



**AGENDA
CITY OF HARRISONVILLE
PARK BOARD
REGULAR MEETING
COMMUNITY CENTER
FEBRUARY 9, 2021
6:00 PM**

- I. Call to Order**
 - 1. Roll Call**
- II. Public Participation**
- III. Ceremonial Matters**
- IV. Approval of Minutes**
 - 1. Park Board Minutes - January 12th, 2021**
- V. Parks and Recreation Department**
 - 1. Directors Report**
 - 2. Outdoor Pool Update**
 - 3. Fitness Equipment Upgrade**
- VI. Other Business**
- VII. Adjourn from Regular Session**

Posted on City Hall Bulletin Board this 5th day of February, 2021.

Grant Purkey, Parks & Recreation Director



TO: Park Board
FROM: Grant Purkey,
DATE: February 5, 2021
SUBJECT: Park Board Minutes - January 12th, 2021

Type of Item: *Approval*

1. Action Item (ID # 3795)

Park Board Minutes - January 12th, 2021

Attachments:

January 12, 2021 minutes (PDF)



**MINUTES
CITY OF HARRISONVILLE
PARK BOARD
REGULAR MEETING
VIA ZOOM
JANUARY 12, 2021
6:00 PM**

I. Call to Order

The meeting was called to order at 6:02 PM by Cathy Faris

Attendee Name	Organization	Title	Status	Arrived
Brent Caruthers	Harrisonville		Absent	
Bret Reece	Harrisonville		Remote	
David Atkinson	Harrisonville		Remote (left at 6:41pm)	
Cathy Faris	Harrisonville		Remote	
Martin Parks	Harrisonville		Absent	
Ed Roberts	Harrisonville		Remote	
Matt Turner	Harrisonville		Remote	
Vanessa Hargrave	Harrisonville		Remote	
Laura Frees	Harrisonville		Remote	
Sandy Franklin	Harrisonville		Absent	

Others present were: Mayor Judy Bowman, Parks & Recreation Director Grant Purkey, Parks Maintenance Supervisor Gabe Dalton, and Recording Secretary Amy Fuller

II. Public Participation

None.

III. Ceremonial Matters

None.

IV. Approval of Minutes

1. December 8, 2020 Park Board Minutes

Minutes were approved with the notation that Rhonda Coulter is not an employee of the Harrisonville School District.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Laura Frees

SECONDER:	David Atkinson
AYES:	Reece, Atkinson, Faris, Roberts, Hargrave, Frees
ABSENT:	Brent Caruthers, Martin Parks, Sandy Franklin

V. Parks and Recreation Department

1. Director's Report

Parks & Recreation Director Grant Purkey gave updates on the following:

**Indoor Pool HVAC exhaust motor broke. Ordered new exhaust motor, once the motor arrives staff will need to also rent a crane for it to be installed. Installation to take place with in 1 to 2 weeks from today's date.*

**Mrs. Faris asked what the cost will be for the HVAC exhaust unit replacement. Mr. Purkey stated cost for replacement will be \$12,000.00.*

**Roof is leaking in the Social Hall. Mr. Dalton stated the roofing company will be scheduled make repairs on the room, cost \$2,800.00. This is repair is not covered under warranty.*

**Infrared Sauna and Hot Tub are both down currently. Mr. Purkey stated that due to condensation in the pool because of the HVAC system not working properly, the sauna repair will need to wait until it dries out. Mr. Purkey stated that a chemical pump went out, company will be out tomorrow to complete the repair.*

**Mr. Purkey stated that staff received a donation for the Dog Park in the amount of \$2,000.00. Donor requested that we install a teetertotter.*

**Provided explanation on "Fitness on Demand" and how that program works. Mr. Purkey stated that having this program is beneficial to not only the facility but to our members and patrons. For any instructor lead classes staff now have the ability to schedule a virtual class in place of any cancelled classes. "Fitness on Demand" is available while members or patrons are working out in the facility using their personal device. In addition, "Fitness on Demand" will also become available for in-home use as well with registration and purchase.*

**Staff will enter into a 'Community Assistance Program' with the Missouri Department of Conservation for North Lake, Lake Luna, and City Lake. In the past we have been in an assistance program regarding North Lake.*

**Staff are currently accepting applications for the Rec. and Fitness Manager Position. Position will remain open until the end of January.*

**Mr. Roberts had a question about the budget. Budget showing \$400,000.00 less in revenue than we were at this same time as last year. Mr. Purkey stated that the transfer that we normally would receive will go towards the deficit.*

2. Parks and Recreation Logo Redesign

Director Purkey presented options for a Parks Logo Redesign. Mrs. Frees who designed the logos options. Mr. Purkey stated that a local graphics designer, Kelsey Tarter designed these options for us to review. Mr. Roberts stated that he likes logo #2 with the 4 color additions. Mr. Reece asked if staff have looked at other designers. Mr. Purkey stated that staff have started with Kelsey at this time, but staff would look into other graphic designers if need to. Mrs. Hargrave shared ideas of possible logo

3. Outdoor Pool Report

Director Grant Purkey stated that staff met with Tripp Construction and Water's Edge. David Atkinson asked about needing to bid out. Director Purkey stated that this is considered an emergency purchase and not required for bid. Mr. Atkinson asked if Water's Edge have worked with Tripp Construction prior. Gabe Dalton stated that yes, the two companies have worked previously together on our Indoor Pool. Laura Frees

asked what parts of the concrete would be redone. Mr. Purkey stated that the concrete from right as you enter the pool, lobby, and locker room areas out towards the edge of the water.

4. Parks and Rec Project List

Director Grant Purkey stated that with short-term note that we are looking to issue will cover Indoor Pool HVAC, and Outdoor Pool repairs. Mr. Purkey shared a project listing for 2021 and 2022 projects. Mr. Roberts asked about the project for the Baseball Fields. Mr. Purkey stated that project is still planned and is considered a long-term project. Mr. Purkey stated that right now we have projects that need assistance prior the ballfield renovations. The Park Board members that were in attendance decided to put aside the splash pad and obstacle course that were planned for the green space south of the Community Center, and instead move those monies towards purchasing new amenities for the Outdoor Pool project. Mr. Purkey will present options at the next meeting regarding amenities for the Outdoor Pool Project.

VI. Other Business

Mrs. Frees asked about some glass repair for the Social Hall. Mr. Purkey stated that staff will be replacing that current window with a mirror on both sides. This installation will provide privacy and a mirror for those that are working out in the Social Hall. Mr. Roberts “Thanked” Gabe and his staff for cleaning up the limbs on the trails. Mr. Roberts asked for information on repairs being made at Marler-Wirt-Allen Park. Mr. Dalton stated that the contractor had issues pertaining to his back, however, he will be back soon to continue the repairs. Mr. Roberts asked about figures regarding the lease agreement for new equipment for the parks. Mr. Purkey stated that he will have those numbers at the next meeting. Mr. Roberts asked about the Community Center front walkway. Mr. Dalton stated that staff have resealed portions of the sidewalk and have filled in the cracks. Mr. Reece asked where staff is at with City employees and their memberships, with new discounts and options. Mr. Purkey stated that staff are currently reviewing those new options.

RESULT:	APPROVED [UNANIMOUS]
MOVER:	Ed Roberts
SECONDER:	Vanessa Hargrave
AYES:	Reece, Faris, Roberts, Hargrave, Frees
ABSENT:	Brent Caruthers, Martin Parks, Sandy Franklin, David Atkinson

Regular Meeting (VIA ZOOM)

Tuesday, January 12, 2021

6:00 PM

Cathy Faris, Chairman

ATTEST:

Amy Fuller, Recording Secretary

Attachment: January 12, 2021 minutes (Park Board Minutes - January 12th, 2021)



TO: Park Board
FROM: Grant Purkey,
DATE: February 4, 2021
SUBJECT: Directors Report

Type of Item: *Discussion*

1. Discussion Item (ID # 3793)

Directors Report

Attachments:

Directors Report Feb. 21 (PDF)

Monthly Report – Harrisonville Parks & Recreation

**February
2021**

Membership Statistics:

- **Total Memberships** = 3892 (Primary Account Holders)
- **Total Number of Members** = 2400 (Primary and Secondary Account Holders)
- **Total Monthly Visits (HCC)** = 7812 (Member Visits)
- **Most Popular Day (HCC)** = January 25th, 364 visits

January Numbers:

- **Membership Revenue** = \$38,778.22 (Down \$273.62 from January 2020)
- **Daily Pass Revenue** = \$4040 (Down \$1203 from January 2020)
- **Meeting Room Rental Revenue** = \$1899.40 (Down \$1443 from January 2020)
- **Fitness Class Revenue** = \$478.31 (Down \$360.42 from January 2020)
- **Before & After School** = \$2604 (Down \$4541.60 from January 2020)
- **Miscellaneous Rec. Programming** = \$776.25 (Down \$2968.97 from January 2020)
- **Community Center revenues are down \$5827.29 as compared to January 2020.**
- **Community Center expenditures are down \$24,617.37 as compared to January 2020.**
- **Harrisonville Parks and Recreation Foundation Balance \$18,112.39**
- **Harrisonville Dog Park Balance \$4840.59**

Administration:

- BOA passed an ordinance to enter a lease purchase transaction for the purpose financing Community Center improvements and various municipal vehicles and equipment at the February 1st meeting.
- Parks and Community Center Short Term Note is from Zion Bank for \$2,394,097 at a 5-year term with a 1.35% interest rate.
- Recreation & Fitness Manager job posting closed on January 31st with 41 applicants.
- Barbara McNeece received her 10-year service award from Mayor Bowman at the February 1st BOA meeting.
- Director Purkey visited 46 Centre to look at Matrix Cardio and Weight Equipment.
- Director Purkey met with Kelsie Tarter and discussed changes to the Parks logo designs.

Community Center:

- Purchased fitness equipment rack for the Social Hall and Pure Energy rooms.
- Purchased steps, platforms, and dumbbell bars for the Social Hall.
- Added Group Active, H.I.I.T. and Spinning to the Group Fitness Schedule.
- Purchased additional small water weights.
- Purchased slam balls, kettlebells, ab rollers, foam rollers and mats for the Social Hall and Pure Energy rooms.
- Enter Bills into INcode
- Complete Daily Deposits
- Edit/Display Weekly Manager Schedule
- Create Fitness Class Calendar
- Create & Open New Sessions of Land/Water Fitness Classes in RecTrac
- Update All Facility Calendars (Gym, Fitness Rooms, Indoor Pool)
- Create & Open New Sessions for Learn to Swim Classes in RecTrac
- Create & Open Spring Youth Sports Sessions in RecTrac
- Update Website & Facebook for Programming & Calendars
- Audit New / Renewed Membership Paperwork

**February
2021**

Monthly Report – Harrisonville Parks & Recreation

- Audit EFT Account Information
- File completed audited paperwork
- Process January Membership Installment Billings
- Upload January Debits to Commerce Bank
- Complete Payment Reversals for Payment Declines
- Complete ACH/EFT onto spreadsheet – mail payment due letters
- Renew January Monthly Installment Billed Memberships
- Submit Visit Record / Process payment for - SilverSneaker & Renew Active Fitness Membership Payment
- Invoice Corporate Accounts (CITY, CASGV, HSD, Sioux Chief) for Monthly Memberships
- Process payments received from monthly invoices
- Complete Building Rentals (HCC) & All Parks Area Rentals for September reservations
- Mailed or Emailed Invoices for rental amounts due
- Process Weekly Rental Set Ups for Maintenance – Place daily/ weekly rentals on bulletin board for all staff (will update when needed)
- Email/Print Report - Front Desk, Maintenance, & Building Supervisors weekend reservation reports
- Assist and work HCC Front Desk / Tot-watch
- Create HCC Front Desk Schedule for February
- Continue to update or revise Household / Client information
- Continue to answer daily calls / emails / and conduct person to person meetings with new or current members, renters, staff, and others regarding various concerns about accounts or rentals
- Display/Update signage throughout facility alerting patrons of upcoming holidays/program changes or cancellations
- Send Textcaster Notifications
- Assist with MPM regarding indoor pool, programs, staff, and other
- Attend Park Board Meeting
- Complete Park Board Minutes

Parks:

- Purchased 2021 F250 truck with snowplow.
- Purchased 2021 F250 truck with service body and snowplow.
- Electric Department installed a new streetlight at the entrance of Lord's Park.
- Installed new culvert before golf course.
- Put up signs at Dog Park and all the shelters.
- Worked on flower bed wall at Marler Wirt Allen Park.
- Hung sign at City Hall.
- Snow removal on February 4th and 15th.
- Redesigning maintenance shop by repositioning the storage structure.
- Building new work area in maintenance shop to make workflow more efficient.
- Met with Tripp Construction, Waters Edge to review outdoor pool remodel/repairs.
- Worked on Sauna.
- Received bids for new tractor and UTV.
- Posted two old Parks trucks on Gov. Deals.
- Working on plans for equipment storage pole barn.
- Daily trash pickup at the parks.
- Working on removal of vandalism at Skate Park.

Attachment: Directors Report Feb. 21 (Directors Report)

Monthly Report – Harrisonville Parks & Recreation**Community Center Maintenance:**

- Replaced lap lane rope anchors in the pool.
- Repaired two ladders in the pool.
- Repaired the lifeguard chair.
- Waldinger HVAC checked and repaired dates 1/4, 1/18, 1/19, 1/29 and 1/31 on Pool HVAC.
- Bravas, Flyan and PCG conducted sound check, etc. in the rental rooms on 1/5 and 1/7.
- RRS pest control monthly service on 1/14.
- MEI elevator conducted monthly inspection on 1/18.
- Rhino Fitness Repair, checked and repaired treadmill on 1/29.

Recreation:

- Seth Wansing started full time as the Recreation Coordinator of Athletics on January 21st.
- 4 Teez broadcasting streamed the Youth Recreation Basketball games on February 6th as part of a fund-raising event for Hope Haven.
- Staff is planning and scheduling Summer Camp and creating program flyer.
- Staff started planning a fund raiser event by partnering with the Animal Shelter, it is tentatively scheduled for September 18th.
- Fit Kids currently has 26 children registered for the program.
- Flag Football registration is currently open with 3 participants, registration deadline is February 21st.
- Youth Volleyball registration is currently open with 32 participants, registration deadline is February 21st.
- Youth Baseball/Softball registration is currently open with 18 participants, registration deadline is March 21st.

**Shelter Signage****Dog Park Signage****Parks Maintenance Shop**

Monthly Report – Harrisonville Parks & Recreation

February 2021

Project Name	Amortization	Year	Estimated Amount	Type	
Leased Equipment					
Cardio	3	2021	170,000	Equipment Lease	
Replace 2016 Ford F450 1/2 Ton Ambulance	5	2021	240,000	Equipment Lease	
Admin Vehicles	5	2021	52,000	Equipment Lease	
Replace 1000W Outboard Camera System w/ New System	5	2021	186,633	Equipment Lease	
Replace Two Patrol Vehicles	5	2021	63,800	Equipment Lease	
Replace Existing 2006 Animal Control Vehicle & Box	5	2021	53,673	Equipment Lease	
Replace Existing 2006 Snow Blower & Trailer	5	2021	22,000	Equipment Lease	
Replace Existing 2006 Snow Blower & Trailer	5	2021	22,000	Equipment Lease	
Replace Existing 2006 Snow Blower & Trailer	5	2021	22,000	Equipment Lease	
Ranger	8	2021	23,352	Equipment Lease	26,903
Mower	8	2021	14,738	Equipment Lease	
Kobota Tractor	8	2021	68,000	Equipment Lease	64,036
4X4 3/4 Ton Truck	8	2021	49,000	Equipment Lease	39,570
4X4 Service Body Truck	8	2021	57,000	Equipment Lease	48,919
Total Leased Equipment			1,516,376		
Park and Community Center Projects					
Outdoor Pool Repairs	5	2021	830,297	Parks Short Term Note	1,090,297
CC Pool Hvac	5	2021	375,000	Parks Short Term Note	
Fitness Equipment	5	2021	200,000	Parks Short Term Note	
Flooring Replacement	5	2021	150,000	Parks Short Term Note	
Other CC Hvac Units	5	2021	90,000	Parks Short Term Note	
Other CC Hvac	5	2021	80,000	Parks Short Term Note	
Divider Curtain	5	2021	30,000	Parks Short Term Note	
Pole Barn Parks Equipment Storage 30 X 40 Barn	5	2021	30,000	Parks Short Term Note	
Duct Work Repair & Painting	5	2021	28,000	Parks Short Term Note	
Storage Building Install Storage Building	5	2021	15,000	Parks Short Term Note	
Social Hall Dividers	5	2021	5,000	Parks Short Term Note	
Indoor Pool Rebuild Pool Main Pump	5	2021	4,800	Parks Short Term Note	
Batting Cage	5	2021	2,000	Parks Short Term Note	
Software	5	2021	35,000	Parks Short Term Note	
Splash Pad Install Splash Pad	4	2022	150,000	Parks Short Term Note	0
Obstacle Course On Southside Grass Area	4	2022	110,000	Parks Short Term Note	0
Indoor Pool Replace Pool Heater	4	2022	75,000	Parks Short Term Note	
Playground Equipment	4	2022	75,000	Parks Short Term Note	
Patio Shade Structures	4	2022	36,000	Parks Short Term Note	
Replace Sauna Promised With Rate Increase	4	2022	35,000	Parks Short Term Note	
Indoor Pool Replace Filter Valves (4) & Chemtrol Outdated	4	2022	13,000	Parks Short Term Note	
Wall Climbing Course	4	2022	13,000	Parks Short Term Note	
Replace Shelter Concrete	4	2022	12,000	Parks Short Term Note	
Total Parks and Community Center Projects			2,394,097		
					3,910,473

Attachment: Directors Report Feb. 21 (Directors Report)



TO: Park Board
FROM: Grant Purkey,
DATE: February 4, 2021
SUBJECT: Outdoor Pool Update

Type of Item: *Discussion*

2. Discussion Item (ID # 3792)

Outdoor Pool Update

Attachments:

Outdoor Pool Update (DOC)

Harrisonville Outdoor Pool Renovation (PDF)

Harrisonville Outdoor Pool Renovation - Revision (PDF)

Harrisonville Pool Improvements Technical Specs (PDF)

Shade Structures Replacement-BudgetaryPricing (PDF)

Wet Deck FlushMountSprays BudgetaryPricing (PDF)



City of

Harrisonville^{est. 1836}

5.2.a

300 E. Pearl Street, P.O. Box 367 • Tel: 816-380-8900 • Fax: 816-380-8906 • Harrisonville, MO 64701

To: Park Board
From: Grant Purkey
Date: 2-5-21
Re: Outdoor Pool Update

GENERAL INFORMATION

Applicant:

Requested Actions:

Date of Application:

PROPOSAL

N/A

PREVIOUS ACTIONS

Outdoor Pool Repairs/Remodel Budget \$1,090,297

Waters Edge Aquatic Design provided detailed renovation plans and technical specifications.

STAFF COMMENTS AND SUGGESTIONS

Park and City Staff meet with Waters Edge Aquatic Design and Tripp Construction on Friday, January 29th. Staff, Waters Edge, and Tripp reviewed the updated renovation plans and technical specifics. Revisions to the plans were made to include umbrellas, climbing wall and pool floor spray features. Staff will be meeting with Tripp Construction on Monday, February 8th.

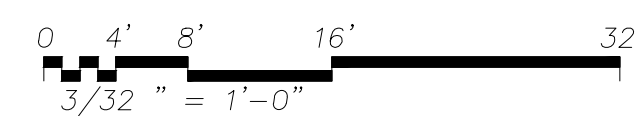
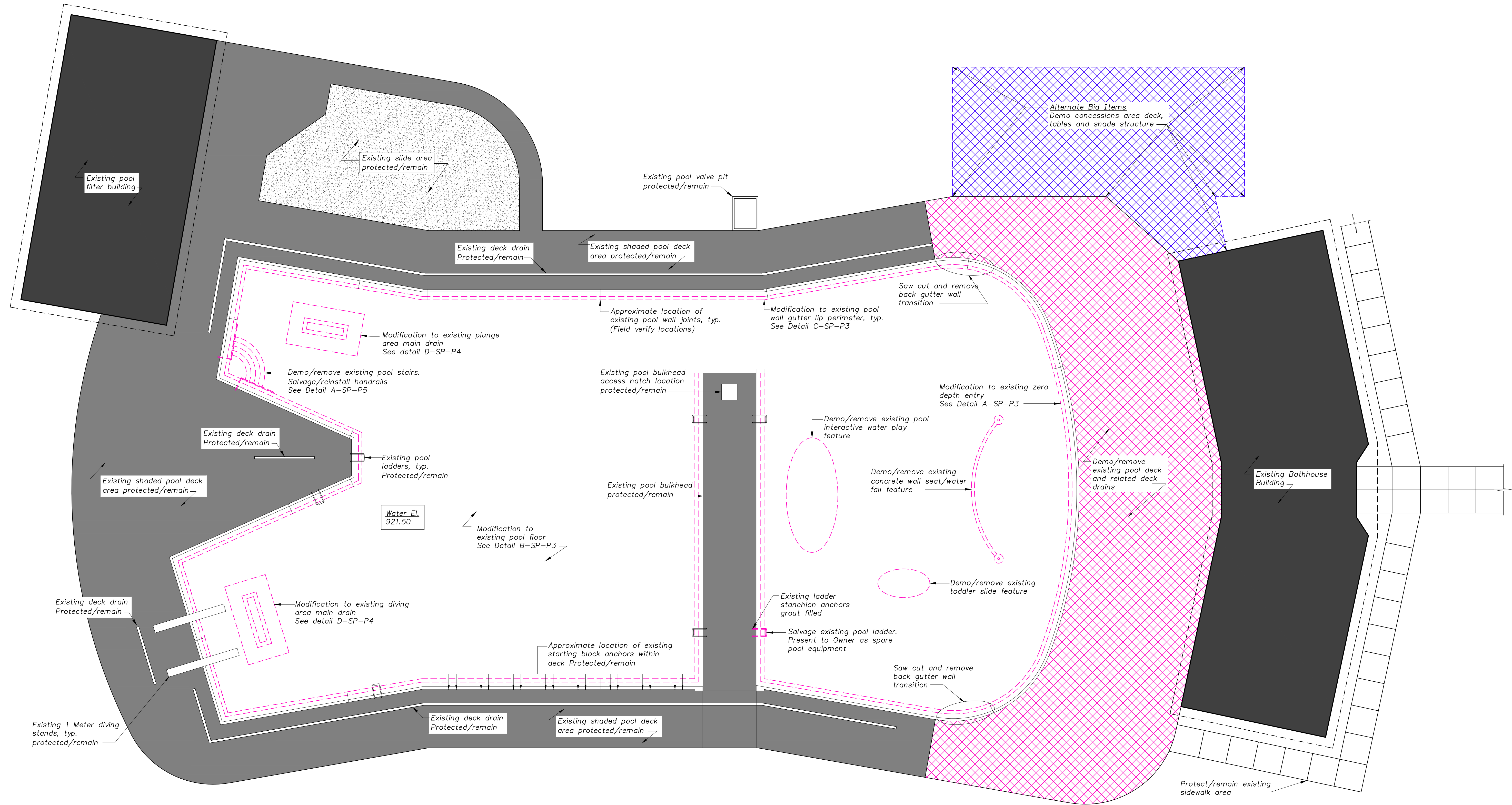
STAFF RECOMMENDATION

Schedule Park Board work session to review and select slide upgrades and splash pad features as options become available.

ATTACHMENTS

Outdoor Pool Renovation Plans
Outdoor Pool Improvements Technical Specifications
Revised Outdoor Layout (including umbrellas)
Wet Deck pricing
Shade structure pricing

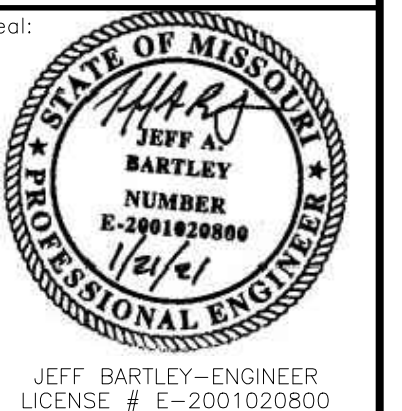
Attachment: Outdoor Pool Update (Outdoor Pool Update)



EXISTING SITE DEMOLITION PLAN

Scale: 3/32"=1'-0"

HARRISONVILLE, MISSOURI Outdoor Pool Improvements



JEFF BARTLEY—ENGINEER
LICENSE # E-2001020800

Date: 01-21-21 Job #: 20-528

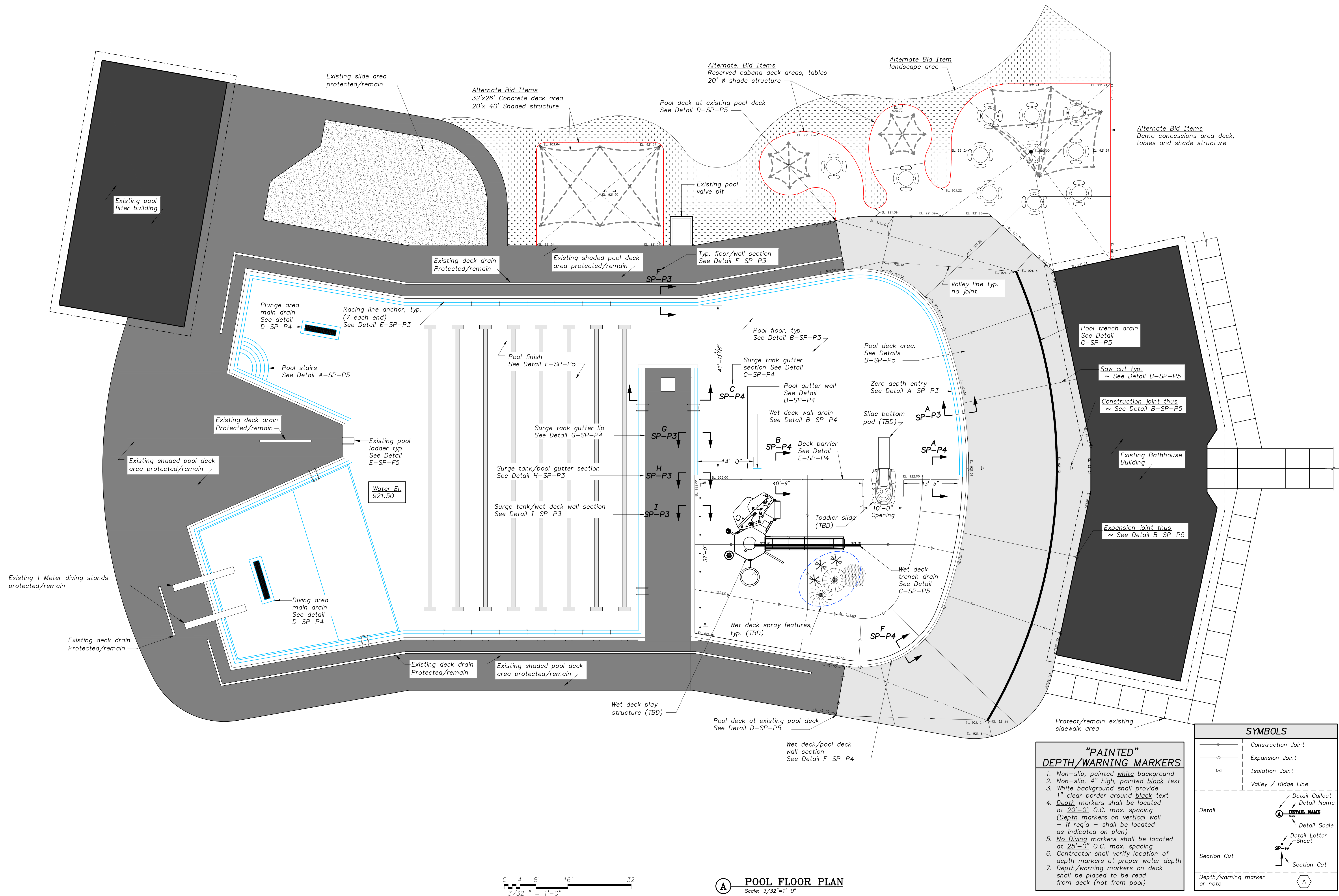
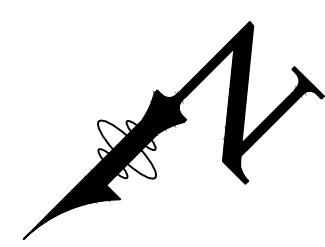
Drawn: CJB Checked: JAB

Issue: CONSTRUCTION DOCUMENTS

**POOL
DEMOLITION
PLAN**

SP-C1

Waters Edge Aquatic Design
© 2021



**"PAINTED"
DEPTH/WARNING MARKERS**

1. Non-slip, painted white background
2. Non-slip, 4" high, painted black text
3. White background shall provide 1" clear border around black text
4. Depth markers shall be located at 20'-0" O.C. max. spacing (Depth markers on vertical wall - if req'd - shall be located as indicated on plan)
5. No Diving markers shall be located at 25'-0" O.C. max. spacing
6. Contractor shall verify location of depth markers at proper water depth
7. Depth/warning markers on deck shall be placed to be read from deck (not from pool)

SYMBOLS

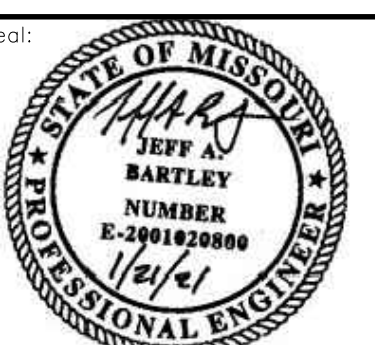
	Construction Joint
	Expansion Joint
	Isolation Joint
	Valley / Ridge Line

