATIONS OF EQUIPMENT PADS, INSERTS AND EMBED ITEMS.

12. REINFORCING DOWELS, WATERSTOPS AND OTHER EMBED ITEMS SHALL BE INSTALLED AND SECURED PRIOR TO CONCRETE PLACEMENT. "WET-SETTING" OF EMBEDDED ITEMS IS NOT PERMITTED.

13. WHERE REBAR CONGESTION DICTATES, LAP SPLICES SHALL BE STAGGERED IN ACCORDANCE WITH ACI REINFORCEMENT DETAILING REQUIREMENTS. ALTERNATIVELY, MECHANICAL SPLICES MAY BE EMPLOYED, AT THE CONTRACTOR'S OPTION AND EXPENSE, PROVIDED THEY ARE STAGGERED TO MAINTAIN MINIMUM SPACING AND COVER PER ACI REINFORCEMENT DETAILING REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE FOLLOWING GOVERNING STANDARDS:
   A. AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".
   B. AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
   C. AMERICAN WELDING SOCIETY (AWS D1.1) "STRUCTURAL WELDING CODE - STEEL".
   D. RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS".

2. ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
   A. WIDE FLANGE BEAMS, COLUMNS AND STRUCTURAL TEES: ASTM A992.
   B. HOLLOW STRUCTURAL SECTIONS: ASTM A500, GRADE C.
   C. STRUCTURAL PIPE SECTIONS: ASTM A53, GRADE B.
   D. CHANNELS, ANGLES AND PLATES: ASTM A36 UNLESS OTHERWISE NOTED.
   E. BOLTED CONNECTIONS SHALL BE PER ASTM F3125. GRADES ARE TO BE SELECTED AS FOLLOWS:
      a. STANDARD BEAM TO BEAM/GIRDER: ASTM F3125, GRADES A325, F1852, A490 OR F2280 BOLTS IN SNUG-TIGHTENED JOINTS (¾" DIAMETER MINIMUM WITH HARDENED WASHERS).
      b. BEAM/GIRDER TO COLUMN CONNECTIONS, COLUMN SPLICES AND BOLTS EXPERIENCING TENSION LOADS (UNLESS OVERSIZED OR SLOTTED HOLES ARE USED, IN WHICH CASE SLIP-CRITICAL JOINTS SHALL BE USED): ASTM F3125, GRADES A325, F1852, A490 OR F2280 BOLTS IN PRETENSIONED JOINTS (¾" DIAMETER MINIMUM WITH HARDENED WASHERS).
   G. ANCHOR RODS: ASTM F1554, GRADE 36.

3. STEEL CONNECTION SHALL BE STANDARD AISC FRAMED BEAM CONNECTIONS, AND SHALL BE SELECTED OR COMPLETED BY BOARDWALK DESIGNER UTILIZING RECOMMENDED PROCEDURES AND LOADS ON SHEET S0.2. WHERE CONNECTIONS HAVE BEEN DESIGNED BY A LICENSED ENGINEER, STEEL CONTRACTOR IS RESPONSIBLE FOR INTEGRATING RESULTS OF ALL CALCULATIONS INTO THE SHOP DRAWINGS.

4. MINIMUM WELD SIZE IS ¼" FILLET UNLESS NOTED OTHERWISE.

5. ALL BEAMS EXCEPT CANTILEVER BEAMS SHALL BE FABRICATED AND INSTALLED WITH NATURAL CAMBER UP. CANTILEVER BEAMS SHALL BE FABRICATED AND INSTALLED SO THAT NATURAL CAMBER RAISES CANTILEVER END.

6. FIELD CUTTING OR BURNING OF STEEL IS PROHIBITED EXCEPT WITH THE EXPRESSED WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD (IN WHICH CASE ALL BURNING OF STEEL MUST CONFORM TO THE THERMAL CUTTING REQUIREMENTS OF AISC AND AWS).

7. WELDING SHALL BE PERFORMED BY CERTIFIED, AWS-QUALIFIED WELDERS. WELDING ELECTRODES FOR CARBON STEEL SHALL BE AWS 5.1, CLASS E70XX.

8. ALL EXTERIOR EXPOSED STEEL AND STEEL SUPPORTING EXTERIOR SHALL BE HOT-DIP GALVANIZED. HOT-DIP GALVANIZING SHALL CONFORM TO ASTM A123. REPAIR SCRATCHES OR ABRADED GALVANIZED SURFACE WITH ZINC RICH PAINT.

9. SHOP AND ERECTION DRAWINGS SHALL BE SUBMITTED TO THE CONTRACTING OFFICER REPRESENTATIVE FOR REVIEW AND APPROVAL. NO FABRICATION OF STEEL SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS.

10. SHOP DRAWING SUBMITTALS SHALL FOLLOW THE FOLLOWING SEQUENCE (WITH EACH NOT BEING SUBMITTED UNTIL THE PREVIOUS ONE IS APPROVED):
    A. JOB STANDARDS (BASIS OF DESIGN AND REPRESENTATIVE CALCULATIONS FOR VARIOUS CONNECTION TYPES)
    B. ERECTION PLANS
    C. PIECE DETAILS AND PIECE-SPECIFIC CONNECTION CALCULATIONS

11. PROVIDE MECHANICALLY GALVANIZED BOLTS FOR EXTERIOR APPLICATIONS.

POST-INSTALLED ADHESIVE AND MECHANICAL ANCHORS

1. POST INSTALLED ANCHORAGE SHALL BE INSTALLED BY QUALIFIED PERSONNEL PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII), AS INCLUDED IN THE ANCHOR PACKAGING, TO INTACT BASE MATERIAL. INSTALLATION OF ANCHORS SHALL BE CARRIED OUT BY AN INSTALLER TRAINED TO INSTALL THE SPECIFIED ANCHORS. NOTIFY THE CONTRACTING OFFICER REPRESENTATIVE PRIOR TO INSTALLATION IF BASE MATERIAL CONDITION DEVIATES FROM STRUCTURAL DRAWINGS OR ASSUMPTIONS AND CONDITIONS OF THE MPII. ALL HOLES SHALL BE DRY AND HAMMER DRILLED UNLESS OTHERWISE NOTED, AND ALL CONCRETE BASE MATERIAL TO RECEIVE ADHESIVE ANCHORS SHALL HAVE A MINIMUM AGE OF 21 DAYS.

2. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS, PROXIMITY OF ANCHORS TO EDGE OF CONCRETE, AND EMBEDMENT DEPTH INTO THE SUBSTRATE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING, EDGE CLEARANCES, AND EMBEDMENT DEPTHS INDICATED ON THE DRAWINGS.

3. UNLESS OTHERWISE INDICATED, POST INSTALLED ANCHORAGE SHALL BE ADHESIVE TYPE HILTI HIT-HY 200-R INTO CONCRETE.

4. SUBSTITUTION REQUESTS FOR ALTERNATE ANCHORAGE PRODUCTS SHALL BE SUBMITTED TO THE CONTRACTING OFFICER REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO USE. THIS SHALL INCLUDE MANUFACTURER PRODUCT DATA AND CALCULATIONS DEMONSTRATING THAT THE PROPOSED SUBSTITUTE CAN ACHIEVE THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY THE MANUFACTURER OR SUCH OTHER METHOD AS APPROVED BY THE THE CONTRACTING OFFICER REPRESENTATIVE. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC-ES EVALUATION REPORT SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE, SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF MPII. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE AND MUST PROVIDE INFORMATION ON THESE ITEMS. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE THE CONTRACTING OFFICER REPRESENTATIVE PRIOR TO USE.

FRAMING LUMBER

1. ALL FRAMING LUMBER WORK SHALL CONFORM TO THE FOLLOWING GOVERNING STANDARDS:
   A. AMERICAN WOOD COUNCIL "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION," "NDS SUPPLEMENT: DESIGN VALUES FOR WOOD CONSTRUCTION", AND "SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC".

