Purchasing Division
Finance Department

Room 120
411 West First Street
Duluth, Minnesota 55802

218-730-5340
purchasing@duluthmn.gov

Addendum 1
Bid 20-99426
OUTFALL REPAIRS ON CONGDON BLVD

Addendum 1, with answers to questions raised at the prebid and updated bin wall plan sheets, has been uploaded to the Bid Express solicitation. Please visit www.bidexpress.com for details or to view and/or download the information.

Please acknowledge receipt of this Addendum by checking the acknowledgment box within the Bid Express solicitation.

Posted: June 25, 2020

7428 and 7825 Congdon Blvd

List of Questions/Answers from Pre-Bid Meeting

1. Traffic Control Plan
    a. Traffic Control shall be the responsibility of the Contractor. It is preferred to leave Congdon Blvd open to traffic in both directions and utilize a lane shift rather than closing one or both lanes. Traffic Control plans shall be submitted to the City for review and approval. Traffic Control shall accommodate safe travel for pedestrians and bicyclists.
2. 7825 Congdon Blvd existing guardrail
    a. The existing guardrail shall be removed as required for construction and reinstalled per MnDOT specifications in the same or better condition. The contractor shall be responsible for repairing any damage they cause to the existing guardrail.
3. 7428 Congdon Blvd void between existing bin wall and natural rock ledge on the north west side of the bin wall
    a. The void shall be sealed with concrete. Forms or closure plate shall be utilized to close the void during concrete placement to prevent loss of material.
4. 7428 Congdon Blvd existing 60”ø RCP
    a. Water was documented leaking from bottom of RCP at second joint back from outfall opening into Lake Superior. Contractor shall inspect joints in existing RCP and repair leaks and other deficiencies as required.
    b. Contractor shall divert drainage as require and provide plug in 60”ø RCP to facilitate repairs if determined necessary by Contractor.
5. 7428 Congdon Blvd Bin #3
    a. Additional 10’-10”x6’-4”x1/2” galvanized steel plate, see Detail 5 on S2.2, shall be installed on the face of Bin #3 directly below the RCP outfall. See Details 6 and 7 on S2.2 for connection details.
    b. The Contractor shall verify the extent of the void in Bin #3 below the existing RCP prior to installation of galvanized steel plates or placement of concrete.
    c. Concrete fill shall be placed in the void in Bin #3 from the top of the bin wall to the maximum extent possible without removal of existing RCP. The Contractor shall place fill in each bin in equal lifts to not overload the members separating the bins. The Contractor shall begin filling the largest voids first and shall only start filling the adjacent bins when the fill material and the existing soil elevation in adjacent bins are at equal elevations. For example, concrete shall not be placed in Bin #3 until concrete has been placed in Bin #4 and #5 to an elevation equal to the bottom of the void in Bin #3 and 3” minus stone fill has been placed in Bin #2 to an elevation equal to the bottom of the void in Bin #3. Bins #2, #3, #4, and #5 shall then be filled in equal lifts to the top of the existing bin wall.
    d. Concrete fill shall be paid under a unit price payment method. Payment will be made at the contract bid price per cubic yard which shall be compensation in full for all labor, materials, equipment, and other incidentals necessary to furnish and install.

DULUTH SHORELINE REHABILITATION

7428 CONGDON BLVD

BIN WALL STABILIZATION

DULUTH, MN

VICINITY MAP

SITE PHOTO

OWNER CONTACT

CITY OF DULUTH
MIKE LEBEAU
MLEBEAU@DULUTHMN.GOV
1532 W. MICHIGAN ST.
DULUTH, MN 55806
218-730-4434

DESIGN TEAM

TRC ENVIRONMENTAL CORP
RESOLUTION STUDIOS
AMI CONSULTING ENGINEERS, P.A.
ZAC MORRIS, PE
ZAC.MORRIS@AMIENGINEERS.COM
3640 TALMAGE CIRCLE, SUITE 200
VADNAIS HEIGHTS, MN 55110
715-718-5721

SHEET INDEX

Survey Layout Information
Coordinate System: US State Plane 1983 – MN North 2201
Datum: NAD 1983
Geoid: G12B–US

GOVERNING SPECIFICATIONS

THE CURRENT EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE CURRENT EDITION OF THE CITY OF DULUTH, MN CONSTRUCTION STANDARDS SHALL GOVERN.

Know what's **below.**
Call before you dig.

STATE LAW: 48 HOURS BEFORE EXCAVATING OR DEMOLISHING BUILDINGS, CALL 811 FOR FIELD LOCATION OF UNDERGROUND UTILITY LINES. THIS SERVICE LOCATES UTILITY OWNED LINES BUT NOT PRIVATE LINES.

THE LOCATIONS OF UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED. THE EXACT LOCATION OF ALL UTILITIES (PUBLIC AND PRIVATE) MUST BE DETERMINED BEFORE COMMENCING WORK.

PREPARED BY: TRC, Resolution Studio, AMI Consulting Engineers P.A.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
NAME: ZACHARY MORRIS
SIGNATURE:
DATE: 11/06/2019
LIC. No.: 54405

PREPARED FOR: THE CITY OF DULUTH MINNESOTA

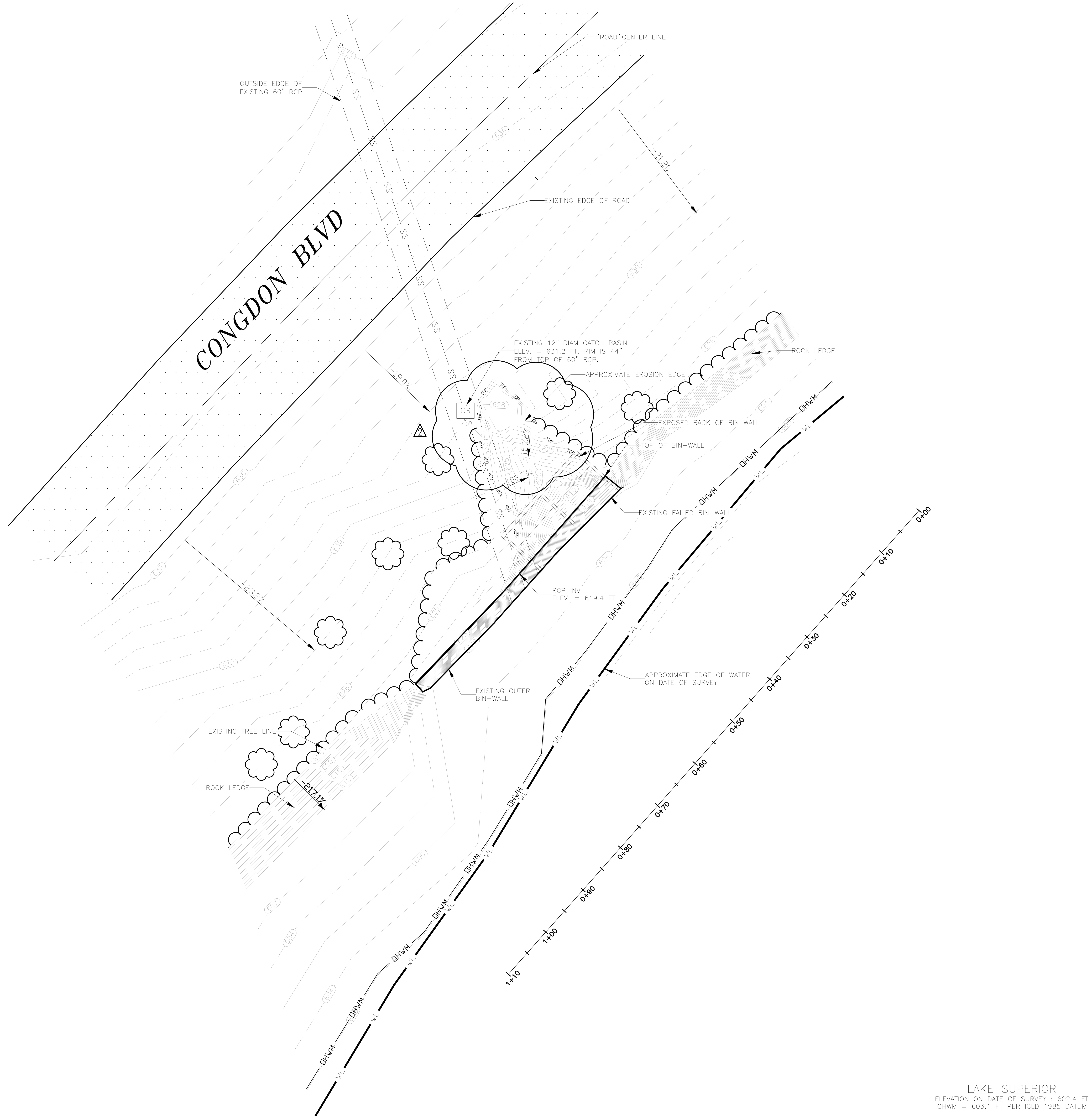
DATE:	REV:	DESCRIPTION	REV. BY:
11/06/2019	0	ISSUED FOR CONSTRUCTION	RRD
05/07/2020	1	ADDED SHEETS C2.1 AND C2.2 TO SHEET INDEX, UPDATED SURVEY NOTES	RRD

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION

TITLE PAGE

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: RRD
DESIGNED BY: KKM

SHEET: T1.0



N

10 20 SCALE IN FEET

SITE LEGEND:

- FLOW ARROW AND GRADE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- OHWM — ORDINARY HIGH WATER MARK
- TOP OF SLOPE FAILURE
- TREE LINE
- WL — WATERLINE
- SS — STORM SEWER
- TREE
- ASPHALT
- CB — CATCH BASIN

GENERAL PROJECT NOTES:

1. BIDDER SHALL VISIT THE SITE TO UNDERSTAND THE SCOPE OF WORK. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ITEMS THAT COULD HAVE BEEN IDENTIFIED BY A SITE VISIT, STUDYING THE TOPOGRAPHIC SURVEY, THOROUGHLY REVIEWING ALL PLANS AND REPORTS, AND ADDITIONAL INFORMATION REQUESTED FOR CLARIFICATION PRIOR TO BIDDING.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO STARTING WORK.
3. EXISTING TOPOGRAPHIC INFORMATION TAKEN FROM SURVEY BY **AMI CONSULTING ENGINEERS, PA** DATED **01/16/2019, 08/2/2019 AND 10/11/2019**. SUPPLEMENTAL INFORMATION, INCLUDING DETAIL DRONE IMAGES ARE SHOWN AS APPROXIMATE LOCATIONS ONLY AND SHALL BE FIELD VERIFIED PRIOR TO OR DURING CONSTRUCTION. CONTACT ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE DISCOVERED.
4. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING UTILITIES OR STRUCTURES LOCATED AT THE WORK SITE.
5. PROVIDE AND MAINTAIN TRAFFIC CONTROL DEVICES WHERE NECESSARY. PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE CITY AND ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF THE MN MUTCD, CURRENT ADDITION.
6. CONTRACTOR SHALL MAINTAIN FULL ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION AND TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES.
7. ALL CONSTRUCTION WORK SHALL BE COMPLETED WITHIN CITY APPROVED WORKING HOURS.
8. INSTALL CONTROL FENCING AND BARRICADING AS NECESSARY TO PROTECT THE PUBLIC.

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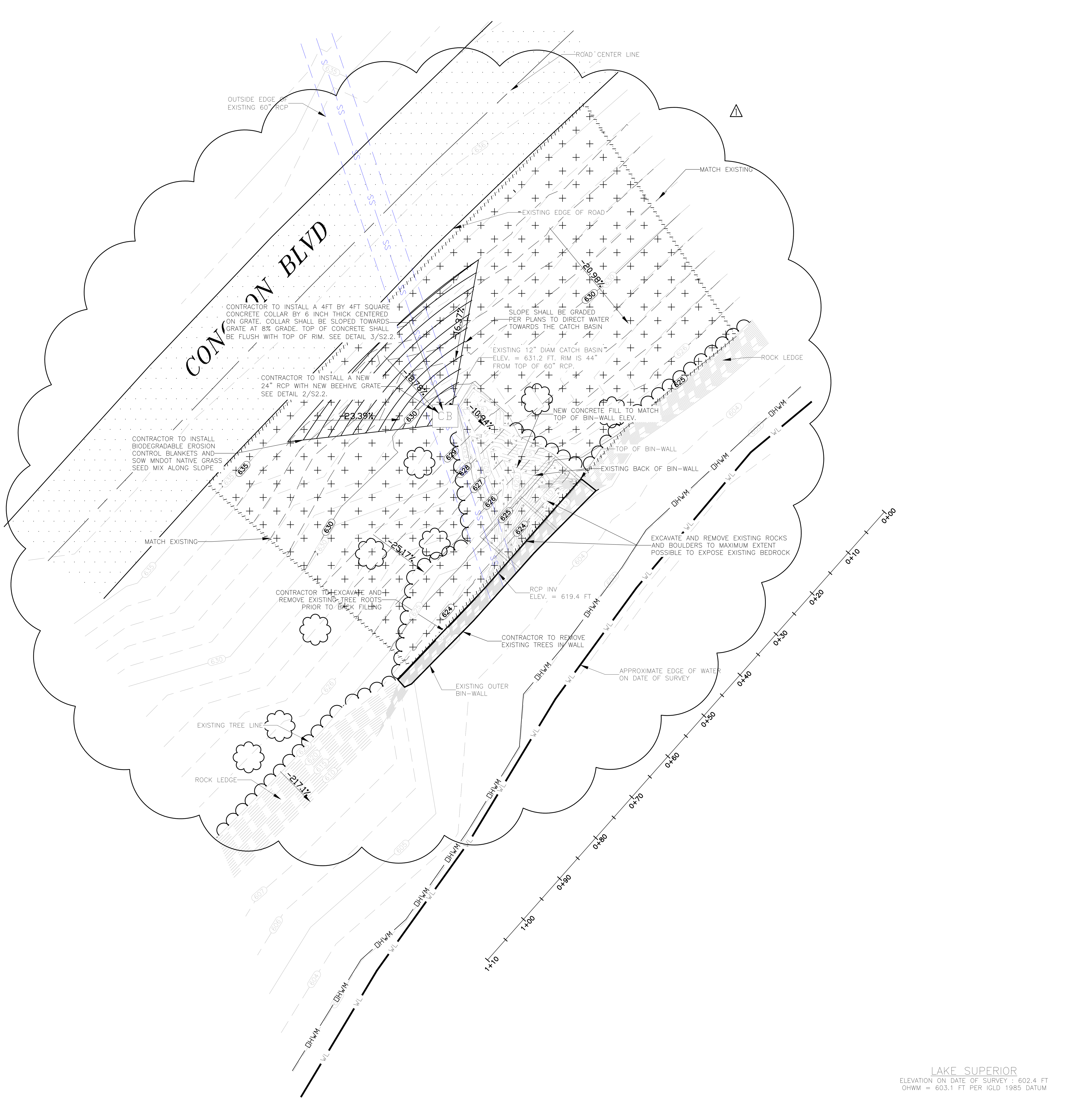
DATE:	REV:	DESCRIPTION	REV. BY:
11/06/2019	0	ISSUED FOR CONSTRUCTION	RRD
05/07/2020	1	UPDATED NOTES AND ADDED HATCHING	RRD
06/23/2020	2	UPDATED EXISTING SURFACE TO INCLUDE ADDITIONAL EROSION	RRD