Detail	Detail Callout Detail Name Detail Scale Detail Letter Sheet
Section Cut	Section Cut
Depth/warning marker or note	A

0' 4' 8' 16' 32'
3/32" = 1'-0"

POOL FLOOR PLAN
Scale: 3/32"=1'-0"

HARRISONVILLE, MISSOURI Outdoor Pool Improvements



JEFF BARTLEY-ENGINEER
LICENSE # E-2001020800

Date: 01-21-21 Job #: 20-528

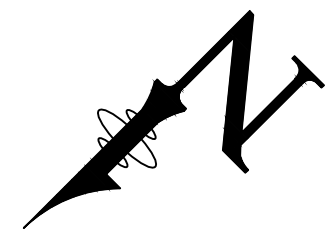
Drawn: CJB Checked: JAB

Issue: CONSTRUCTION DOCUMENTS

**POOL FLOOR
AND DECK
IMPROVEMENT
PLAN**

SP-P1

Waters Edge Aquatic Design
© 2021



Existing —
slide area

Alternate. Bid Items
Reserved cabana deck areas

Alternate Bid Item
landscape area

✓ Alternate Bid Items
Demo concessions a
tables and shade st

Existing pool filter building

Plunge area
main drain
See detail
D-SP-P4 →

Pool stairs
See Detail A-SP-P

Water El.	921.50
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—Existing deck drain

Existing deck drain

← Match pool floor joints on
top of existing floor joints
See Detail B-SP-P3

$$\rightarrow \text{SP}^H\text{-P3}$$

$\rightarrow SP-P3$ $\downarrow$

Surge tank/pool gutter section
See Detail H-SP-P3

Surge tank/wet deck wall section
See Detail I-SP-P3

Wet deck wall drain
See Detail B-SP-P4

Pool gutter
See Detail
B, CD, D4

— Trench drain
See Detail
2-22-25

Wet deck
spray features
typ. (TBD)

$$F_{SP-P4}$$

Pool deck at existing pool deck See Detail D-SP-P5

Protect/remain existing sidewalk area _____

GENERAL SHEET NOTES

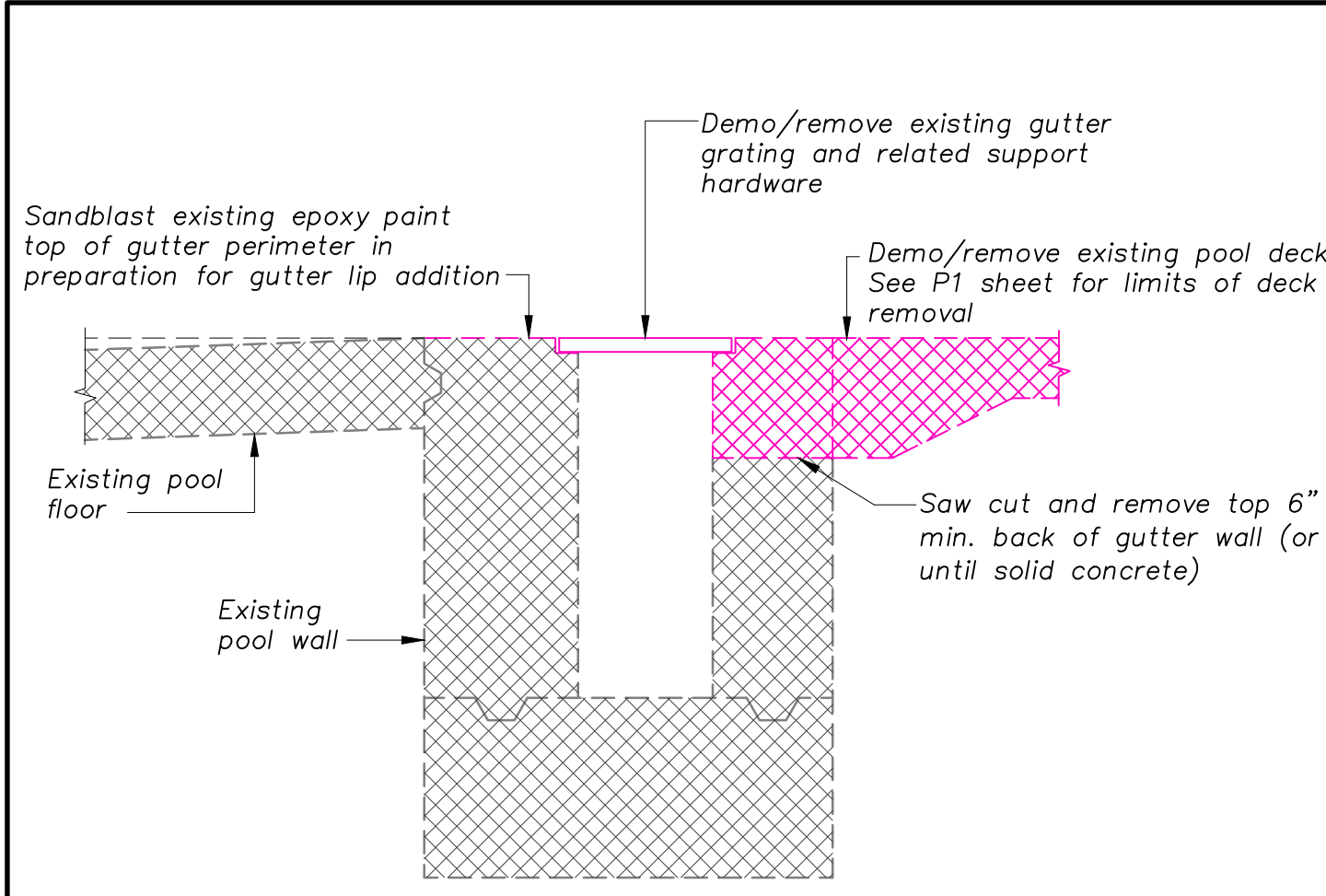
1. All El.'s shown El. (-)x.xx', are distances down from indicated Water El.
2. All El.'s shown El. (+)x.xx', are distances up from indicated Water El.

0 4' 8' 16' 32

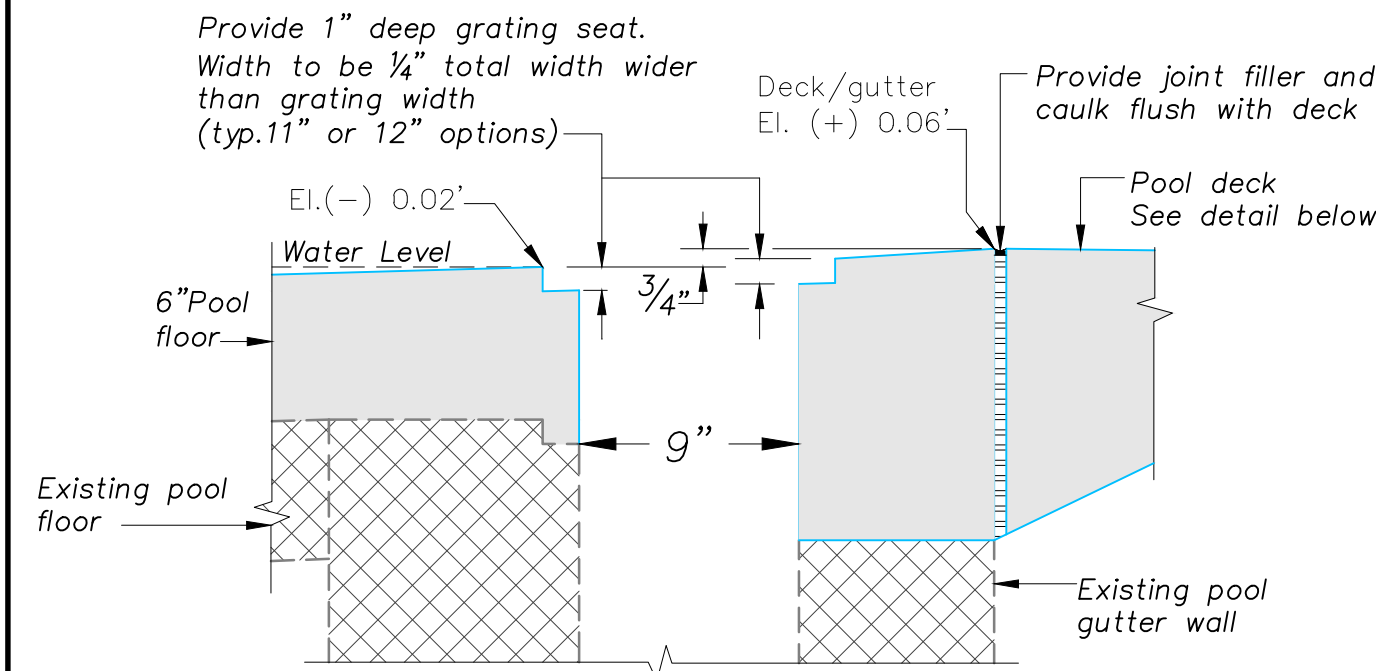
$\frac{3}{32}'' = 1'-0''$

A POOL FLOOR PLAN
Scale: $3/32" = 1'-0"$

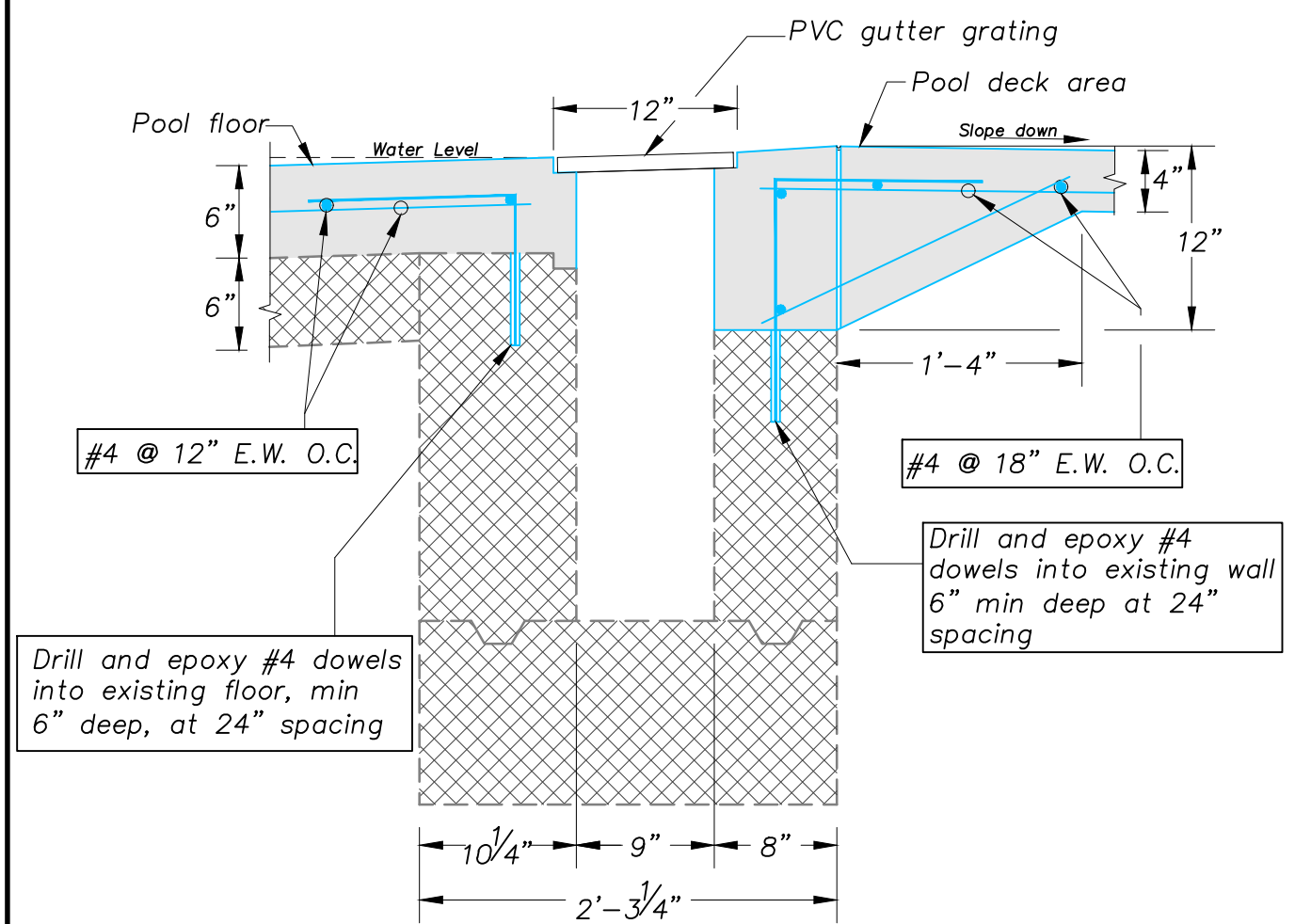
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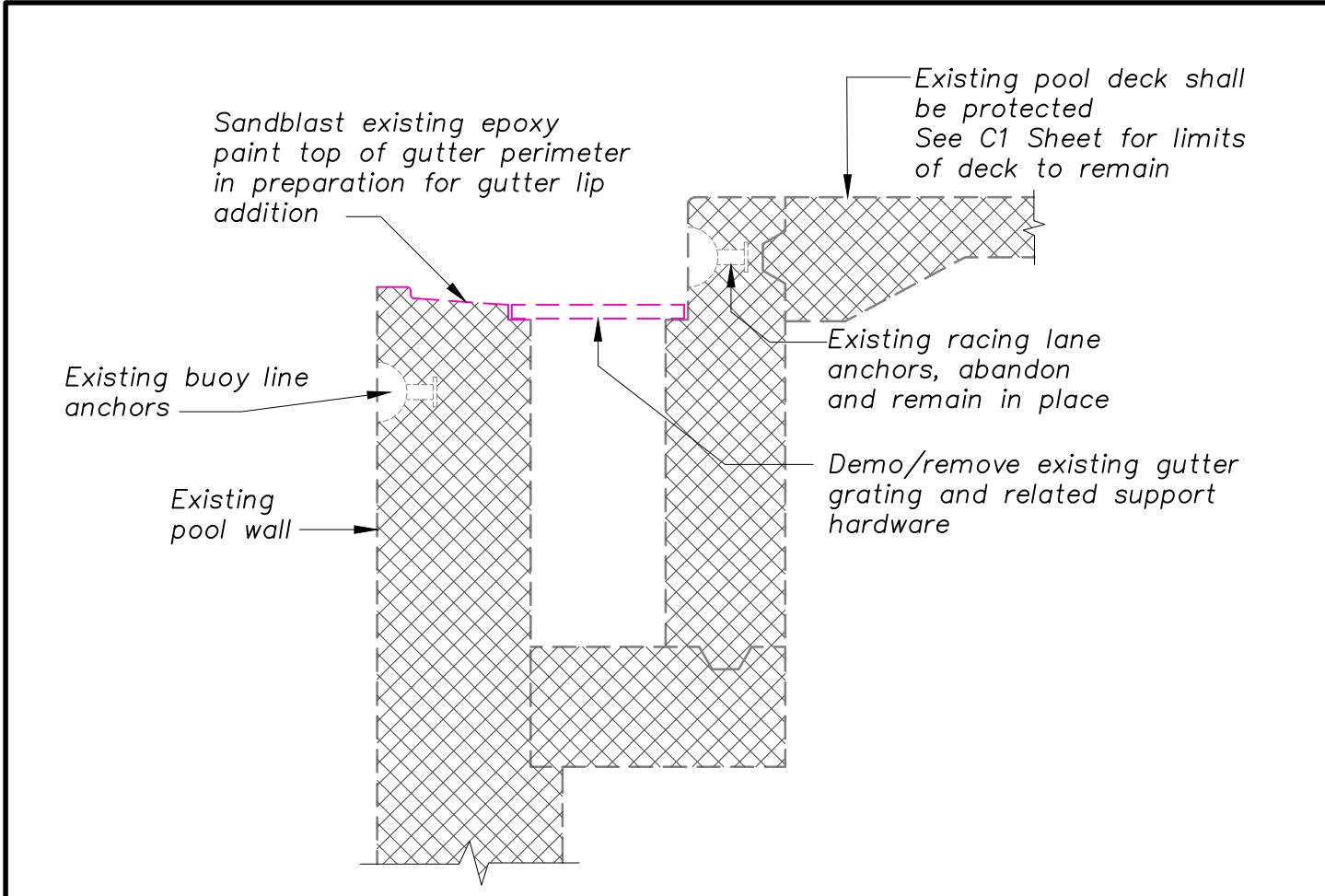
A ZERO DEPTH ENTRY WALL - PREPARATION
Scale: 1"=1'-0"



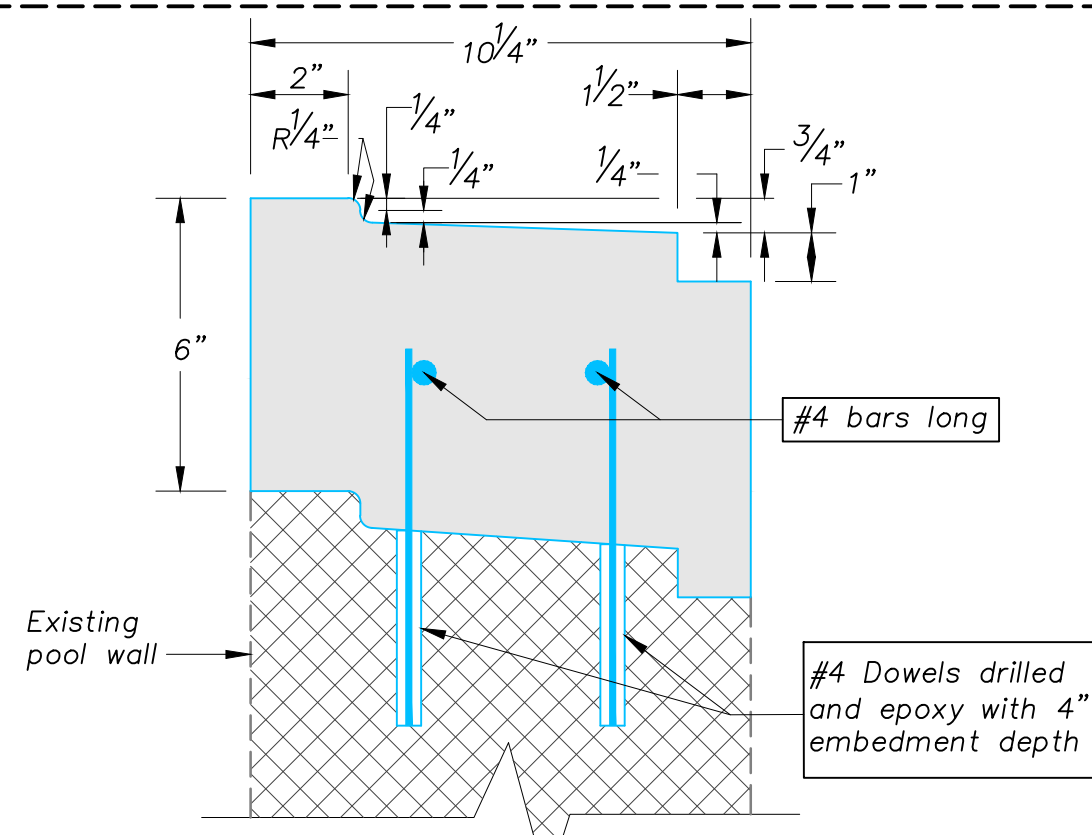
B TOP OF ZERO DEPTH POOL WALL DETAIL
Scale: 1 1/2"=1'-0"



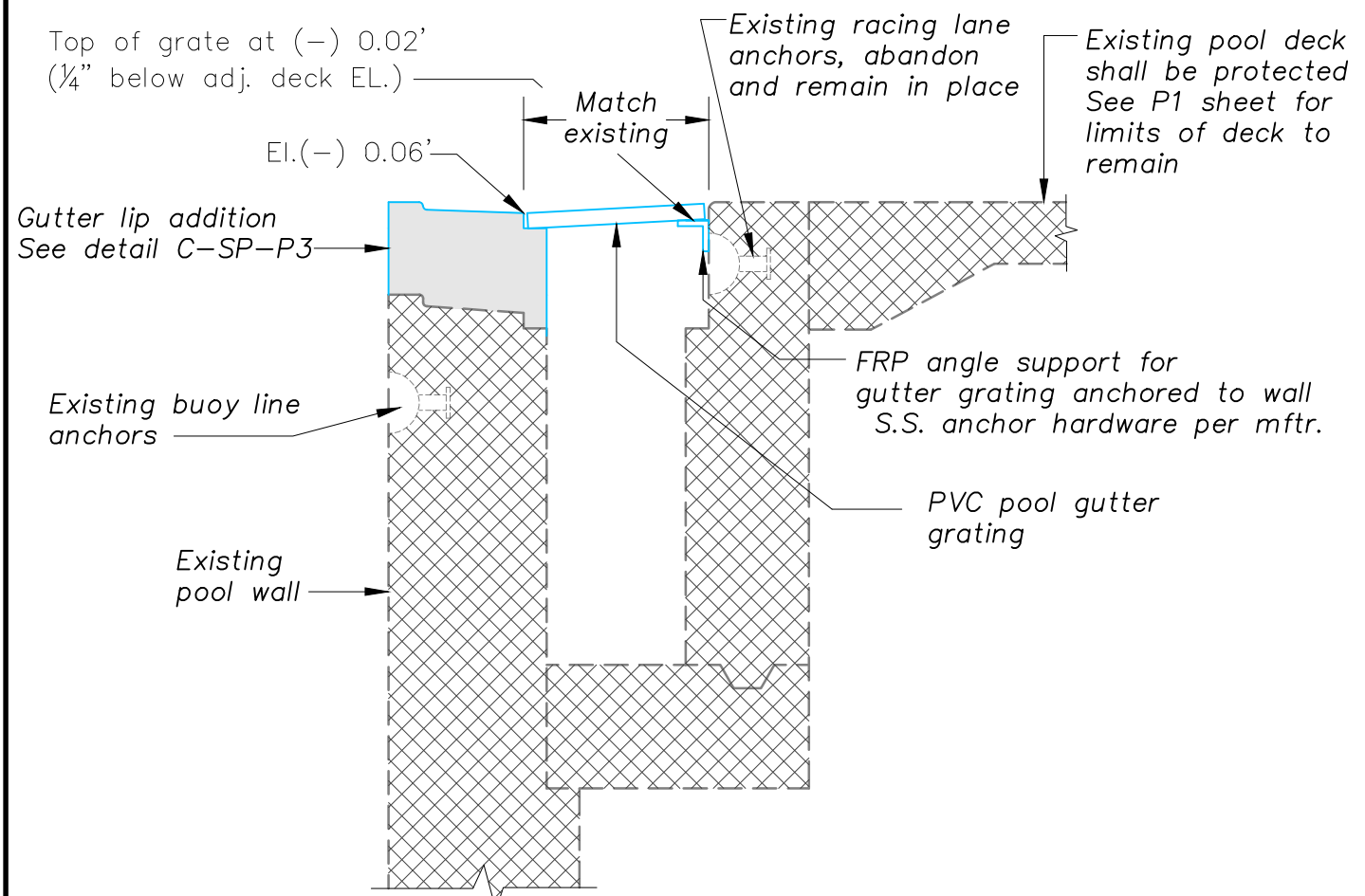
C ZERO DEPTH ENTRY WALL - ADDITION
Scale: 1"=1'-0"



D GUTTER LIP - PREPARATION

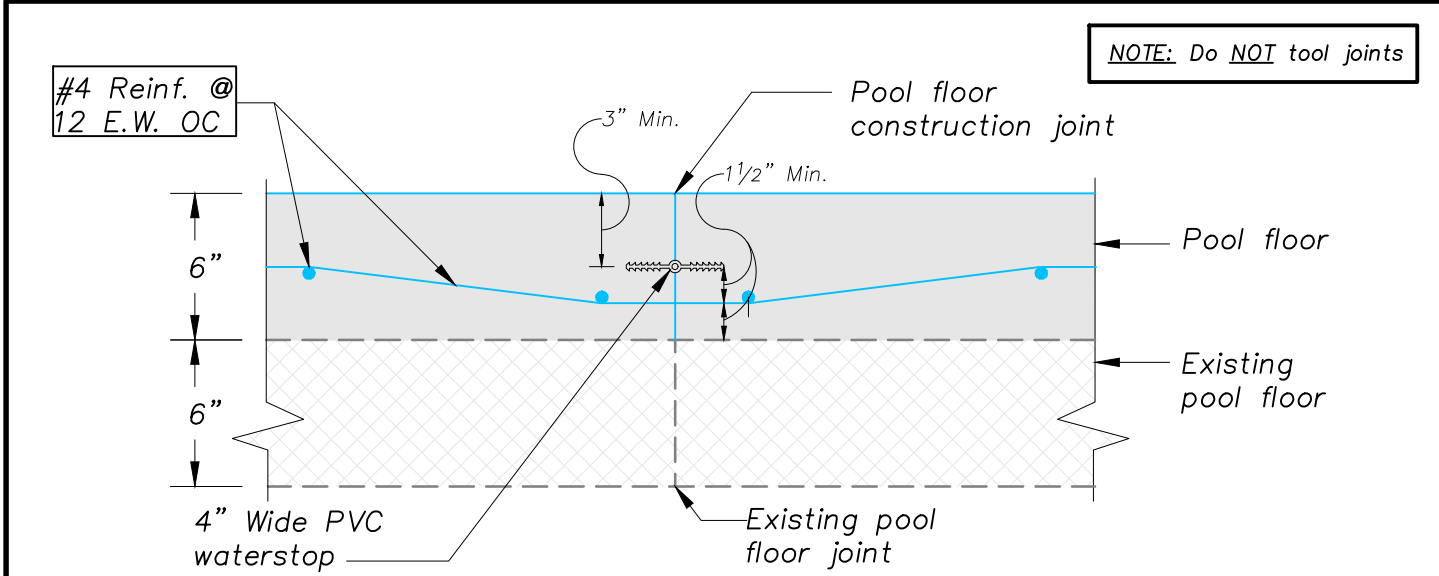


E GUTTER LIP DETAIL
Scale: 3"=1'-0"