2. TIMBER LUMBER SHALL CONFORM TO THE FOLLOWING SPECIES AND GRADES UNLESS OTHERWISE SPECIFIED BY THE BOARDWALK DELEGATED DESIGNER OR LANDSCAPE ARCHITECT.
   A. POST AND TIMBER: DOUGLAS FIR-LARCH #1, SPRUCE PINE FIR #1, OR HEM FIR #1.
   B. BEAMS AND STRINGERS: DOUGLAS FIR-LARCH #1, SPRUCE PINE FIR #1, OR HEM FIR #1.
   C. DECKING: DOUGLAS FIR-LARCH #1, SPRUCE PINE FIR #1, OR HEM FIR #1.

3. PRESERVATIVE-TREATED WOOD: PROVIDE TREATED LUMBER COMPLYING WITH ACQ-D (CARBONATE). COPPER AZOLE (CA-B), OR SODIUM BORATE (SBX (DOT) WITH NaS10/2) AT ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY, OR AS OTHERWISE INDICATED ON THE DRAWINGS. ACZA TREATMENT IS NOT PERMITTED. TREATED LUMBER AND/OR PLYWOOD SHALL BEAR THE LABEL OF AN ACCREDITED AGENCY SHOWING 0.40 PCF RETENTION. WHERE LUMBER AND/OR PLYWOOD IS CUT OR DRILLED AFTER TREATMENT, THE TREATED SURFACE SHALL BE FIELD-TREATED WITH COPPER NAPTHENATE (THE CONCENTRATION OF WHICH SHALL CONTAIN A MINIMUM OF 2% COPPER METAL) BY REPEATED BRUSHING, DIPPING, OR SOAKING UNTIL THE WOOD ABSORBS NO MORE PRESERVATIVE. REFER TO NOTES 2 AND 3 FOR SPECIES AND GRADE OF WOOD UNLESS OTHERWISE NOTED ON PLAN.

4. ALL WOOD FRAMING INCLUDING DETAILS FOR BRIDGING, BLOCKING, FIRE STOPPING, ETC., SHALL CONFORM TO THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" AND ITS SUPPLEMENTS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE NFPA "MANUAL FOR HOUSE FRAMING" OR THE GOVERNING LOCAL/STATE BUILDING CODE.

5. FASTENING SHALL BE IN ACCORDANCE WITH THE MOST RESTRICTIVE OF THE GOVERNING LOCAL/STATE BUILDING CODE AND THE MANUFACTURER'S RECOMMENDED FASTENING SCHEDULES.

SPECIAL INSPECTIONS (IBC)

1. REFERENCE NPS STATEMENT OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS FOR FULL LIST OF REQUIREMENTS.

2. STRUCTURAL OBSERVATIONS REQUIRED BY THE LOCAL JURISDICTION AND IBC 1704.5 SHALL BE PERFORMED BY A REGISTERED DESIGN PROFESSIONAL PROVIDED BY THE CONTRACTOR. STRUCTURAL OBSERVATIONS SHALL BE THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.

3. TESTING AGENCY FOR THE INSPECTIONS SHALL FILE ALL APPROPRIATE FORMS WITH THE BUILDING DEPARTMENT.

TEMPORARY SHORING

1. ANY TEMPORARY SHORING SHOWN OR NOTED ON THE STRUCTURAL DRAWINGS IS PROVIDED TO SHOW GENERAL INTENT IN A QUALITATIVE, SCHEMATIC, AND NON-COMPREHENSIVE MANNER, FOR THE PURPOSES OF ASSISTING IN COORDINATION AND GENERAL SCOPE/PRICING.

2. DETERMINATION OF THE FULL SCOPE AND EXTENT OF ALL TEMPORARY SHORING WORK AND SEQUENCING REQUIRED TO SAFELY EXECUTE THE STRUCTURAL WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR'S LICENSED PROFESSIONAL ENGINEER.

3. THE DESIGN OF TEMPORARY SHORING BY THE CONTRACTOR'S LICENSED PROFESSIONAL ENGINEER SHALL ABIDE BY THE REQUIREMENTS IN THE GENERAL NOTES ON S0.1.

4. THE DESIGN OF TEMPORARY SHORING, AND DETERMINATION OF THE EXTENT OF TEMPORARY SHORING, ARE NOT THE RESPONSIBILITY OF TYLIN / SILMAN.

5. SEE STRUCTURAL DRAWINGS FOR SPECIAL AREAS OF THE PROJECT THAT MAY REQUIRE TEMPORARY SHORING FOR STABILITY DURING CONSTRUCTION OR ERECTION. IN ACCORDANCE WITH SHORING GENERAL NOTES 1-4 IN THIS SECTION, TEMPORARY SHORING OF SUCH AREAS IS ONLY NOTED SCHEMATICALLY AND SUBCONTRACTORS ARE RESPONSIBLE TO DETERMINE ALL FINAL MEANS AND METHODS FOR SAFE ERECTION OF THE STRUCTURE. ALL TEMPORARY SHORING WORK AND SEQUENCING ARE THE COMPLETE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR'S ENGINEER, AND IS NOT DESIGNED OR COMPREHENSIVELY IDENTIFIED BY TYLIN / SILMAN. CONTRACTOR SHALL ALLOW FOR ANY SUCH REQUIRED SHORING IN BIDS.

STATE OF MICHIGAN
ALBERTO MENA
ENGINEER
No. 6201313547
LICENSED PROFESSIONAL ENGINEER

TYLIN PROJECT NO. 3025.0031174.000

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY:	KH
DRAWN BY:	AN
REVIEWED BY:	ES
DATE:	06/23/2025
SUB SHEET NO.	01 S0.1
TITLE OF SHEET	STRUCTURAL GENERAL NOTES
	PICTURED ROCKS NATIONAL LAKESHORE MUNISING, MICHIGAN
DRAWING NO.	625 / 80067
PMIS NO.	22 69 30
SHEET	29 OF 35