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION

EXISTING CONDITIONS

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: RRD
DESIGNED BY: RRD

SHEET:
C1.0



LAKE SUPERIOR
ELEVATION ON DATE OF SURVEY : 602.4 FT
OHWM = 603.1 FT PER IGLD 1985 DATUM

N
10 20
SCALE IN FEET

SITE LEGEND:

Symbol	Description
−37.7%	FLOW ARROW AND GRADE
608	EXISTING MINOR CONTOUR
605	EXISTING MAJOR CONTOUR
608	PROPOSED MINOR CONTOUR
605	PROPOSED MAJOR CONTOUR
OHWM	ORDINARY HIGH WATER MARK
	TREE LINE
WL	WATERLINE
SS	STORM SEWER
	TREE
	ASPHALT
	EROSION CONTROL BLANKET
	CONCRETE
CB	CATCH BASIN

GENERAL GRADING AND DRAINAGE NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE BEFORE BEGINNING SITE GRADING ACTIVITIES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES OF CUT, FILL AND WASTE MATERIAL TO BE HANDLED, AND FOR THE AMOUNT OF GRADING TO BE DONE. ALL COSTS ASSOCIATED WITH IMPORTING SUITABLE MATERIAL AND EXPORTING UNSUITABLE/EXCESS/WASTE MATERIAL SHALL BE INCLUDED IN THE BID PRICE.
3. CONTRACTOR SHALL STRIP, STOCKPILE AND RE-SPREAD EXISTING ONSITE TOPSOIL, IF MATERIAL IS APPROVED BY THE ENGINEER AND/OR SPECIFICATIONS. PROVIDE A UNIFORM THICKNESS OF 6" MINIMUM IN ALL DISTURBED AREAS TO BE LANDSCAPED/SEEDED.
4. CONTRACTOR SHALL DISPOSE OF ANY EXCESS SOIL MATERIAL UNLESS OTHERWISE DIRECTED.
5. MAINTAIN TEMPORARY PROTECTION MEASURES DURING CONSTRUCTION ACTIVITIES. PROVIDE ADDITIONAL PROTECTION AS NECESSARY AS WORK PROGRESSES.
6. PROPOSED CONTOURS AND SPOT ELEVATIONS ARE TO FINISHED SURFACE GRADE.
7. UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING AND PROVIDE A SMOOTH FINISHED SURFACE WITH UNIFORM SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN OR BETWEEN SUCH POINTS AND EXISTING GRADES.
8. LIMIT THE DISTURBED AREA AS MUCH AS POSSIBLE AND CONDUCT GRADING OPERATIONS IN A MANNER TO MINIMIZE THE POTENTIAL FOR EROSION.
9. CONDUCT GRADING PER MNDOT SPECIFICATIONS 2101, 2105 AND 2112.
10. EROSION CONTROL BLANKETS AND SEEDING SHALL BE PER MNDOT 2575.
11. RESTORATION AREAS SHALL BE RESTORED USING MNDOT SEED MIX # 35-241.

811 Know what's below. Call before you dig.

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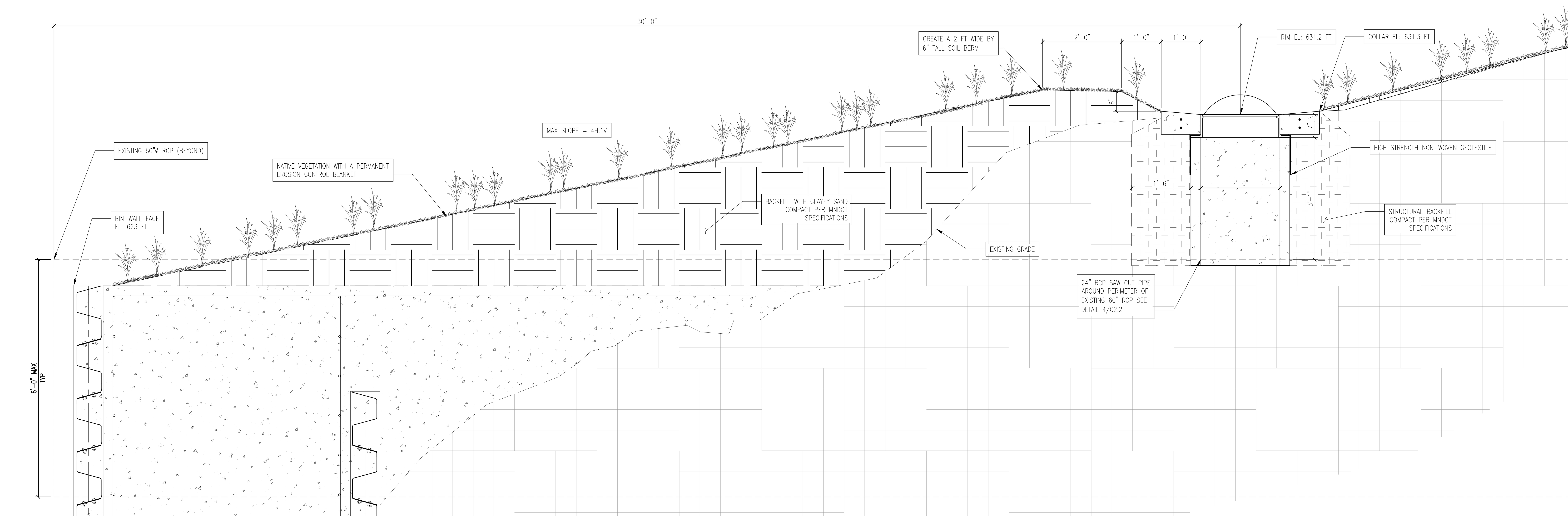
DATE:	REV:	DESCRIPTION	REV. BY:
11/06/2019	0	ISSUED FOR CONSTRUCTION	RRD
05/07/2020	1	ADDED EROSION CONTROL BLANKET NOTES AND ADDED HATCHING	RRD

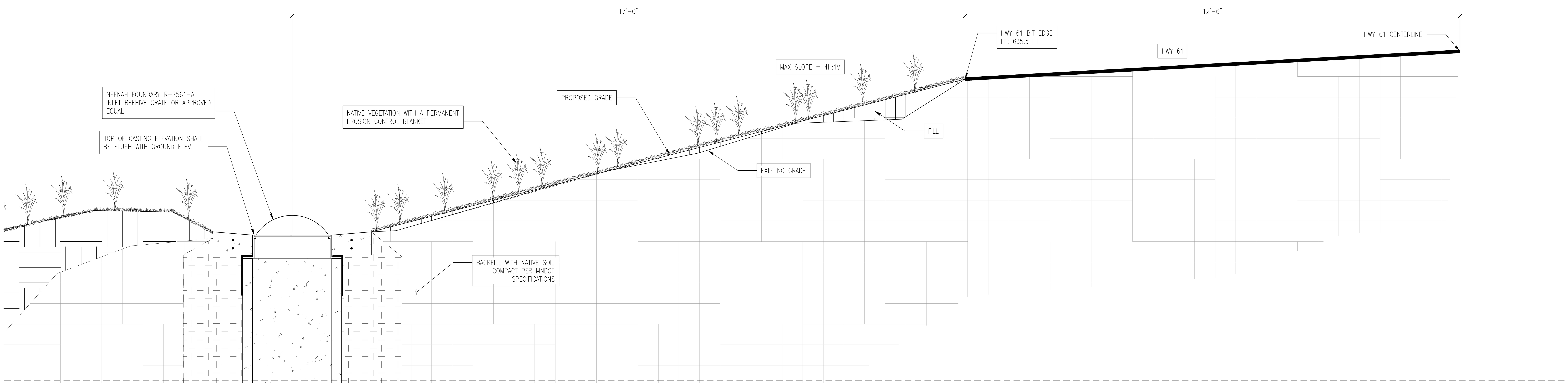
CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION

PROPOSED CONDITIONS

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: RRD
DESIGNED BY: RRD
SHEET: C2.0



1 C2.1 24" INLET ELEVATION VIEW
SCALE: 3/4"=1'-0" ON A 22" X 34" SHEET



2 C2.1 24" INLET ELEVATION VIEW
SCALE: 3/4"=1'-0" ON A 22" X 34" SHEET

PREPARED BY: TRC, Resolution Studio, AMI Consulting Engineers P.A.

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NAME: ZACHARY MORRIS
SIGNATURE:
DATE: 05/07/2020
LIC. No.: 56405