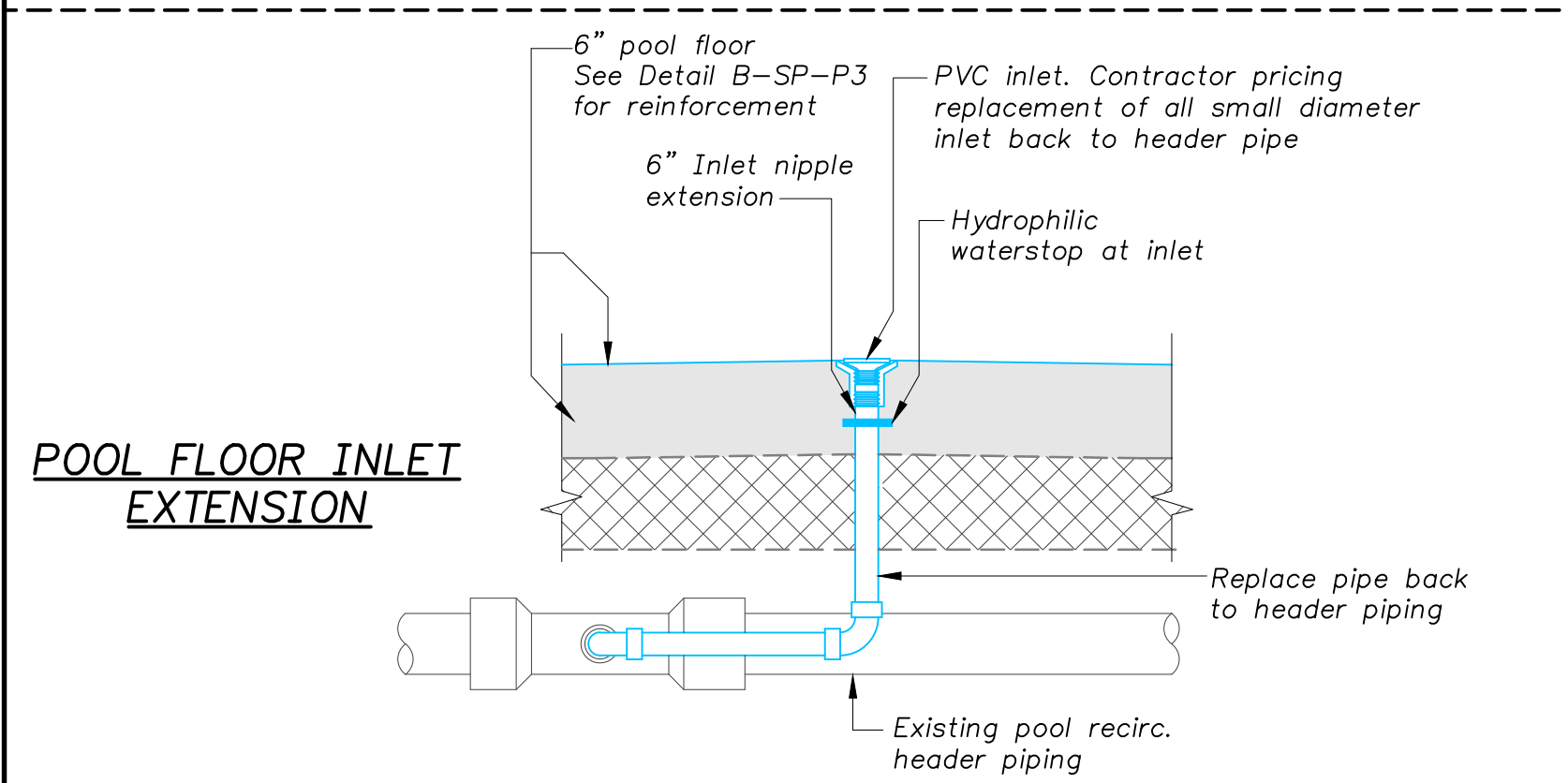
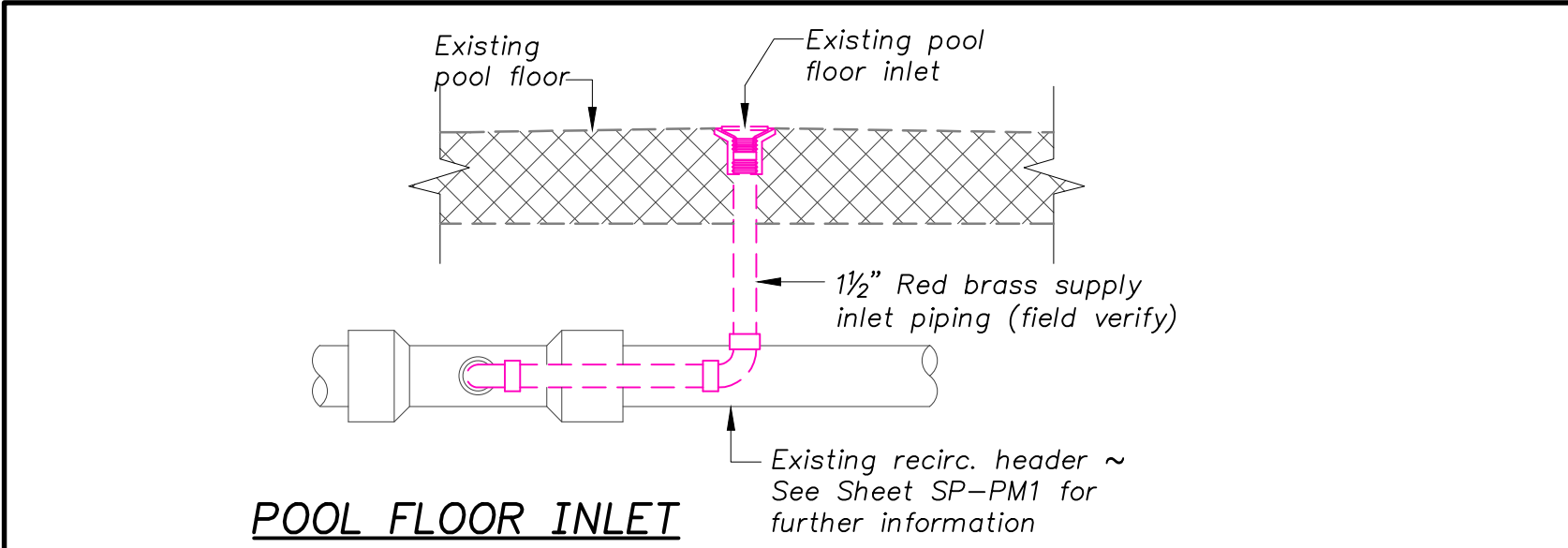


F GUTTER LIP - ADDITION

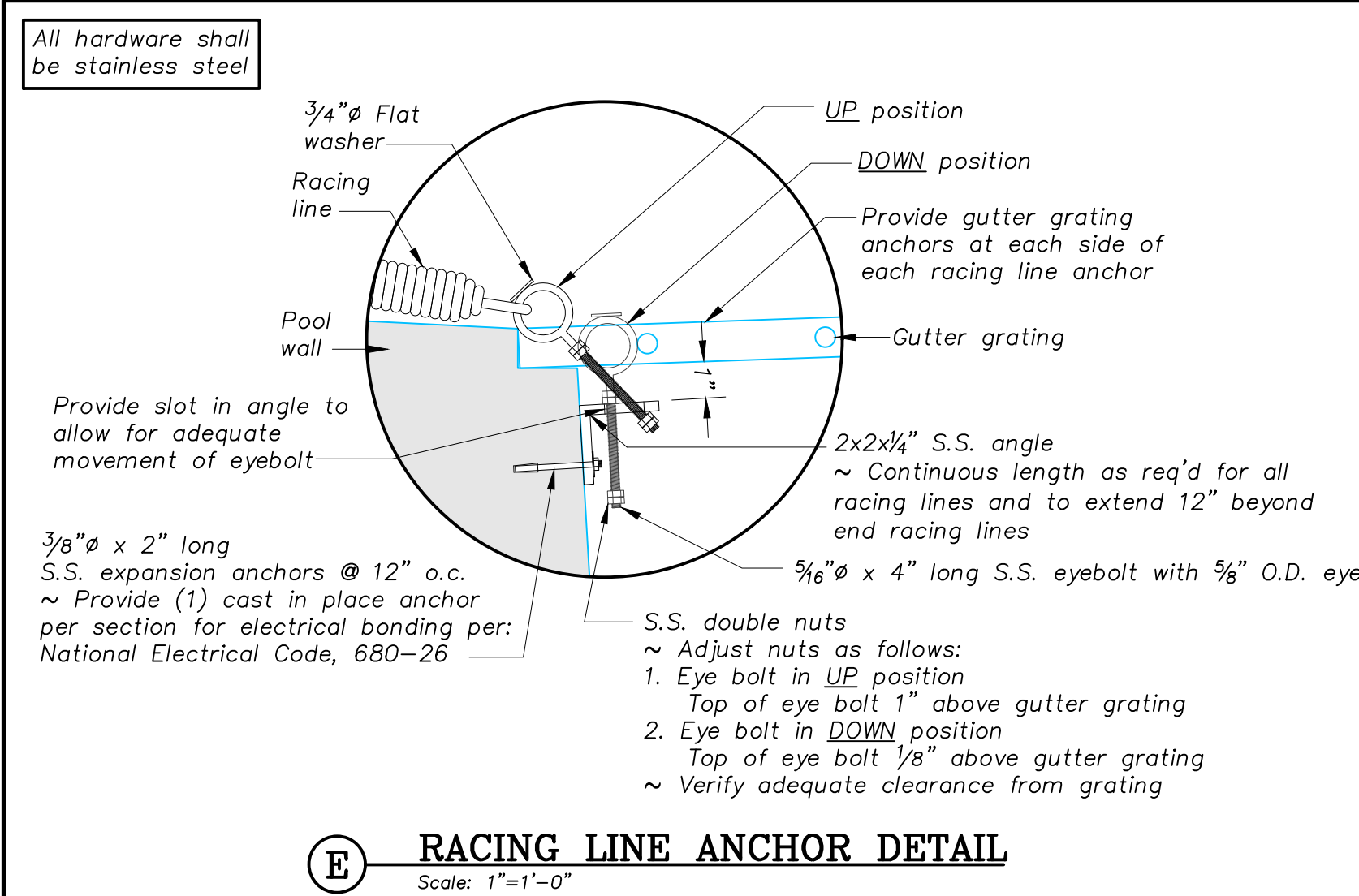
G TYP. POOL GUTTER LIP SECTION
Scale: 1"=1'-0"



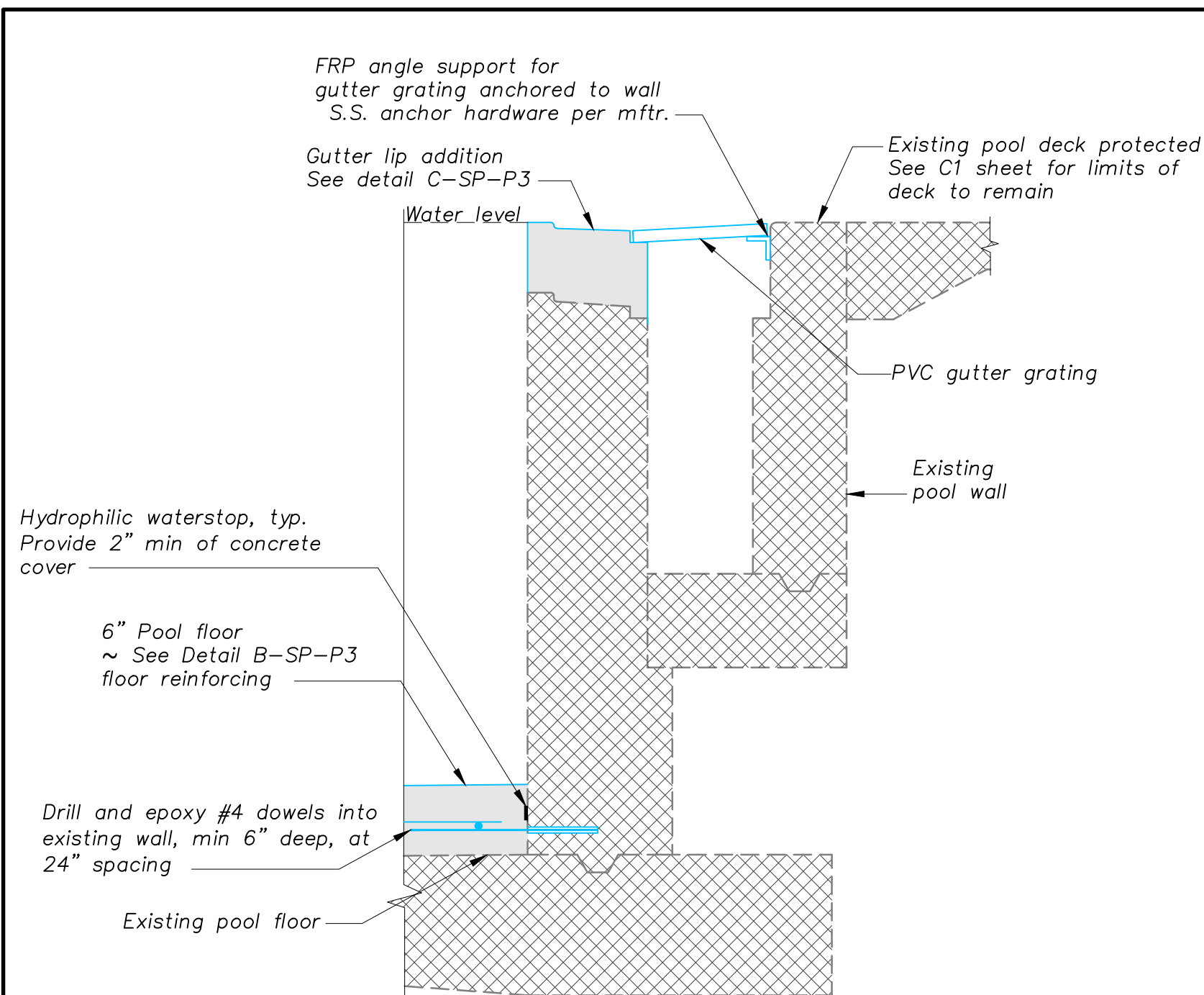
H POOL FLOOR AND JOINT DETAIL
Scale: 1 1/2"=1'-0"



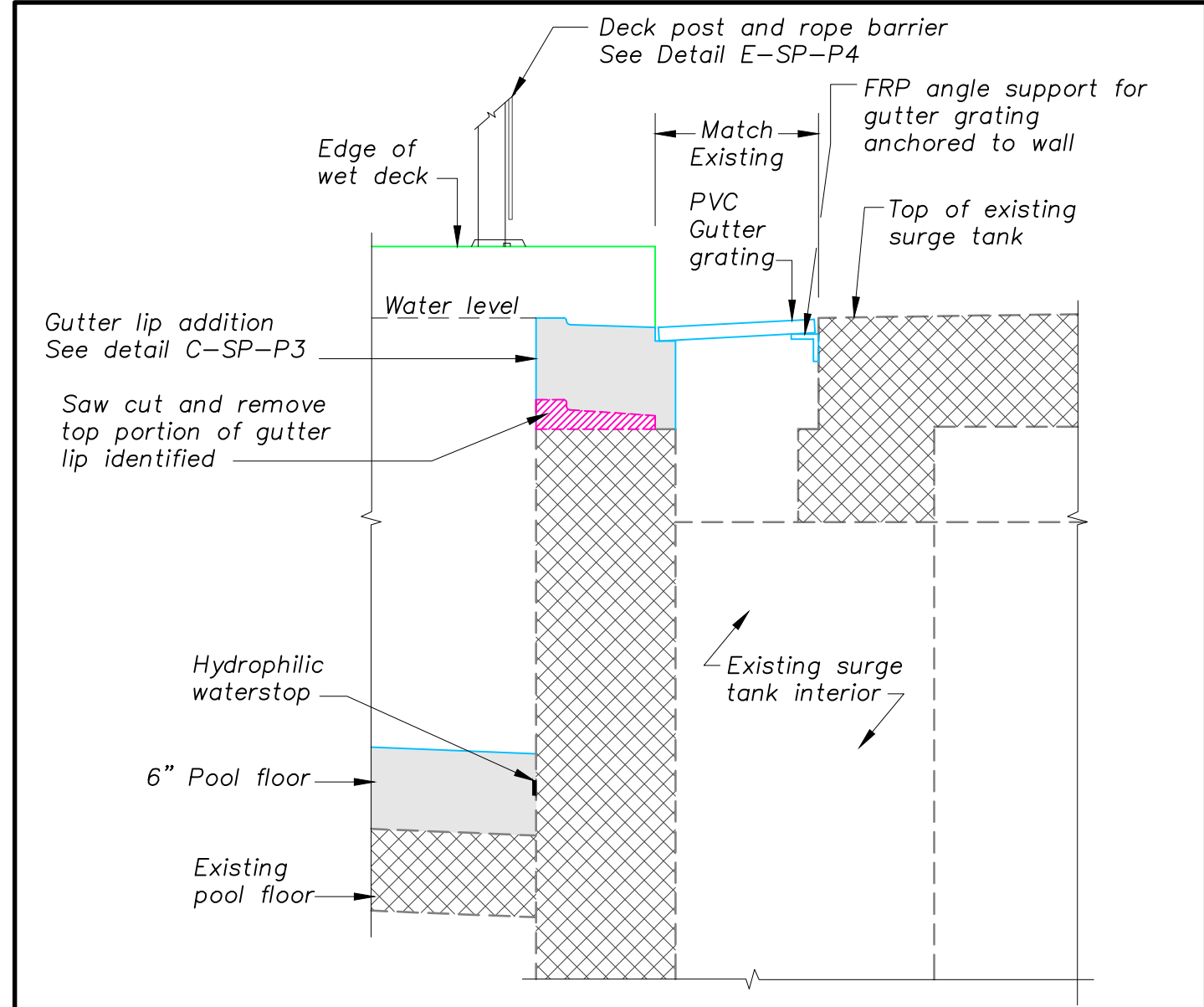
J FLOOR INLET DETAIL
Scale: 1"=1'-0"



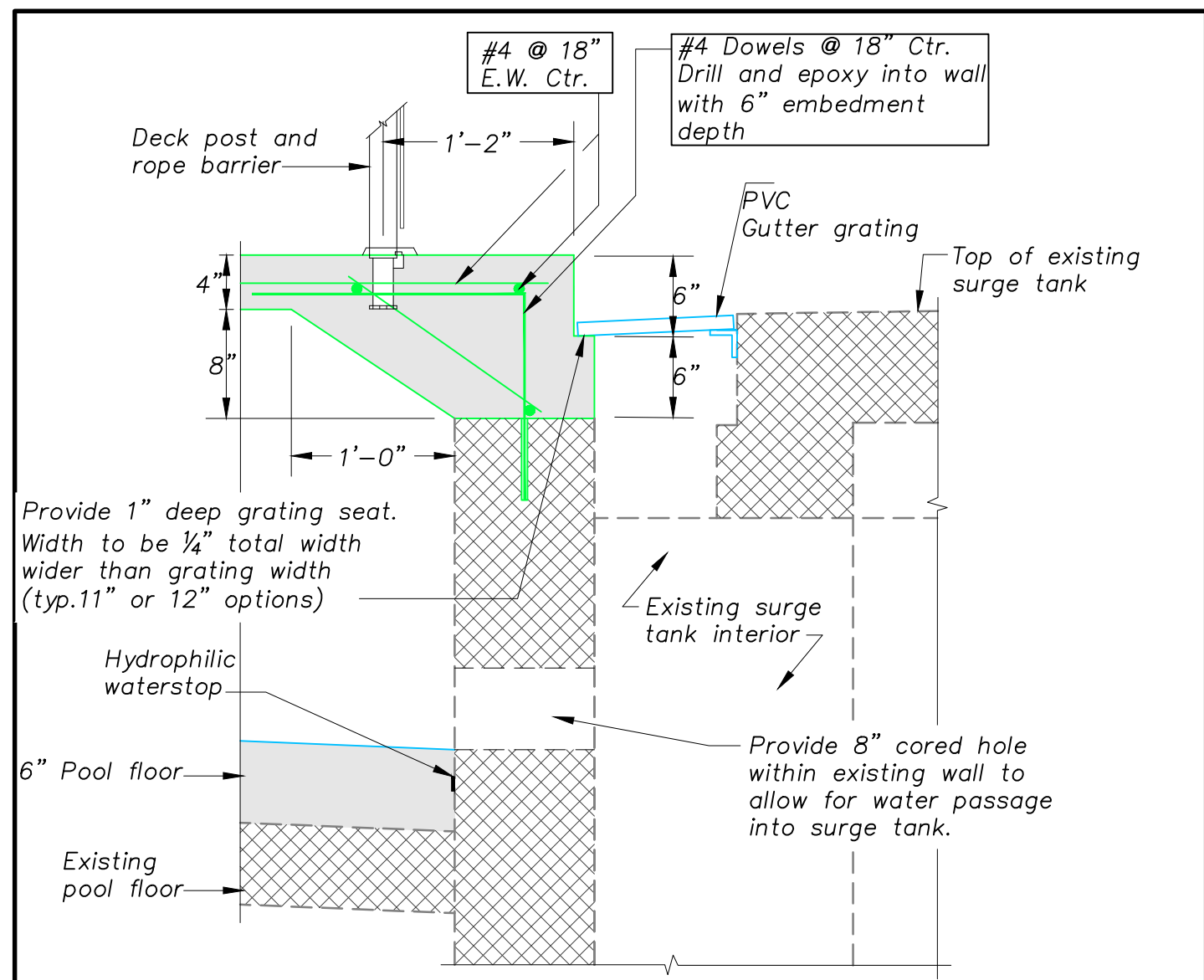
K RACING LINE ANCHOR DETAIL
Scale: 1"=1'-0"



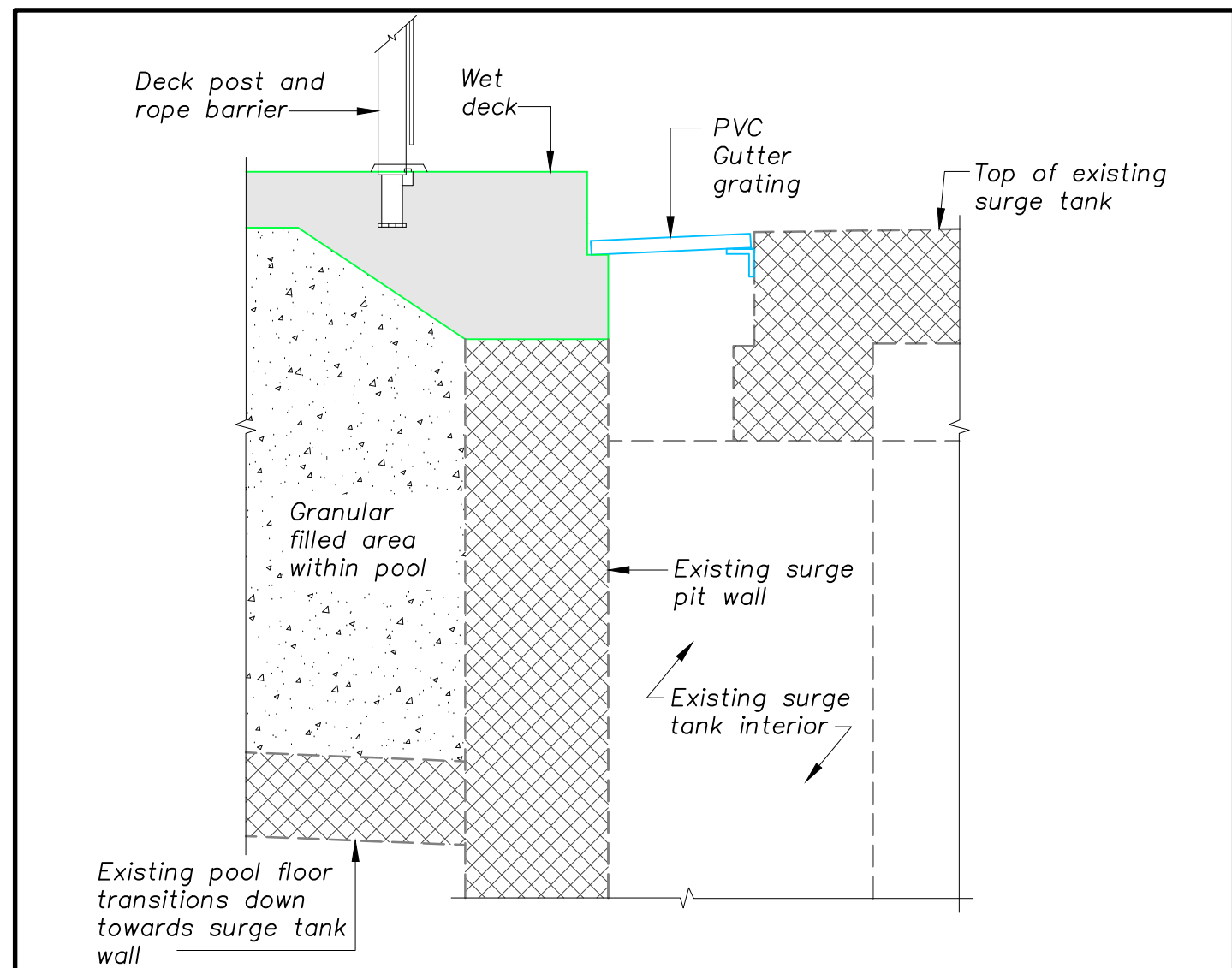
L TYPICAL FLOOR/WALL SECTION
Scale: 1"=1'-0"



M SURGE TANK GUTTER LIP SECTION
Scale: 1"=1'-0"

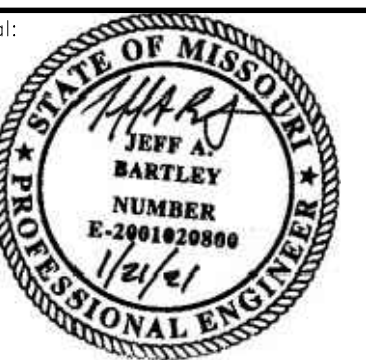


N SURGE TANK/POOL GUTTER SECTION
Scale: 1"=1'-0"



O SURGE TANK/WET DECK WALL SECTION
Scale: 1"=1'-0"

HARRISONVILLE, MISSOURI Outdoor Pool Improvements



JEFF BARTLEY-ENGINEER
LICENSE # E-2001020800

Date: 01-21-21 Job #: 20-528

Drawn: CJB Checked: JAB

Issue: CONSTRUCTION DOCUMENTS

**POOL WALL
AND FLOOR
IMPROVEMENT
DETAILS**

SP-P3

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HARRISONVILLE, MISSOURI
Outdoor Pool Improvements



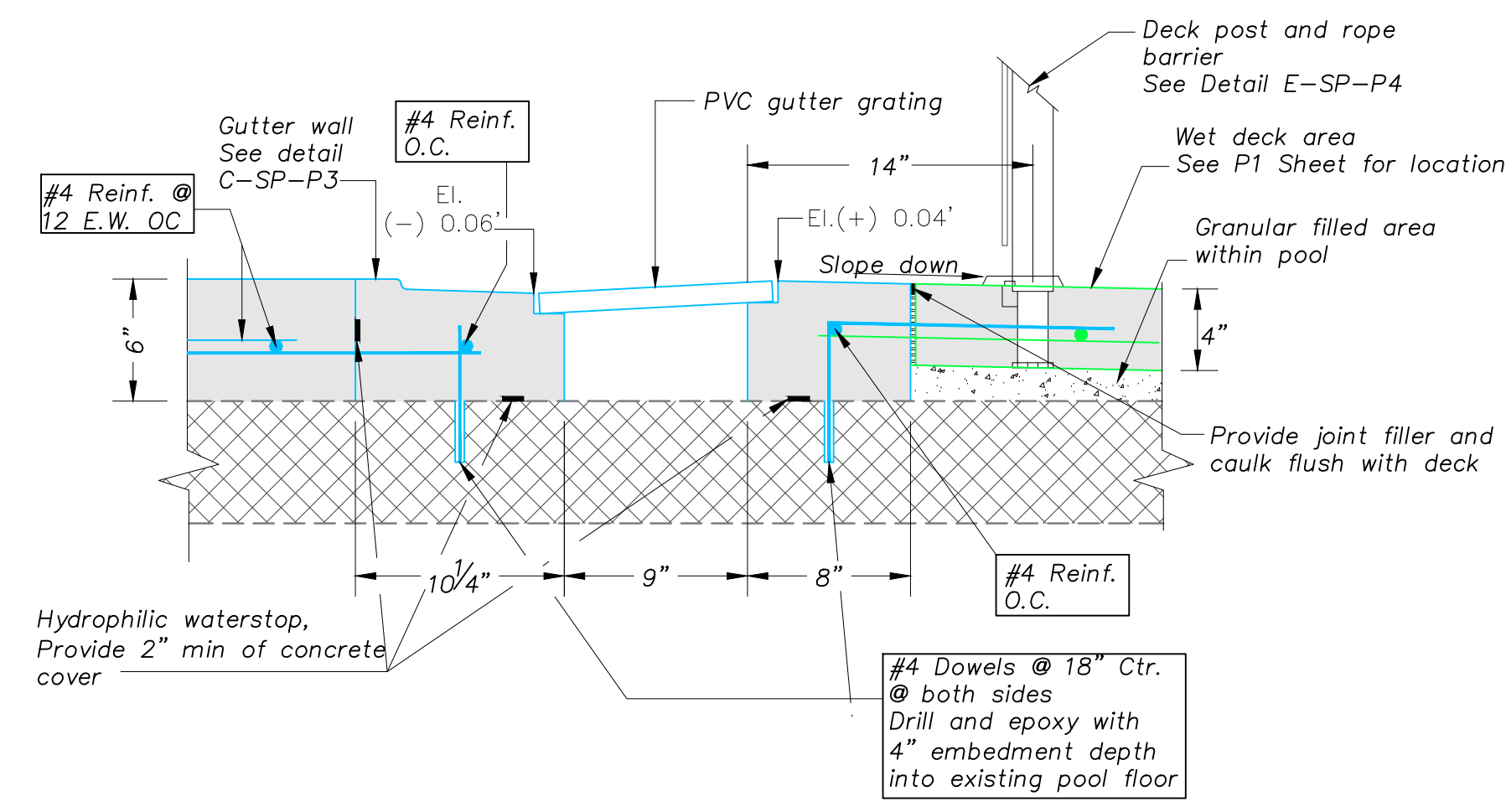
JEFF BARTLEY-ENGINEER
LICENSE # E-2001020800