DESIGN PARAMETER TABLE

GOVERNING CODE:		2024 INTERNATIONAL BUILDING CODE NOTE: AASHTO LRFD GUIDE SPECIFICATION FOR THE DESIGN OF PEDESTRIAN BRIDGES 2014 WITH 2015 INTERIM REVISIONS WAS REFERENCED BUT NOT REQUIRED PER NATIONAL PARK SERVICE.
RISK CATEGORY:		II
DEAD LOAD:		
10	PSF	PREFABRICATED STEEL BOARDWALK FRAME BY DELEGATED DESIGNER (WICKCRAFT OR EQUIVALENT)
10	PSF	WOOD DECKING
10	PSF	BRIDGE STEEL BY DELEGATED DESIGNER (WICKCRAFT OR EQUIVALENT)
15	PLF	TIMBER-FRAMED HANDRAIL WITH WIRE MESH
PERMANENT LIVE LOAD:		
100	PSF	UNIFORM SURFACE LOAD
3,000	LBS	MAINTENANCE VEHICLE (WHEEL POINT LOAD WITH 4.5" X 4.5" CONTACT AREA)
50	PLF	HANDRAIL AND GUARDRAIL SYSTEMS WITH LOADS APPLIED IN ANY DIRECTION TO PRODUCE THE MAXIMUM LOAD EFFECT
200	LBS	
CONSTRUCTION LIVE LOAD: SEE NOTES BELOW		
100	PSF	CONSTRUCTION UNIFORM SURFACE LOAD
5,000	LBS	TOTAL EQUIPMENT LOAD (OPERATING WEIGHT + PAYLOAD)
SNOW LOAD:		
115	Pg	GROUND SNOW LOAD (PSF)
116	Pf	DESIGN SNOW LOAD (PSF)
1.2	Ce	SNOW EXPOSURE FACTOR
1.00	Is	SNOW LOAD IMPORTANCE FACTOR
1.2	Ct	THERMAL FACTOR
1.0	Cs	SLOPE FACTOR
ICE LOAD:		
1.5	t	NOMINAL ICE THICKNESS (IN)
0.82	f_z	HEIGHT FACTOR (AT GRADE)
1.23	t_d	DESIGN ICE THICKNESS FOR FREEZING RAIN (IN)
40	PSF	UNIFORM ICE LOAD
WIND LOAD:		
104	Vult	ULTIMATE DESIGN WIND SPEED
81	Vasd	NOMINAL DESIGN WIND SPEED
C		WIND EXPOSURE CATEGORY
0.00	GCPi	INTERNAL PRESSURE COEFFICIENT
20/-20	PSF	MWFRS PRESSURE (+DOWNWARD/ -UPLIFT)
20	PSF	MWFRS PRESSURE (HORIZONTAL)
40/-55	PSF	COMPONENTS AND CLADDING PRESSURE (+DOWNWARD/ -UPLIFT)
28	PSF	COMPONENTS AND CLADDING PRESSURE (HORIZONTAL)
SEISMIC DESIGN:		
1.0	I	SEISMIC IMPORTANCE FACTOR
0.046	Ss	SHORT PERIOD SPECTRAL RESPONSE ACCELERATION
0.017	S1	1-SECOND PERIOD SPECTRAL RESPONSE ACCELERATION
C		SITE CLASS
0.032	S(ds)	5-% DAMPED SPECTRAL RESPONSE COEFFICIENT AT SHORT PERIODS
0.014	S(d1)	5-% DAMPED SPECTRAL RESPONSE COEFFICIENT AT 1-SECOND PERIODS
A		SEISMIC DESIGN CATEGORY
VIBRATION CRITERIA RECOMMENDATIONS:		ELEVATED PEDESTRIAN PATHWAYS
fmin	1.3 Hz	MINIMUM LATERAL FREQUENCY REQUIREMENT
fmin	3 Hz	MINIMUM VERTICAL FREQUENCY REQUIREMENT
ap	5% g	RECOMMENDED PEAK ALLOWABLE VERTICAL ACCELERATION FOR OUTDOOR BRIDGES

DESIGN PARAMETER TABLE NOTES:

1. CONSTRUCTION LIVE LOAD REQUIREMENTS FOR INSTALLATION OF BOARDWALK FRAMES PER TOP-DOWN CONSTRUCTION METHODOLOGY: BOARDWALK FRAMES ARE BROUGHT TO THE END OF THE STRUCTURE AS IT IS BUILT, ONE SECTION/ BAY AT A TIME.
2. CONTRACTOR TO COORDINATE LONG-SPAN BRIDGE BEAM INSTALLATION WITH BOARDWALK FABRICATOR IN COMPLIANCE WITH LOADING LOAD REQUIREMENTS. OTHERWISE, INSTALL BRIDGE BEAMS FROM GRADE.
3. FOUNDATIONS TO BE INSTALLED FROM EXISTING SURFACE UNLESS ALTERNATE INSTALLATION PER TOP-DOWN METHOD IS REVIEWED AND APPROVED BY THE CONTRACTING OFFICER REPRESENTATIVE. CONSTRUCTION LOADS AND FOUNDATION LOADS MAY NOT EXCEED VALUES SPECIFIED ON S0.2.
4. CONTRACTOR IS TO PROVIDE TEMPORARY SHORING, DESIGNED BY THE CONTRACTOR'S LICENSED PROFESSIONAL ENGINEER, AS REQUIRED TO FACILITATE INSTALLATION OF STRUCTURAL FOUNDATIONS AND BOARDWALK. THIS IS RECOMMENDED BUT NOT LIMITED TO THE FOLLOWING: EXISTING CRIB WALL AND BRIDGES. REFERENCE TEMPORARY SHORING NOTES ON SHEET S0.1 AND G4.0.
5. CONTRACTOR TO COORDINATE EQUIPMENT FOR TERRAIN ACCESS AND MINIMIZE SURFACE DISTURBANCE, LIMITED TO THE EXISTING PATHWAY. EXTENTS OF CONSTRUCTION STAGING, TRAFFIC, AND SURFACE DISTURBANCE MUST BE REVIEWED AND APPROVED BY THE CONTRACTING OFFICER REPRESENTATIVE. SEE SHEET G4.0 FOR ADDITIONAL INFORMATION.

CONCRETE MIX DESIGN

AREA	F'c AT 28 DAYS (psi)	NOTES	DENSITY	DURABILITY EXPOSURE CATEGORIES AND CLASSES (ACI 318 TABLE 19.3.1.1)				NOTES
				FREEZING AND THAWING (F)^	SULFATE (S)	IN CONTACT WITH WATER (W)	REINFORCEMENT CORROSION PROTECTION (C)	
FOUNDATIONS	4000	MAX w/cm = 0.40	NORMAL WEIGHT	F2	S0	W1	C1	

NOTES:

^ REFER TO SPECIFICATION FOR TARGET AIR CONTENT % BASED ON MAXIMUM AGGREGATE SIZE

* CONCRETE COVER NOT LESS THAN 2" FOR SLAB AND WALLS, NOT LESS THAN 2-1/2" FOR OTHER MEMBERS

DEEP FOUNDATIONS DESIGN INFORMATION

GOVERNING CODE:		2024 INTERNATIONAL BUILDING CODE NOTE: AASHTO LRFD GUIDE SPECIFICATION FOR THE DESIGN OF PEDESTRIAN BRIDGES 2014 WITH 2015 INTERIM REVISIONS WAS REFERENCED BUT NOT REQUIRED PER NATIONAL PARK SERVICE
RISK CATEGORY:		II
GEOMETRIC PARAMETERS (TYPICAL FRAME):		
6	FT	TRANSVERSE SPACING (MAXIMUM)
12	FT	LONGITUDINAL SPACING (MAXIMUM)
8	FT	TOP OF PILE HEIGHT ABOVE GRADE (MAXIMUM)
GEOTECHNICAL PARAMETERS: PER TERRACON PROJECT N6235258		
500	PSF	DRILLED SHAFT ALLOWABLE SKIN FRICTION IN GRANULAR SOIL
1,000	PSF	DRILLED SHAFT ALLOWABLE SKIN FRICTION IN BEDROCK
2,500	PSF	DRILLED SHAFT ALLOWABLE END BEARING PRESSURE IN GRANULAR SOIL
10,000	PSF	DRILLED SHAFT ALLOWABLE END BEARING PRESSURE IN BEDROCK
		SAND (REESE) LPILE:
GRANULAR SOIL		MATERIAL
35	DEGREE	INTERNAL FRICTION ANGLE
125	PCF	EFFECTIVE UNIT WEIGHT
DEFAULT		E50
DEFAULT	PCI	Kh
		WEAK ROCK (REESE) LPILE:
DEFAULT		MATERIAL
150	PCF	EFFECTIVE UNIT WEIGHT
0.0005		STRAIN FACTOR Krm
750	PSI	UNIAXIAL COMPRESSIVE STRENGTH (UCS)
68,000	PSI	INITIAL MODULUS OF ROCK MASS Ei
0	%	ROCK QUALITY DESIGNATION (RQD)
TOP OF FOUNDATION LOADING (TYPICAL):		
0.9	KIPS	DEAD LOAD
4.2	KIPS	PERMANENT LIVE LOAD
5.0	KIPS	CONSTRUCTION LIVE LOAD
4.2	KIPS	SNOW LOAD
1.44	KIPS	ICE LOAD
0.72	KIPS	WIND LOAD MWFRS (+DOWNWARD)
0.72	KIPS	WIND LOAD MWFRS (-UPLIFT)
0.8	KIPS	HORIZONTAL - WIND LATERAL LOAD
0.6	KIPS	HORIZONTAL - LIVE HANDRAIL LATERAL LOAD
95 x FOUNDATION EMBEDMENT	PSF	HORIZONTAL - SOIL LATERAL LOAD (EQUIVALENT FLUID PRESSURE)
TOP OF FOUNDATION LOADING (SUPPORTING LONG-SPAN STEEL GIRDERS):		
2.2	KIPS	DEAD LOAD
7.2	KIPS	PERMANENT LIVE LOAD
6.2	KIPS	CONSTRUCTION LIVE LOAD
7.2	KIPS	SNOW LOAD
2.48	KIPS	ICE LOAD
1.24	KIPS	WIND LOAD MWFRS (+DOWNWARD)
1.24	KIPS	WIND LOAD MWFRS (-UPLIFT)
1.0	KIPS	HORIZONTAL - WIND LATERAL LOAD
1.0	KIPS	HORIZONTAL - LIVE HANDRAIL LATERAL LOAD
95 x FOUNDATION EMBEDMENT	PSF	HORIZONTAL - SOIL LATERAL LOAD (EQUIVALENT FLUID PRESSURE)