PREPARED FOR: THE CITY OF DULUTH MINNESOTA

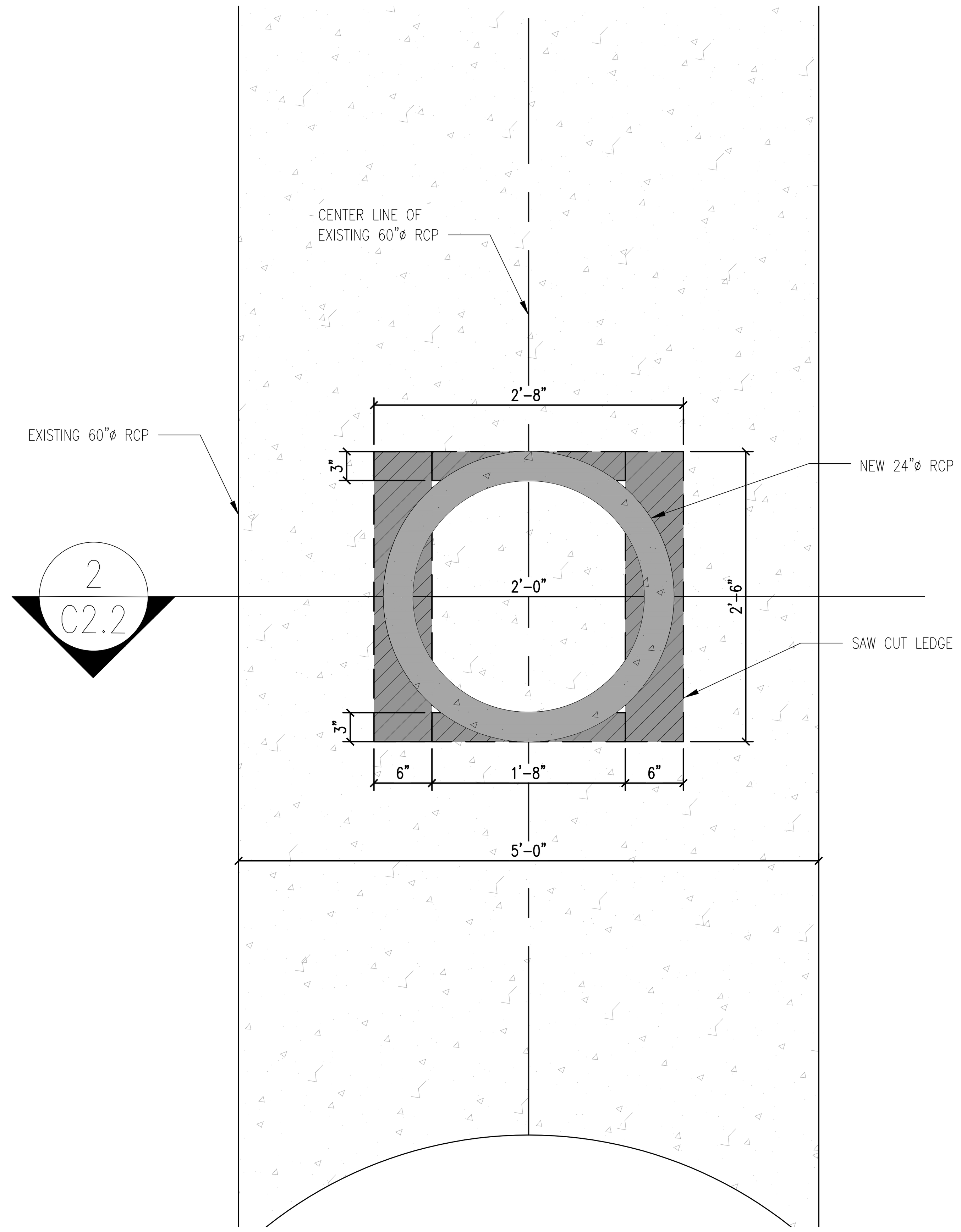
DATE:	REV:	DESCRIPTION	REV. BY:
05/07/2020	0	ISSUED FOR CONSTRUCTION	RRD

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION

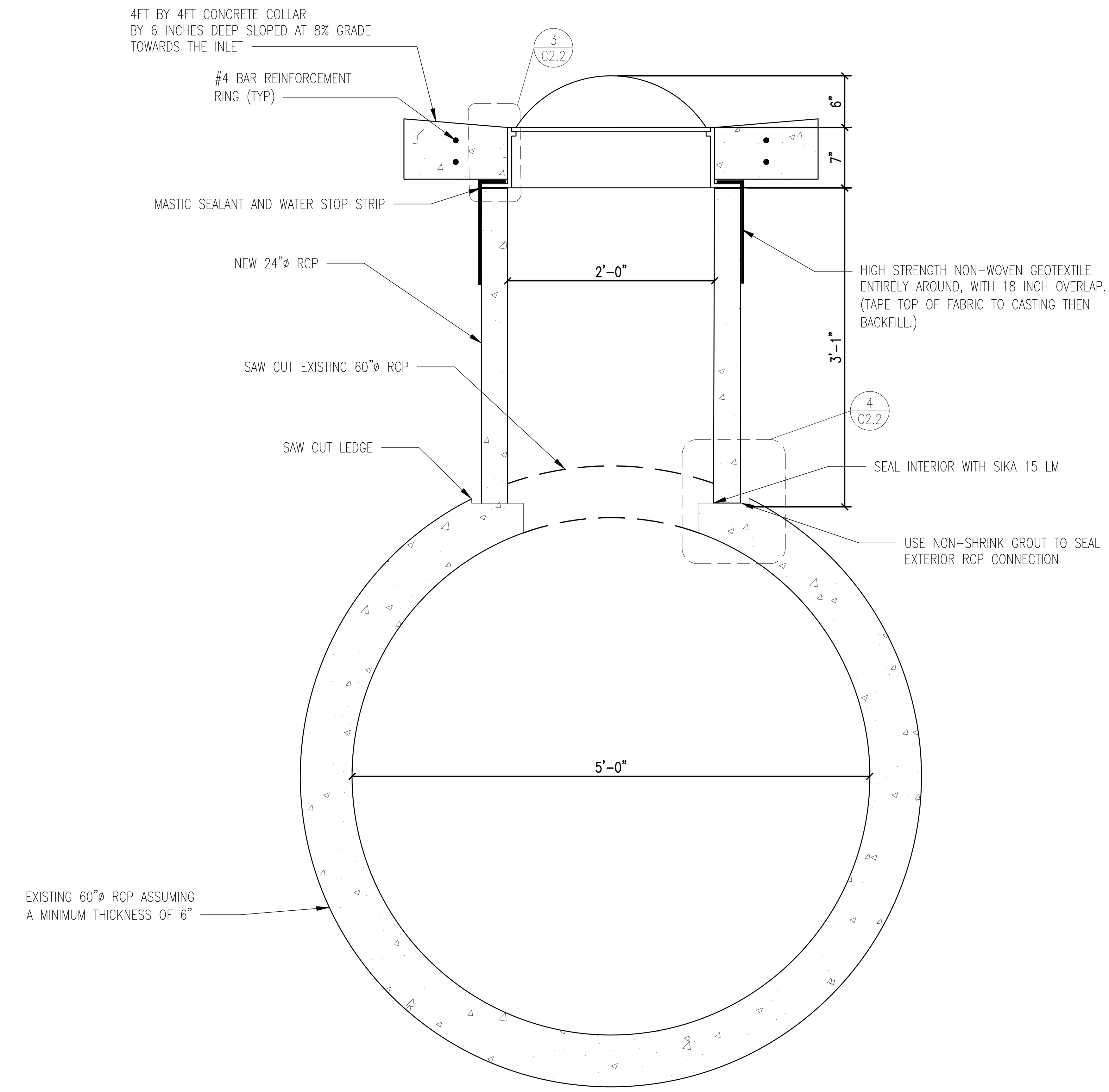
TYPICAL CROSS-SECTION

JOB No: 181093
DATE: 5/7/2020
DRAWN BY: RRD
DESIGNED BY: RRD

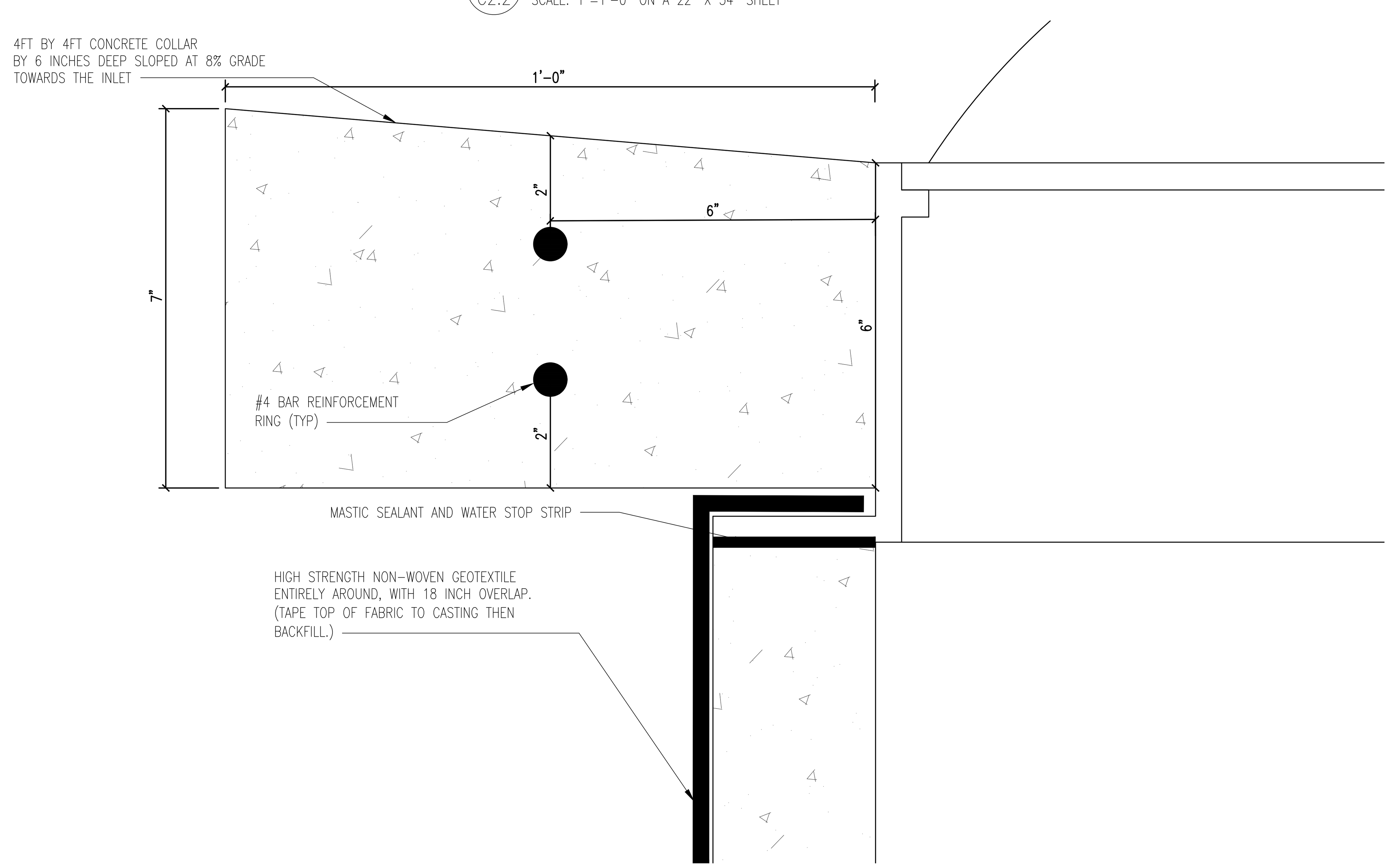
SHEET:
C2.1



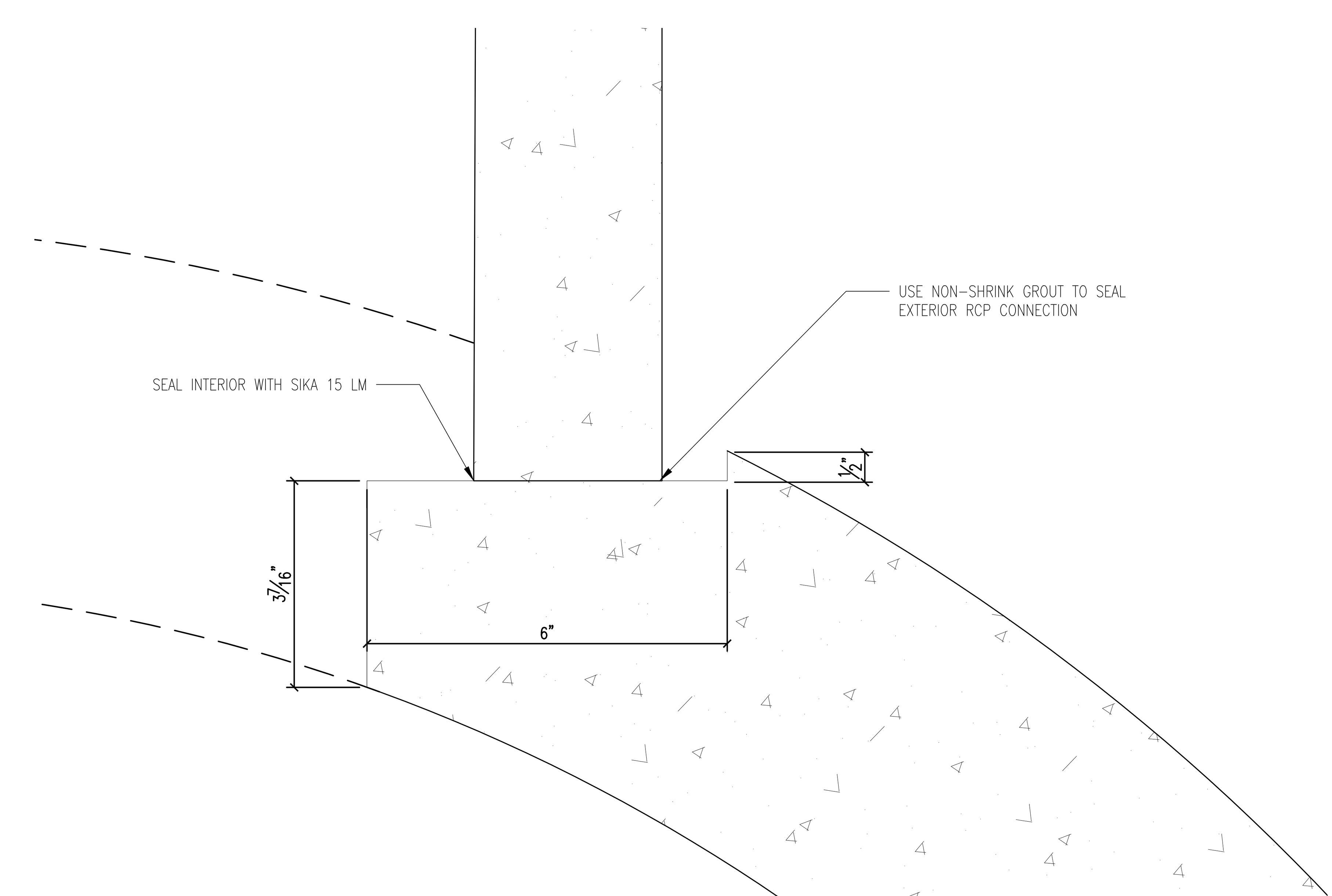
1 / C2.2 **24" INLET PLAN VIEW**
SCALE: 1"=1'-0" ON A 22" X 34" SHEET



2 / C2.2 **24" INLET CROSS-SECTION**
SCALE: 1"=1'-0" ON A 22" X 34" SHEET



3 / C2.2 **24" INLET DETAIL**
NOT TO SCALE



4 / C2.2 **24" INLET DETAIL**
NOT TO SCALE

PREPARED BY:
TRC
Resolution Studio
AMI Consulting Engineers P.A.

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THE CITY OF DULUTH MINNESOTA

DATE:	REV:	DESCRIPTION	REV. BY:
05/07/2020	0	ISSUED FOR CONSTRUCTION	RRD

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION

CIVIL DETAILS

JOB No: 181093
DATE: 5/7/2020
DRAWN BY: RRD
DESIGNED BY: RRD

SHEET:
C2.2

GENERAL
- ALL PLAN DIMENSIONS ON THE DRAWINGS ARE MEASURED IN A TRUE HORIZONTAL PLANE UNLESS NOTED OTHERWISE.
- ALL MATERIALS AND INSTALLATION MUST MEET THE STANDARD SPECIFICATIONS LISTED IN THE DESIGN CRITERIA SECTION OF THE STRUCTURAL NOTES AND THE PROJECT SPECIFICATIONS.
- THE MARINE/STRUCTURAL DRAWINGS ARE TO BE WORKED TOGETHER WITH CIVIL DRAWINGS AND SPECIFICATIONS FOR ALL INTER-DISCIPLINE INTERFACE WORK WHICH MAY NOT BE INCLUSIVE ON THE MARINE/STRUCTURAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND SHALL REPORT ANY DISCREPANCY TO THE ENGINEER PRIOR TO COMMENCING THE WORK.
- OPENINGS AND PENETRATIONS NOT SHOWN IN THE CONTRACT DOCUMENTS THROUGH ANY STRUCTURAL ELEMENTS OR ITEMS EMBEDDED IN THE STRUCTURAL ELEMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTING THE WORK.
- PLANS, SECTIONS, AND DETAILS SHALL NOT BE SCALED FOR DETERMINATION OF SIZE, QUANTITIES, LENGTHS, ETC.
- ALL MEMBERS ARE DESIGNED TO RESIST THE DESIGN LOADS WITHIN THE COMPLETED STRUCTURAL SYSTEM. CONTRACTOR IS RESPONSIBLE FOR ADEQUATE SHORING, BRACING, ETC DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ANY AND ALL STREETS, UTILITIES, EXISTING STRUCTURES, EQUIPMENT, ETC.
- CONTRACTOR IS RESPONSIBLE TO FOLLOW ALL LOCAL, STATE, & FEDERAL PERMIT REQUIREMENTS AT ALL TIMES.
- EXISTING CONDITIONS, RELATED DIMENSIONS, ELEVATIONS INDICATED IN THE CONTRACT DOCUMENTS SHALL BE FIELD VERIFIED AS SITE CONDITIONS MAY HAVE CHANGED SINCE LAST INSPECTION BY ENGINEER. ANY VERIFIED CONDITIONS THAT DIFFER FROM THAT INDICATED IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO PRODUCTION OF SHOP DRAWINGS & FABRICATION.
- WHERE A SPECIFIC MODEL, MANUFACTURER, OR GEOMETRIC SIZE/SHAPE OF AN ITEM ARE IDENTIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE MODEL, MANUFACTURER, OR GEOMETRIC SIZE/SHAPE IDENTIFIED ARE THE BASIS OF THE DESIGN. ITEMS OF OTHER MODEL, MANUFACTURER, OR GEOMETRIC SIZE/SHAPE OF EQUAL DESIGN WHICH ARE ACCEPTED BY THE ENGINEER THAT REQUIRE ANY ADDITIONAL DRAWINGS, ENGINEERING DEVIATIONS, OR CONSTRUCTION/QUANTITY CHANGES ARE THE RESPONSIBILITY OF THE CONTRACTOR INCLUDING ALL ASSOCIATED COSTS.
- THE ACCURACY OF EXISTING UNDERGROUND UTILITIES AND STRUCTURES ARE NOT GUARANTEED AND NOT INCLUSIVE. FIELD CONDITIONS SHALL BE VERIFIED PRIOR TO ANY EXCAVATION.
- THE GENERAL MARINE/STRUCTURAL NOTES GIVEN IN THE CONSTRUCTION DOCUMENTS MAY NOT BE INCLUSIVE TO THE ENTIRE PROJECT. SEE FULL PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A SITE SAFETY AND SITE CONTINGENCY PLAN, AND RESPONSE ACTION PLAN ADDRESSING THE REQUIREMENTS SET FORTH IN 29 CFR 1910.120.