Date: 01-21-21 Job #: 20-528

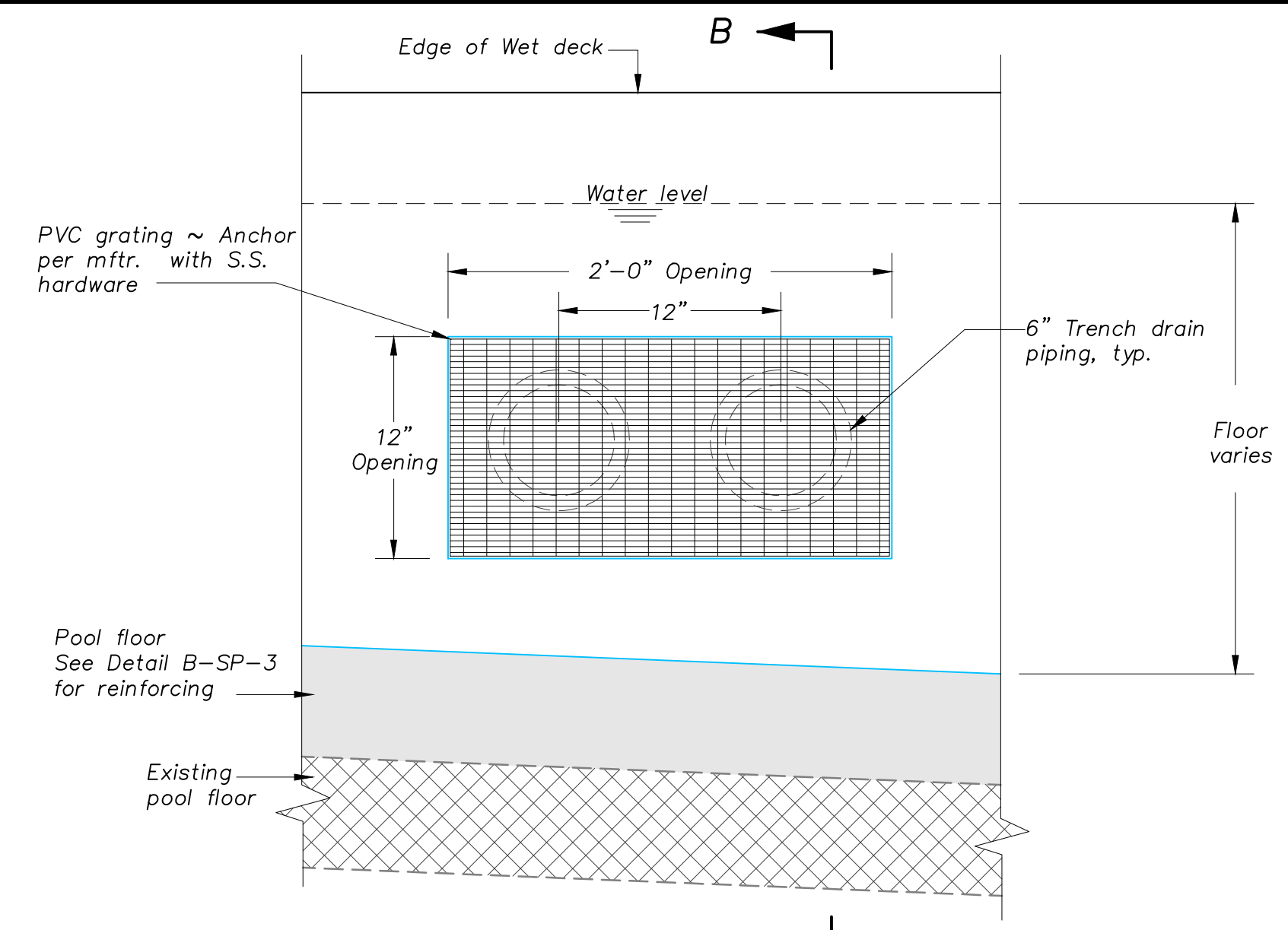
Drawn: CJB Checked: JAB

Issue: CONSTRUCTION DOCUMENTS

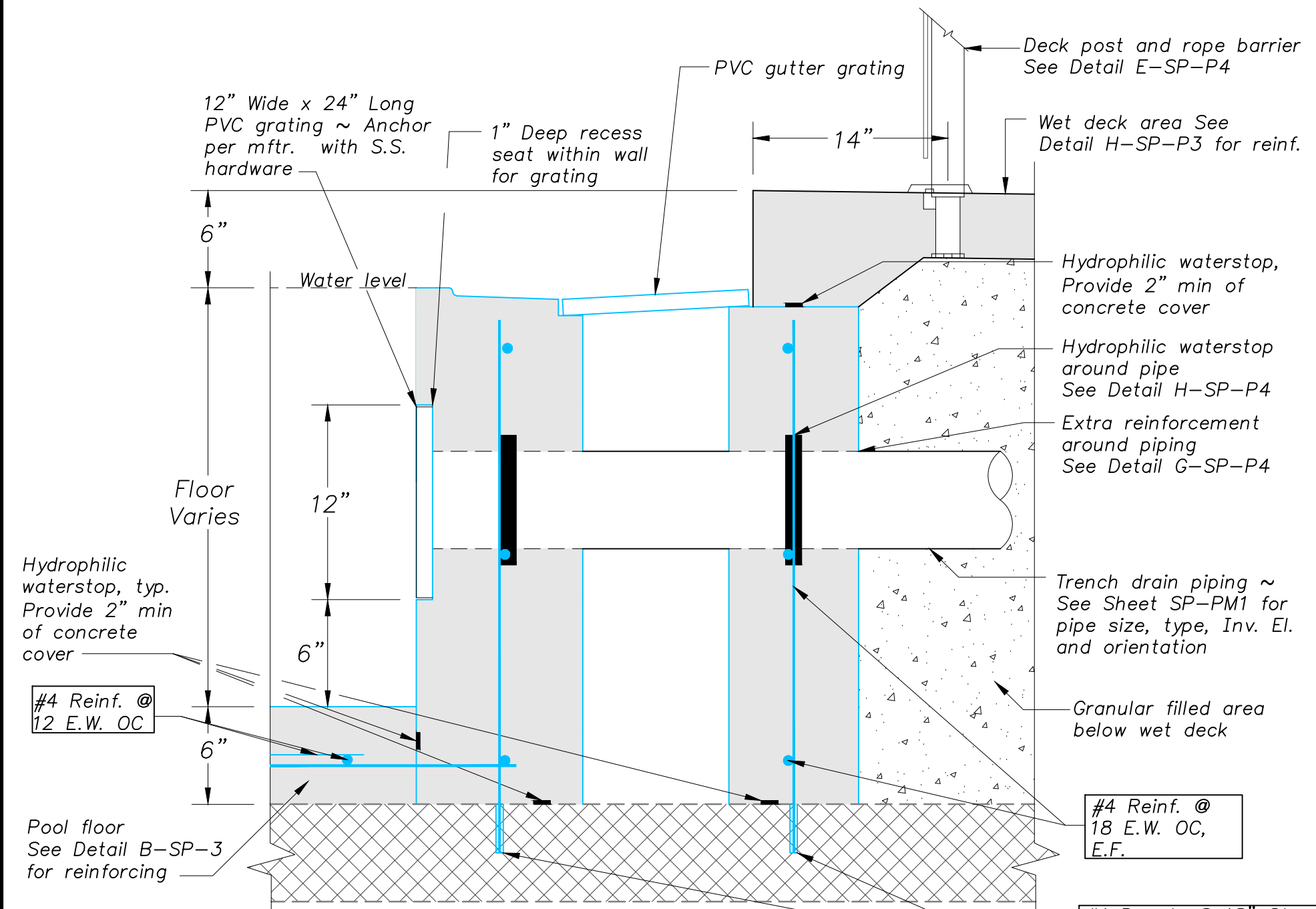
**POOL WALL
AND FLOOR
IMPROVEMENT
DETAILS
SP-P4**



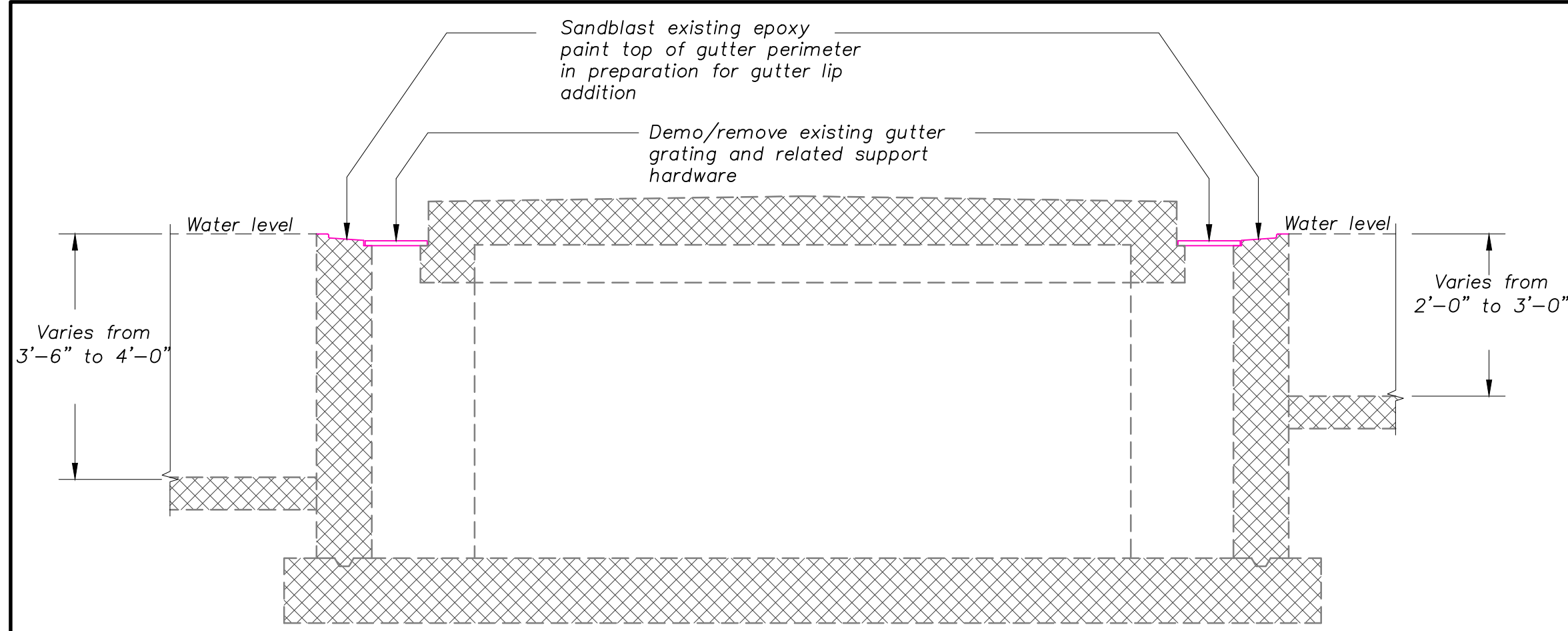
A NEW GUTTER POOL WALL DETAIL
Scale: 1/2"=1'-0"



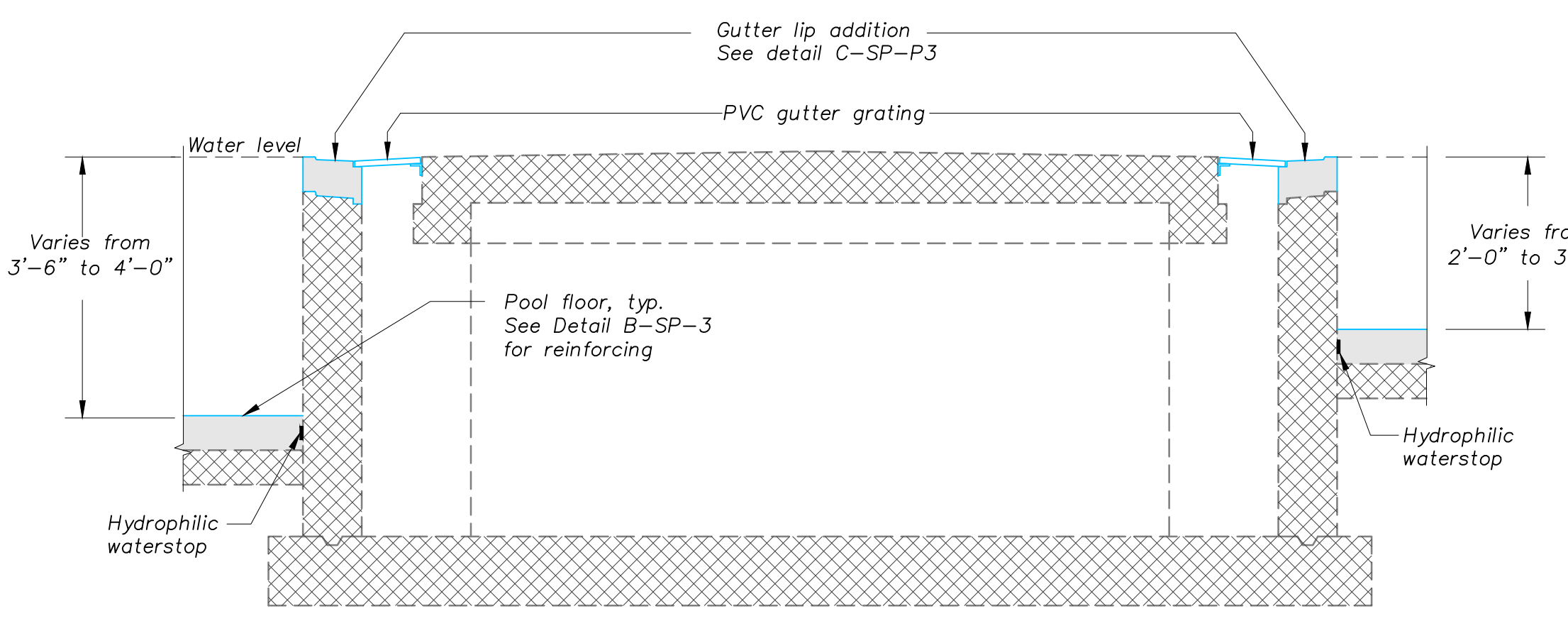
SECTION A



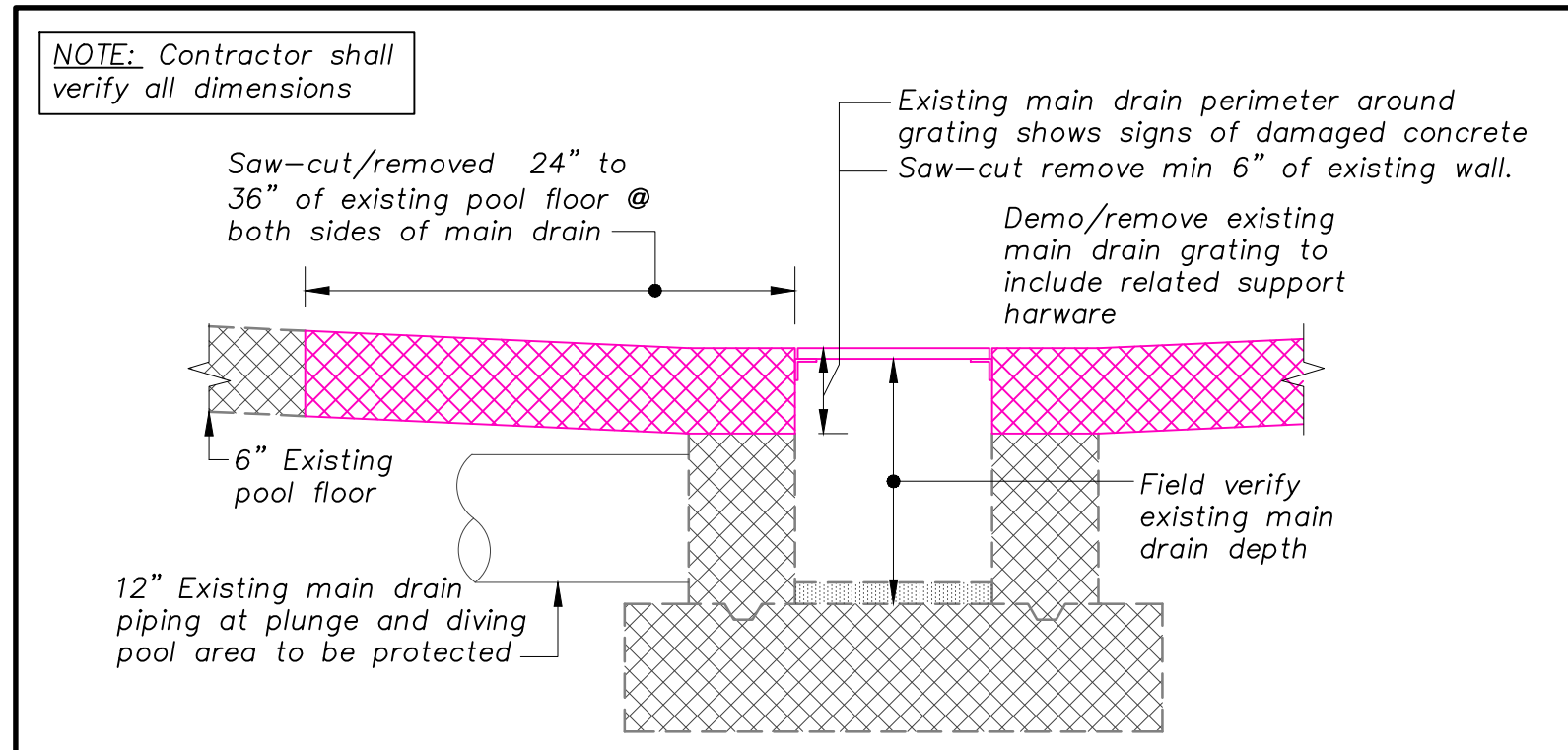
**B POOL GUTTER WALL AND
WET DECK WALL DRAIN DETAIL**
Scale: 1/2"=1'-0"



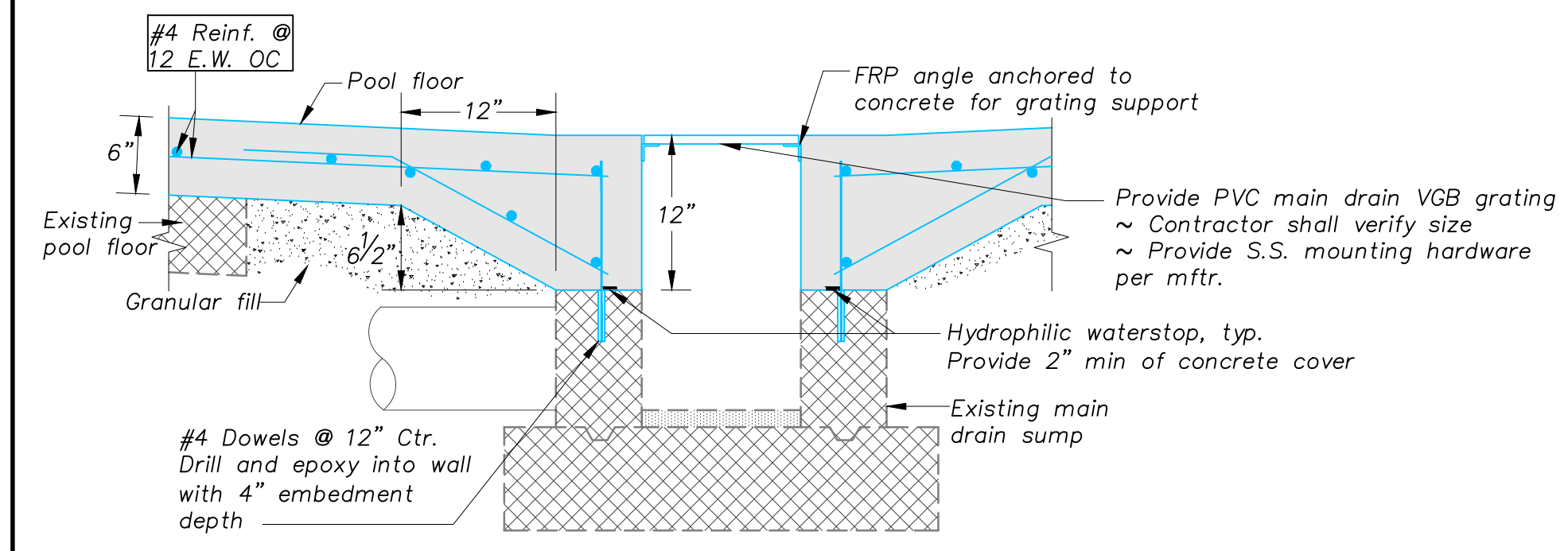
SURGE TANK GUTTER WALL - PREPARATION



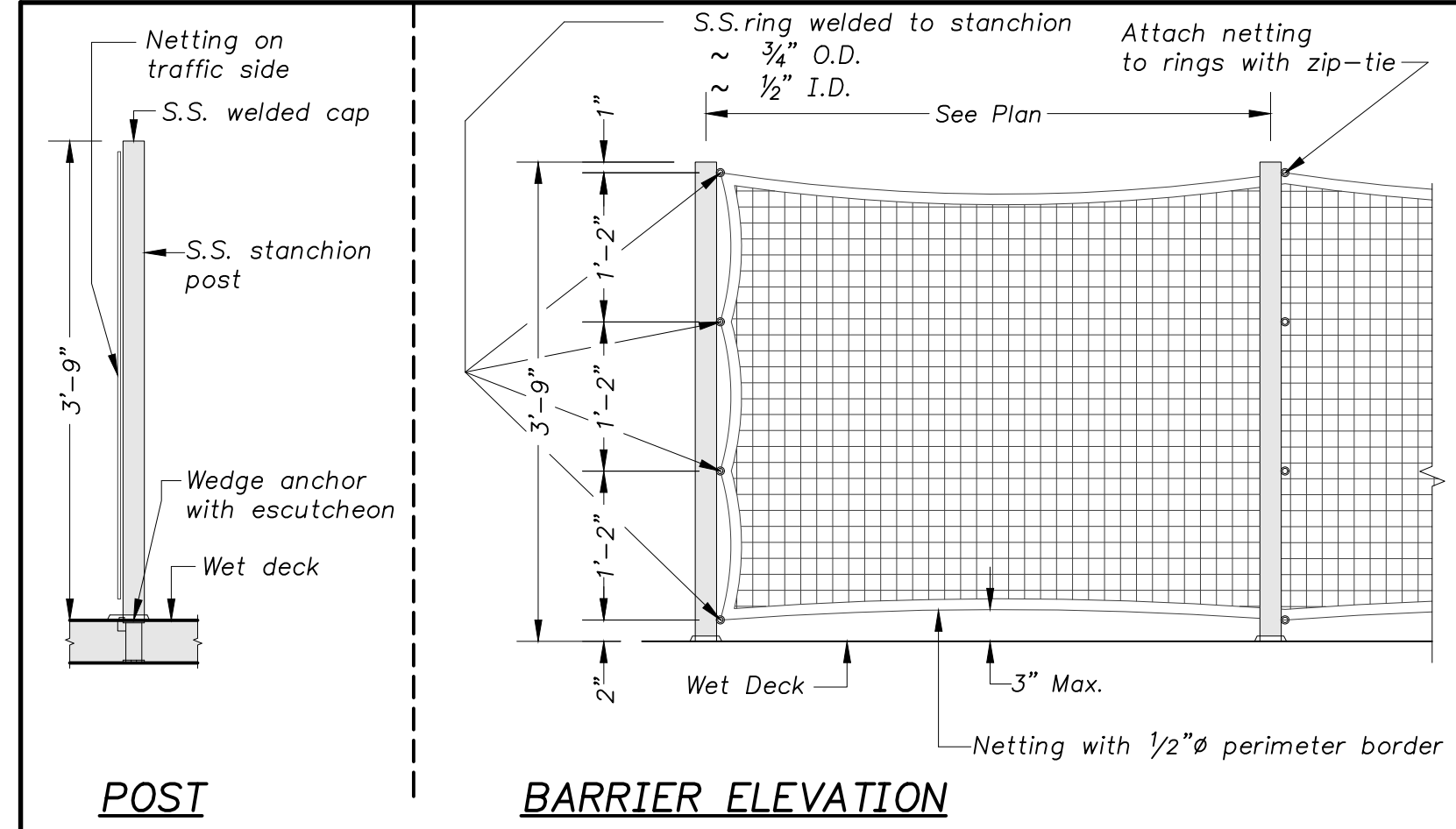
C SURGE TANK GUTTER SECTION DETAIL
Scale: 1/2"=1'-0"



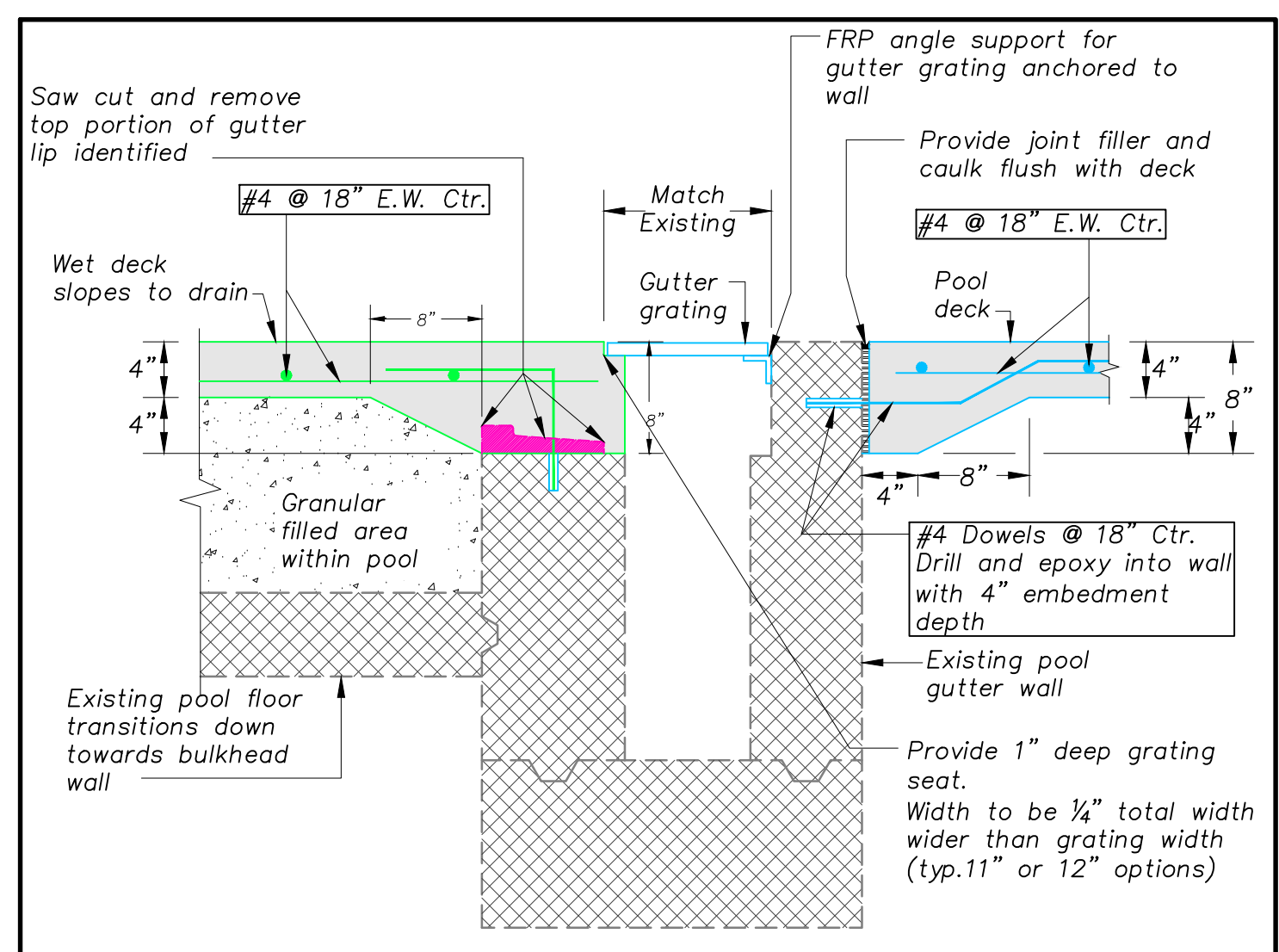
**D DIVING AND PLUNGE AREA - MAIN DRAIN
DEMOLITION**



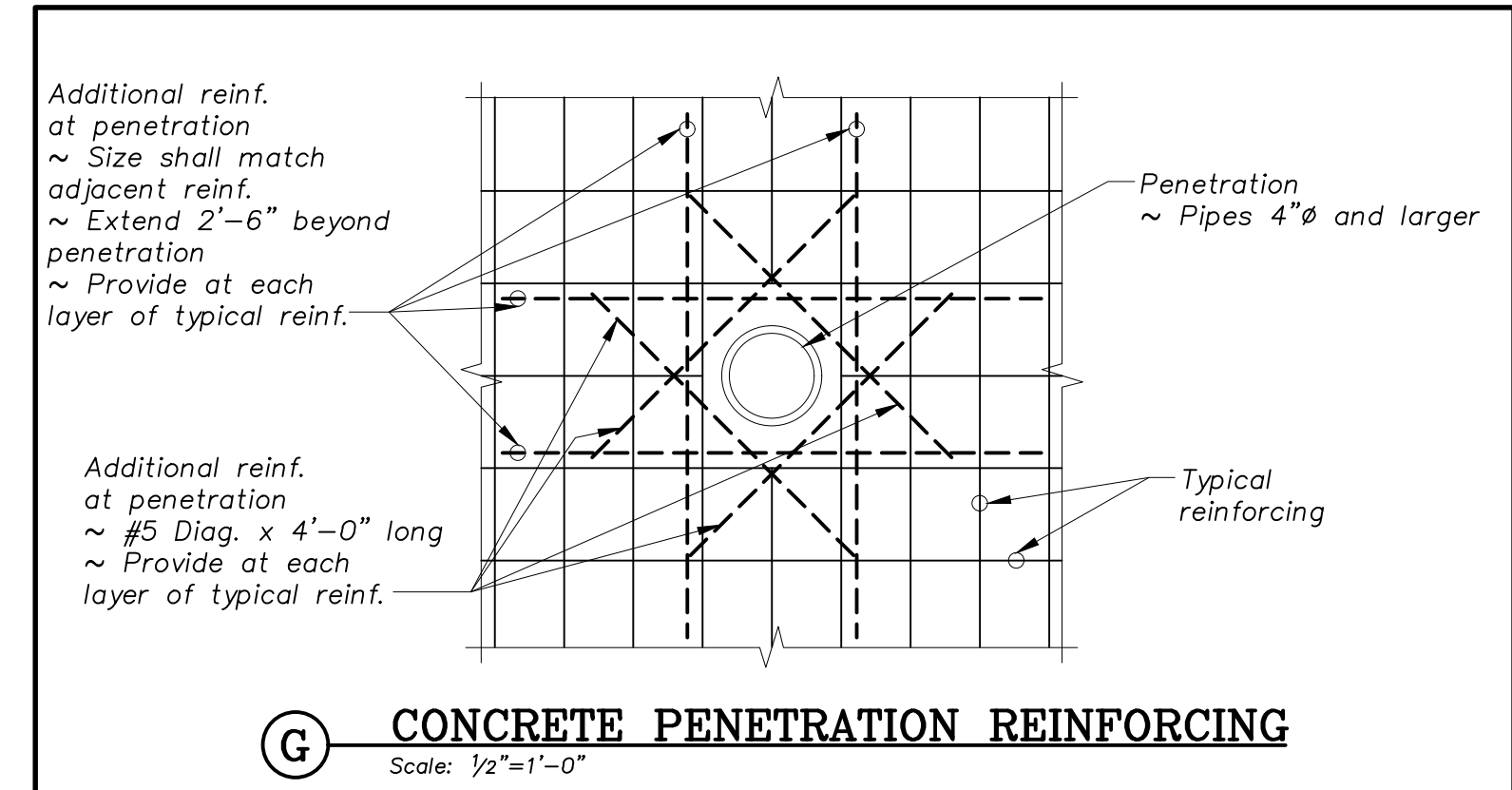
**D DIVING AND PLUNGE AREA - MAIN DRAIN
IMPROVEMENT**
D MAIN DRAIN DETAIL
Scale: 1"=1'-0"