NOTES

1. DEEP FOUNDATIONS INSTALLER/ SUPPLIER SHALL SUBMIT FINAL MICROPILE (OR HELICAL SCREW PIERS), PILE CAP, AND BRACING COMPONENTS AND INSTALLATION SPECIFICATIONS CAPABLE OF SUPPORTING THE VERTICAL AND HORIZONTAL LOADS SHOWN ABOVE. DEEP FOUNDATION SUBMITTAL, INCLUDING SHOP DRAWINGS AND CALCULATIONS, TO BE REVIEWED AND APPROVED BY THE CONTRACTING OFFICER REPRESENTATIVE.
2. LISTED LOADS ARE UNFACTORED.
3. A SAFETY FACTOR OF 3.0 HAS BEEN APPLIED TO THE ALLOWABLE SKIN FRICTION AND END BEARING VALUES. NO SAFETY FACTOR HAS BEEN APPLIED TO THE LPILE PARAMETERS.
4. HORIZONTAL SOIL LATERAL LOAD ASSUMES AT REST EARTH PRESSURE FOR FINE GRAINED SOILS IN SUBMERGED CONDITIONS BASED ON EMBEDMENT DEPTH OF THE FOUNDATION ELEMENT. PRESSURE IS APPLICABLE FOR VARIABLE GRADE ELEVATIONS AND STEEP SLOPE CONDITIONS AT FOUNDATION LOCATIONS.
5. PREFABRICATED LATERAL BRACING AS NEEDED BETWEEN FOUNDATION ELEMENTS IS BY THE DEEP FOUNDATION INSTALLER/ SUPPLIER.

LEGEND

- CONCRETE FOOTING BELOW
- FOUNDATION BELOW
- KEYNOTE
- REVISION
- EXISTING ELEMENT TO BE DEMOLISHED
- STEEL-FRAMED ELEVATED WALKWAY
- STEEL BRIDGE FRAMING
- EXISTING BUILDING
- LIMITS OF WORK
- ON-GRADE TRAIL, SEE CIVIL DRAWINGS
- CENTERLINE OF TRAIL

STATE OF MICHIGAN — MATTHEW T. KRUTO — ENGINEER — No. 6201315547 — LICENSED PROFESSIONAL ENGINEER

TYLIN PROJECT NO. 3025.0031174.000

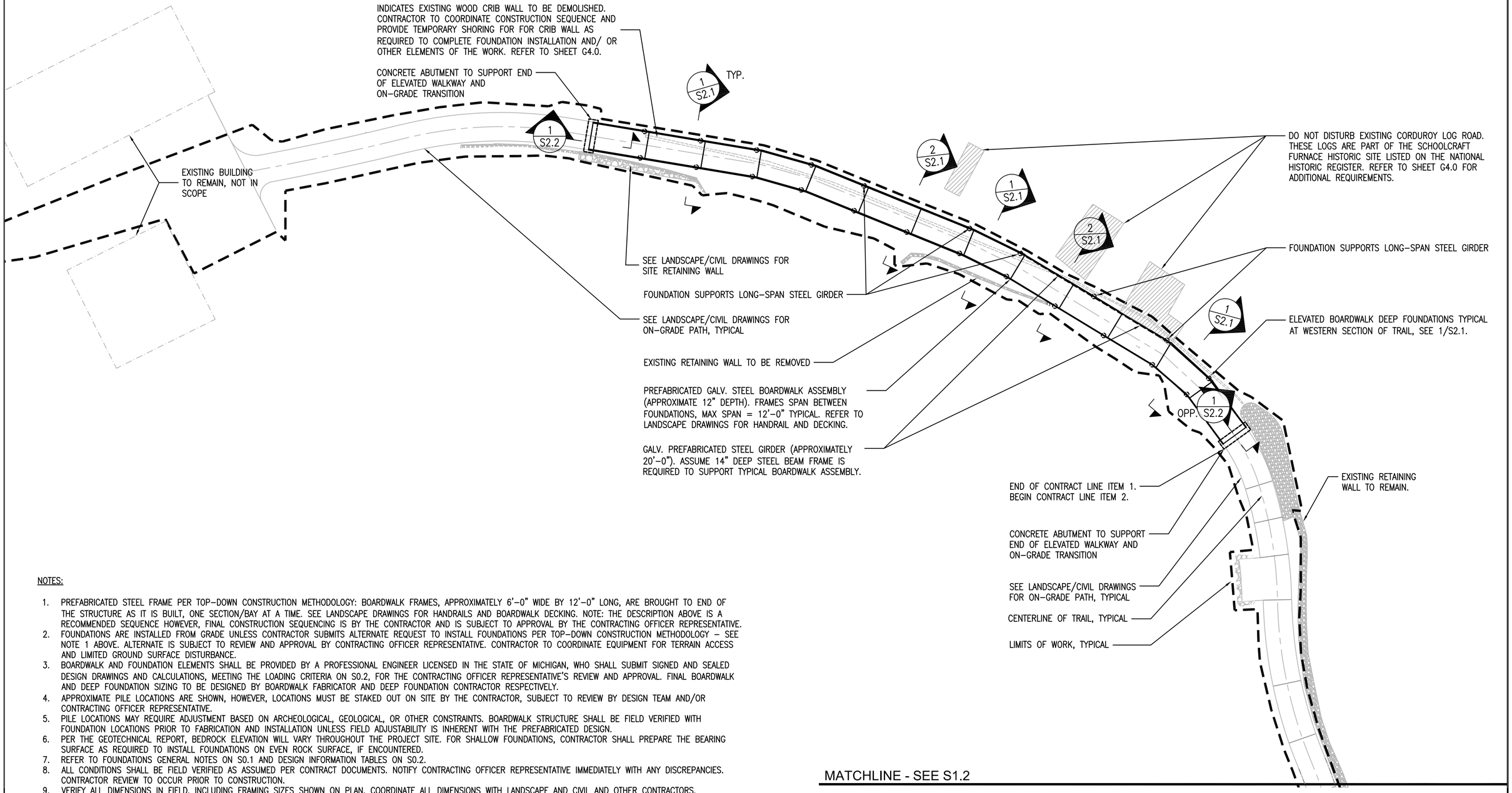
Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: KH
DRAWN BY: AN
REVIEWED BY: ES
DATE: 06/23/2025

SUB SHEET NO. 01 S0.2

TITLE OF SHEET
STRUCTURAL DESIGN INFORMATION
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 30 OF 35



NOTES:

1. PREFABRICATED STEEL FRAME PER TOP-DOWN CONSTRUCTION METHODOLOGY: BOARDWALK FRAMES, APPROXIMATELY 6'-0" WIDE BY 12'-0" LONG, ARE BROUGHT TO END OF THE STRUCTURE AS IT IS BUILT, ONE SECTION/BAY AT A TIME. SEE LANDSCAPE DRAWINGS FOR HANDRAILS AND BOARDWALK DECKING. NOTE: THE DESCRIPTION ABOVE IS A RECOMMENDED SEQUENCE HOWEVER, FINAL CONSTRUCTION SEQUENCING IS BY THE CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CONTRACTING OFFICER REPRESENTATIVE.
2. FOUNDATIONS ARE INSTALLED FROM GRADE UNLESS CONTRACTOR SUBMITS ALTERNATE REQUEST TO INSTALL FOUNDATIONS PER TOP-DOWN CONSTRUCTION METHODOLOGY – SEE NOTE 1 ABOVE. ALTERNATE IS SUBJECT TO REVIEW AND APPROVAL BY CONTRACTING OFFICER REPRESENTATIVE. CONTRACTOR TO COORDINATE EQUIPMENT FOR TERRAIN ACCESS AND LIMITED GROUND SURFACE DISTURBANCE.
3. BOARDWALK AND FOUNDATION ELEMENTS SHALL BE PROVIDED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MICHIGAN, WHO SHALL SUBMIT SIGNED AND SEALED DESIGN DRAWINGS AND CALCULATIONS, MEETING THE LOADING CRITERIA ON S0.2, FOR THE CONTRACTING OFFICER REPRESENTATIVE'S REVIEW AND APPROVAL. FINAL BOARDWALK AND DEEP FOUNDATION SIZING TO BE DESIGNED BY BOARDWALK FABRICATOR AND DEEP FOUNDATION CONTRACTOR RESPECTIVELY.
4. APPROXIMATE PILE LOCATIONS ARE SHOWN, HOWEVER, LOCATIONS MUST BE STAKED OUT ON SITE BY THE CONTRACTOR, SUBJECT TO REVIEW BY DESIGN TEAM AND/OR CONTRACTING OFFICER REPRESENTATIVE.
5. PILE LOCATIONS MAY REQUIRE ADJUSTMENT BASED ON ARCHEOLOGICAL, GEOLOGICAL, OR OTHER CONSTRAINTS. BOARDWALK STRUCTURE SHALL BE FIELD VERIFIED WITH FOUNDATION LOCATIONS PRIOR TO FABRICATION AND INSTALLATION UNLESS FIELD ADJUSTABILITY IS INHERENT WITH THE PREFABRICATED DESIGN.
6. PER THE GEOTECHNICAL REPORT, BEDROCK ELEVATION WILL VARY THROUGHOUT THE PROJECT SITE. FOR SHALLOW FOUNDATIONS, CONTRACTOR SHALL PREPARE THE BEARING SURFACE AS REQUIRED TO INSTALL FOUNDATIONS ON EVEN ROCK SURFACE, IF ENCOUNTERED.
7. REFER TO FOUNDATIONS GENERAL NOTES ON S0.1 AND DESIGN INFORMATION TABLES ON S0.2.
8. ALL CONDITIONS SHALL BE FIELD VERIFIED AS ASSUMED PER CONTRACT DOCUMENTS. NOTIFY CONTRACTING OFFICER REPRESENTATIVE IMMEDIATELY WITH ANY DISCREPANCIES. CONTRACTOR REVIEW TO OCCUR PRIOR TO CONSTRUCTION.
9. VERIFY ALL DIMENSIONS IN FIELD, INCLUDING FRAMING SIZES SHOWN ON PLAN. COORDINATE ALL DIMENSIONS WITH LANDSCAPE AND CIVIL AND OTHER CONTRACTORS.
10. SEE LANDSCAPE AND CIVIL DRAWINGS FOR ALL OTHER INFORMATION NOT SHOWN.
11. REFER TO CIVIL DRAWINGS FOR TOP OF DECK ELEVATIONS.
12. SEE G4.0 FOR PROJECT GENERAL NOTES.

1 / S1.0 STRUCTURAL PLAN WEST
SCALE (A)

STATE OF MICHIGAN — ALBERTO [illegible] — ENGINEER — No. 6201315547 — LICENSED PROFESSIONAL ENGINEER

SCALE (A) 10 0 1 10 20
SCALE OF FEET

TYLIN PROJECT NO. 3025.0031174.000

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: KH
DRAWN BY: AN
REVIEWED BY: ES
DATE: 06/23/2025

SUB SHEET NO. 01 S1.1

TITLE OF SHEET
STRUCTURAL SITE PLAN WEST
PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 31 OF 35

MATCHLINE - SEE S1.1

EXISTING RETAINING WALL TO REMAIN

CENTERLINE OF TRAIL, TYPICAL

SEE LANDSCAPE/CIVIL DRAWINGS FOR ON GRADE PATH, TYPICAL

EXISTING RETAINING WALL TO REMAIN.

LIMITS OF WORK, TYPICAL

END CONTRACT LINE ITEM 2.
BEGIN CONTRACT LINE ITEM 3.

EXISTING ON-GRADE TRAIL TO REMAIN

CONCRETE ABUTMENT TO SUPPORT END OF ELEVATED WALKWAY AND ON-GRADE TRANSITION

GALV. PREFABRICATED STEEL AND TIMBER BRIDGE TO SPAN OVER STREAM (APPROXIMATELY 29'-0"). ASSUME 14" DEEP STEEL BEAM FRAME IS REQUIRED TO SUPPORT TYPICAL BOARDWALK ASSEMBLY.

PREFABRICATED GALV. STEEL BOARDWALK ASSEMBLY (APPROXIMATE 12" DEPTH). FRAMES SPAN BETWEEN FOUNDATIONS, MAX SPAN = 12'-0" TYPICAL. REFER TO LANDSCAPE DRAWINGS FOR HANDRAIL AND DECKING.

ELEVATED BOARDWALK SHALLOW FOUNDATIONS TYPICAL AT WESTERN SECTION OF TRAIL, SEE 2A & 2B/S2.1.

CONCRETE ABUTMENT TO SUPPORT END OF ELEVATED WALKWAY AND ON-GRADE TRANSITION.

FOUNDATION SUPPORTS LONG-SPAN STEEL GIRDER

EXISTING RETAINING WALL TO REMAIN.

EXISTING ON-GRADE TRAIL TO REMAIN

EXISTING WOODEN PLATFORM TO REMAIN

CONCRETE ABUTMENT TO SUPPORT END OF ELEVATED WALKWAY AND ON-GRADE TRANSITION

EXISTING RETAINING WALL TO REMAIN

NOTES:

1. PREFABRICATED STEEL FRAME PER TOP-DOWN CONSTRUCTION METHODOLOGY: BOARDWALK FRAMES, APPROXIMATELY 6'-0" WIDE BY 12'-0" LONG, ARE BROUGHT TO END OF THE STRUCTURE AS IT IS BUILT, ONE SECTION/BAY AT A TIME. SEE LANDSCAPE DRAWINGS FOR HANDRAILS AND BOARDWALK DECKING. NOTE: THE DESCRIPTION ABOVE IS A RECOMMENDED SEQUENCE HOWEVER, FINAL CONSTRUCTION SEQUENCING IS BY THE CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CONTRACTING OFFICER REPRESENTATIVE.
2. FOUNDATIONS ARE INSTALLED FROM GRADE UNLESS CONTRACTOR SUBMITS ALTERNATE REQUEST TO INSTALL FOUNDATIONS PER TOP-DOWN CONSTRUCTION METHODOLOGY – SEE NOTE 1 ABOVE. ALTERNATE IS SUBJECT TO REVIEW AND APPROVAL BY CONTRACTING OFFICER REPRESENTATIVE. CONTRACTOR TO COORDINATE EQUIPMENT FOR TERRAIN ACCESS AND LIMITED GROUND SURFACE DISTURBANCE.
3. BOARDWALK AND FOUNDATION ELEMENTS SHALL BE PROVIDED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MICHIGAN, WHO SHALL SUBMIT SIGNED AND SEALED DESIGN DRAWINGS AND CALCULATIONS, MEETING THE LOADING CRITERIA ON S0.2, FOR THE CONTRACTING OFFICER REPRESENTATIVE'S REVIEW AND APPROVAL. FINAL BOARDWALK SIZING TO BE DESIGNED BY BOARDWALK FABRICATOR.
4. APPROXIMATE FOUNDATION LOCATIONS ARE SHOWN, HOWEVER, LOCATIONS MUST BE STAKED OUT ON SITE BY THE CONTRACTOR, SUBJECT TO REVIEW BY DESIGN TEAM AND/OR CONTRACTING OFFICER REPRESENTATIVE.
5. FOUNDATION LOCATIONS MAY REQUIRE ADJUSTMENT BASED ON ARCHEOLOGICAL, GEOLOGICAL, OR OTHER CONSTRAINTS. BOARDWALK STRUCTURE SHALL BE FIELD VERIFIED WITH FOUNDATION LOCATIONS PRIOR TO FABRICATION AND INSTALLATION UNLESS FIELD ADJUSTABILITY IS INHERENT WITH THE PREFABRICATED DESIGN.
6. PER THE GEOTECHNICAL REPORT, BEDROCK ELEVATION WILL VARY THROUGHOUT THE PROJECT SITE. FOR SHALLOW FOUNDATIONS, CONTRACTOR SHALL PREPARE THE BEARING SURFACE AS REQUIRED TO INSTALL FOUNDATIONS ON EVEN ROCK SURFACE, IF ENCOUNTERED.
7. REFER TO FOUNDATIONS GENERAL NOTES ON S0.1 AND DESIGN INFORMATION TABLES ON S0.2.
8. ALL CONDITIONS SHALL BE FIELD VERIFIED AS ASSUMED PER CONTRACT DOCUMENTS. NOTIFY CONTRACTING OFFICER REPRESENTATIVE IMMEDIATELY WITH ANY DISCREPANCIES. CONTRACTOR REVIEW TO OCCUR PRIOR TO CONSTRUCTION.
9. VERIFY ALL DIMENSIONS IN FIELD, INCLUDING FRAMING SIZES SHOWN ON PLAN. COORDINATE ALL DIMENSIONS WITH LANDSCAPE AND CIVIL AND OTHER PRIME CONTRACTORS.
10. SEE LANDSCAPE AND CIVIL DRAWINGS FOR ALL OTHER INFORMATION NOT SHOWN.
11. REFER TO CIVIL DRAWINGS FOR TOP OF DECK ELEVATIONS.
12. SEE G4.0 FOR PROJECT GENERAL NOTES.

1 / S1.1 STRUCTURAL PLAN EAST
SCALE A

SCALE A: 10 0 1 10 20
SCALE OF FEET

STATE OF MICHIGAN — ALBERTO ANDERSON — ENGINEER No. 6201313547 — LICENSED PROFESSIONAL ENGINEER

TYLIN PROJECT NO. 3025.0031174.000

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

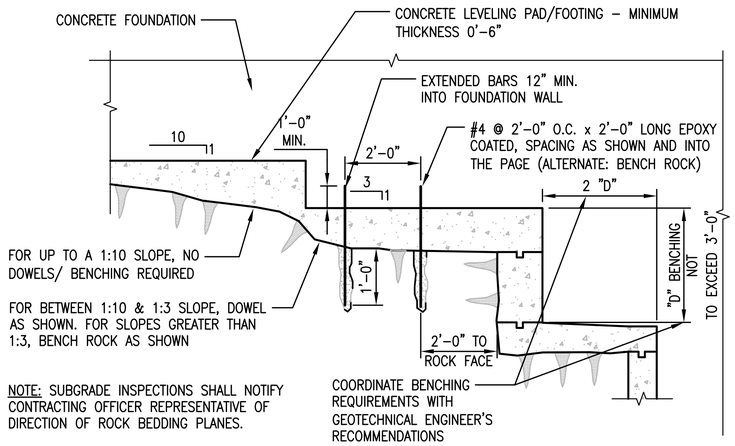
DESIGNED BY: KH
DRAWN BY: AN
REVIEWED BY: ES
DATE: 06/23/2025

SUB SHEET NO. 01 S1.2

TITLE OF SHEET
STRUCTURAL SITE PLAN EAST

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 32 OF 35



NOTE: SUBGRADE INSPECTIONS SHALL NOTIFY CONTRACTING OFFICER REPRESENTATIVE OF DIRECTION OF ROCK BEDDING PLANES.

TYPICAL DETAIL CONCRETE FOUNDATION AT SLOPED ROCK CONDITIONS (MAY BE APPLICABLE AT ABUTMENTS)

N.T.S.

	DEFORMED BAR TENSION DEVELOPMENT LENGTH (Ld) FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS	
BAR SIZE	4000 PSI CONCRETE	
	CASE I	CASE II
#3	15	22
#4	19	29
#5	24	36

DEFORMED TENSION BAR NOTES:

1. FOR HORIZONTAL REINFORCEMENT WITH 12 INCH OR MORE FRESH CONCRETE CAST BELOW IT, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPLICE LENGTH SHALL BE 1.3x THE VALUES GIVEN.
2. FOR REINFORCEMENT IN LIGHTWEIGHT CONCRETE, TENSION DEVELOPMENT LENGTH/TENSION LAP LENGTH SHALL BE 1.3X THE VALUES GIVEN
3. FOR EPOXY–COATED BARS:
   A. WHERE CONCRETE COVER IS LESS THAN 3x BAR DIAMETER,OR CLEAR SPACING IS LESS THAN 6x BAR DIAMETER, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPLICE LENGTH SHALL BE 1.5x THE VALUES GIVEN.
   B. WHERE CONCRETE COVER IS EQUAL TO OR GREATER THAN 3x BAR DIAMETER AND CLEAR SPACING IS GREATER THAN 6x BAR DIAMETER, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPLICE LENGTH SHALL BE 1.2x THE VALUES GIVEN.
4. CASE I APPLIES WHEN EITHER OF THE FOLLOWING SETS OF CONDITIONS ARE MET:
   A. ALL THREE OF THESE:
      - CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN DB AND
      - CLEAR COVER IS NOT LESS THAN DB AND
      - STIRRUPS OR TIES ARE PROVIDED THROUGHOUT THE DEVELOPMENT LENGTH AND THE QUANTITY IS NOT LESS THAN THE CODE MINIMUM.
   B. OR BOTH OF THESE:
      - CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 2DB AND
      - CLEAR COVER IS NOT LESS THAN DB
5. CASE II APPLIES TO ALL OTHER CONDITIONS NOT DESCRIBED IN CASE I.