DESIGN CRITERIA
- CODES AND SPECIFICATIONS
  ALL DESIGN, UNLESS OTHERWISE NOTED, ARE IN ACCORDANCE WITH THE FOLLOWING:
  - I. LOCAL & STATE CODES FOR WHICH THE PROJECT IS ERECTED
  - II. INTERNATIONAL BUILDING CODE (IBC)
  - III. ASCE STANDARD 7
  - IV. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (AASHTO)

TESTING NOTES
- CONTRACTOR SHALL PERFORM ALL QUALITY CONTROL TESTING PER THE SPECIFICATIONS AND SUBMIT REPORTS TO OWNER/ENGINEER WEEKLY.
- CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE ENGINEER AND OWNER'S TESTING AGENCY ENGINEER TO ALLOW FOR PERFORMANCE & QUALITY TESTING OF ALL MATERIALS.
- THE OWNER/ENGINEER WILL PERFORM OR ENGAGE A REPRESENTATIVE FIRM(S) FOR THE INDEPENDENT TESTING OF THE FOLLOWING ITEMS:
  - A. CONCRETE: ONE SET OF THREE CONCRETE TEST CYLINDERS WILL BE TAKEN FOR EVERY 50 CUBIC YARDS OR LESS OF CONCRETE PLACED DAILY. TEST ONE CYLINDER AT SEVEN DAYS AND TWO AT 28 DAYS. CONCRETE TEST REPORTS TO BE SUBMITTED TO THE ENGINEER. AIR CONTENT AND SLUMP TESTS SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS.

PERMITS
- THE FOLLOWING PERMITS/APPROVALS HAVE BEEN OBTAINED FOR THIS PROJECT:
  - A. DNR PERMIT FOR WALL STABILIZATION – PENDING
- CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL DISPOSAL, OR LOCAL PERMITTING NECESSARY BEFORE THE START OF THE PROJECT.

EARTH WORK
- GEOGRID SHALL BE TENSAR TRIAX TX160 OR APPROVED EQUIVALENT.
- ALL GEOTEXTILE FABRIC SHALL BE PROPEX GEOTEX 315ST OR APPROVED EQUIVALENT.
- ALL EROSION CONTROL MAT SHALL BE PROPEX LANDLOK C2 OR APPROVED EQUIVALENT.
- ALL SILT FENCE SHALL BE PROPEX GEOTEX 2131 OR APPROVED EQUIVALENT.
- CONTRACTOR TO PROVIDE ALL NECESSARY MEANS AND EQUIPMENT TO CONTAIN EXISTING. DEBRIS DURING DEMO INCLUDING; ABSORBENT BOOM, SCREEN FENCE, H.D. SILT FENCE, ETC.
- NON-FROST SUSCEPTIBLE (NFS) SOIL IS DEFINED AS NO MORE THAN 6% OF THE MASS OF UNDISTURBED SOILS OR FILL MATERIAL MUST PASS THROUGH A #200 MESH SIEVE IN ACCORDANCE WITH ASTM D422.
- ALL FILL SHALL BE COMPACTED TO 95% MODIFIED PROCTOR.
- UNCLASSIFIED EXCAVATION MATERIAL IS EXPECTED TO CONTAIN WOOD, CONCRETE, AND METAL DEBRIS.

STRUCTURAL STEEL
- ALL STRUCTURAL STEEL AND MISCELLANEOUS METAL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE LATEST:
  - A. AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS
  - B. AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
  - C. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS (RCRBJ)
  - D. AISC QUALITY CERTIFICATION PROGRAM.
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MATERIAL SPECIFICATIONS:

S-BEAMS, CHANNELS, ANGLES AND PLATES	ASTM A36
HIGH STRENGTH BOLTS	ASTM A325-X OR ASTM F1852-X
NUTS	ASTM A563
WASHERS	ASTM F436
WELDED STUDS	ASTM A108
WELD ELECTRODES	E70XX
GALVANIZED BOLTS	ASTM A307
GALVANIZED NUT	ASTM A563
GALVANIZED WASHER	ASTM F436

- WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1 BY QUALIFIED WELDERS AS DEFINED BY AWS D1.1. ELEMENTS INVOLVING CONNECTIONS OF SHEET STEEL OR STRIP STEEL SHALL ALSO BE IN ACCORDANCE WITH THE LATEST EDITION OF AWS D1.3, SPECIFICATION FOR WELDING SHEET STEEL IN STRUCTURES.
- BOLTED CONNECTIONS SHALL BE WITH ⅞"ø HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 WITH THREADS EXCLUDED FROM THE SHEAR PLANE UNLESS INDICATED OTHERWISE ON THE DRAWINGS. THE USE OF HIGH STRENGTH STEEL BOLTS SHALL BE GOVERNED BY "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
- ALL NOMINAL BOLT HOLE DIAMETERS THROUGH STRUCTURAL ELEMENTS SHALL BE STANDARD SIZED UNLESS NOTED OTHERWISE.
- BEVELED WASHERS SHALL BE UTILIZED WHEN THE OUTER FACE OF THE JOINT HAS A SLOPE THAT IS GREATER THAN 1:20 WITH RESPECT TO A PLANE THAT IS NORMAL TO THE BOLT AXIS.
- PROVIDE FIRE WATCH DURING ALL WELDING, FLAME CUTTING, AND BURNING.
- ALL BOLTED CONNECTIONS SHALL BE SNUG TIGHTENED PER RCSC 2009 UNO.
- ALL HARDWARE AND STRUCTURAL STEEL SHAPES TO BE GALVANIZED SHALL BE GALVANIZED BY THE HOT DIPPED PROCESS IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123 AND/OR A153, AS APPLICABLE, AFTER FABRICATION, UNLESS OTHERWISE NOTED.
- FIELD TREAT DAMAGED GALVANIZED FINISH WITH TWO COATS OF HIGH ZINC DUST OXIDE PAINT, COLD GALVANIZING COMPOUNDS OR APPROVED EQUAL CONFORMING TO THE REQUIREMENTS OF ASTM A780.
- FIELD TREAT ALL COATING DAMAGED WITH MANUFACTURERS RECOMMENDED REPAIR PROCESS. ALL PROCESSES FOR REPAIR MUST BE APPROVED BY THE ENGINEER PRIOR TO THE REPAIR.

CONCRETE
- ALL TOPSIDE CONCRETE AND CONCRETE MATERIALS TO BE DESIGNED, MIXED AND PLACED IN ACCORDANCE WITH THE STANDARDS AND RECOMMENDATIONS OF THE LATEST ACI-318 CODE FOR REINFORCED CONCRETE.
- ALL NEW CONCRETE PLACED UNDERWATER SHALL FOLLOW CHAPTER 8 OF ACI 304R "GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE" AND ALL EXISTING CONCRETE BELOW THE WATER SHALL BE REPAIRED IN ACCORDANCE TO ACI 546.2R "GUIDE TO UNDERWATER REPAIR OF CONCRETE".
- CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
- CONCRETE SLUMP SHALL BE 4" ± 1" WITH ALLOWANCE TO USE SUPERPLASTICIZING ADMIXTURE TO INCREASE UP TO 8" IF DESIRED.
- ENTRAINED AIR SHALL BE 6% ± 1.5% (MEASURED AT TRUCK DISCHARGE).
- MAXIMUM COARSE-AGGREGATE SIZE OF SHALL BE ¾".
- CONCRETE SHALL BE DESIGNED TO A MINIMUM WATER-CEMENTITIOUS MATERIAL RATIO TO LIMIT SHRINKAGE AND PRODUCE MAXIMUM DURABILITY. MAXIMUM WATER-CEMENTITIOUS RATIO SHALL BE 0.40.
- CEMENT USED SHALL BE PORTLAND CEMENT MEETING THE REQUIREMENTS OF ASTM C150, TYPE II.
- ALL AGGREGATES SHALL CONFORM TO ASTM C33.
- ALL FLY ASH INCLUDED IN THE CONCRETE SHALL BE TYPE F MEETING THE REQUIREMENTS OF ASTM C618.
- ALL SLAG CEMENT INCLUDED IN THE CONCRETE SHALL MEET THE REQUIREMENTS OF ASTM C989.
- ALL SILICA FUME INCLUDED IN THE CONCRETE SHALL MEET THE REQUIREMENTS OF ASTM C1240.
- ALL HORIZONTAL REINFORCING BARS SHALL BE CONTINUOUS AROUND CORNERS.
- WATER USED TO BE POTABLE AND FREE OF DEBRIS, OIL, AND OTHER DELETERIOUS SUBSTANCES AND MEET THE REQUIREMENTS OF ASTM C1602.
- CONCRETE PLACED SHALL BE THOROUGHLY COMPACTED DURING PLACEMENT BY VIBRATING.
- FOLLOW ACI 305 AND ACI 306 FOR HOT AND COLD WEATHER CONSTRUCTION WHEN APPLICABLE.
- ALL FORMING SHALL BE TRUE AND STRAIGHT IN ACCORDANCE WITH ACI STANDARDS.
- ALL HORIZONTAL CONCRETE SURFACES SHALL HAVE A BROOM FINISH. ALL OTHER SURFACES SHALL HAVE SMOOTH FORM FINISH.
- SUFFICIENT CURING SHALL BE PROVIDED FOR CONCRETE. WET CURE WITH BURLAP AND WATER IMMEDIATELY AFTER FINISHING AND FOR A MINIMUM OF 7 DAYS. ALTERNATELY USE CURING COMPOUND ON FORMED SIDES, ONLY AFTER REMOVAL OF FORMS. CURE AS PER ACI STANDARDS.
- ALL EMBEDDED ITEMS REQUIRED FOR UTILITY SERVICES SHALL BE INCORPORATED INTO THE STRUCTURES WHETHER OR NOT THEY ARE DETAILED OR INDICATED ON THE MARINE/STRUCTURAL DRAWINGS.
- ALL ITEMS EMBEDDED INTO CONCRETE SHALL BE CLEANED TO REMOVE ALL LOOSE SCALE, RUST, AND MARINE GROWTH. REFER TO THE RESPECTIVE DRAWINGS FOR THE DETAILS OF EMBEDDED ITEMS AND OPENINGS.
- HILTI HIT-RE 500 V3 EPOXY ADHESIVE SHALL BE USED FOR REBAR EMBEDDED IN BEDROCK OR POST INSTALLED IN CONCRETE. CONTRACTOR SHALL INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED ¾" BY ¾" UNLESS SHOWN OTHERWISE.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO OWNERS REPRESENTATIVE FOR REINFORCING STEEL BEFORE PROCEEDING WITH FABRICATION.

REINFORCING STEEL
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, WITH A MINIMUM YIELD POINT OF 60,000 PSI. REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775 IF NOTED ON PLANS.
- ALL REINFORCING BAR DIMENSIONS SHOWN ON THE DRAWINGS ARE TO CENTERLINE OF BARS UNLESS NOTED OTHERWISE.
- DETAIL REINFORCING STEEL IN ACCORDANCE WITH "ACI DETAILING MANUAL" ACI SP66 AND "CRSI: MANUAL OF STANDARD PRACTICE AND RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS", EXCEPT WHERE SHOWN OTHERWISE.
- DEVELOPMENT LENGTH AND LAP SPLICE LENGTH OF REINFORCING BARS SHALL BE AS SHOWN ON THE PLANS. ALL REINFORCING BAR SPLICES SHALL BE CLASS "B" TENSION LAP SPLICES, UNLESS NOTED OTHERWISE.
- REINFORCING MEETING ASTM A615 SHALL NOT BE WELDED WITHOUT PRIOR APPROVAL FROM ENGINEER.
- REINFORCING TO BE WELDED SHALL BE WELDABLE REBAR MEETING ASTM A706 SPECIFICATION OR DEFORM BAR ANCHORS MEETING ASTM A496 STANDARD. ALL WELDING OF REBAR SHALL BE SUBMITTED FOR APPROVAL TO ENGINEER PRIOR TO WELDING.