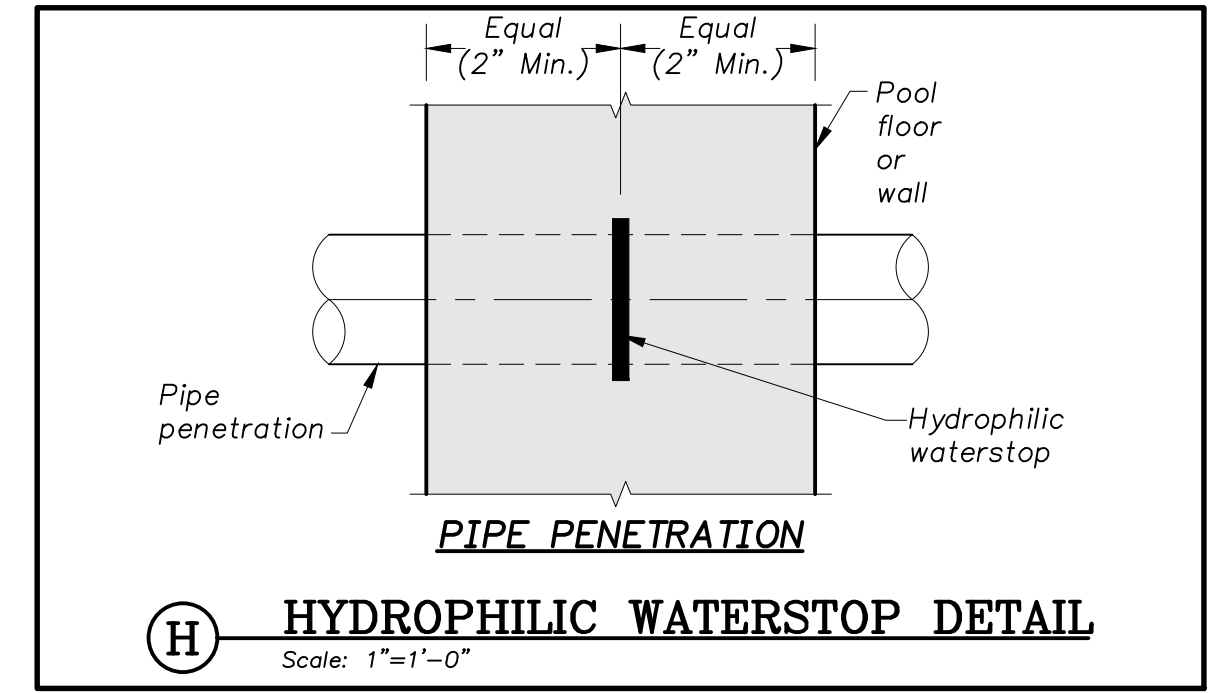
E DECK BARRIER - POST WITH NETTING DETAIL
Scale: 3/4"=1'-0"



F WET DECK /POOL DECK WALL SECTION
Scale: 1"=1'-0"

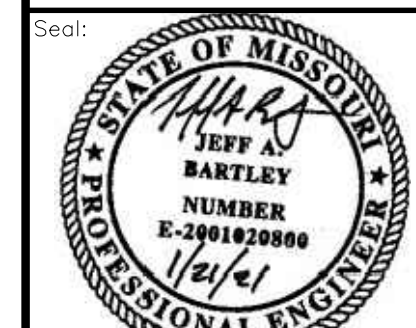


G CONCRETE PENETRATION REINFORCING
Scale: 1/2"=1'-0"



H HYDROPHILIC WATERSTOP DETAIL
Scale: 1"=1'-0"

HARRISONVILLE, MISSOURI Outdoor Pool Improvements



JEFF BARTLEY-ENGINEER
LICENSE # E-2001020800

Date: 01-21-21 Job #: 20-528

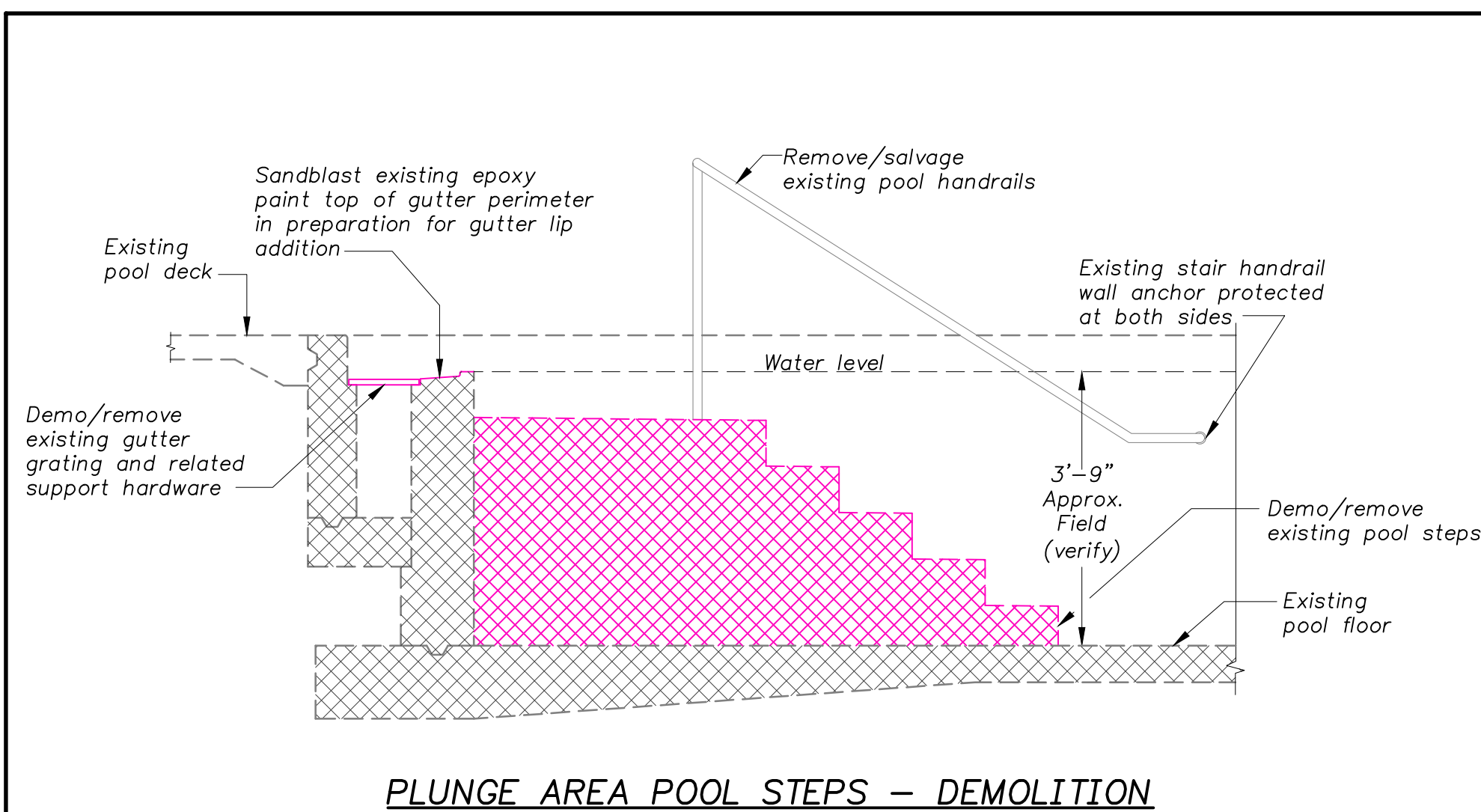
Drawn: CJB Checked: JAB

Issue: CONSTRUCTION DOCUMENTS

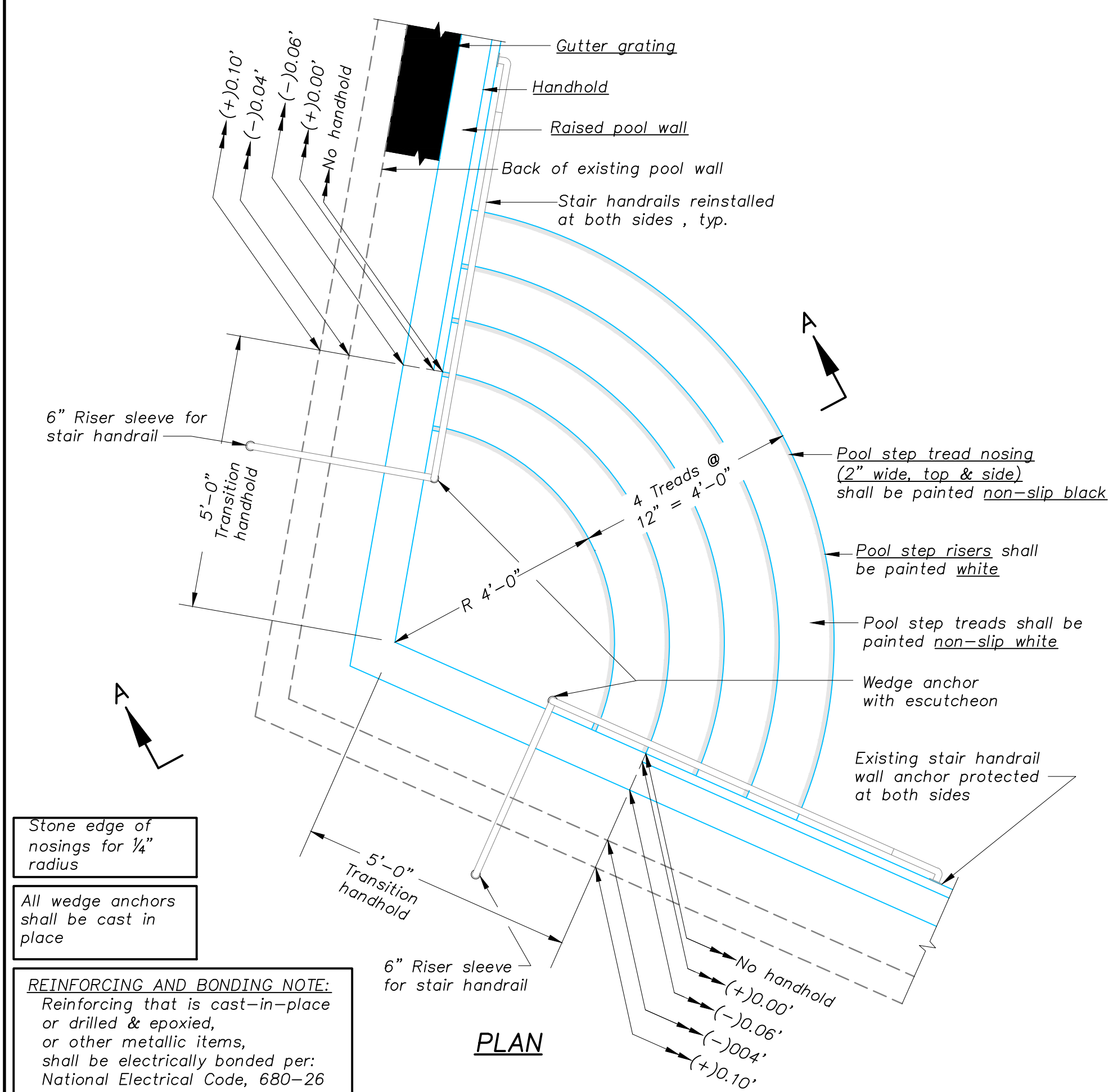
POOL WALL AND FLOOR IMPROVEMENT DETAILS

SP-P5

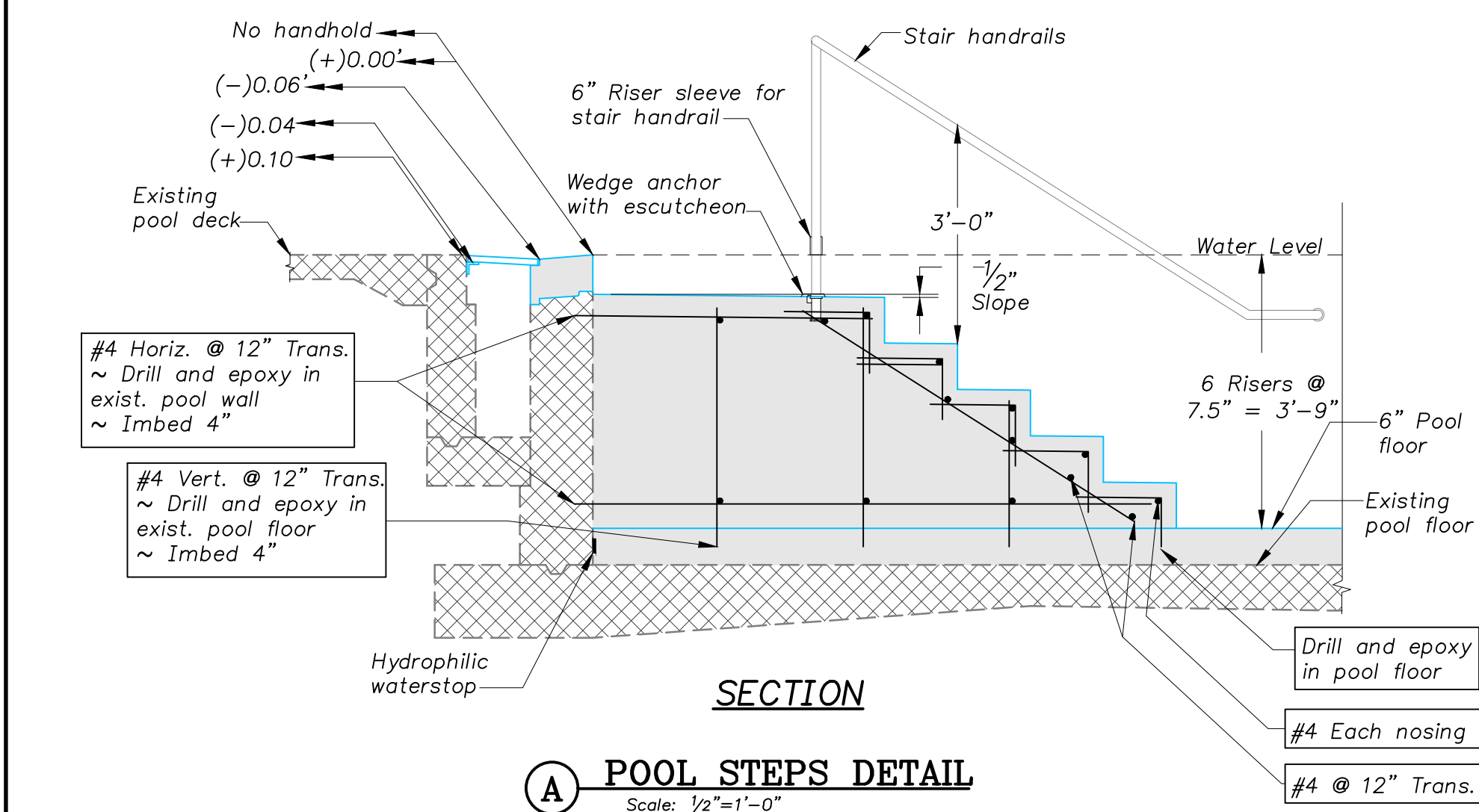
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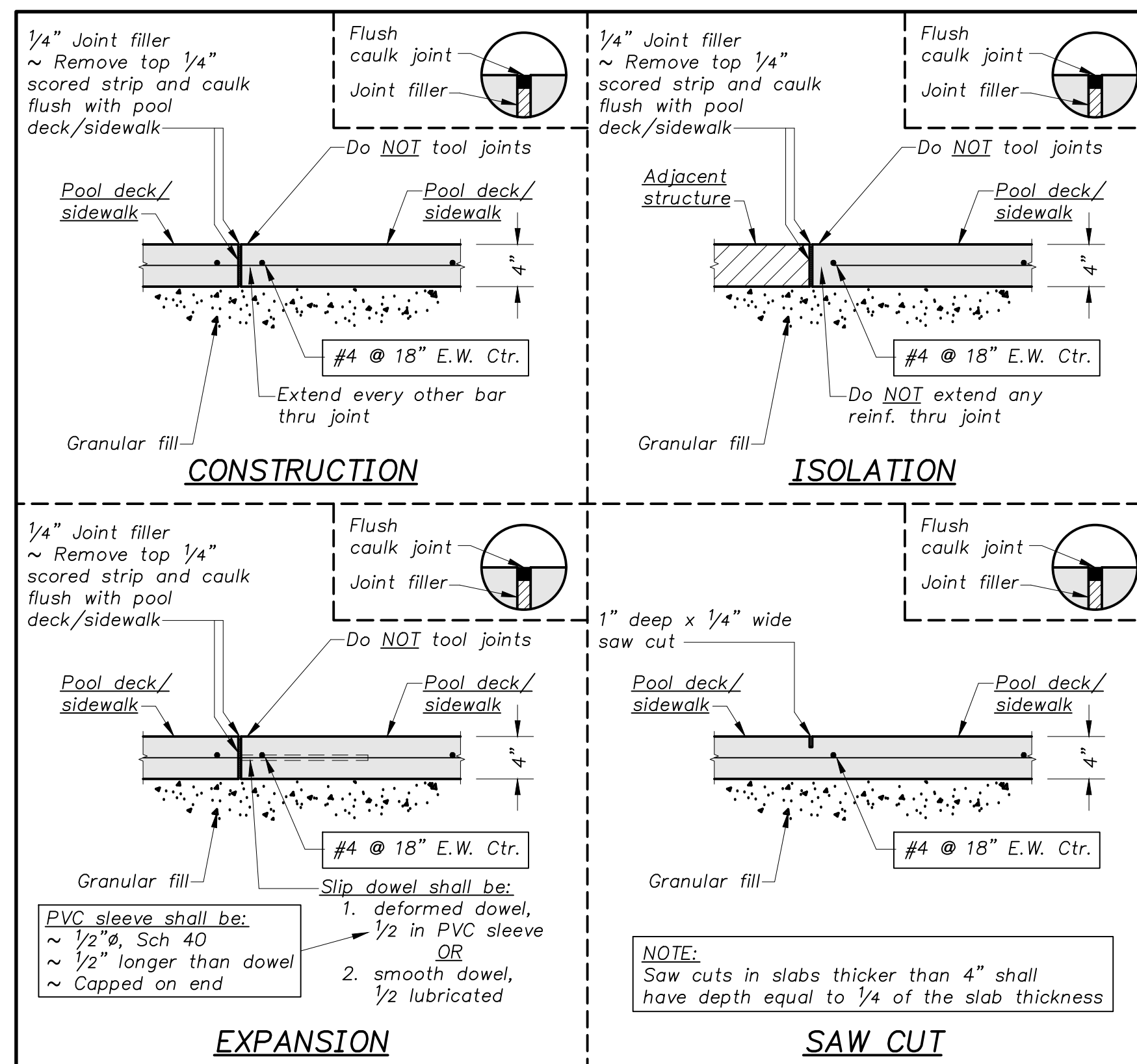
PLUNGE AREA POOL STEPS - DEMOLITION



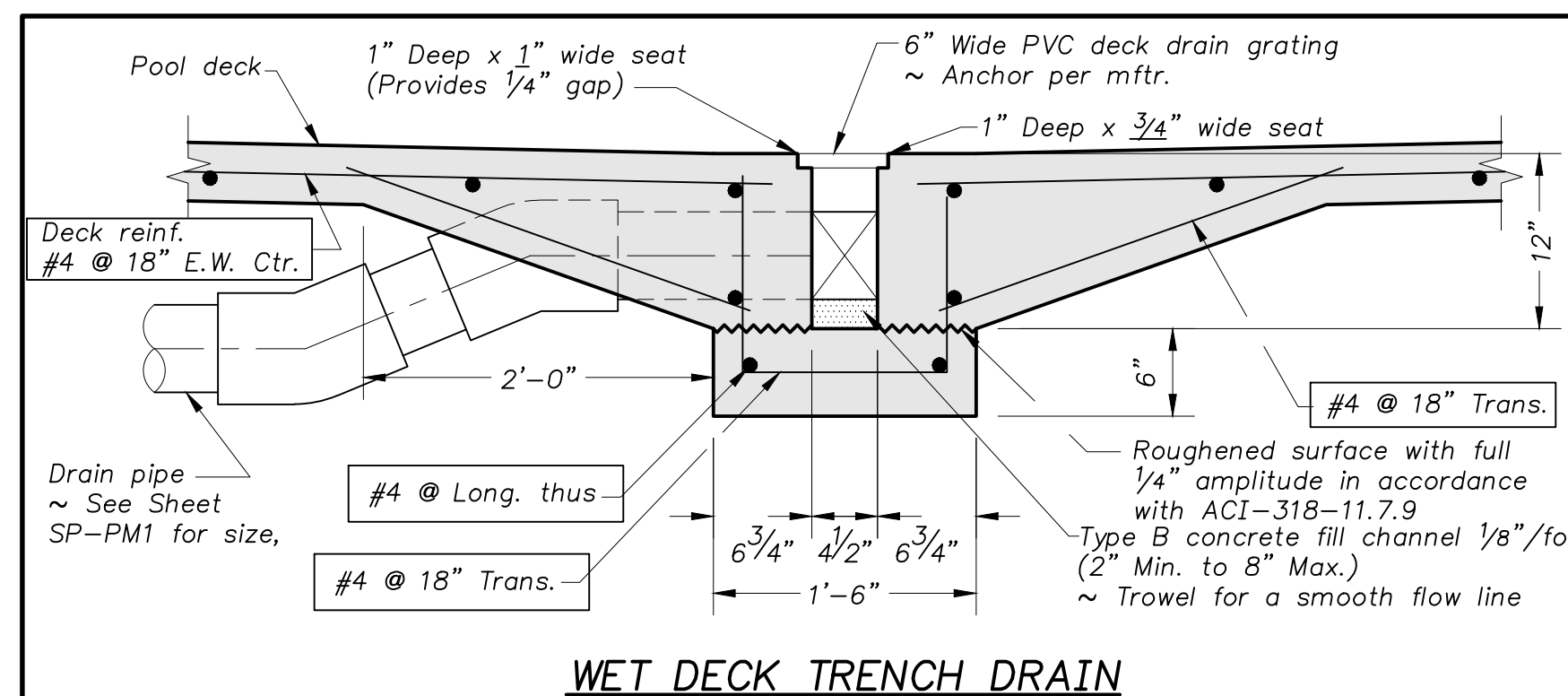
PLAN



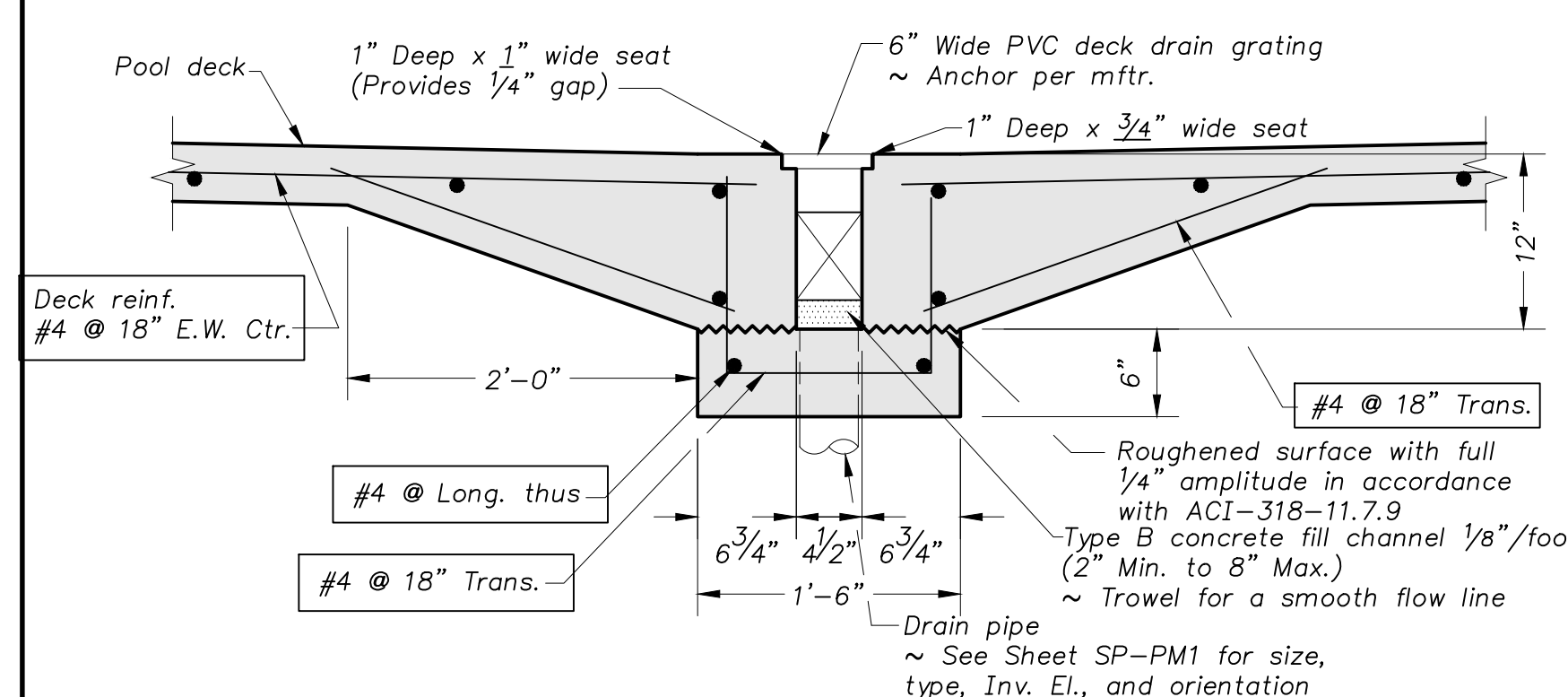
A POOL STEPS DETAIL
Scale: 1/2"=1'-0"



B POOL DECK AND WET DECK AREA CONCRETE JOINT DETAIL
Scale: 1"=1'-0"