DEFORMED BAR TENSION LAP SPLICE – CLASS B FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS		
BAR SIZE	4000 PSI CONCRETE	
	CASE I	CASE II
#3	19	28
#4	25	37
#5	31	47

DEFORMED BAR COMPRESSION DEVELOPMENT LENGTH (Ldc)	
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS	
BAR SIZE	4000 PSI CONCRETE
#3	8
#4	10
#5	12

DEFORMED BAR COMPRESSION LAP SPLICE	
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS	
BAR SIZE	4000 PSI CONCRETE
#3	12
#4	15
#5	19

REBAR DEVELOPMENT AND SPLICE LENGTH SCHEDULES IN CONCRETE (APPLICABLE TO ABUTMENTS)

TYLIN PROJECT NO. 3025.0031174.000

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

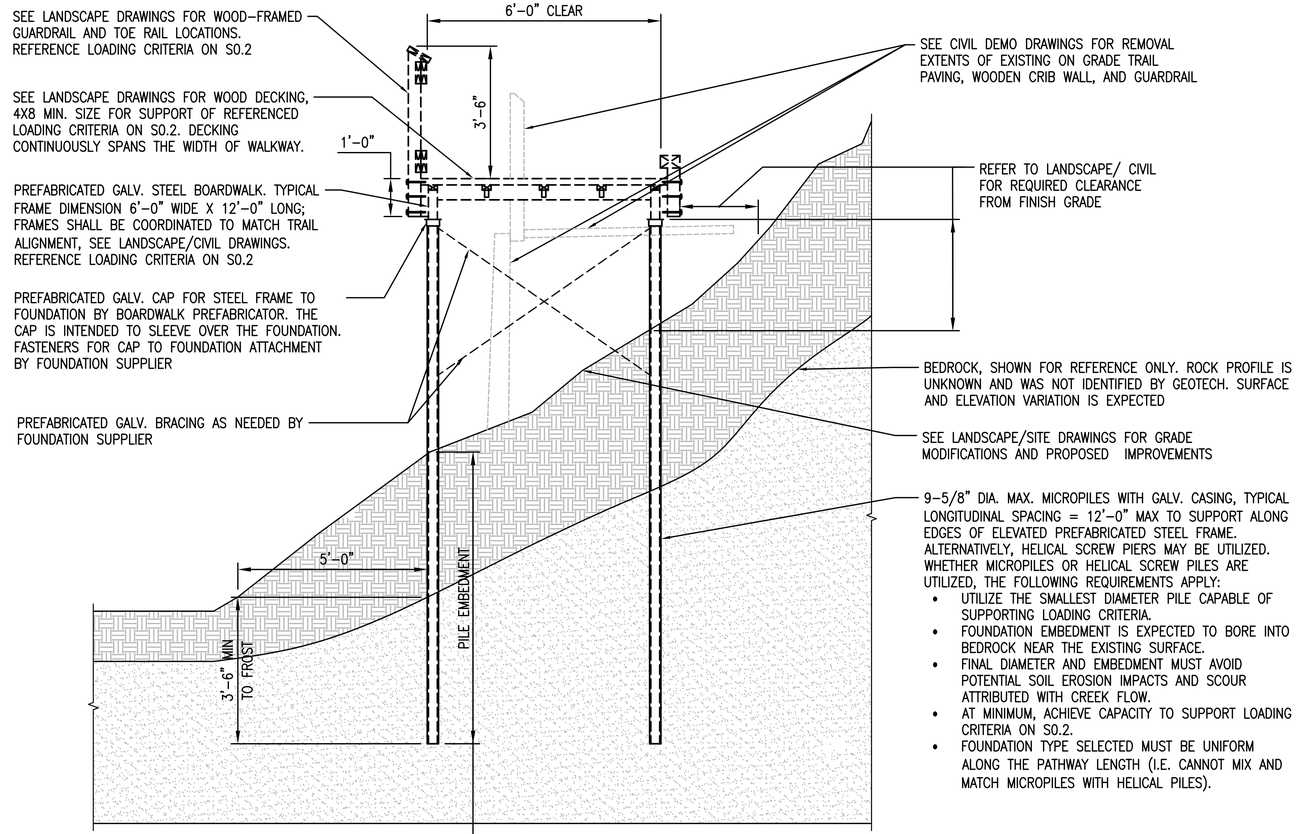
DESIGNED BY: KH
DRAWN BY: AN
REVIEWED BY: ES
DATE: 06/23/2025

SUB SHEET NO. 01 S2.0

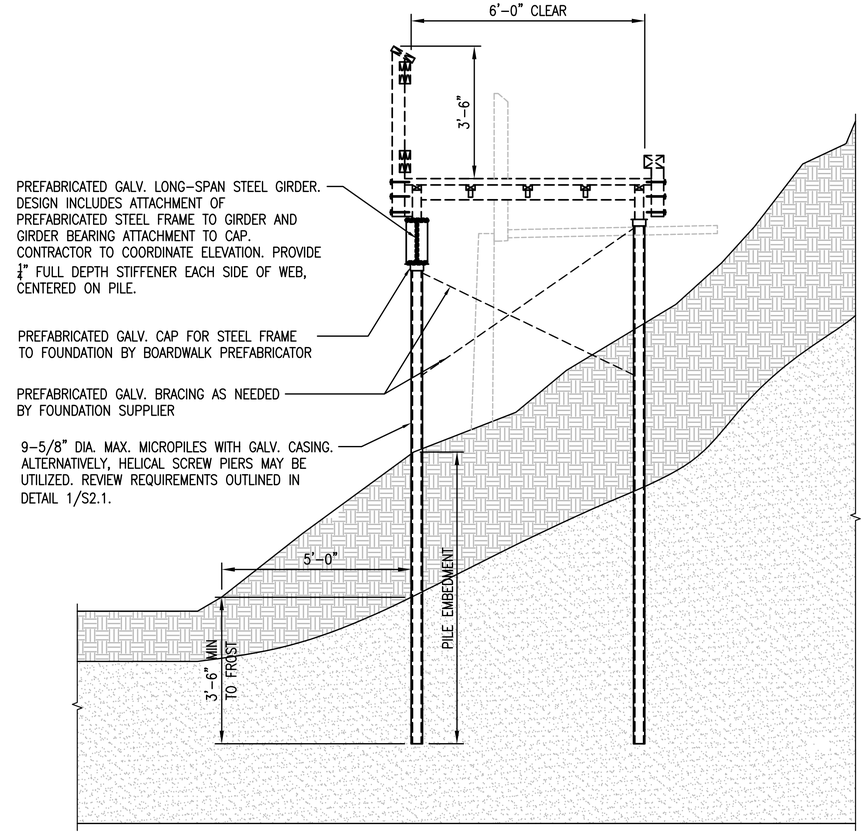
TITLE OF SHEET
STRUCTURAL TYPICAL DETAILS

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 33 OF 35

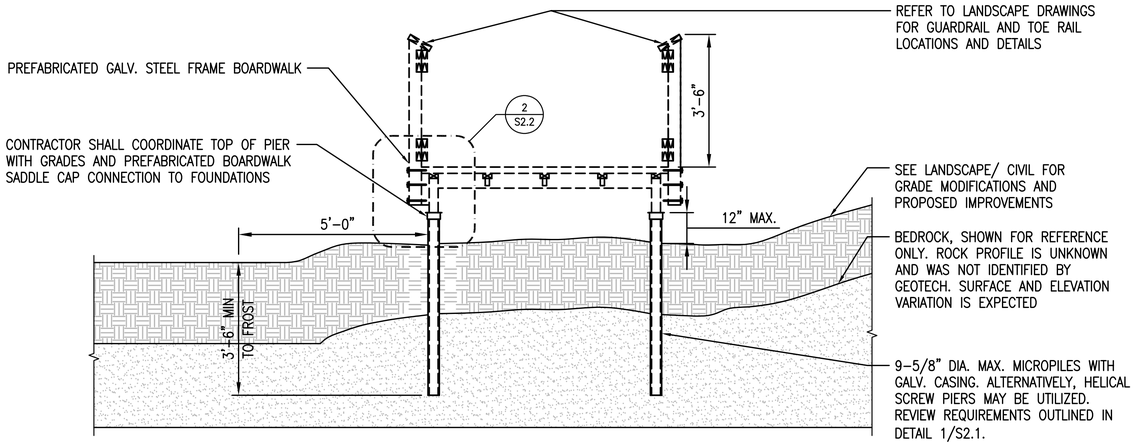


1 S2.1 SECTION
SCALE (B)



NOTE: SEE 1/S2.1 FOR REMAINING INFORMATION NOT SHOWN.