SUBMITTALS
THE FOLLOWING ITEMS SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO THE PURCHASE AND INSTALLATION OF THE ITEM

- BASELINE PROJECT SCHEDULE AND FOREMAN CONTACT INFORMATION
- BI-WEEKLY PROJECT SCHEDULE
- PRE-CONSTRUCTION PHOTOGRAPHS, VIDEOS, AND RELEVANT DOCUMENTATION
- QUALITY CONTROL TEST RESULTS SHALL BE SUBMITTED WEEKLY FOR ALL QUALITY CONTROL TESTS PERFORMED BY CONTRACTOR
- CONCRETE
  - A. MIX DESIGNS AND MATERIAL SPECIFICATIONS INCLUDING NON-SHRINK GROUT
  - B. STEEL REINFORCING MATERIAL SPECIFICATIONS AND PLACEMENT DRAWINGS THAT DETAIL FABRICATION, BENDING, PLACEMENT, BAR SIZES, LENGTHS, AND SPLICE LENGTHS
  - C. HOT/COLD WEATHER CONSTRUCTION PROCEDURES
  - D. EPOXY ADHESIVE PRODUCT, SPECIFICATIONS, AND INSTALLATION PROCEDURES
  - E. CONCRETE CURING PROCEDURE AND MATERIALS
  - F. FORM-RELEASE AGENT
  - G. PATCHING MATERIALS INCLUDING BONDING AGENT
  - H. JOINT LAYOUT
  - I. COMPRESSIBLE FILLER BOARD
  - J. SILICONE JOINT SEALER
  - K. CONCRETE FINISH
  - L. CONCRETE PLACEMENT AND MONITORING PROCEDURE
- STRUCTURAL STEEL
  - A. SHOP DRAWINGS INCLUDING MEMBER SIZES, LENGTHS, CUT & CONNECTIONS DETAILS, LENGTHS, SIZE, & NUMBER OF BOLTS, AND WELD SIZE, TYPE, LENGTH, & LOCATION.
  - B. AWS D1.1 WELDING CERTIFICATES FOR PERSONNEL PERFORMING WELDING
  - C. MATERIAL SPECIFICATIONS FOR STRUCTURAL SHAPES AND STEEL PLATES
- SITE SAFETY AND SITE CONTINGENCY PLAN
  - A. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A SITE SAFETY AND SITE CONTINGENCY PLAN, AND RESPONSE ACTION PLAN ADDRESSING THE REQUIREMENTS SET FORTH IN 29 CFR 1910.120
- TESTING AGENCY
  - A. QUALIFICATIONS
- SELECTIVE SITE DEMOLITION
  - A. WORK SEQUENCE
- SURVEY
  - A. EXPERIENCED LAND SURVEYOR QUALIFICATIONS AND SUPERVISION

1

CUT/ FILL SUMMARY

TOTAL SOIL CUT	95 CY
TOTAL SOIL FILL	70 CY
NET CUT/FILL	25 CY OF CUT
CLASS 2 RIPRAP	5 CY
BIN 4&5 ROCKS AND COBBLES EXCAVATION	10 CY
CONCRETE BIN 4&5	105 CY
3" MINUS STONE FILL BIN 2	40 CY*
CONCRETE BEHIND BIN (TO TOP OF BIN ELEV.)	24 CY
CONCRETE BIN 3	10 CY**

* ESTIMATED QUANTITY, CONTRACTOR SHALL FIELD VERY EXTENTS OF TREE REMOVAL AND 3" MINUS STONE FILL REQUIRED.
EXCAVATION QUANTITY IN BIN 2 UNACCOUNTED FOR IN ABOVE SUMMARY, CONTRACTOR SHALL FIELD VERIFY.
**ESTIMATED QUANTITY, CONTRACTOR SHALL FIELD VERIFY EXTENTS OF VOID AND CONCRETE FILL REQUIRED

1

CONCRETE REINFORCEMENT TENSION DEVELOPMENT AND LAP SPLICE LENGTHS

BAR SIZE	LAP SPLICE CLASS	CONCRETE COVER = 0.75"		CONCRETE COVER = 1.00"		CONCRETE COVER = 1.50"		CONCRETE COVER ≥ 2.00"	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	A	12	12	12	12	12	12	12	12
	B	16	16	16	16	16	16	16	16
#4	A	19	15	15	12	15	12	15	12
	B	24	19	20	16	20	16	20	16
#5	A	28	21	22	17	19	15	19	15
	B	36	28	29	22	24	19	24	19
#6	A	37	29	31	24	22	17	22	17
	B	48	37	40	31	29	22	29	22
#7	A	60	46	50	38	37	28	33	25
	B	78	60	64	50	48	37	42	33
#8	A	74	57	62	48	47	36	37	29
	B	96	74	80	62	60	47	48	37
#9	A	90	69	76	58	57	44	46	36
	B	117	90	98	76	74	57	60	46
#10	A	108	83	92	70	70	54	57	44
	B	140	108	119	92	91	70	74	57
#11	A	127	98	108	83	84	64	68	53
	B	165	127	141	108	109	84	89	68

NOTES:
1. TABULATED VALUES ARE BASED ON GRADE 60 UNCOATED REINFORCING BARS AND 4000 PSI NORMAL WEIGHT CONCRETE. LENGTHS ARE IN INCHES.
2. TENSION DEVELOPMENT LENGTH AND LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-11, SECTIONS 12.2.3 AND 12.15.
3. TENSION DEVELOPMENT LENGTH = 1.0 x CLASS A LAP SPLICE
4. FOR 3000 PSI AND 5000 PSI CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.16 AND 0.90 RESPECTIVELY.
5. BAR c. - c. SPACING WAS ASSUMED TO BE GREATER THAN TWICE THE CONCRETE COVER PLUS ONE BAR DIAMETER.
6. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
7. FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
8. FOR EPOXY COATED REBAR, MULTIPLY THE TABULATED VALUES BY 1.2.
9. FOR LAP SPLICE LENGTHS IN MASONRY SEE MASONRY NOTES.
10. COVER IS CLEAR DISTANCE FROM THE CONCRETE SURFACE TO OUTERMOST SURFACE OF REINFORCING.

PREPARED BY: TRC / Resolution Studio / AMI Consulting Engineers P.A.

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NAME: CHASE DEWHIRST
SIGNATURE:
DATE: 11/06/2019 LIC. No: 49838

PREPARED FOR: THE CITY OF DULUTH MINNESOTA

DATE:	REV:	DESCRIPTION	REV. BY:
11/06/2019	0	ISSUED FOR CONSTRUCTION	KKM
06/24/2020	1	UPDATE CUT AND FILL QUANTITIES AND NOTES FOR ADDITIONAL EROSION	KKM

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION
DULUTH, MN

STRUCTURAL NOTES

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: RRD
DESIGNED BY: KKM

SHEET: S0.0

1 / S1.0 EXISTING BIN WALL PLAN VIEW PHOTO
NTS

1. PHOTO REPRESENTATIVE OF CONDITIONS ON 10/11/2019 AND MAY NOT ACCURATELY REFLECT THE CURRENT CONDITIONS. 1

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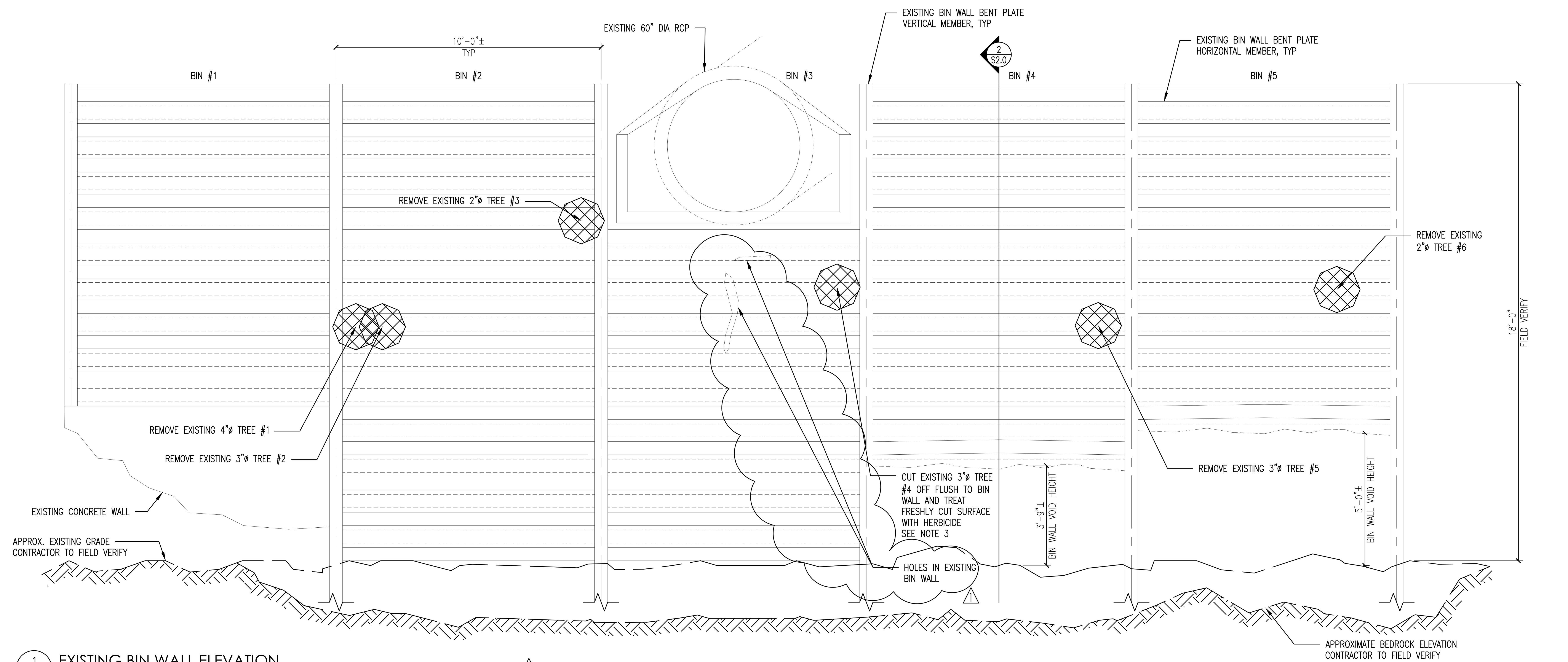
06/24/2020	1	UPDATE TO ADD DATE TO PHOTO	KKM