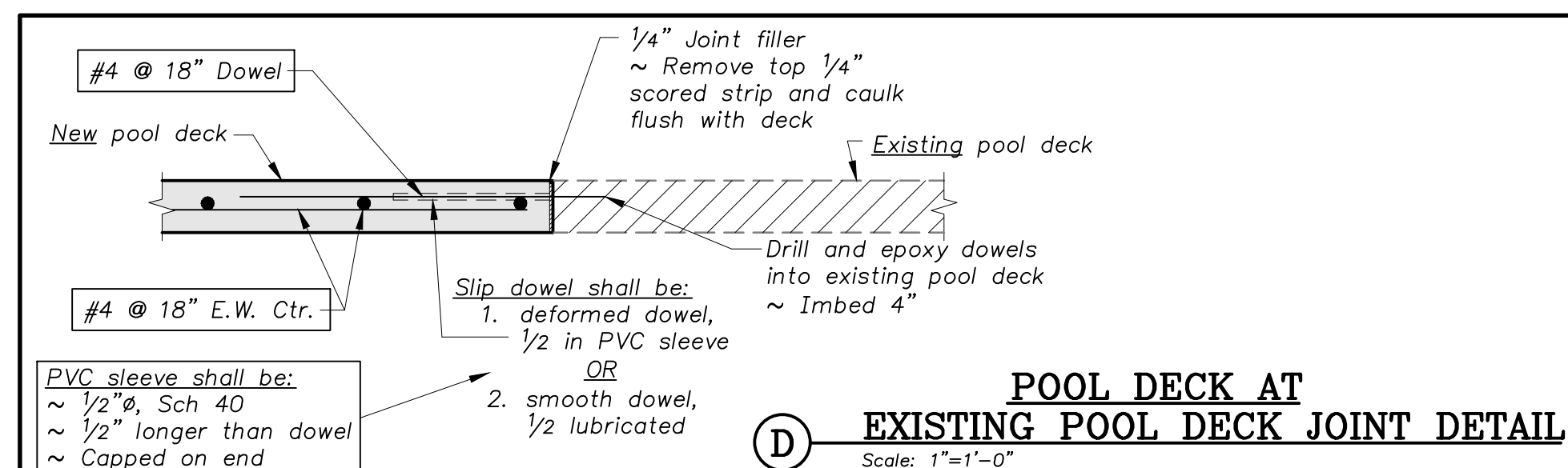


WET DECK TRENCH DRAIN

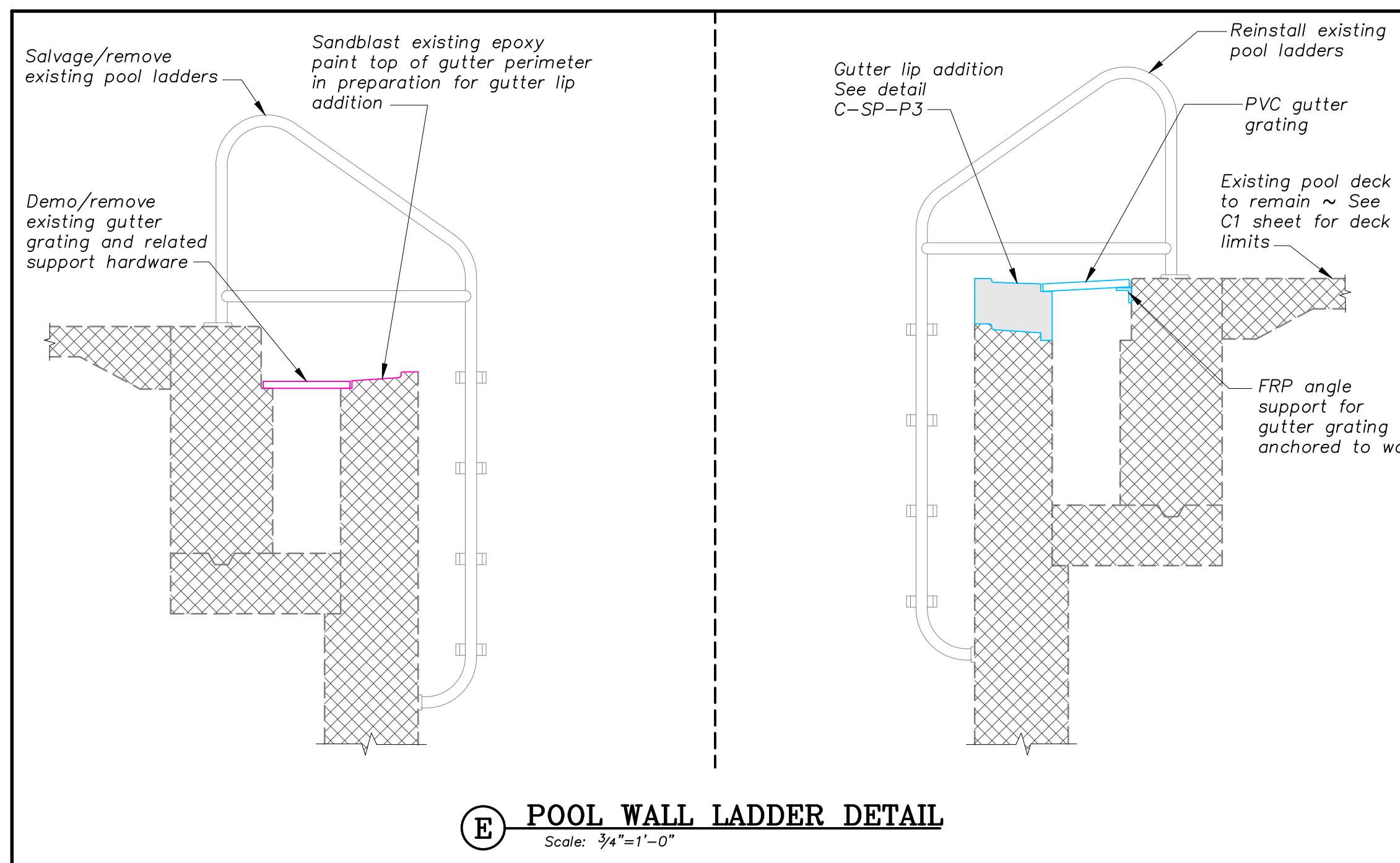


POOL DECK TRENCH DRAIN

C DECK DRAIN - TRENCH DETAIL
Scale: 1"=1'-0"



D POOL DECK AT EXISTING POOL DECK JOINT DETAIL
Scale: 1"=1'-0"

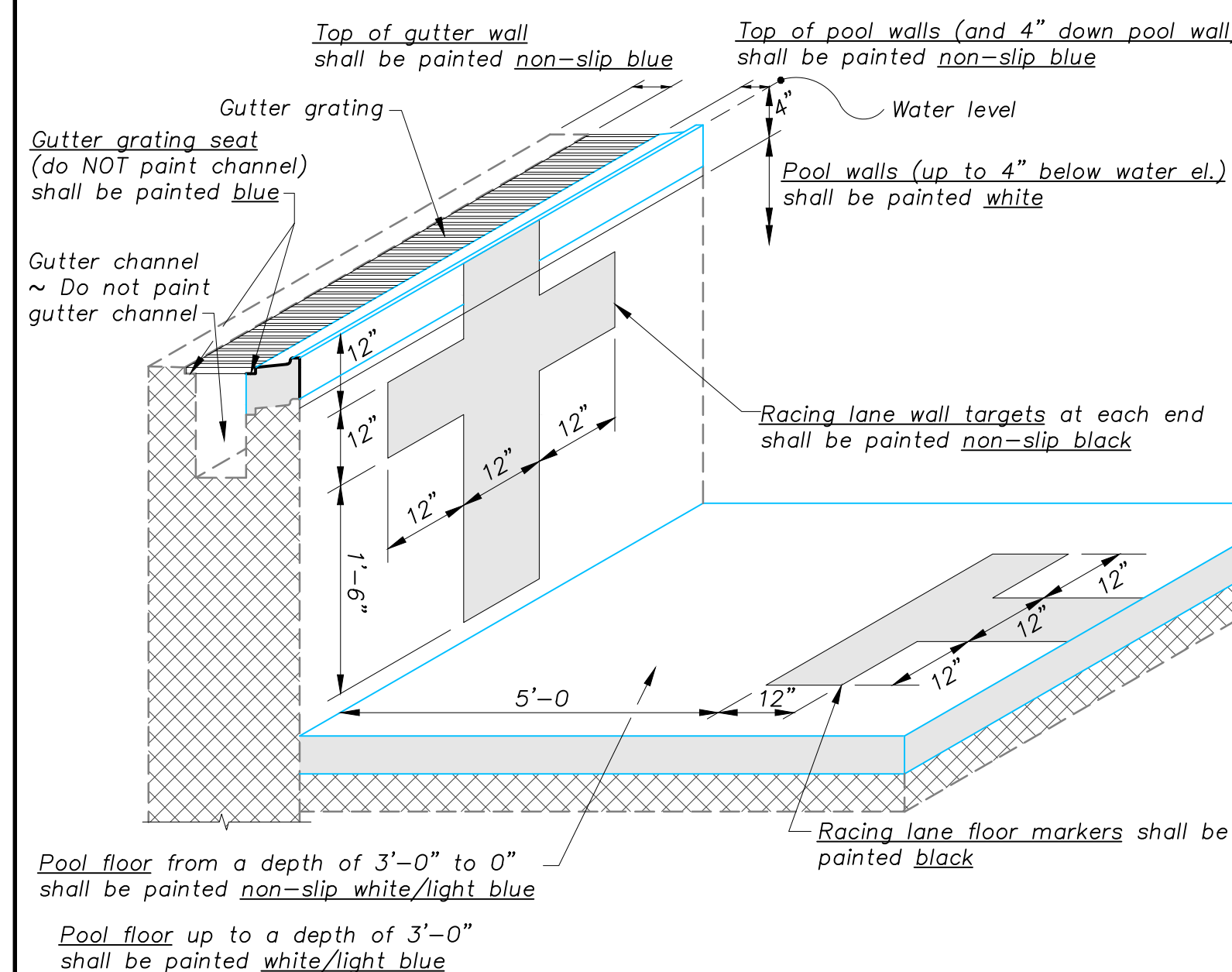


E POOL WALL LADDER DETAIL
Scale: 3/4"=1'-0"

- ### POOL FINISH NOTES
- Pool basin ~ See Detail below
 - Stripe around drain grate shall be (4" wide) and painted black
 - Toe ledge at diving area (top and 1" down the side) shall be painted non-slip black
 - Warning stripe (4" wide) at 5'-0" depth on pool floor and walls shall be painted black ~ Non-slip black on floor
 - Pool steps ~ See Detail A-SP-P5 for finish

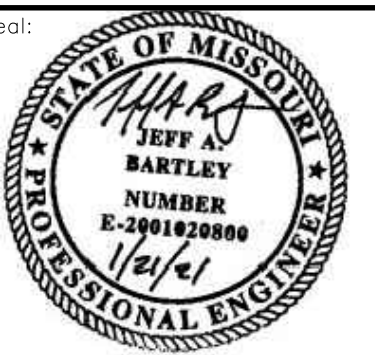
All colors indicated are approximate and will be selected by Owner and included in project color schedule

Contractor shall provide (3) coats of each color



F POOL FINISH DETAIL
N.T.S.

HARRISONVILLE, MISSOURI Outdoor Pool Improvements



JEFF BARTLEY—ENGINEER
LICENSE # E-2001020800

Date: 01-21-21 Job #: 20-528

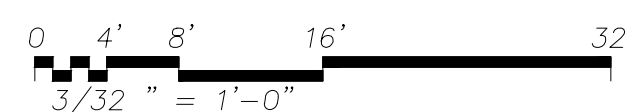
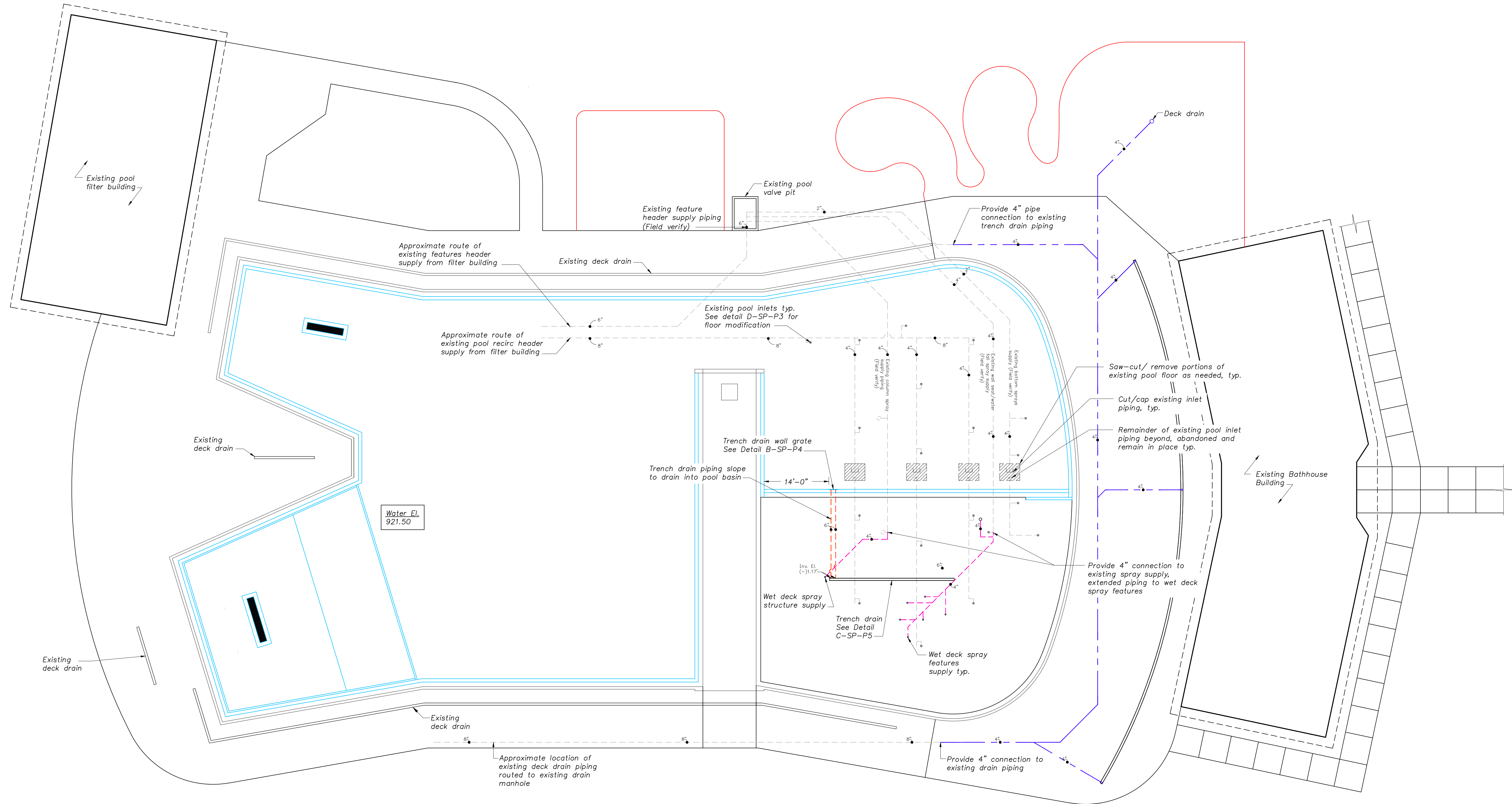
Drawn: CJB Checked: JAB

Issue: CONSTRUCTION DOCUMENTS

**POOL
MECHANICAL
PLAN**

SP-PM1

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POOL MECHANICAL PLAN
Scale: 3/32"=1'-0"

GENERAL SHEET NOTES

- All E.I.'s shown Inv. El. (-)xxx', are distances down from indicated Water El.
- All E.I.'s shown Inv. El. (+)xxx', are distances up from indicated Water El.
- All pipes shall slope to drain ~ Slope shall be uniform between Inv. El.'s, shown, unless otherwise required to prevent piping conflicts
- Inv. El.'s at structures, adjacent to equipment (basket strainers, pumps, etc.), are approximate and may vary per mfr. ~ Contractor shall verify
- All piping through concrete structures shall be cast-in-place ~ No pipe sleeves or coring allowed
- Coordinate all items with piping ~ Example...fence post footings, shade column footings, etc.
- Tee fitting sizes shall match that of the largest connecting pipe size



Technical Specifications

OUTDOOR POOL IMPROVEMENTS HARRISONVILLE, MISSOURI

Issue Date: January 13, 2021

Owner:

City of Harrisonville
300 E Pearl Street
Harrisonville, MO 64701
Tel: 816.380.8900

Engineering Consultant:

Waters Edge Aquatic Design, LLC
11205 West 79th Street
Lenexa, KS 66214
Tel: 913.438.4338

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

CERTIFICATION DOCUMENT

Project: **Outdoor Pool Improvements**
Harrisonville, Missouri

I hereby certify that the following engineering documents were prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Missouri.

Specifications covered by this seal: These specifications are dated January 13, 2021.

Division 01: 01 40 00, 01 50 00, 01 60 00, 01 70 00, 01 78 00
Division 02: 02 41 00
Division 07: 07 90 10
Division 09: 09 96 10
Division 13: 13 11 14, 13 11 15, 13 11 55, 13 11 70, 13 11 90, 13 31 50
Division 31: 31 23 23

By: 
(Signature)

Jeff A. Bartley
(Engineer's Name)

01/13/2021
(Date)

12/31/2021
(License Expires)

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

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01 50 00	TEMPORARY FACILITIES AND CONTROLS
01 60 00	PRODUCT REQUIREMENTS
01 70 00	EXECUTION AND CLOSEOUT REQUIREMENTS
01 78 00	CLOSEOUT SUBMITTALS

DIVISION 02 - EXISTING CONDITIONS

02 41 00	DEMOLITION
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DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 90 10	JOINT SEALERS FOR POOLS AND DECKS
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DIVISION 09 - FINISHES

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13 11 15	CAST-IN-PLACE CONCRETE FOR POOLS
13 11 55	POOL ACCESSORIES
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13 11 90	POOL PIPING, VALVES, AND RELATED ITEMS
13 31 50	SHADE STRUCTURES

DIVISION 31 - EARTHWORK

31 23 23	POOL FILL AND BACKFILL
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**SECTION 01 40 00
QUALITY REQUIREMENTS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. References and standards.
- B. Submittals.
- C. References and standards.
- D. Mock-ups.
- E. Control of installation.
- F. Tolerances.
- G. Testing and inspection agencies and services.
- H. Control of installation.
- I. Mock-ups.
- J. Tolerances.
- K. Manufacturers' field services.
- L. Defect Assessment.

1.02 REFERENCE STANDARDS**1.03 SUBMITTALS**

- A. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Engineer, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.
- B. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- C. Manufacturer's Field Reports: Submit reports for Engineer's benefit as contract administrator or for Owner.
 - 1. Submit report in duplicate within 30 days of observation to Engineer for information.
 - 2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.
- D. Erection Drawings: Submit drawings for Engineer's benefit as contract administrator or for Owner.
 - 1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.
 - 2. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Owner.

1.04 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.05 Testing and Inspection Agencies and Services

- A. Owner will employ and pay for services of an independent testing agency to perform specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

- A. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be a comparison standard for the remaining Work.
- D. Where mock-up has been accepted by Engineer and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Engineer.

3.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

- A. See individual specification sections for testing required.

- B. Testing Agency Duties:
 - 1. Test samples of mixes submitted by Contractor.
 - 2. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
 - 3. Perform specified sampling and testing of products in accordance with specified standards.
 - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 5. Promptly notify Engineer and Contractor of observed irregularities or non-compliance of Work or products.
 - 6. Perform additional tests and inspections required by Engineer.
 - 7. Submit reports of all tests/inspections specified.
- C. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
- D. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- E. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Engineer.
- F. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.
- G. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Engineer. Payment for re testing will be charged to the Contractor by deducting testing charges from the Contract Price.

3.05 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.

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WEAD 20-528

Harrisonville, MO Outdoor Pool Improvements
Harrisonville, Missouri

- B. If, in the opinion of Engineer, it is not practical to remove and replace the work, Engineer will direct an appropriate remedy or adjust payment.

END OF SECTION

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Field Offices
- B. Water
- C. Power
- D. Telephone Service
- E. Sanitary Facilities
- F. Maintenance of Traffic
- G. Barricades and Lights
- H. Damage to Existing Property
- I. Tree and Plant Protection
- J. Security
- K. Access Roads
- L. Parking
- M. Temporary Drainage Provisions

1.02 FIELD OFFICES

- A. Maintain a suitable office at or near the site of the Work which shall be the headquarters of its representative authorized to receive drawings, instructions, or other communication or articles.
- B. Copies of the Drawings, Specifications, and other Contract Documents shall be kept at Contractor's office at the Site and available for use at all times.
- C. Space, including tables and chairs, shall be provided for Project meetings.

1.03 TEMPORARY WATER SERVICE

- A. Cost of Water Used: By Owner.
- B. Provide and maintain suitable quality water service for construction operations at time of project mobilization.
- C. Connect to existing water source.
 - 1. Exercise measures to conserve water.
- D. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

1.04 POOL FILL WATER AND POOL CHEMICALS

- A. Cost of Pool Fill Water: By Owner.
- B. Cost of chemicals required for pool start-up and operation: By Owner.
- C. If pool water has to be removed from the swimming pool through no fault of Owner, Contractor shall reimburse Owner for cost of water and chemicals required to re-fill the pool.

1.05 POWER

- A. Provide, maintain, and pay for all power for heating, lighting, operation of Contractor's equipment, or for any other use by Contractor.
- B. Temporary heat and lighting shall be maintained until the Work is accepted.

1.06 TELEPHONE SERVICE

- A. Make all necessary arrangements and pay all installation charges for telephone lines in offices at the site and provide all telephone instruments.

1.07 SANITARY FACILITIES

- A. Furnish temporary sanitary facilities at the site for the needs of all construction workers and others performing work or furnishing services on the Project.
- B. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the site.

1.08 MAINTENANCE OF TRAFFIC

- A. Conduct work to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, whether public or private, provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and give reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when Contractor has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over public property involved, to obstruct traffic at the designated point.
- B. In making open cut street crossings, do not block more than one-half of the street at a time. Whenever possible, widen the shoulder on the opposite side to facilitate traffic flow. Temporary surfacing shall be provided as necessary on shoulders.

1.09 BARRICADES AND LIGHTS

- A. All streets, roads, highways, and other public thoroughfares which are closed to traffic shall be protected by effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersecting public highway or street on each side of the blocked section.
- B. All open trenches and other excavations shall have suitable barricades, signs, and lights to provide adequate protection to the public. Obstructions, such as material piles and equipment, shall be provided with similar warning signs and lights.
- C. All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and conduct of the Work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.
- D. All barricades, signs, lights, and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within railroad and highway rights-of-way, as required by the authority having jurisdiction thereover.

1.10 DAMAGE TO EXISTING PROPERTY

- A. Contractor will be held responsible for any damage to existing structures, Work, materials, or equipment because of his operations and shall repair or replace any damaged structures, Work, materials, or equipment to the satisfaction of, and at no additional cost to, Owner.
- B. Protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection.
- C. Contractor shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property, which may be caused by transporting equipment, materials, or workers to or from the Work. Contractor shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

1.11 TREE AND PLANT PROTECTION

- A. All trees and other vegetation which must be removed to perform the Work shall be removed and disposed of by Contractor; however, no trees or cultured plants shall be unnecessarily removed unless their removal is indicated on the Drawings. All trees and plants not removed shall be protected against injury from construction operations.

- B. Trees considered by Engineer to have any significant effect on construction operations are indicated on the Drawings and those which are to be preserved are so indicated.
- C. Take extra measures to protect trees designated to be preserved, such as erecting barricades, trimming to prevent damage from construction equipment, and installing pipe and other Work by means of hand excavation or tunneling methods. Such trees shall not be endangered by stockpiling excavated material or storing equipment against their trunks.
- D. When injuring or removal of trees designated to be preserved cannot be avoided, or when removal and replacement is indicated on the Drawings, each tree injured beyond repair or removed shall be replaced with a similar tree of the nearest size possible.
- E. All trimming, repair, and replacement of trees and plants shall be performed by qualified nurserymen or horticulturist.

1.12 SECURITY

- A. Contractor shall be responsible for protection of the Site, and all Work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons.
- B. No claim shall be made against Owner by reason of any act of an employee or trespasser, and Contractor shall make good all damage to Owner's property resulting from his failure to provide security measures as specified.
- C. Security measures shall be at least equal to those usually provided by Owner to protect his existing facilities during normal operation, but shall also include such additional security fencing, barricades, lighting, and other measures as required to protect the site.

1.13 ACCESS ROADS

- A. Establish and maintain temporary access roads to various parts of the site as required to complete the Project. Such roads shall be available for the use of all others performing work or furnishing services in connection with the Project.
- B. Provide and maintain access to fire hydrants, free of obstruction.

1.14 PARKING

- A. Provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, Owner's operations, or construction activities.

1.15 TEMPORARY DRAINAGE PROVISIONS

- A. Provide for the drainage of storm water and such water as may be applied or discharged on the site in performance of the Work. Drainage facilities shall be adequate to prevent damage to the Work, the site, and adjacent property.
- B. Existing drainage channels and conduits shall be cleaned, enlarged, or supplemented as necessary to carry all increased runoff attributable to Contractor's operations. Dikes shall be constructed as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect Owner's facilities and the Work, and to direct water to drainage channels or conduits. Ponding shall be provided as necessary to prevent downstream flooding.

PART 2 PRODUCTS - NOT USED**PART 3 EXECUTION - NOT USED****END OF SECTION**

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

Waters Edge Aquatic Design
WEAD 20-528

Harrisonville, MO Outdoor Pool Improvements
Harrisonville, Missouri

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

SECTION 01 60 00 PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Transportation, handling, storage and protection.
- B. Product option requirements.
- C. Substitution limitations.
- D. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 REFERENCE STANDARDS

- A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
- D. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.
- B. Where other criteria are met, Contractor shall give preference to products that:
 - 1. If used on interior, have lower emissions, as defined in Section 01 61 16.
 - 2. If wet-applied, have lower VOC content, as defined in Section 01 61 16.
- C. Motors: Specific motor type is specified in individual specification sections.
- D. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.
- E. Cord and Plug: Provide minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.02 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.03 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

- A. A request for substitution constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Agrees to provide the same warranty for the substitution as for the specified product.
 - 3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- B. Submittal Procedure:
 - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
 - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.

3.02 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 74 19.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Provide off-site storage and protection when site does not permit on-site storage or protection.
- G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- H. Comply with manufacturer's warranty conditions, if any.
- I. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

- J. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- K. Prevent contact with material that may cause corrosion, discoloration, or staining.
- L. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- M. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

Waters Edge Aquatic Design
WEAD 20-528

Harrisonville, MO Outdoor Pool Improvements
Harrisonville, Missouri

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

SECTION 01 70 00 EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Water loss testing.
- G. Demonstration and instruction of Owner personnel.
- H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.02 PROJECT CONDITIONS

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
 - 1. Minimize amount of bare soil exposed at one time.
 - 2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
 - 3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
 - 4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- F. Noise Control:
 - 1. Take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work.
 - 2. During construction activities on or adjacent to occupied buildings, and when appropriate, erect screens or barriers effective in reducing noise in the building and conduct operations to avoid unnecessary noise which might interfere with the activities of building occupants.
- G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.03 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.

- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Engineer four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 1. Review conditions of examination, preparation and installation procedures.
 2. Review coordination with related work.

- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Engineer of any discrepancies discovered.
- C. Contractor shall locate and protect survey control and reference points.
- D. Control datum for survey is that indicated on drawings.
- E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- F. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.
- H. Utilize recognized engineering survey practices.
- I. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, ground floor elevations, and other structures.
- J. Periodically verify layouts by same means.
- K. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
 - 1. Complete the work.
 - 2. Fit products together to integrate with other work.
 - 3. Provide openings for penetration of mechanical, electrical, and other services.
 - 4. Match work that has been cut to adjacent work.
 - 5. Repair areas adjacent to cuts to required condition.
 - 6. Repair new work damaged by subsequent work.
 - 7. Remove samples of installed work for testing when requested.
 - 8. Remove and replace defective and non-complying work.
- C. Execute cutting and patching including excavation and fill to complete the work, to uncover work to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit Products together to integrate with other work.

- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.
- J. Patching:
 - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 - 2. Match color, texture, and appearance.
 - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.
- K. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- L. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

3.07 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 WATER LOSS TESTING

- A. After the pool has been filled and is operational, perform a water loss test on all water holding structures (pool basins, surge pits, backwash pits, etc...) and piping systems. All testing shall be performed in company with the Owner and/or Engineer.
- B. Testing procedures shall be as follows:
 - 1. Run the pool recirculation system as well as all water feature systems under normal operating conditions.
 - 2. Where exposed for viewing, check all water holding structures and piping systems for visible leaks. Report any leaks along with recommended repair procedures to the Engineer for review and approval. Upon approval, make the necessary repairs.
 - 3. Turn off all pool water make-up systems.
 - 4. Verify the water level in the surge tank is at normal operating level. Measure and record the surge tank water level from the top of the pit down to water level.
 - 5. Place a five-gallon bucket within the pool structure on level ground (this could be on a step or on the pool bottom).
 - 6. Fill the bucket with water to the exact level of the surrounding pool water.
 - 7. Mark the inside and outside of the bucket with a permanent marker at the water level.
 - 8. Run the pool recirculation system as well as all water feature systems under normal operating conditions for a 24-hour period with the bucket in place.
 - 9. After 24-hours, measure and record the surge tank water level from the top of the pit down to water level. Compare the results of the water level with that taken at the start of testing. Report these values to the Engineer for review. A substantial difference in these values indicate water loss.
 - 10. Compare the water level in the bucket with the pool water level. Report these values to the Engineer. If the water level in the bucket and the pool water level are the same and the surge tank measurements above are not substantially different, then the test passed. If the pool water level is below the level of the water in the bucket, the test failed and a leak is present.
 - 11. Repeat the above steps with the recirculation system and water feature systems turned off. Report all measurements to the Engineer. If the difference between the level of water in the bucket and the level of the pool water is less than that measured with the recirculation system on, then the leak is likely in the recirculation system. If the difference between the level of water in the bucket and the level of the pool water is the same as that measured with the recirculation system on, then the leak is most likely in the pool structure.
- C. If testing indicates water loss or leakage, locate the source of water loss and report the source(s) and recommended repair procedures to the Engineer for review and approval. Once the repair procedures are approved, make the necessary repairs and perform the water loss testing procedures again.

3.10 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- B. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

3.11 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.
- F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
- G. Clean site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
- B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Engineer when work is considered ready for Engineer's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Engineer's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Engineer.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- G. Notify Engineer when work is considered finally complete and ready for Engineer's Substantial Completion final inspection.
- H. Complete items of work determined by Engineer listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 01 78 00 CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 SUBMITTALS

- A. Project Record Documents: Submit documents to Engineer with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
 - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer's comments. Revise content of all document sets as required prior to final submission.
 - 4. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record, at each product section, description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
3. Field changes of dimension and detail.
4. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
 1. Product data, with catalog number, size, composition, and color and texture designation.
 2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather-Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional information as specified in individual product specification sections.
- E. Provide a listing in Table of Contents for design data, with tabbed fly sheet, and space for insertion of data.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 1. Description of unit or system, and component parts.
 2. Identify function, normal operating characteristics, and limiting conditions.
 3. Include performance curves, with engineering data and tests.
 4. Complete nomenclature and model number of replaceable parts.
- B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.
- C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- D. Provide servicing and lubrication schedule, and list of lubricants required.
- E. Include manufacturer's printed operation and maintenance instructions.
- F. Include sequence of operation by controls manufacturer.
- G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- H. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

- I. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in the form of an instructional manual.
- C. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
- I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions, arranged by systems and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. List of equipment.
 - b. Parts list for each component.
 - c. Operating instructions.
 - d. Maintenance instructions for equipment and systems.
 - e. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
- J. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Engineer, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.06 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

Waters Edge Aquatic Design
WEAD 20-528

Harrisonville, MO Outdoor Pool Improvements
Harrisonville, Missouri

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

**SECTION 02 41 00
DEMOLITION****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Building demolition excluding removal of hazardous materials and toxic substances.
- B. Selective demolition of built site elements.
- C. Selective demolition of building elements for alteration purposes.
- D. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01 10 00 - Summary: Description of items to be salvaged or removed for re-use by Contractor.
- C. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- D. Section 01 60 00 - Product Requirements: Handling and storage of items removed for salvage and relocation.
- E. Section 01 70 00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- F. Section 31 23 23 - Pool Fill and Backfill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCE STANDARDS**1.04 SUBMITTALS**

- A. See Administrative Requirements, for submittal procedures.
- B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
 - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
 - 2. Identify demolition firm and submit qualifications.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS -- NOT USED**PART 3 EXECUTION****3.01 SCOPE**

- A. Remove other items indicated, for salvage and relocation.
- B. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as specified in Section 31 22 00.
- C. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.