2 S2.1 SECTION
SCALE (B)



NOTES:
1. SEE 1/S2.1 FOR REMAINING INFORMATION NOT SHOWN.
2. PREFABRICATED GALV. BRACING BETWEEN FOUNDATION ELEMENTS AS NEEDED BY FOUNDATION SUPPLIER.

3 S2.1 SECTION
SCALE (B)

SCALE (B) 2 0 2 4
SCALE OF FEET

TYLIN PROJECT NO. 3025.0031174.000

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

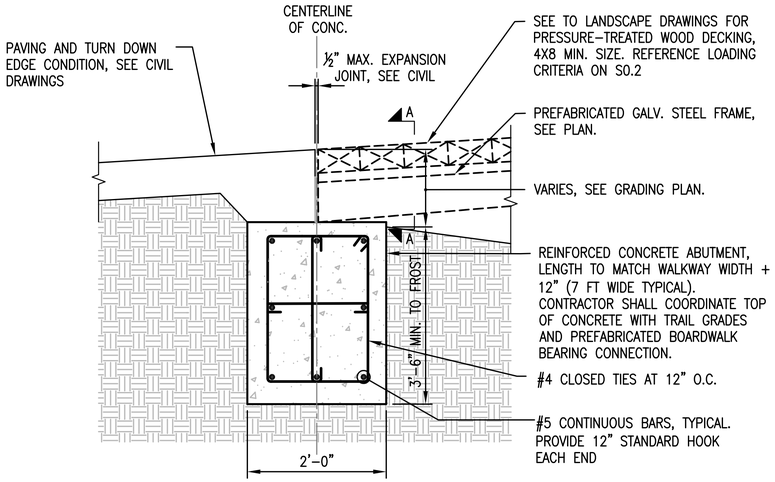
DESIGNED BY: KH
DRAWN BY: AN
REVIEWED BY: ES
DATE: 06/23/2025

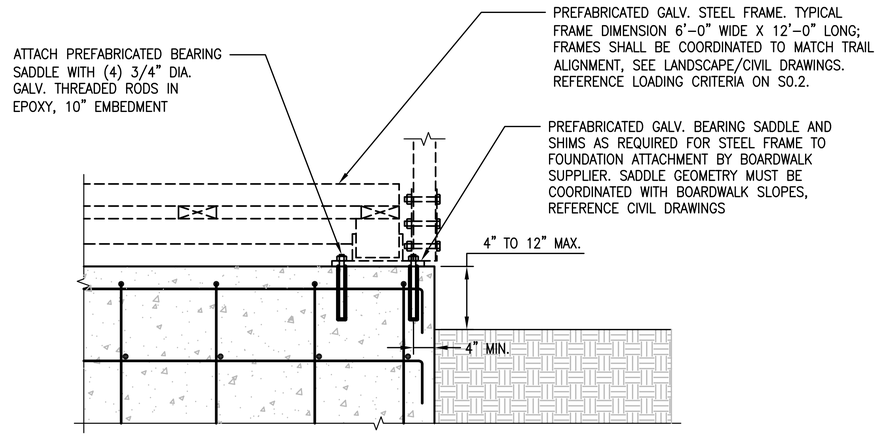
SUB SHEET NO. 01 S2.1

TITLE OF SHEET
STRUCTURAL SECTIONS

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 34 OF 35



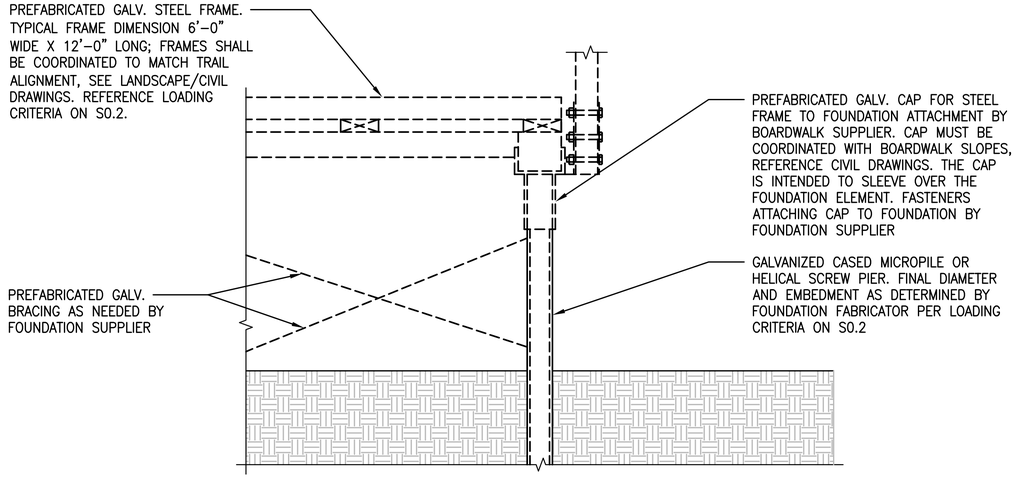


SECTION A–A

NOTE:

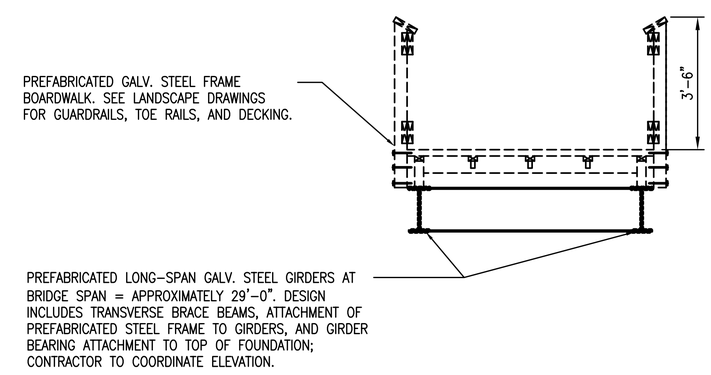
1. CONCRETE CLEAR COVER TO BE 3" ALL FACES CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND.
2. SEE S2.0 FOR REBAR DEVELOPMENT AND SPLICE LENGTH SCHEDULES. ADDITIONALLY, SEE TYPICAL DETAIL ON S2.0 IF ROCK IS ENCOUNTERED AT OR ABOVE FROST DEPTH.
3. FULL BOARDWALK FRAME NOT SHOWN FOR CLARITY, REFERENCE 1/S2.1 FOR REMAINING INFORMATION.

1 / S2.2 SECTION
SCALE C



NOTE: SEE 3/S2.1 FOR REMAINING INFORMATION.

2 / S2.2 SECTION
SCALE C



NOTE: SEE 1/S2.1 FOR REMAINING INFORMATION.

3 / S2.2 SECTION
SCALE B

STATE OF MICHIGAN ALBERTO IMENA ENGINEER No. 6201313547 LICENSED PROFESSIONAL ENGINEER

SCALE C 1 0 1 2
SCALE OF FEET

TYLIN PROJECT NO. 3025.0031174.000

Mark	Sheet	REVISION	Date	Initial
–	–	FINAL SEALED CD	06/23/25	–

DESIGNED BY: KH
DRAWN BY: AN
REVIEWED BY: ES
DATE: 06/23/2025

SUB SHEET NO. 01 S2.2

TITLE OF SHEET
STRUCTURAL SECTIONS

PICTURED ROCKS NATIONAL LAKESHORE
MUNISING, MICHIGAN

DRAWING NO. 625 80067
PMIS NO. 22 69 30
SHEET 35 OF 35