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION
DULUTH, MN

EXISTING BIN WALL
PLAN VIEW PHOTO

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: KKM
DESIGNED BY: KKM

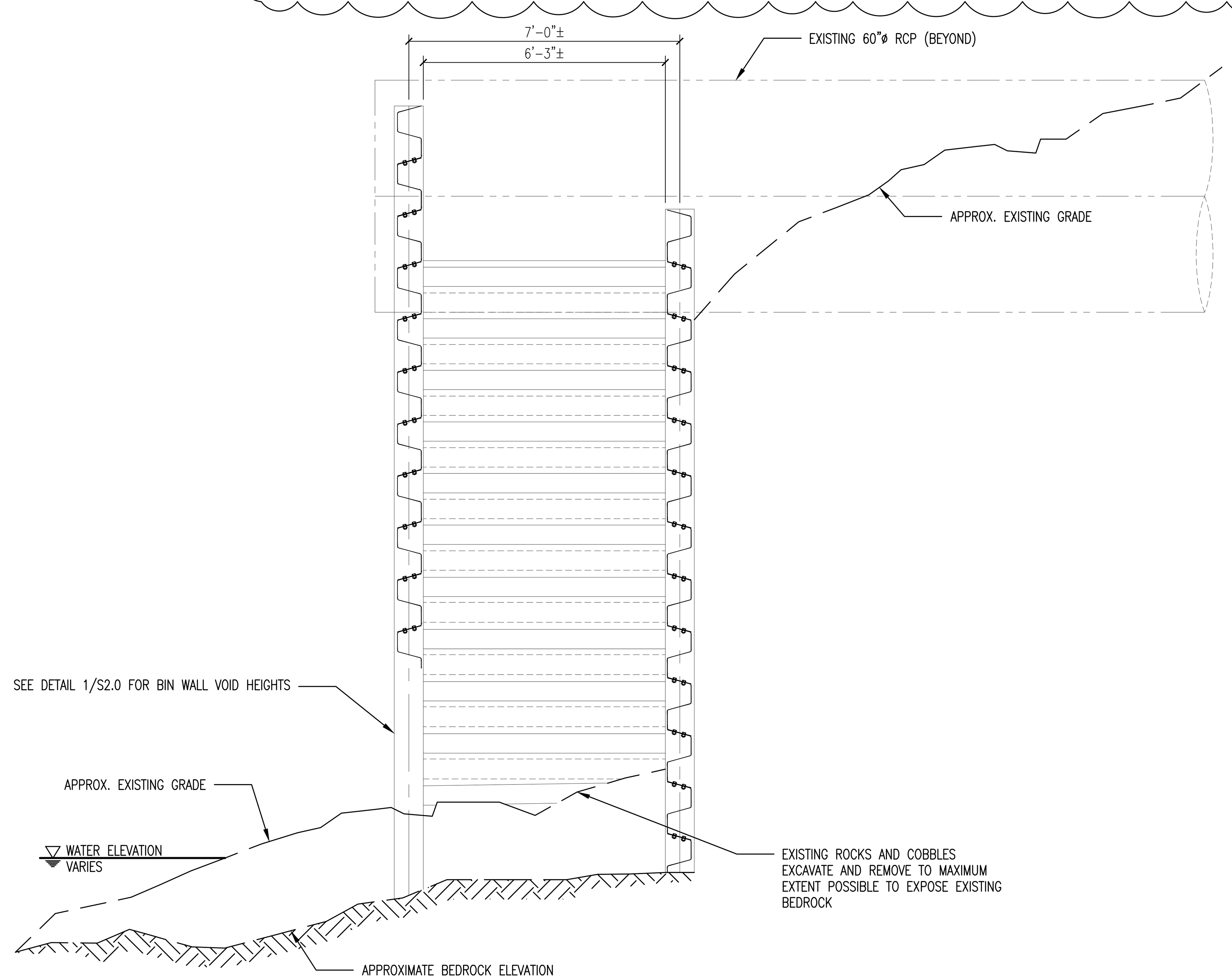
SHEET:
S1.0



1 S2.0 EXISTING BIN WALL ELEVATION

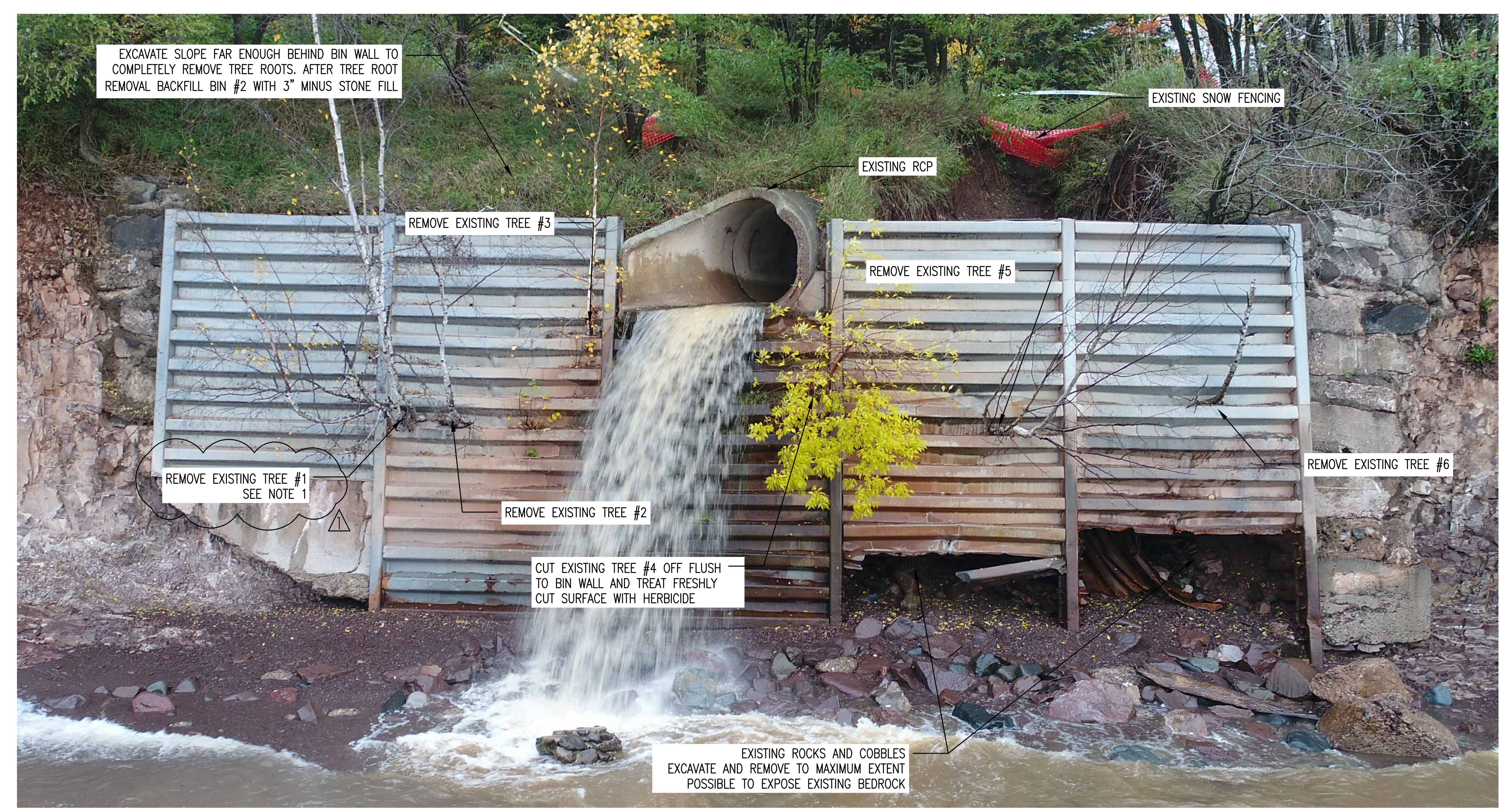
SCALE: 3/8"=1'-0"

1. SEE DETAIL 3/S2.0 FOR PICTURE OF BIN WALL CONDITION AT TIME OF INSPECTION (OCTOBER 2019).
2. EXISTING GRADE ELEVATION MAY VARY DUE TO WAVE ACTION AND SHORELINE EROSION. CONTRACTOR TO FIELD VERIFY GRADE AND BEDROCK ELEVATIONS PRIOR TO CONSTRUCTION.
3. HERBICIDE TREATMENT TO BE APPLIED TO FRESHLY CUT SURFACE SHALL BE SUBMITTED FOR APPROVAL. TREATMENT SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. CONTRACTOR RESPONSIBLE FOR VERIFYING VOID HEIGHT IN BIN #3



2 S2.0 SECTION

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



3 S2.0 VIEW FROM THE WATER (NORTHEAST)

NTS

1. PHOTO REPRESENTATIVE OF CONDITIONS ON 10/11/2019 AND MAY NOT ACCURATELY REFLECT THE CURRENT CONDITIONS. TREE #1 NO LONGER PENETRATING THROUGH BIN WALL. COMPLETELY REMOVE TREE #1 ROOT SYSTEM BEHIND BIN WALL

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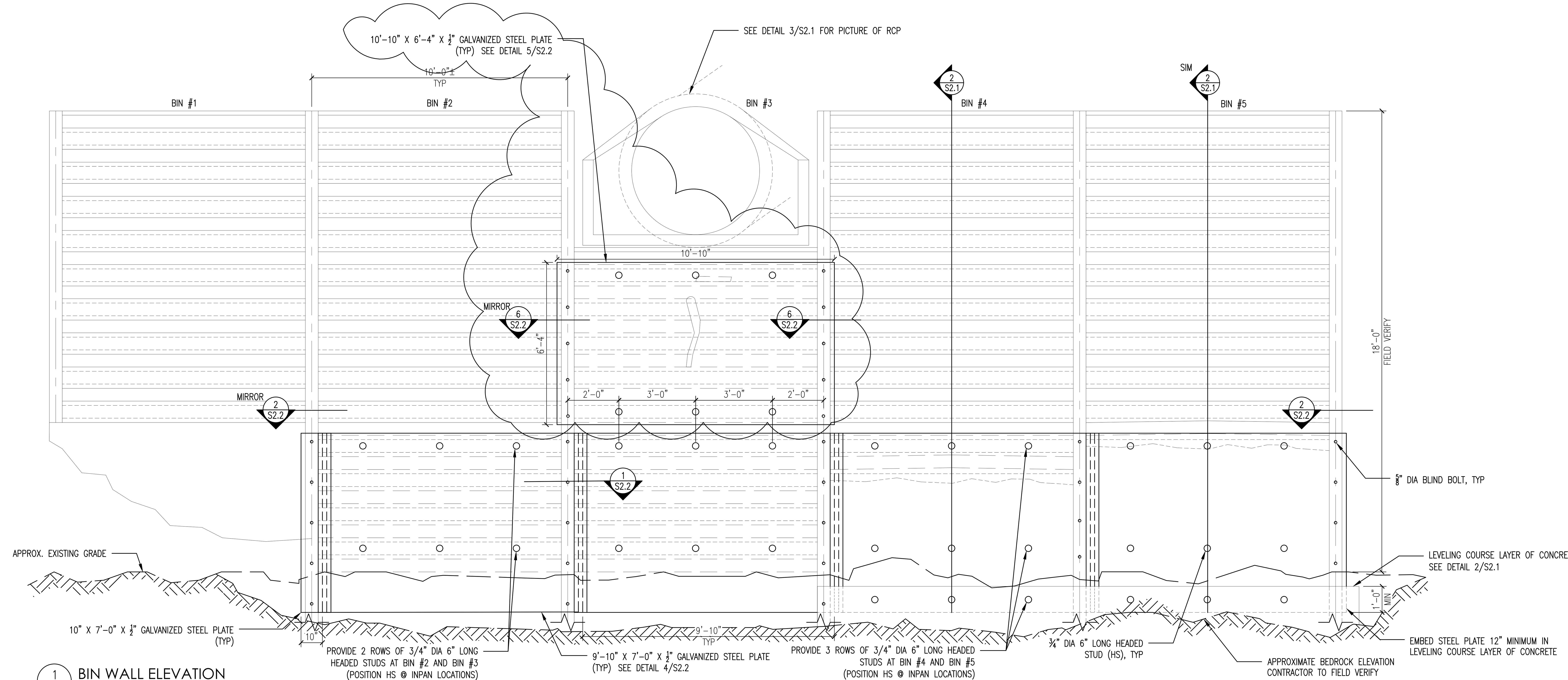
1	06/24/2020	UPDATE FOR ADDITIONAL EROSION	KKM

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION
DULUTH, MN

EXISTING BIN WALL
ELEVATIONS, SECTIONS, & DETAILS

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: PJB
DESIGNED BY: KKM

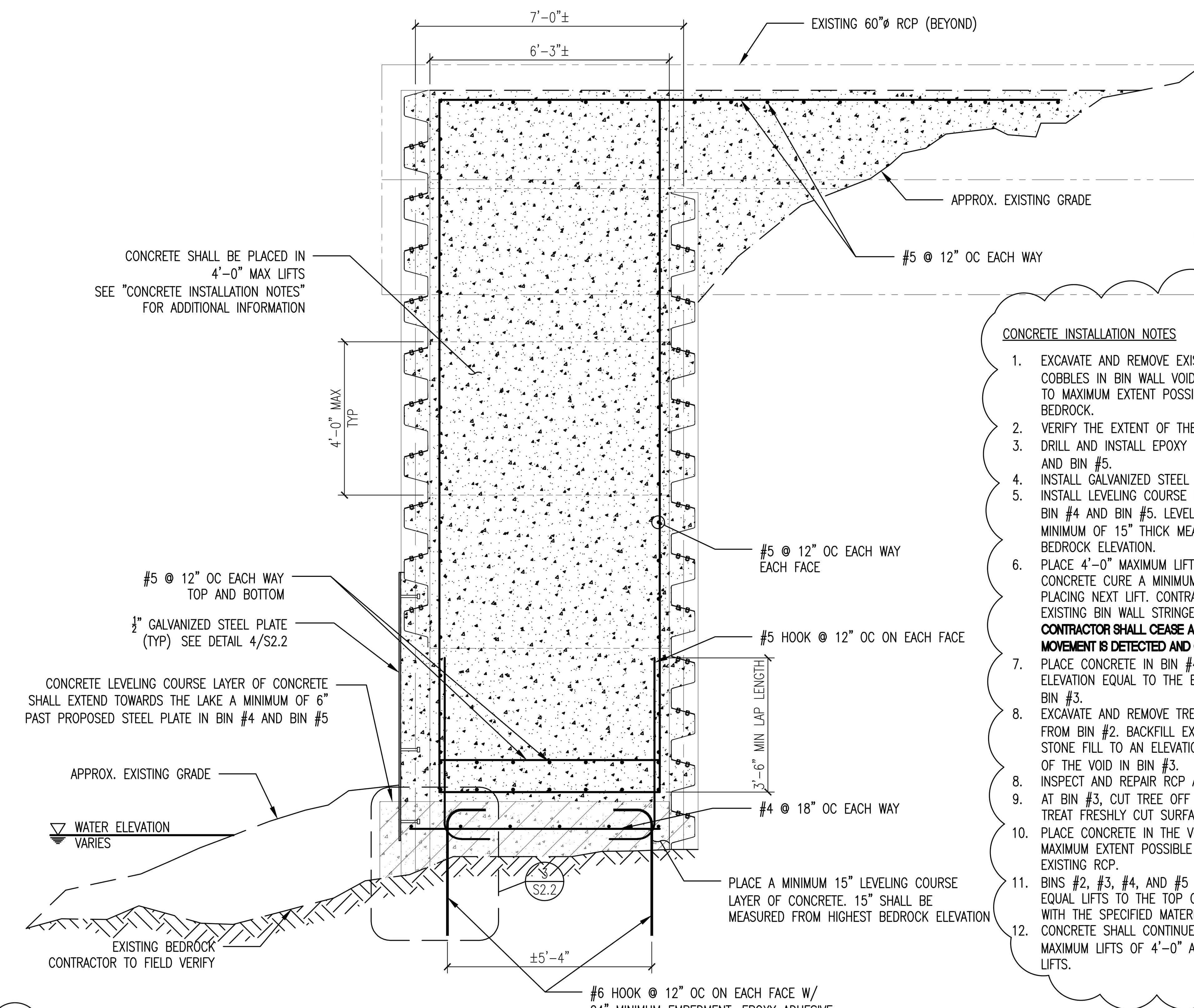
SHEET: S2.0



1/S2.1 BIN WALL ELEVATION

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

1. EXISTING GRADE ELEVATION MAY VARY DUE TO WAVE ACTION AND SHORELINE EROSION. CONTRACTOR TO FIELD VERIFY GRADE AND BEDROCK ELEVATIONS PRIOR TO CONSTRUCTION.



2/S2.1 SECTION

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

CONCRETE INSTALLATION NOTES

1. EXCAVATE AND REMOVE EXISTING ROCKS AND COBBLES IN BIN WALL VOIDS IN BIN #4 AND BIN #5 TO MAXIMUM EXTENT POSSIBLE TO EXPOSE EXISTING BEDROCK.
2. VERIFY THE EXTENT OF THE VOID IN BIN #3.
3. DRILL AND INSTALL EPOXY GROUTED REBAR IN BIN #4 AND BIN #5.
4. INSTALL GALVANIZED STEEL PLATES.
5. INSTALL LEVELING COURSE LAYER OF CONCRETE IN BIN #4 AND BIN #5. LEVELING COURSE SHALL BE A MINIMUM OF 15" THICK MEASURED FROM THE HIGHEST BEDROCK ELEVATION.
6. PLACE 4'-0" MAXIMUM LIFTS OF CONCRETE UNO. LET CONCRETE CURE A MINIMUM OF 7 DAYS PRIOR TO PLACING NEXT LIFT. CONTRACTOR SHALL MONITOR EXISTING BIN WALL STRINGER FOR MOVEMENT. **CONTRACTOR SHALL CEASE ALL OPERATIONS IF EXCESSIVE MOVEMENT IS DETECTED AND CONTACT ENGINEER ASAP.**
7. PLACE CONCRETE IN BIN #4 AND BIN #5 TO AN ELEVATION EQUAL TO THE BOTTOM OF THE VOID IN BIN #3.
8. EXCAVATE AND REMOVE TREES AND OTHER VEGETATION FROM BIN #2. BACKFILL EXCAVATION WITH 3" MINUS STONE FILL TO AN ELEVATION EQUAL TO THE BOTTOM OF THE VOID IN BIN #3.
8. INSPECT AND REPAIR RCP AS NECESSARY.
9. AT BIN #3, CUT TREE OFF FLUSH TO BIN WALL AND TREAT FRESHLY CUT SURFACE WITH HERBICIDE.
10. PLACE CONCRETE IN THE VOID IN BIN #3 TO THE MAXIMUM EXTENT POSSIBLE WITHOUT REMOVAL OF THE EXISTING RCP.
11. BINS #2, #3, #4, AND #5 SHALL BE FILLED IN EQUAL LIFTS TO THE TOP OF THE EXISTING BIN WALL WITH THE SPECIFIED MATERIAL FOR EACH BIN.
12. CONCRETE SHALL CONTINUED TO BE PLACED IN MAXIMUM LIFTS OF 4'-0" AND 7 DAYS BETWEEN LIFTS.