3. Provide, erect, and maintain temporary barriers and security devices.
 4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 5. Do not close or obstruct roadways or sidewalks without permit.
 6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
 2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 1. Verify that construction and utility arrangements are as indicated.
 2. Report discrepancies to Engineer before disturbing existing installation.
 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Remove existing work as indicated and as required to accomplish new work.
 1. Remove items indicated on drawings.
- C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
 1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
 2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 3. Verify that abandoned services serve only abandoned facilities before removal.
 4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- D. Protect existing work to remain.
 1. Prevent movement of structure; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 07 90 10

JOINT SEALERS FOR POOLS AND DECKS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backing.
- B. Joint filler.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 05 - Cast-in-Place Concrete: Sealants required in conjunction with concrete slabs.

1.03 REFERENCE STANDARDS

- A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.
- B. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2011a.
- C. ASTM C 1247 - Standard Test Methods for Durability of Sealants Exposed to Continuous Immersion in Liquids; 1998.
- D. ASTM D1667 - Standard Specification for Flexible Cellular Materials--Poly(Vinyl Chloride) Foam (Closed-Cell); 2005 (Reapproved 2011).

1.04 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics.
- C. Manufacturer's Installation Instructions: Indicate special procedures.

1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the work of this section with minimum 5 years experience.

1.06 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.07 COORDINATION

- A. Coordinate the work with all sections referencing this section.

PART 2 PRODUCTS

2.01 SEALANTS

- A. Nonsag Polyurethane Sealant: ASTM C920, Grade NS, Class 25, Uses NT, M, A, G, O; multi component, chemical curing, non-staining, non bleeding, non-sagging type.
 - 1. Color: Colors as selected by Engineer.
 - 2. Product:
 - a. Sikaflex 2C NS EZ Mix manufactured by Sikaflex.
 - b. MasterSeal NP 2 manufactured by BASF.
 - 3. Movement Capability: Plus and minus 25 percent.
 - 4. Service Temperature Range: -20 to 180 degrees F.
 - 5. Shore A Hardness Range: 20 to 35.
 - 6. Applications: Use for:
 - a. Control joints in pool deck.
- B. Two-Part Polysulfide Rubber Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, M, G, A ; multi component, chemical curing, non-staining, non bleeding, non-sagging type. Also, exceeds the test requirements of ASTM C 1247 for sealants exposed to continuous immersion in liquids and NSF Standard 61, Section 6 for Joining and Sealing Materials.
 - 1. Color: Colors as selected by Engineer.

2. Products:
 - a. Deck-O-Seal Gun Grade manufactured by W.R. Meadows.
 - b. Synthacalk GC-2+ manufactured by Pecora.
 - c. Equivalent product recommended for continuous submersion in swimming pools.
3. Movement Capability: Plus and minus 25 percent.
4. Shore A Hardness Range: 25-30.
5. Applications: Use for:
 - a. Joints in swimming pool gutter.
 - b. Joints subject to submersion.
 - c. Joints in and adjacent to wet decks, spray grounds, etc.

2.02 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Filler: Polyethylene closed-cell backing expansion joint type compatible with sealant and utilizing peel-off top feature. Height equal to slab thickness.
 1. Product: Sonolastic Expansion Joint Filler manufactured by Sonneborn or equivalent.
- D. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
 1. Product: Sonolastic Closed-Cell Backer-Rod manufactured by Sonneborn or equivalent.
- E. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Remove protective coatings or finishes that could interfere with adhesion.
- C. Clean and prime joints in accordance with manufacturer's instructions.
- D. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- E. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Install bond breaker where joint backing is not used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. All caulk joint surfaces shall be straight and flush with adjacent surfaces. Tooling of joints other than as indicated above shall not be allowed unless otherwise noted.

3.04 CLEANING

- A. Clean adjacent soiled surfaces.

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3.05 PROTECTION

- A. Protect sealants until cured.

END OF SECTION

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SECTION 09 96 10 COATINGS FOR POOLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. High performance coatings for the following:
 - 1. Swimming pools.
- B. Preparation of new surfaces for coating.

1.02 RELATED SECTIONS

- A. Section 13 11 15 - Cast-in-Place Concrete: Concrete finishing: walls and floors.

1.03 REFERENCES

- A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products; 2000.
- B. ASTM D 4263 - Indicating Moisture in Concrete by the Plastic Sheet Method; 1999.
- C. ASTM F 1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 1998.

1.04 DEFINITIONS

- A. Definitions of Painting Terms: ASTM D 16, unless otherwise specified.
- B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

1.05 SUBMITTALS

- A. See Administrative Requirements section for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each coating product to be used, including:
 - 1. Product characteristics.
 - 2. Preparation instructions and recommendations.
 - 3. Primer requirements and recommendations.
 - 4. Storage and handling requirements and recommendations.
 - 5. Application methods.
- C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and sheens.
- D. Warranty: Submit manufacturer's standard warranty.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Company specializing in manufacturing the Products specified in this section with minimum five years documented successful experience.
 - 2. Able to demonstrate successful performance on comparable projects.
 - 3. Single Source Responsibility: Coatings and coating application accessories shall be products of a single manufacturer.
- B. Applicator Qualifications:
 - 1. Company specializing in application of Products specified in this section with minimum five years documented experience on projects of similar size and complexity to this Work.
 - 2. Applicator's Personnel: Employ persons trained for application of specified coatings and provide a letter or qualification statement supplied by the paint manufacturer.

1.07 PRE-INSTALLATION MEETING

- A. Convene two weeks before starting work of this section.
- B. Require attendance of parties directly affecting work of this section, including Contractor, Engineer, applicator, and manufacturer's representative. Review the following:
 - 1. Environmental requirements.
 - 2. Protection of surfaces not scheduled to be coated.

3. Surface preparation.
4. Application.
5. Repair.
6. Field quality control.
7. Cleaning.
8. Protection of coating systems.
9. One-year inspection.
10. Coordination with other work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
 1. Coating or material name.
 2. Manufacturer.
 3. Color name and number.
 4. Batch or lot number.
 5. Date of manufacture.
 6. Mixing and thinning instructions.
- B. Storage:
 1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
 2. Store products in manufacturer's unopened packaging until ready for installation.
 3. Do not use materials beyond manufacturer's shelf life limits.
 4. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- C. Handling: Protect materials during handling and application to prevent damage or contamination.

1.09 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not apply coatings under environmental conditions outside manufacturer's absolute limits.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Weather:
 1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.
 2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
 3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.
 4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
 5. Wind: Do not spray coatings if wind velocity is above manufacturer's limit.
- B. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with manufacturer's instructions.
- C. Dust and Contaminants:
 1. Schedule coating work to avoid excessive dust and airborne contaminants.
 2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Specified Manufacturer, unless noted otherwise: Tnemec Company Incorporated: 6800 Corporate Drive, Kansas City, Missouri 64120-1372; Tel: (800) 863-6321 or (816) 483-3400; Fax (816) 483-3969; www.tnemec.com.

2.02 SWIMMING POOLS

- A. Swimming Pools, Immersion - Floors and Walls:
 - 1. System Type: Epoxy.
 - 2. Surface Preparation: See Part 3 of this section on surface preparation for this procedure.
 - 3. Prime Coat: Series 66HS Hi-Build Epoxoline or Series 161HS Tneme-Fascure.
 - 4. Intermediate Coat: Series 66HS Hi-Build Epoxoline or Series 161HS Tneme-Fascure.
 - 5. Finish Coat: Series 66HS Hi-Build Epoxoline or Series 161HS Tneme-Fascure.
 - 6. Application Rate (each coat): 200 sq. ft. per gallon.
 - 7. Color: As selected by Owner from manufacturer's standard pool colors with "P" designation.
- B. Swimming Pools, Immersion - Painted Gutter Surface, Lane Stripes, and Targets:
 - 1. System Type: Epoxy.
 - 2. Surface Preparation: Same as A (above).
 - 3. Prime Coat: Series 66HS Hi-Build Epoxoline or Series 161HS Tneme-Fascure.
 - 4. Intermediate Coat: Series 66HS Hi-Build Epoxoline or Series 161HS Tneme-Fascure.
 - 5. Finish Coat: Series 66HS Hi-Build Epoxoline or Series 161HS Tneme-Fascure.
 - 6. Application Rate (each coat): 200 sq. ft. per gallon.
 - 7. Color: As selected by Owner from manufacturer's standard pool colors with "P" designation.
- C. Non-Skid Surfaces:
 - 1. Paint gutter wall top surfaces, submerged steps, pool floors 30 inches deep and shallower, all painted surfaces on pool deck, and all surfaces indicated on drawings non-skid. Mix dry 50 mesh white silica sand in final two coats at a rate of 5 pounds per gallon of paint used.
- D. Note: Series 161HS Tneme-Fascure shall be used when temperatures are expected to be below 50 degrees F and above 35 degrees F.

2.03 ACCESSORIES

- A. Coating Application Accessories:
 - 1. Accessories required for application of specified coatings in accordance with manufacturer's instructions, including thinners.
 - 2. Products of coating manufacturer.

2.04 MATERIALS - GENERAL REQUIREMENTS

- A. Coatings - General:
 - 1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
 - 2. Supply each coating material in quantity required to complete entire project's work from a single production run.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Coating Application Accessories: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, brushes, rollers, containers, and clean-up materials required.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.
- B. Examine areas and conditions under which coating systems are to be applied. Notify Engineer of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected.
- C. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED

- A. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, fittings, and all items not scheduled to be coated prior to preparing surfaces or finishing.
- B. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
- C. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

3.03 SURFACE PREPARATION OF NEW POOL WALLS AND FLOORS

- A. Wall and floor surfaces should be previously finished as described in specifications associated with pool concrete (typically section 03 30 05 or section 13 11 15).
- B. Remove contaminants that could impair coating performance or appearance by high pressure water blast at a minimum of 3,000 psi at the tip utilizing 3 ounces per gallon TSP (trisodium phosphate).
- C. If contaminants remain it may be necessary to heat the water up to 140 degrees F and repeat procedure.
- D. Rinse with clean water to provide a clean, contaminant free surface.
- E. Allow concrete and mortar to cure for a minimum of 28 days before coating.
- F. Test concrete for moisture in accordance with ASTM D 4263 and ASTM F 1869.

3.04 PREPARATION OF EXISTING CONCRETE SURFACES FOR RE-COATING

- A. Existing Pool Coatings: Unless specifically noted otherwise on the Drawings, all existing pool coatings shall be completely removed by sand blasting or other specific and appropriate method.
- B. Abrasive Blast all pool surfaces, including top of painted gutter, in accordance with SSPC SP-13 Surface Preparation of Concrete. Abrasive blast to entirely remove existing coating and to scarify bare concrete to an ICRI CSP 3 surface profile. Remove all blast material and waste products. Vacuum all surfaces to remove all dust. Do not allow debris in main drains. Wash all pool surfaces. Test for moisture, as described below, before starting the painting process.
- C. Contractor shall abide by all federal, state, local, and applicable governing bodies regulations.
- D. Rout out all cracks to a depth of ¼" and profile per coating manufacturer. Fill all routed cracks with Tnemec Series 215 Surfacing Epoxy to create a smooth surface that is flush with surface around the cracks; feather repaired crack surface to blend with adjacent surfaces.
- E. Identify deteriorated coating areas (corners, structure joints, etc.) and grind, abrasive blast or use other acceptable and appropriate method to remove coating to expose concrete; repair using Tnemec Series 215 Surfacing Epoxy to create a smooth surface that is flush with adjacent surfaces; feather repaired surface to blend with adjacent surfaces.
- F. Identify any areas that need to be patched as a result of sand-blasting. Float walls with Tnemec Series 215 Surfacing Epoxy, or equivalent, as required to fill holes or other defects in concrete, if any, that will not be sufficiently covered by new epoxy coating.
- G. Provide additional surface preparation as required by coating manufacturer.
- H. Cleaning shall remove contaminants that could impair coating performance or appearance by high pressure water blast at a minimum of 3,000 psi at the tip utilizing 3 ounces per gallon TSP (trisodium phosphate).
- I. If contaminants remain it may be necessary to heat the water up to 140 degrees F and repeat procedure.
- J. Rinse with clean water to provide a clean, contaminant free surface.
- K. Test concrete for moisture in accordance with ASTM D 4263 and ASTM F 1869.

3.05 APPLICATION

- A. Apply coatings in accordance with manufacturer's instructions
- B. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions.
- C. Keep containers closed when not in use to avoid contamination.
- D. Do not use mixed coatings beyond pot life limits.
- E. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.
- F. Uniformly apply coatings at spreading rate required to achieve specified DFT.
- G. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
- H. Stripe paint with brush at critical locations on steel such as welds, corners, and edges using specified primer.

3.06 REPAIR

- A. Materials and Surfaces Not Scheduled To Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.
- B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.
- C. Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.07 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.08 CLEANING

- A. Remove temporary coverings and protection of surrounding areas and surfaces.

3.09 PROTECTION OF COATING SYSTEMS

- A. Protect surfaces of coating systems from damage during construction.

END OF SECTION

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SECTION 13 11 14 WATERSTOP FOR POOLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Provisions of waterstops embedded in concrete and spanning control, expansion, and/or construction joints to create a continuous diaphragm to prevent fluid migration.
- B. Waterstops for pipe penetrations.

1.02 RELATED SECTIONS

- A. Section 03 30 05 - Cast-in-Place Concrete.

1.03 REFERENCES

- A. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension; 1998a.
- B. ASTM D 570 - Standard Test Method for Water Absorption of Plastics; 1998.
- C. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000.
- D. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics; 1999.
- E. ASTM D 746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact; 1998.
- F. ASTM D 747 - Standard Test Method for Apparent Bending Modulus of Plastics by Means of a Cantilever Beam; 1999.
- G. ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement; 1998.
- H. ASTM D 1149 - Standard Test Method for Rubber Deterioration-Surface Ozone Cracking in a Chamber; 1999.
- I. ASTM D 1203 - Standard Test Method for Volatile Loss From Plastics Using Activated Carbon Methods; 1994.
- J. ASTM D 2240 - Standard Test Method for Rubber Property-Durometer Hardness; 2000.
- K. COE CRD-C 572 - Corps of Engineers Specifications for Polyvinylchloride Waterstop; Corps of Engineers; 1974.

1.04 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Samples: Submit two waterstop samples, each 6 inches long.
- C. Product Data: Submit data of complete physical properties.

1.05 DELIVERY, STORAGE, AND PROTECTION

- A. Store waterstops under cover and elevated above grade to protect from oil, dirt, sunlight, and premature exposure to water.

PART 2 PRODUCTS

2.01 PVC WATERSTOPS

- A. 4" Wide Waterstop:
 - 1. Manufacturers and Products:
 - a. Greenstreak profile style number 702.
 - b. Vinylex Corporation profile style number RB4-316.
 - 2. Applications: Use at floor and wall construction joints in water retaining structures.
- B. Flexible PVC type waterstop, COE CRD-C 572.

- C. The PVC waterstop shall be extruded from an elastomeric plastic material of which the basic resin is prime virgin polyvinyl chloride. The PVC compound shall not contain any scrapped or reclaimed material or pigment whatsoever.
- D. Performance requirements as follows:
 - 1. Water Absorption, ASTM D 570: 0.15 percent maximum.
 - 2. Tear Resistance, ASTM D 624: 300 lbs per inch minimum.
 - 3. Ultimate Elongation, ASTM D 638: 300 percent minimum after accelerated extraction.
 - 4. Tensile Strength, ASTM D 638: 2,000 psi minimum after accelerated extraction.
 - 5. Low Temperature Brittleness, ASTM D 746: No failure at minus 35 degrees F.
 - 6. Stiffness in Flexure, ASTM D 747: 600 psi minimum.
 - 7. Specific Gravity, ASTM D 792: 1.4 maximum.
 - 8. Ozone Resistance, ASTM D 1149: No Failure.
 - 9. Volatile Loss, ASTM D 1203: 0.60 percent maximum.
 - 10. Hardness (Shore A), ASTM D 2240: 75 to 82.
 - 11. Tensile Strength after accelerated extraction, CRD-C 572: 1,600 psi minimum.
 - 12. Elongation after accelerated extraction, CRD-C 572: 300 percent minimum.
 - 13. Effect of Alkalies after 7 days, CRD-C 572:
 - a. Weight change: -0.10 to 0.25 percent.
 - b. Hardness change: plus or minus 5 maximum.

2.02 HYDROPHILIC WATERSTOPS

- A. Manufacturers and Products:
 - 1. Construction Joints and Penetrations:
 - a. Greenstreak "Hydrotite" profile number DSS-0420.
 - b. Applications: Use at construction joints where called for on the drawings and all pipe or other penetrations through water holding concrete structures.
- B. The waterstop shall be a combination of chloroprene rubber and chloroprene rubber modified to impart hydrophilic properties.
- C. The waterstop shall have a delay coating to inhibit initial expansion due to moisture present in fresh concrete.
- D. Performance requirements as follows:
 - 1. Chloroprene Rubber:
 - a. Tensile Strength, ASTM D 412: 1,300 psi minimum.
 - b. Ultimate Elongation, ASTM D 412: 400 percent minimum.
 - c. Hardness (Shore A), ASTM D 2240: 50 plus or minus 5.
 - d. Tear Resistance, ASTM D 624: 100 lb/inch minimum.
 - 2. Modified Chloroprene (Hydrophilic) Rubber:
 - a. Tensile Strength, ASTM D 412: 350 psi minimum.
 - b. Ultimate Elongation, ASTM D 412: 600 percent minimum.
 - c. Hardness (Shore A), ASTM D 2240: 52 plus or minus 5.
 - d. Tear Resistance, ASTM D 624: 50 lb/inch minimum.
 - e. Expansion Ratio, Volumetric Change - Distilled Water @ 70 degrees F: 3 to 1 minimum.

2.03 ACCESSORIES

- A. PVC Waterstops:
 - 1. Provide factory made waterstop fabrications for all changes of direction, intersections, and transitions leaving only straight butt joint splices for the field.
 - 2. Provide hog rings spaced at 12 inches on center along both sides and along length of waterstop. Location per mfr.
 - 3. Provide Teflon coated thermostatically controlled waterstop splicing irons for field butt splices.
- B. Hydrophilic Waterstops:

1. Provide Greenstreak Rubber Adhesive to secure "Hydrotite" to smooth, dry concrete.
2. Provide Greenstreak "Epoxy 7300" two component epoxy gel to secure "Hydrotite" to rough, wet (or dry) concrete.
3. Provide "Leakmaster LV-1" single component hydrophilic sealant to secure "Hydrotite" to rough, dry concrete.
4. Provide cyanacrylate adhesive (super glue) for all splices.
5. Provide "Leakmaster LV-1" as addition to cyanacrylate adhesive at all splices for added insurance.

PART 3 EXECUTION

3.01 INSTALLATION

- A. PVC Waterstop:
 1. Field butt splices shall be heat fused welded using a Teflon covered thermostatically controlled waterstop splicing iron at approximately 380 degree F. Follow approved manufacturer recommendations.
 2. Lapping of waterstop, use of adhesives, or solvents shall not be allowed.
 3. Center waterstop in joint and secure waterstop in correct position. Secure with wire tie to adjacent reinforcing steel at 12 inch on centers along both sides and along the length of the waterstop.
- B. Hydrophilic Waterstop:
 1. Cut coil ends square (or at proper angle for mitered corners) with shears or sharp blade to fit splices together without overlaps.
 2. Splices shall be sealed using cyanacrylate adhesive (super glue) and "Leakmaster LV-1".
 3. Seal watertight any exposed cells of "Hydrotite" using "Leakmaster LV-1".
 4. Follow approved manufacturer recommendations.
- C. PVC and Hydrophilic Intersections:
 1. Maintain continuity of waterstops at all intersections and transitions.
 2. Joinery between PVC and "Hydrotite" shall be sealed using "Leakmaster LV-1".
 3. Follow approved manufacturer recommendations.

END OF SECTION

Waters Edge Aquatic Design
WEAD 20-528

Harrisonville, MO Outdoor Pool Improvements
Harrisonville, Missouri

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

SECTION 13 11 15 CAST-IN-PLACE CONCRETE FOR POOLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Elevated concrete slabs.
- C. Floors and slabs on grade.
- D. Concrete reinforcement.
- E. Joint devices associated with concrete work.
- F. Concrete curing.

1.02 RELATED REQUIREMENTS

- A. Section 13 11 14 - Waterstops.

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- B. ACI 224R - Control of Cracking in Concrete Structures; 2001.
- C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2010.
- D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (errata 2007).
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- F. ACI 304.2R - Placing Concrete by Pumping Methods; 1991.
- G. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).
- H. ACI 309R - Guide for Consolidation of Concrete; American Concrete Institute International; 1987.
- I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2011.
- J. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2012.
- K. ASTM C 31 - Making and Curing Concrete Test Specimens in the Field; 2000.
- L. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2011a.
- M. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2012.
- N. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2011b.
- O. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2010a.
- P. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- Q. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2007.
- R. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2010b.
- S. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method; 1997.
- T. ASTM C 1064 - Test Method for Temperature of Freshly Mixed Portland Cement Concrete; 1999.

- U. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.

1.04 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Product Data:
 - 1. Submit data on formwork, reinforcing, and reinforcing accessories.
 - 2. Submit data on all concrete materials including cement and fine and coarse aggregates. Testing shall be completed by an independent testing agency and shall be less than 12 months old. The costs for material tests shall be paid for by the Contractor.
 - 3. Submit data on all admixtures and concrete accessories.
 - 4. Submit concrete mix design.
- C. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.
- D. Fabrication details of the tool proposed to be used to form the top pool gutter wall and lip including written instructions, descriptions, and/or illustrations showing how the tool will be used and how the vertical and horizontal dimensions will be controlled.

1.05 DESIGN OF FORMWORK

- A. Design and engineering of formwork, as well as its construction shall be the responsibility of the Contractor and shall comply with chapters 2 and 3 of ACI-347, and applicable requirements of the controlling local building code.

1.06 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Acquire cement from same source and aggregate from same source for entire project.
- C. Cold Weather Concreting: Cold weather concreting shall comply with ACI 306R.
 - 1. The temperature of concrete at the time of placement shall be as follows:
 - a. Section size (minimum dimension) less than 12 inches: 55 to 75 degrees F.
 - b. Section size (minimum dimension) 12 to 36 inches: 50 to 70 degrees F.
 - 2. The concrete temperature shall be maintained above the minimum identified above for a period of 6 days after placement.
- D. Hot Weather Concreting: Except as modified herein, hot weather concreting shall comply with ACI 305R.
 - 1. At air temperatures of 90 degrees F or above, concrete shall be kept as cool as possible during placement and curing. The temperature of the concrete when placed in the work shall not exceed 90 degrees F.
 - 2. Plastic shrinkage cracking due to rapid evaporation of moisture shall be prevented. Concrete shall not be placed when the evaporation rate (actual or anticipated) equals or exceeds 0.2 pound per square foot per hour, as determined by Figure 2.1.5 in ACI 305R.
- E. Concrete materials shall be selected and concrete shall be proportioned, handled, placed, and cured in a manner that will minimize shrinkage and cracking in accordance with Chapters 3 and 8 of ACI 224R. Concrete temperatures shall be controlled both before and after placement to minimize cracking. Any rise in concrete temperature caused by environmental conditions that will be conducive to excessive shrinkage shall be controlled with blankets or other acceptable means of insulation.

1.07 MOCK-UP

- A. Construct a mock-up panel for each type of concrete surface finish for review and acceptance by Engineer.
 - 1. Panel Size: Sufficient to illustrate finish required.
 - 2. Mock-up panels shall include, but not necessary limited to, illustrating the following:
 - a. Pool bottom including roughened construction joint, keyway placement, horizontal and vertical waterstop placement, placement of reinforcing, and broom finish.

- b. Pool deck and sidewalk broom finish.
 - c. Pool bathhouse and filter building floor finish.
 - d. Pool gutter wall including reinforcing placement, waterstop placement, horizontal and vertical control methods for construction of the top of gutter, repair of tie holes, and grout cleaned finish including sandblasting and rubbing.
- B. Accepted mock-up panel is considered basis of quality for the finished work. Keep mock-up exposed to view for duration of concrete work.
- C. Mock-up shall not remain as part of the Work.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
- 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
 - 2. Prefabricated: Simplex "Industrial Steel Frame Forms", Symons "Steel Ply", or Universal "Uni-form".
 - 3. Plywood: Product Standard PS 1, waterproof, resin-bonded, exterior type Douglas fir, Panel Grade Designation B-B (concrete form), Class I.
 - 4. Fiberboard: ANSI/AHA A135.4, Class 1, tempered, water-resistant, concrete form hardboard.
 - 5. Lumber: Straight, uniform width and thickness, and free from knots, offsets, holes, dents, and other surface defects.
 - 6. Chamfer Strips: Clear white pine, surface against concrete planed or Vinylex Corporation chamfer strips made from plastic material.
 - 7. Radius Formers: Vinylex Corporation radius formers made from plastic material.
 - 8. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
 - a. Burke "Spectrum Release Agent", L&M Chemical "Debond", Master Builders "Pro Cote", Nox-Crete "Chembeton", or Symons "Thrift Kote".
 - 9. Form Ties: Cone snap type, with 1-1/2 inch long cone and waterproofing washer, that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
- 1. Deformed billet-steel bars. Use plain billet-steel bars only where indicated on the drawings.
 - 2. Finish: Unfinished, unless otherwise indicated.
- B. Reinforcement Accessories:
- 1. Tie Wire: Annealed, minimum 16 gage.
 - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
 - 3. Precast Concrete Reinforcement Supports: Concrete supports that are not less than 4 inches square having a compressive strength equal to or greater than the specified compressive strength of the concrete being placed may be used for supporting reinforcing from the ground per ACI 301.
 - 4. Provide stainless steel or all-plastic (no plastic-tipped components allowed) components for placement within 1-1/2 inches of surfaces exposed to weather or water.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I - Normal Portland type.
- 1. Acquire all cement for entire project from same source.
- B. Fly Ash: Shall not be allowed.
- C. Fine and Coarse Aggregates: ASTM C 33, unless modified herein.

1. Acquire all aggregates for entire project from same source.
2. Fine Aggregate:
 - a. Clean natural sand. Artificial or manufactured sand will not be acceptable.
 - b. Shall not contain any materials that are deleteriously reactive with the alkalies in the cement.
 - c. Sulfate Soundness Test: ASTM C 88.
 - 1) Fine aggregate subjected to five cycles of the soundness test shall have a weighted average loss not greater than 10 percent when sodium sulfate is used or 15 percent when magnesium sulfate is used.
 - d. Organic Impurities Test: ASTM C 40.
 - 1) Fine aggregate shall be free of injurious amounts of organic impurities.
 - 2) Aggregates subjected to the test for organic impurities and producing a color darker than the standard shall be rejected.
 - e. Limits for Deleterious Substances:
 - 1) Clay lumps and friable particle, ASTM C 142: 3.0 percent.
 - 2) Materials finer than No. 200 sieve, ASTM C 117: 5.0 percent.
 - 3) Coal and lignite, ASTM C 123: 0.2 percent.
 - f. Sieve Analysis (percent passing), ASTM C 136:
 - 1) 3/8 inch: 100
 - 2) No. 4: 95 to 100
 - 3) No. 8: 80 to 100
 - 4) No. 16: 50 to 85
 - 5) No. 30: 25 to 60
 - 6) No. 50: 15 to 30
 - 7) No. 100: 3 to 10
 - g. Fineness Modulus, ASTM C 136: Shall not be less than 2.3 nor more than 3.1.
3. Coarse Aggregate:
 - a. Washed/crushed granite aggregate as approved by the Kansas City Metro Materials Board (KCMMB).
 - b. Shall not contain any materials that are deleteriously reactive with the alkalies in the cement.
 - c. Grading Requirements:
 - 1) Type A Concrete Mix Design: ASTM C 33, Table 2 Size Number: 67, which has the following gradation (percent passing):
 - (a) 1 inch: 100
 - (b) 3/4 inch: 90 to 100
 - (c) 3/8 inch: 20 to 55
 - (d) No. 4: 0 to 10
 - (e) No. 8: 0 to 5
 - 2) Type B Concrete Mix Design: ASTM C 33, Table 2 Size Number: 8, which has the following gradation (percent passing):
 - (a) 1/2 inch: 100
 - (b) 3/8 inch: 85 to 100
 - (c) No. 4: 10 to 30
 - (d) No. 8: 0 to 10
 - (e) No. 16: 0 to 5

D. Water: Clean and not detrimental to concrete.

2.04 CHEMICAL ADMIXTURES

- A. No calcium chloride or admixture containing chloride from sources other than impurities in admixture ingredients will be acceptable. Admixtures classified as Class 1 or Class 2 in ACI 212R or containing any lignosulfonic acids ("lignins") or their salts will not be acceptable.
- B. Air Entrainment Admixture: ASTM C 260.
 1. Products:

- a. Grace "Daravair" or "Darex".
 - b. BASF "MB-VR" or "MB-AE 90".
 - c. Sika Chemical "AER".
- 2. An air-entraining admixture shall be included in all concrete.
- C. Chemical Admixtures: ASTM C 494/C 494M, Type A - Water Reducing, Type B - Retarding, and Type D - Water Reducing and Retarding.
 - 1. Provide products manufactured by Grace, BASF, or Sika.
 - 2. A water reducing admixture shall be included in all concrete.
 - 3. A retarding admixture may be used only when approved by Engineer.