EXCAVATE SOIL AS REQUIRED FOR JOINT REPAIR

CONTRACTOR TO INSPECT AND REPAIR JOINTS AS REQUIRED

WATER DOCUMENTED LEAKING FROM JOINT

3/S2.1 REINFORCED CONCRETE PIPE REPAIRS

SCALE: NTS

1. CONTRACTOR SHALL DIVERT DRAINAGE AS REQUIRED AND PROVIDE PLUG IN RCP TO FACILITATE JOINT REPAIRS.
2. PHOTO REPRESENTATIVE OF CONDITIONS ON 06/19/2020.

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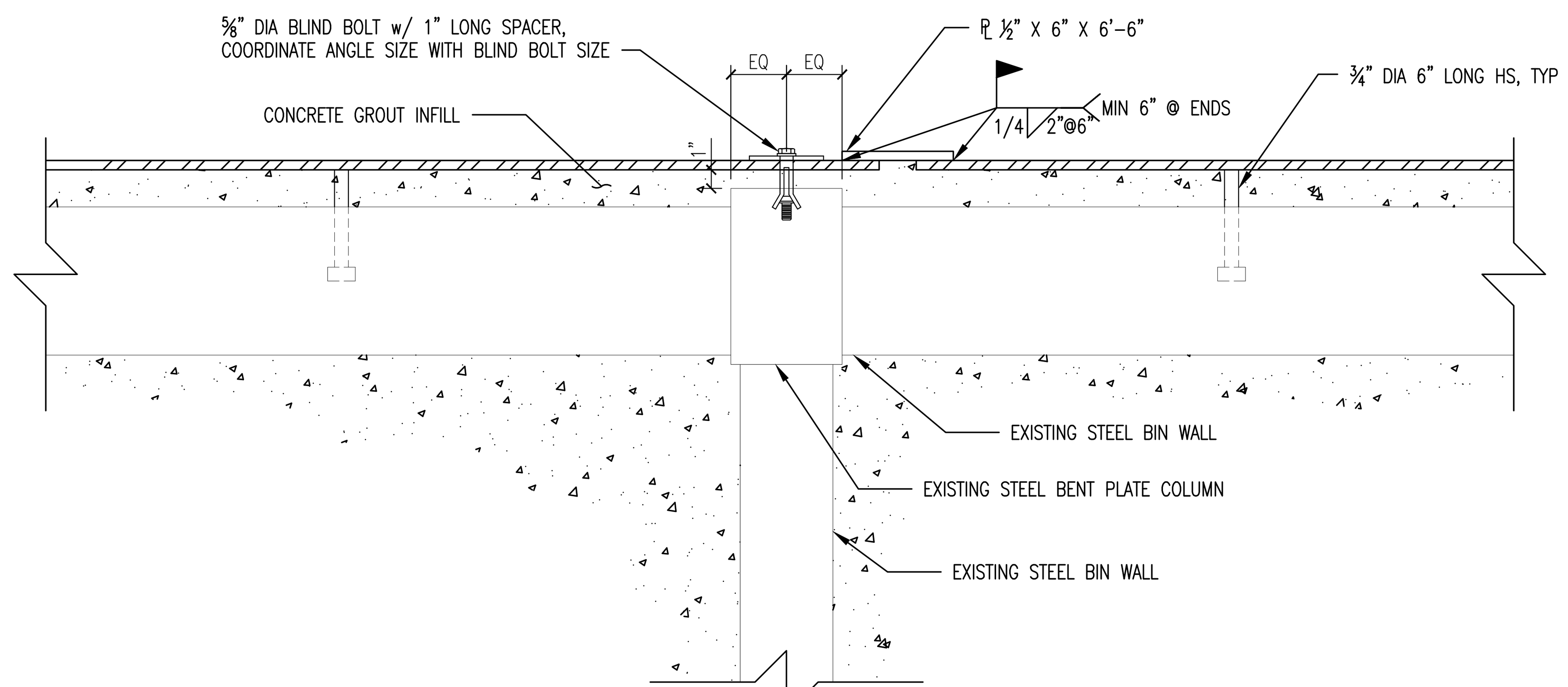
06/24/2020	1	UPDATE FOR ADDITIONAL EROSION	KKM

CITY OF DULUTH
7428 CONGDON BLVD
BIN WALL STABILIZATION
DULUTH, MN

STRUCTURAL
ELEVATIONS, SECTIONS, & DETAILS

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: PJB
DESIGNED BY: KKM

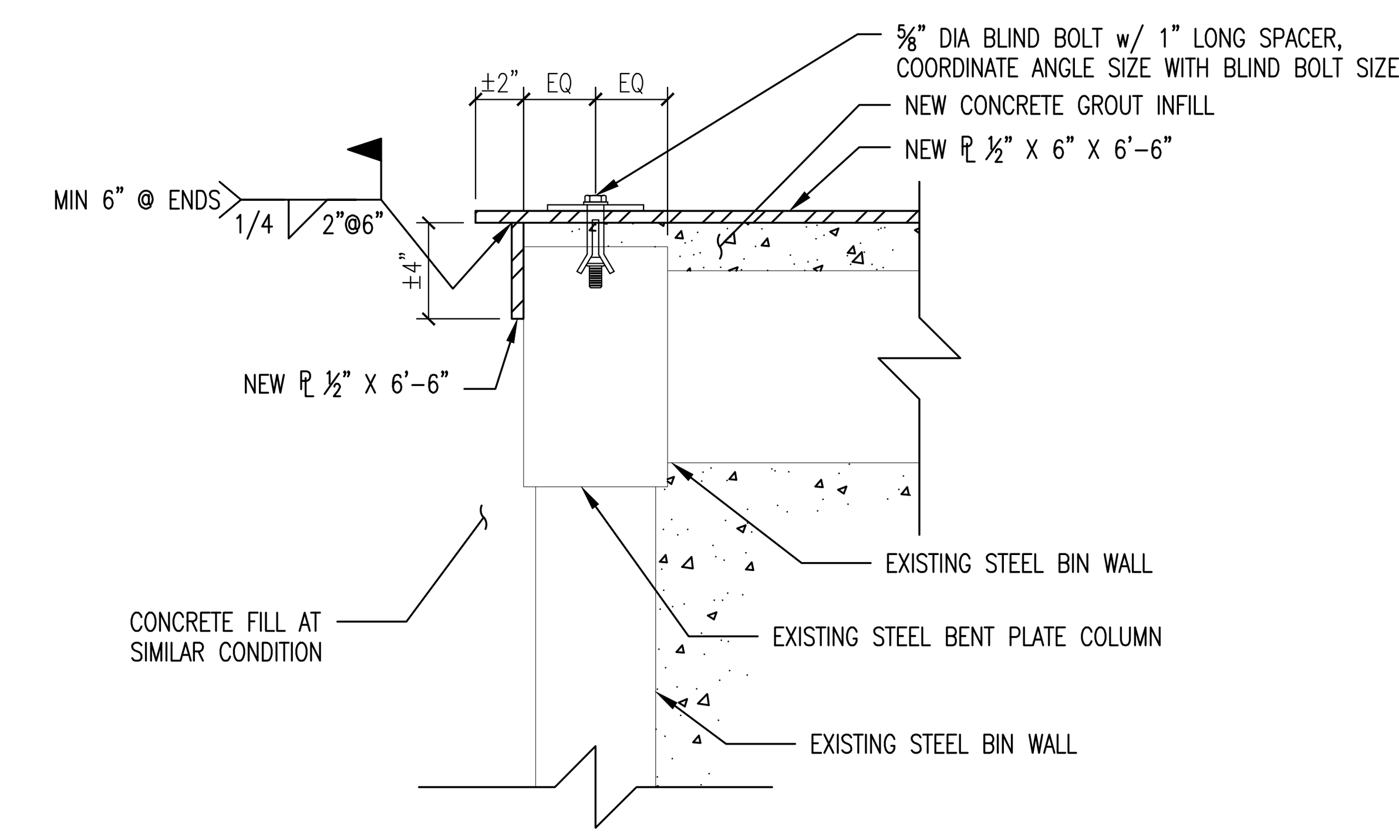
SHEET: S2.1



1 S2.2 WALL PLAN DETAIL

SCALE: 1-1/2"=1'-0"

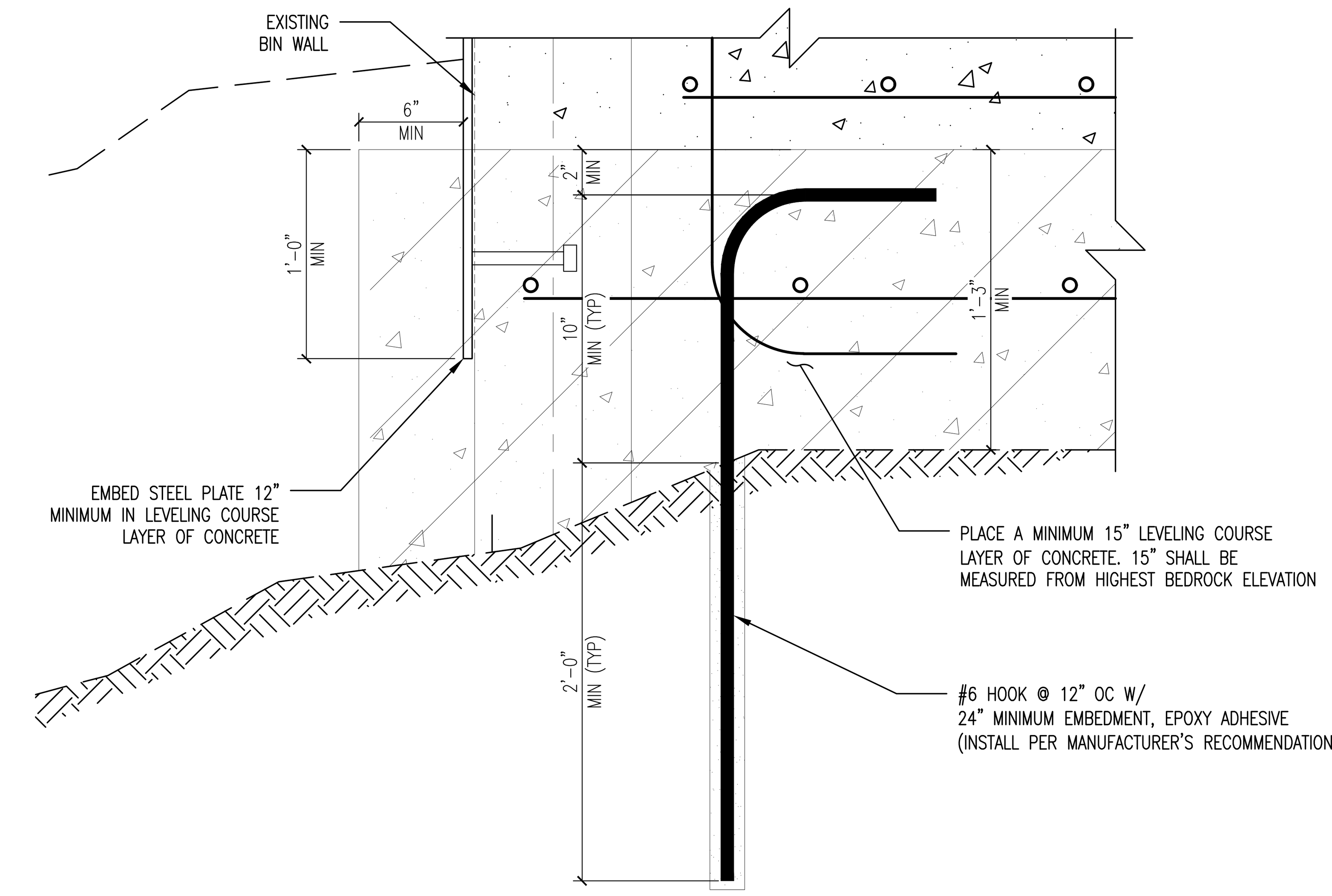
1. CONTRACTOR SHALL REPAIR GALVANIZATION AS NECESSARY AT BOLTING AND WELDING LOCATIONS AND ANY AREAS WHERE DAMAGED DURING INSTALLATION.



2 S2.2 END PLATE CONNECTION DETAIL

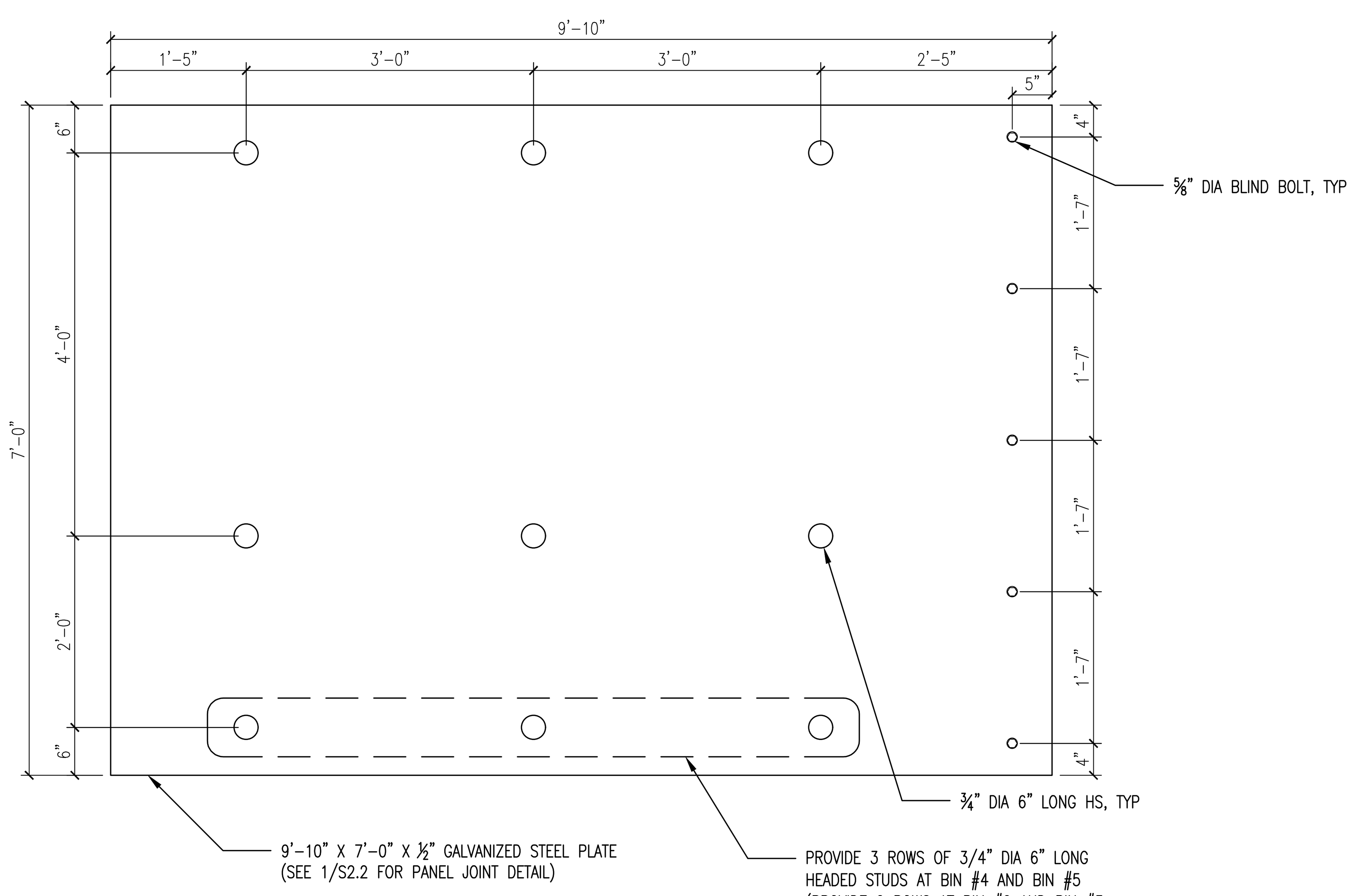
SCALE: 1-1/2"=1'-0"

1. CONTRACTOR SHALL REPAIR GALVANIZATION AS NECESSARY AT BOLTING AND WELDING LOCATIONS AND ANY AREAS WHERE DAMAGED DURING INSTALLATION.



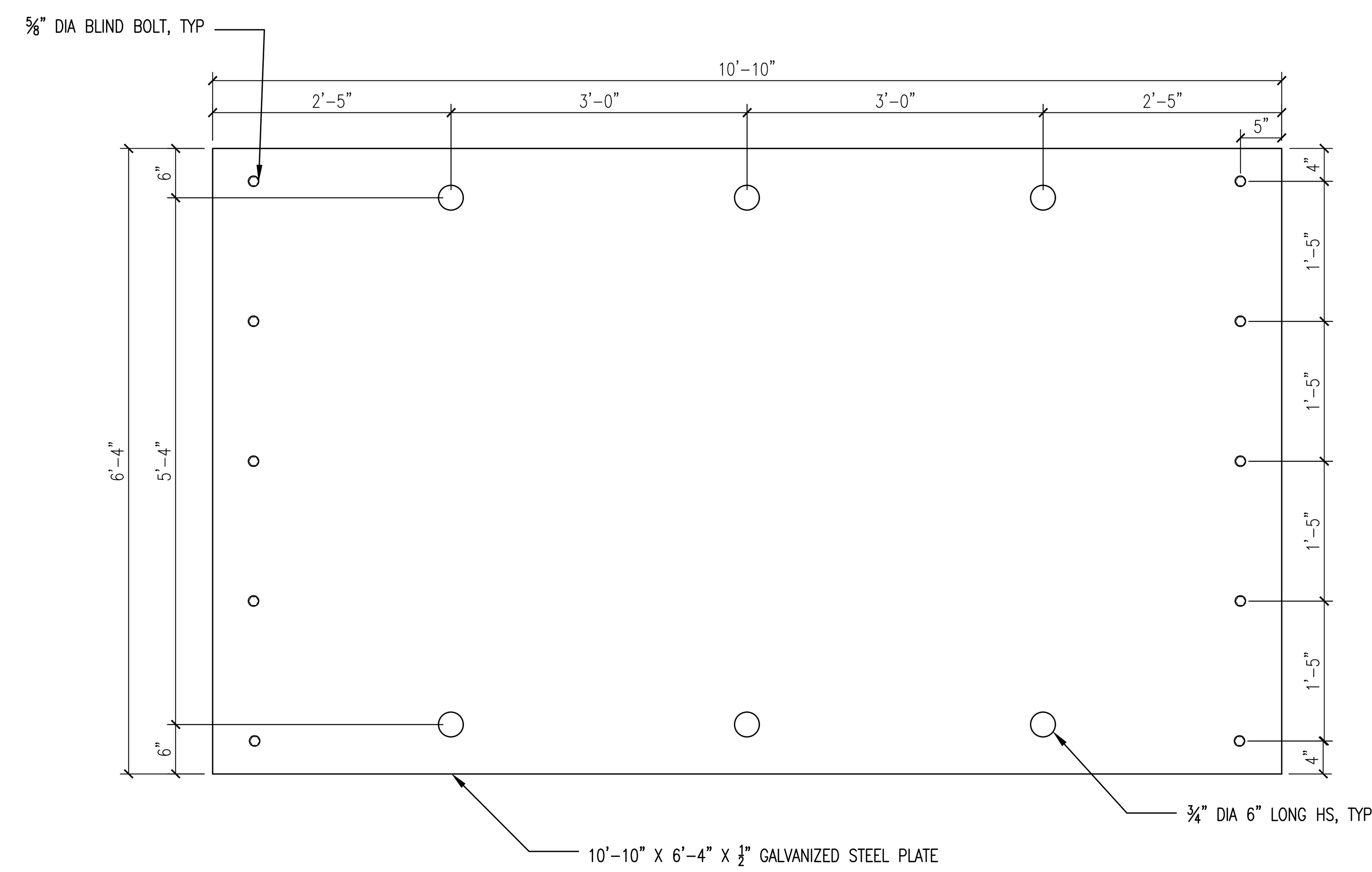
3 S2.2 EPOXY ANCHOR IN BEDROCK

SCALE: 1-1/2"=1'-0"



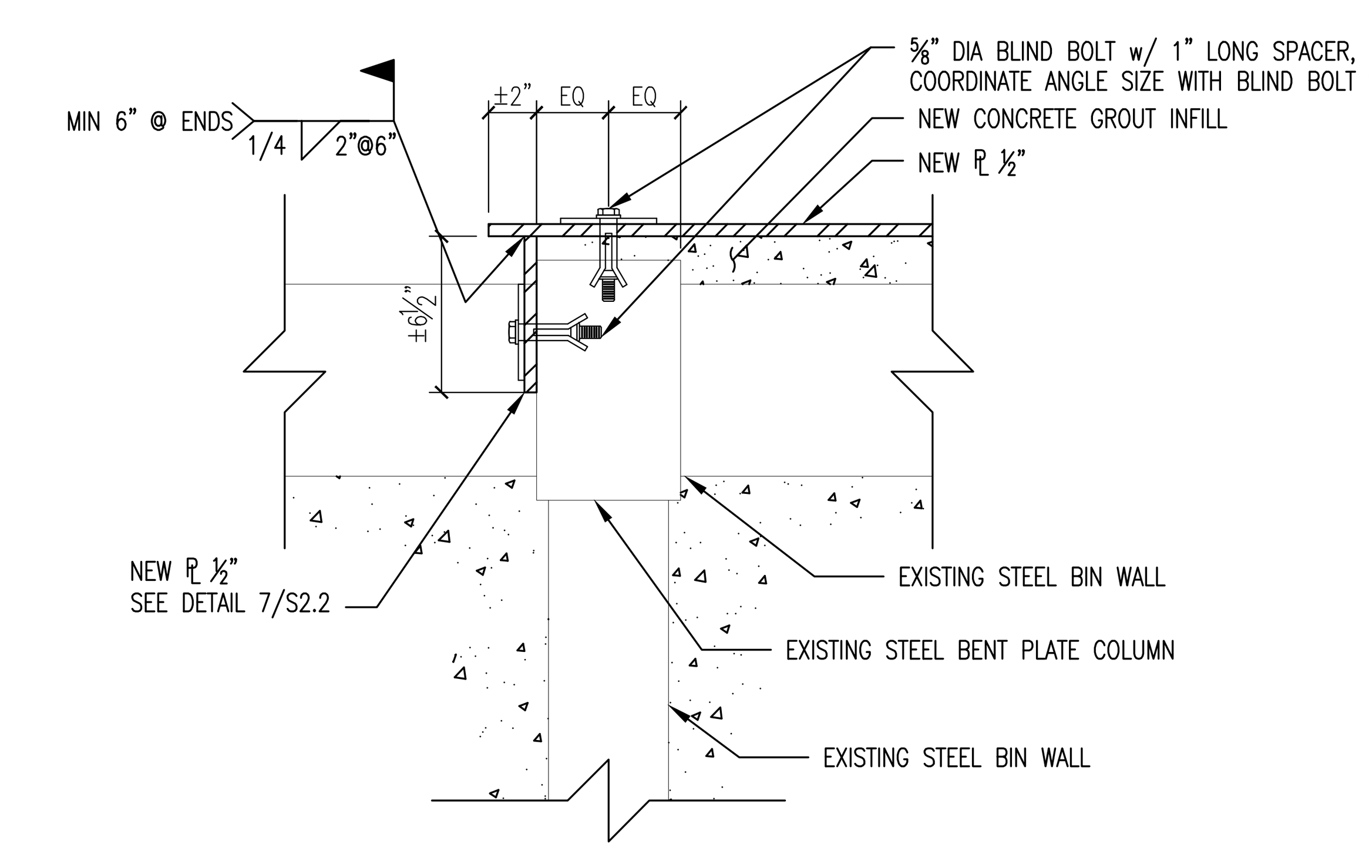
4 S2.2 STEEL PLATE

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



5 S2.2 STEEL PLATE

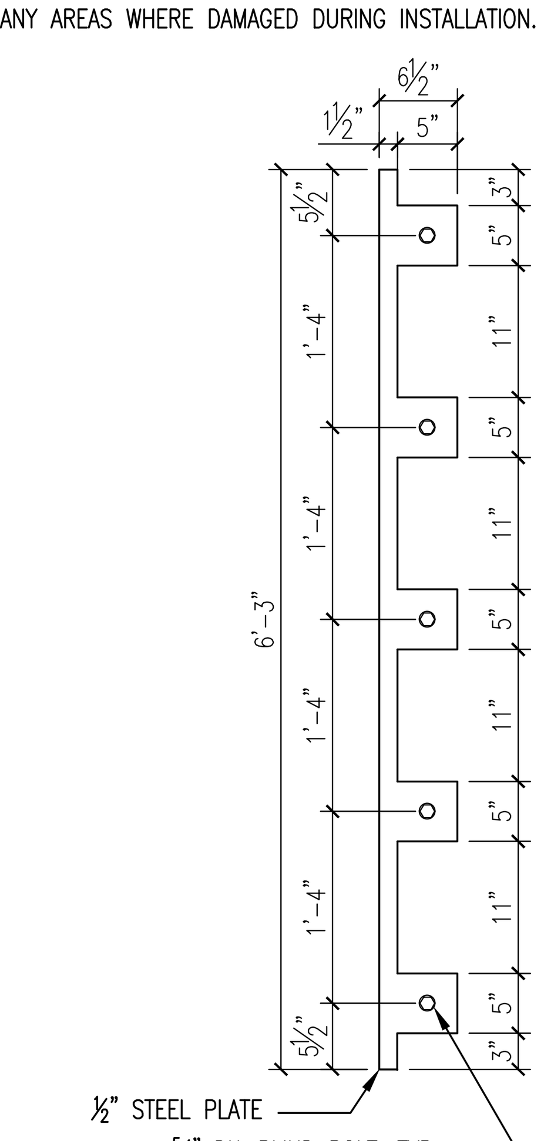
SCALE: 3/4"=1'-0"



6 S2.2 TOP PLATE CONNECTION DETAIL

SCALE: 1-1/2"=1'-0"

1. CONTRACTOR SHALL REPAIR GALVANIZATION AS NECESSARY AT BOLTING AND WELDING LOCATIONS AND ANY AREAS WHERE DAMAGED DURING INSTALLATION.



7 S2.2 CLOSURE PLATE DETAIL

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

1. FIELD VERIFY DIMENSIONS FOR EXISTING CONDITION OF BIN WALL

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7428 CONGDON BLVD
BIN WALL STABILIZATION
DULUTH, MN

STRUCTURAL DETAILS

JOB No: 181093
DATE: 11/06/2019
DRAWN BY: PJB
DESIGNED BY: KKM

SHEET: S2.2

6/23/2020 5:25 PM