2.05 ACCESSORY MATERIALS

- A. Non-Shrink, Non-Metallic Grout: ASTM C 1107, Grades A, B, C; premixed compound consisting of non-metallic aggregate and portland cement.
 - 1. Minimum Compressive Strength at 28 Days: 7,000 psi.
 - 2. Products:
 - a. Carter Waters "CW 100 Precision Grout".
 - b. BASF "Masterflow 713 Plus".
 - c. Dayton Superior "1107 Advantage Grout".
 - d. Sonneborn "SonogROUT 10K".
- B. Epoxy Grout for Reinforcing Bars and Threaded Rod Anchors:
 - 1. Adhesive: Moisture-insensitive.
 - a. For Floors and Horizontal Surfaces:
 - 1) Low Viscosity Products:
 - (a) Hilti "HIT RE 500".
 - (b) Master Builders "Brutem AB (Parts A & B)".
 - (c) Sika "Sikadur 35, Hi-Mod LV" or "Sikadur 35, Hi-Mod LV LPL".
 - 2) Medium Viscosity Products:
 - (a) Master Builders "Concresive Liquid LPL".
 - (b) Sika "Sikadur 32, Hi-Mod" or "Sikadur 32, Hi-Mod LPL".
 - b. For Vertical Surfaces and Overhead Applications: Nonsag consistency.
 - 1) Master Builders "Concresive 1441".
 - 2) Sika "Sikadur 31, Hi-Mod Gel".
- C. Moisture-Retaining Cover: ASTM C 171; clear polyethylene, white polyethylene, white burlap-polyethylene sheet, or low permeability and high moisture retention non-staining natural cellulose fabric with a non-perforated reflective (white) polyethylene coating.
 - 1. UltraCure NCF by Sika Greenstreak, St. Louis, MO. 800-325-9504; usa.sika.com.

2.06 BONDING AND JOINTING PRODUCTS

- A. Waterstops: See Section 13 11 14.
- B. Joint Filler: As specified in Section 07 90 10.
- C. Backer Rod: As specified in Section 07 90 10.
- D. Sealant and Primer: As specified in Section 07 90 10.

2.07 CONCRETE MIX DESIGN

- A. Utilize approved mix design conforming to the Kansas City Metropolitan Materials Board (KCMMB) specifications, 4000 psi mix with granite. Utilize approved suppliers, aggregates, and mixes as published by KCMMB, available on the website www.kcmmb.org
- B. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- C. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 - 1. For trial mixtures method, employ independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.

- D. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
- E. Normal Weight Concrete, Type A:
 - 1. Type A concrete shall be used at all locations unless noted otherwise.
 - 2. Compressive Strength: The minimum acceptable compressive strength, when tested in accordance with ASTM C 39, shall be as follows:
 - a. 7 days: 3,000 psi.
 - b. 28 days: 4,000 psi.
 - 3. Cement Content: Minimum 530 lb per cubic yard.
 - 4. Water-Cement Ratio: Maximum 0.45 by weight.
 - 5. Total Air Content: 6 percent plus or minus 1 percent, per ASTM C 173.
 - 6. Slump: 3 inches plus or minus 1 inch.
 - 7. Maximum Aggregate Size: 1 inch.
- F. Normal Weight Concrete, Type B:
 - 1. Type B concrete shall be used only at specific locations shown.
 - 2. Compressive Strength: The minimum acceptable compressive strength, when tested in accordance with ASTM C 39, shall be as follows:
 - a. 7 days: 3,000 psi.
 - b. 28 days: 4,000 psi.
 - 3. Cement Content: Minimum 628 lb per cubic yard.
 - 4. Water-Cement Ratio: Maximum 0.462 by weight.
 - 5. Total Air Content: 6 percent plus or minus 1 percent, per ASTM C 173.
 - 6. Slump: 6 inches plus or minus 1 inch.
 - 7. Maximum Aggregate Size: 1/2 inch.

2.08 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.
 - 1. Delivery Tickets:
 - a. A delivery ticket shall be prepared for each load of ready-mixed concrete and a copy of the ticket shall be handed to the Contractor by the truck operator at the time of delivery before unloading at the site.
 - b. Copies of delivery tickets shall be given to the Engineer upon request.
 - c. Tickets shall indicate the following:
 - 1) Name and location of the concrete supplier.
 - 2) Serial number of ticket.
 - 3) Date.
 - 4) Truck number.
 - 5) Name of purchaser.
 - 6) Project name and location.
 - 7) Numerical sequence of the delivery.
 - 8) Specific class or designation of the concrete.
 - 9) Amount of concrete in cubic yards.
 - 10) Time loaded or of first mixing of cement and aggregates.
 - 11) Reading of revolution counter at the first addition of water.
 - 12) Type and brand and amount of cement.
 - 13) Type and brand and amount of admixtures.
 - 14) Information necessary to calculate the total mixing water added by the producer. Total mixing water includes free water on the aggregates, water, and ice batched at the plant.
 - 15) Maximum size of aggregate.
 - 16) Weights of fine and coarse aggregate.
 - 17) Outdoor temperature in the shade at the time at which the cement was added.
 - 18) Signature or initials of ready-mix representative.

2. Water from the truck water system or elsewhere shall not be added after the initial introduction of mixing water for the batch.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- E. In locations where new concrete is doweled to existing work, drill holes and epoxy dowels in existing concrete.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Unless otherwise indicated on the drawings, the details of fabrication shall conform to ACI 318.
- B. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.
- D. For all items subject to corrosion, including tie wires, provide the same concrete cover as is required for reinforcement under the same condition.

3.04 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Concrete placed by pumping methods shall be done in accordance with ACI 304.2R.
- D. Mixing Time: The time from initial introduction of mixing water to discharge shall not exceed the following computation: Time = 1 hour at concrete temperature of 75 degrees F +/- 15 minutes per 5 degree F drop/rise in concrete temperature. Examples follow:
 1. At concrete temperature of 50 degrees F, the time to discharge shall not exceed 2 hours and 15 minutes.
 2. At concrete temperature of 60 degrees F, the time to discharge shall not exceed 1 hours and 45 minutes.
 3. At concrete temperature of 70 degrees F, the time to discharge shall not exceed 1 hours and 15 minutes.
 4. At concrete temperature of 80 degrees F, the time to discharge shall not exceed 45 minutes.
- E. Notify Engineer not less than 24 hours prior to commencement of placement operations.
- F. Before concrete is placed, forms, reinforcement, waterstops, anchor bolts, and embedments shall be rigidly secured in proper position; all dirt, mud, water, and debris shall be removed from the space to be occupied by concrete; all surfaces encrusted with dried concrete from previous placements shall be cleaned.
- G. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- H. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

- A. Locate joints as indicated on the drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
- D. Prior to concrete placement, the subgrade shall be well-dampened.
- E. All exterior pool walls and interior pool floor slabs shall be in place and shall have obtained the design compressive strength prior to backfilling.
- F. Conveying Concrete:
 - 1. Methods of conveying concrete to the point of final deposit shall prevent segregation or loss of ingredients.
 - 2. The free drop of concrete shall be limited to 5 feet.
 - 3. Drop chutes shall be used for placement of concrete in walls. Drop chutes shall be positioned in walls 5 feet or less from wall corners and at 10 feet maximum centers.
 - 4. After placement in the forms, concrete shall not be moved laterally more than 5 feet.
- G. Consolidation/Compaction:
 - 1. Consolidate in accordance with ACI 309R.
 - 2. For proper consolidation/compaction, concrete shall be placed in approximately horizontal layers not to exceed 24 inches. Each layer of concrete shall be plastic when covered with the following layer, and the rate of vertical rise of the concrete in the forms shall be not less than 24 inches per hour.
 - 3. During and immediately after placement, concrete shall be thoroughly compacted and worked around all reinforcement and embedments and into the corners of the forms.
 - 4. The number and type of vibrators shall be acceptable to the Engineer.
 - 5. When using internal vibrators, the "field of action" shall overlap. When placing concrete in lifts, the vibrator shall penetrate the previous lift by a few inches.
 - 6. The use of "jitterbug" tampers to compact concrete flatwork will not be permitted.
- H. Placement of Concrete on Slopes: Place, consolidate, and finish concrete from the bottom of the slope to the top of the slope.
- I. Separate slabs on grade from vertical structure surfaces with joint filler.
- J. Place joint filler in floor slab pattern placement sequence where indicated. Set top to required elevations. Secure to resist movement by wet concrete.
- K. Install joint devices in accordance with manufacturer's instructions.
- L. Apply sealants in joint devices in accordance with Section 07 90 10.
- M. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- N. Place concrete continuously between predetermined expansion, control, and construction joints.
- O. Do not interrupt successive placement; do not permit cold joints to occur.
- P. Place floor slabs in checkerboard or saw cut pattern indicated.
- Q. Saw cut joints within 12 hours after placing. Unless noted otherwise, use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.
- R. Screed floors and slabs on grade to slope as indicated, maintaining surface flatness of maximum 1/4 inch in 10 ft.
- S. Tolerances:
 - 1. As specified in ACI 301 unless noted otherwise.
 - 2. All concrete areas shall slope to drain. Water shall not be allowed to pond at any location.
 - 3. Pool Gutter Tolerance: Levelness of the pool gutter shall be plus or minus 1/16 inch in 10 feet.

4. Lap Swimming Lanes: The lap swimming lane length tolerance shall meet the requirements of competitive swimming organization standards (e.g. FINA, US Swimming, or National Federation of State High School Association).

3.06 CONCRETE FINISHING

- A. Repair surface defects, including tie holes, immediately after removing formwork.
 1. Tie holes in formed surfaces shall be cleaned, wetted, and filled with non-shrink grout.
 2. The patches shall be finished flush and shall match the texture of the adjacent concrete.
- B. Unexposed form finish including pit interiors and pool gutter channels: Rub down or chip off fins or other raised areas 1/8 inch or more in height.
- C. Exposed form finish including, but not necessary limited to, pool walls, foundations & footings above grade, and retaining walls: Rub down or chip off and smooth all fins, offsets, or other raised areas 1/8 inch or more in height. Provide finish as follows:
 1. Grout Cleaned Finish: Grout cleaned finish shall conform to Paragraph 5.3.3.4.b of ACI 301. Grout cleaning shall not result in an overall plastering of the concrete surface, but shall produce a smooth, uniform surface free of marks, voids, surface glaze, and cement dust.
 - a. Sandblast surface to expose air voids, sand aggregate, and to remove all form marking. Sandblast material shall be No. 4 Flint rock particles or "Black Beauty" or "Black Magic" (a boiler/coal slag).
 - b. Mix 1 part portland cement and 1-1/2 parts fine sand with sufficient water to produce a grout having the consistency of thick paint.
 - c. Wet the surface of the concrete sufficiently to prevent absorption of water from the grout and apply the grout uniformly with brushes or a spray gun.
 - d. Immediately after applying the grout, scrub the surface vigorously with a cork float or stone to coat the surface and fill all air bubbles and holes.
 - e. While the grout is still plastic, remove all excess grout by working the surface with a rubber float, burlap, or other means.
 - f. After the surface whitens from drying (about thirty minutes at normal temperatures), rub vigorously with clean burlap to provide a uniform sandy textured surface. For lazy river walls, the top 18 inches of the wall shall be rubbed sufficiently to provide a relatively smooth surface.
 - g. The finish shall be kept damp for at least 36 hours after final rubbing.
- D. Finishing Unformed Surfaces:
 1. General:
 - a. Buried concrete blocking and encasement will require no finishing except as necessary to obtain the required surface elevations or contours.
 - b. The unformed surfaces of all other concrete shall be screeded and given an initial float finish followed by additional floating, and troweling where required.
 - c. Water shall not be applied to the concrete during finishing operations.
 2. Screeding: Screeding shall produce a concrete surface conforming to the proper elevation and contour, with all aggregates completely embedded in mortar.
 3. Floating:
 - a. Bull Floating: Screeded surfaces shall be given an initial float finish immediately following screeding and shall be completed before any excess moisture or bleeding water is present on the surface. Any piece of coarse aggregate which is disturbed by the float or which causes a surface irregularity shall be removed and replaced with mortar. Initial floating shall produce a surface of uniform texture and appearance, with no unnecessary working of the surface.
 - b. Initial floating shall be followed by a second floating at the time of initial set (when foot pressure will mark concrete to about 1/4 inch depth). Do no floating with bleed water present. If conditions permit, wait out the bleeding period before floating. If not, remove bleed water before starting floating operations per ACI 302.1R. The second floating shall produce a finish of uniform texture and color.
 - c. Floating shall be done with hand floats or suitable mechanical compactor-floats.

4. Finishing: Finish to requirements of ACI 302.1R, and as follows:
 - a. Pool Basin Floor Slabs: Broom finish to provide a uniform medium to heavy non-slip surface. Brooming shall be done after the second floating and at right angles to the normal direction of traffic.
 - b. Top of Pool Walls: Broom finish to provide a uniform medium to heavy non-slip surface. Broom parallel to the inside face of the pool walls.
 - c. Surge Tanks or Wet Pits: Light broom finish. Brooming shall be done after the second floating.
 - d. Pump Pits: Broom finish to provide a uniform medium non-slip surface. Brooming shall be done after the second floating.
 - e. Concrete Decks and Walks: Broom finish to provide a uniform medium non-slip surface. Brooming shall be done after the second floating and at right angles to the normal direction of traffic.
- E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

3.07 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
 1. Normal concrete: Not less than 7 days.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
- D. Surfaces Not in Contact with Forms:
 1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than seven days by water ponding, water-saturated sand, water-fog spray, saturated burlap, or low permeability and high moisture retention non-staining natural cellulose fabric with non-perforated reflective (white) polyethylene coating.
 2. Final Curing: Begin after initial curing but before surface is dry.
 - a. Moisture-Retaining Cover: Seal in place with waterproof tape or adhesive.
- E. Concrete shall be protected against freezing for at least 8 days after placement.

3.08 FIELD QUALITY CONTROL

- A. Provide free access to concrete operations at project site and cooperate with appointed firm.
- B. All concrete required for testing shall be furnished by, and at the expense of, the Contractor.
- C. Submit proposed mix design of each class of concrete to testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- E. When concrete is pumped, sampling at both the truck discharge and point of final placement shall be required to determine if any changes in the slump, air content, and other significant mix characteristics occur. All concrete characteristics at the point of placement shall meet the specified requirements.
- F. Compressive Strength Tests:
 1. Compression test specimens shall be made, cured, stored, and delivered to the laboratory in accordance with ASTM C 31 and C 39.
 2. One set of concrete test cylinders shall be cast for each concrete pour unless approved otherwise by Engineer. A set of test cylinders shall consist of four cylinders, two to be broken and to have compressive strengths averaged at 7 days, and two to be broken and to have compressive strengths averaged at 28 days.
 3. One additional test cylinder shall be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.

4. Each set of compression test cylinders shall be marked or tagged with the date and time of day the cylinders were made, the location in the work where the concrete represented by the cylinders was placed, the number of the delivery truck or batch, the air content, the slump, and the concrete temperature.
- G. Air Content:
 1. Air content shall be determined in accordance with ASTM C 231.
 2. An air content test shall be made on concrete from each batch of concrete from which concrete compression test cylinders are made.
 3. The Contractor shall provide all equipment and supplies necessary for the testing.
- H. Slump:
 1. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.
 2. Pumped Concrete:
 - a. The slump of concrete that is discharged into the pump may exceed the specified value by the amount of slump loss in the pumping system, up to a maximum of 1 inch.
 - b. The slump loss shall be determined by tests made at each end of the pumping system.
 - c. If tests indicate a loss greater than 1 inch, Contractor shall modify the pumping system as required to reduce the slump loss to 1 inch or less.
- I. Concrete Temperature:
 1. A concrete temperature test shall be made on concrete from the first batch of concrete mixed each day and on concrete from each batch of concrete from which concrete compression test cylinders are made.
 2. Concrete temperature shall be determined in accordance with ASTM C 1064.

3.09 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Engineer and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- C. In water retaining structures, crack widths that exceed ACI 224R requirements of 0.004 inches shall be treated with an appropriate injection system, which is acceptable to the Engineer.
- D. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- E. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

END OF SECTION

SECTION 13 11 55 POOL ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Anchor sockets.
- B. Anchor cover plates.
- C. Escutcheon covers.
- D. Post and rope barriers
- E. Stair rails.

1.02 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's catalog data, detail sheets, and specifications.
- C. Shop Drawings: Prepared specifically for this project; show dimensions of swimming pool accessories and interface with other products.
- D. Operating and Maintenance Data: Operating and maintenance instructions, parts lists, and wiring diagrams.

PART 2 PRODUCTS

2.01 SUPPLIERS

- A. Swimming Pool Supply Company, 5292 N.W. 111th Street Drive, Grimes, Iowa 50111. Tel: (515) 986-3931; Fax: (515) 986-3805.
- B. United Industries, Inc., 202 E. Cleveland, PO Box 58, Sterling, Kansas 67579. Tel: (800) 835 3272; Fax: (800) 500-3115; www.swimtime.com.
- C. Spectrum Pool Products, 7100 Spectrum Lane, Missoula, Montana 59808. Tel: (800) 776-5309; Fax: (800) 728-7143; www.spectrumproducts.com.
- D. Recreation Supply Company, P.O. Box 2757, Bismarck, ND 58502. Tel: (800) 437-8072; Fax: (701) 255-7895; www.recsupply.com.
- E. S.R. Smith, LLC; 1017 S.W. Berg Parkway, Canby, Oregon 97013; Tel: (503) 266-2231; Fax: (503) 266-4334; www.srsmith.com.
- F. Paragon Aquatics, Inc; 1351 Route 55, LaGrangeville, NY 12540; Tel: (845) 463-7200; Fax: (845) 463 7291 ; www.paragonaquatics.com.

2.02 POOL FITTINGS - PLASTIC

- A. Floor Inlets:
 - 1. Flow shall be fully adjustable and shall exit the inlet in a full 360 degree pattern.
 - 2. Construction: Cylolac.
 - 3. Body shall have 1-1/2 inch FIP connection.
 - 4. Center face shall be threaded to allow adjustment of flow.
 - 5. Hardware: A stainless steel set screw shall hold the center face at set point.

2.03 ANCHOR SOCKETS

- A. Cast bronze body, 4-1/4 inches long, made to receive outside diameter of tube.
 - 1. Locking Wedge: Bronze.
 - 2. Bolt: Stainless steel.

2.04 ANCHOR COVER PLATES

- A. Provide an anchor cover plate for each anchor socket.
- B. Material: Stainless steel or brass.

- C. The plate shall be 0.25 inch thick machined to the size and in a shape to match the specified anchor sockets and with a top surface in a polished finish.
- D. A 1/2 inch hole shall be provided which is counter-bored on the top in a diameter of 3/4 inch and to a depth of 3/16 inch to allow the head of the anchor's wedge bolt to be at or below the top of the plate.
- E. Edges and corners of the plate shall be ground smooth for safety.

2.05 ESCUTCHEON COVERS

- A. Stamped stainless steel.

2.06 STAINLESS STEEL POST AND ROPE BARRIERS

- A. Posts:
 - 1. Straight length 1.90 inch outside diameter stainless steel tube with stainless steel closure plate and sliding collars with eyebolts.
 - 2. Tube Wall Thickness: 0.145 inch.
 - 3. Height: As shown on drawings.
- B. Wedge Anchors: Cast bronze sized to receive a full 6 inch penetration of the post.
- C. Escutcheon Covers: Stamped stainless steel.
- D. Rope and Netting:
 - 1. Manufacturer: International Cordage East, LTD; Model "Netform"; 7 Mathews Drive, East Haddam, Connecticut 06423; Tel: (800) 596-1066; Fax: (860) 873-8704; www.incord.com.
 - 2. Netting:
 - a. Model: 212-045-08
 - b. Style: Raschel Knotless Netting
 - c. Fiber: High Tenacity, Polypropylene (HTPP)
 - d. Cord Diameter: 3/16 in
 - e. Mesh Size: 2 in
 - f. Mesh Break: 630 lbf
 - g. Dynamic Drop Test: 12,075 ft-lb
 - h. The rope and associated items shall be suitable for use in chlorinated water.
 - i. Excessive sagging in netting will not be allowed.
 - j. Color as selected by Owner/Architect from manufacturer's standard options.
 - 3. Border Rope: 1/2" ProManila
 - 4. The rope and associated items shall be suitable for use in chlorinated water.

2.07 RAILS

- A. Stair Rails:
 - 1. Continuous length of Type 304 stainless steel tube, 1.90 inches outside diameter by 0.109 inch wall thickness, bends smooth and wrinkle free.
 - 2. Finish:
 - a. All welds shall be hand cleaned.
 - b. All stainless steel shall be mechanically buffed to a near #7 or 320 grit surface finish.
 - c. All units shall be hand passivated to ASTM A 967.
 - 3. Configuration: As shown on drawings.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Coordinate with other trades for proper installation of plumbing and electrical services.
- B. Verify that required utilities are in correct location and are of correct capacities for specified products.
- C. Verify equipment rough-in before proceeding with work.

3.02 INSTALLATION

- A. Install swimming pool accessories in accordance with shop drawings and manufacturer's printed installation instructions; comply with standards required by authorities having jurisdiction.
- B. Schedule installation to ensure that utility connections are achieved in an orderly and expeditious manner.
- C. Connection to utilities is specified in Sections of Divisions 15 and 16.
- D. Install equipment plumb, square, and straight, without distortion; securely anchor.

3.03 ADJUSTING AND CLEANING

- A. Touch up minor damaged surfaces caused by installation.

3.04 PROTECTION

- A. Provide protective measures to prevent equipment and surfaces from damage by other construction activity.

END OF SECTION

Waters Edge Aquatic Design
WEAD 20-528

Harrisonville, MO Outdoor Pool Improvements
Harrisonville, Missouri

Attachment: Harrisonville Pool Improvements Technical Specs (Outdoor Pool Update)

SECTION 13 11 70 PVC FABRICATIONS FOR POOLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pool gutter grating.
- B. Deck trench drain grating.

1.02 RELATED SECTIONS

1.03 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Manufacturer's Information: Published literature including material data, corrosion resistance data, and concrete anchor systems.
- C. Shop Drawings: Indicate material sizes, types, styles, color, part or catalog numbers, complete details for the fabrication of and erection of components including, but not limited to, location, lengths, type and sizes of fasteners, clip angles, member sizes, and connection details.
- D. Samples: Submit sample pieces of each item specified herein for acceptance by the Engineer as to quality and color. Sample pieces shall be manufactured by the method to be used in the Work.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.05 DELIVERY, STORAGE, AND PROTECTION

- A. Delivery of Materials: Manufactured materials shall be delivered in original, unbroken pallets, packages, containers, or bundles bearing the label of the manufacturer.
- B. Storage of Products: All materials shall be carefully handled to prevent them from abrasion, cracking, chipping, twisting, other deformations, and other types of damage. Store items in an enclosed area and free from contact with soil and water.

PART 2 PRODUCTS

2.01 POOL GUTTER and DECK TRENCH DRAIN GRATING - PERPENDICULAR DESIGN

- A. Manufacturers:
 - 1. Specified Manufacturer: Daldorado, LLC; Tel: (888) 509-8128; www.daldorado.com.
 - 2. Acceptable Manufacturers:
 - a. Grate Ideas of America, LLC; Tel: (802) 355-3385; www.grate-ideas.com (Model: America the Grate)
 - a. Lawson Aquatics; Tel: (800) 897-6160; www.lawsonaquatics.com.
 - b. RenoSys Corporation "DuraTech - Pool Grating"; Tel: (800) 783-7005; www.renosys.com.
- B. Modular, interlocking pieces of PVC, U.V. stabilized grating.
- C. The top surfaces shall have a raised, diamond ridge design to create good friction, wet or dry and be 5/8 inch wide with a depth of 1 inch.
- D. The space between the pieces shall not exceed 3/8 inch.
- E. Each piece of grate shall have a slotted hole at the ends for insertion of a concealed Type 304 stainless steel fastener clip and anchor screws at least every 3 feet and shall be easily removable.
- F. Grating surface bars shall run perpendicular to the pool wall or trench drain.
- G. Grating shall provide at least 37.5 percent open space per foot for unrestricted water flow.
- H. Manufactured Angled Corners:

1. Angled corners, including 90 degree, 45 degree, and all other angles, shall be mitered and provided by the grating manufacturer.
 2. Corners shall come factory made and mounted on a 1/2 inch thick plate of PVC with holes drilled for water flow.
- I. Color: To be selected by Owner from manufacturer's standard colors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that Work is ready to receive grating.

3.02 INSTALLATION

- A. Install gratings in accordance with manufacturer's instructions.
- B. Field cutting or modifications to grating shall not be permitted without Engineer's prior approval.

END OF SECTION

SECTION 13 11 90 POOL PIPING, VALVES, AND RELATED ITEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe, pipe fittings, valves, and connections for piping systems.
- B. Polyvinyl chloride (PVC) pipe.
- C. Valves.

1.02 RELATED REQUIREMENTS

- A. Section 13 11 94 - Pool Mechanical Identification.

1.03 REFERENCE STANDARDS

- A. ASME B16.5 - Pipe Flanges and Flanged Fittings; 1996.
- B. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; 2011 (ANSI/ASME B31.9).
- C. ASME (BPV IX) - Boiler and Pressure Vessel Code, Section IX - Welding and Brazing Qualifications; The American Society of Mechanical Engineers; 2010.
- D. ASTM D 1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds; 1999a.
- E. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings; 1996 (Reapproved 2010).
- F. ASTM F 656 - Standard Specification for Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings; 1996a.
- G. ASTM F 593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs; 2001.
- H. ASTM F 594 - Standard Specification for Stainless Steel Nuts; 2001.

1.04 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Product Data/ Submittals:
 - 1. Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
 - 2. For PVC piping, provide manufacturer's recommended installation procedures, including solvent weld jointing procedures.
- C. Project Record Documents: Record actual locations of piping and valves.
- D. Training and certification documentation as indicated below.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Training and Certification: PVC Pipe Installer.
 - 1. PVC piping installers must be trained by manufacturer to install and join piping. Submit written certification from manufacturer for each individual performing pipe installation, prior to installing pipe.
- C. Valves: Manufacturer's name and pressure rating marked on valve body.
- D. Welding Materials and Procedures: Conform to ASME (BPV IX) and applicable state labor regulations.
- E. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.06 REGULATORY REQUIREMENTS

- A. Perform Work in accordance with local plumbing code.
- B. Conform to applicable code for installation of backflow prevention devices.
- C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.
- C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.08 FIELD CONDITIONS

- A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS**2.01 POLYVINYL CHLORIDE (PVC) PIPE**

- A. PVC Pipe, Schedule 80:
 - 1. Pipe: ASTM D 1785, Cell Classification 12454-B, bearing NSF seal.
 - 2. Fittings: ASTM D 2467, Cell Classification 12454-B, bearing NSF seal.
 - a. All fittings for pipe diameters less than 16" shall be molded. Fabricated fittings will not be allowed unless approved by Engineer. Contractor shall be responsible for verifying that the use of fabricated fittings will not affect critical dimensional requirements.
 - b. For pipe diameters of 16" or greater: Fabricated fitting are allowed.
 - 3. Push-on Joints: ASTM F 477 elastomeric gaskets.
 - 4. Solvent Weld Joints:
 - a. Solvent Cement: ASTM D 2564.
 - b. Primer: ASTM F 656.
 - 5. Flanges: Diameter and drilling shall conform to ANSI/ASME B16.5, Class 150.
 - 6. Flange Hardware:
 - a. Bolts: Stainless steel, ASTM F 593, Alloy Group 1 or 2; chamfered or rounded ends projecting 1/8 to 3/8 inch beyond outer face of nut.
 - b. Nuts: Stainless steel, ASTM F 594, Alloy Group 1 or 2.
 - c. Flat Washers: Stainless steel, ANSI B18.22.1.
 - 7. Flange Gaskets: Full face, 1/8 inch thick, chemical resistant elastomeric material suitable for the specified service.
- B. PVC Heavy Wall Sewer Pipe, SDR 26:
 - 1. Pipe: ASTM D 3034 SDR 26.
 - 2. Fittings: PVC.
 - 3. Joints: Push-on, using ASTM F 477 elastomeric gaskets.

2.02 PVC BALL VALVES

- A. Manufacturers:
 - 1. Spears Manufacturing Company: www.spearsmfg.com.
 - 2. Nibco, Inc; Model U-45TB: www.nibco.com.
 - 3. Hayward Industries, Inc.: www.haywardflowcontrol.com.
- B. Construction:
 - 1. True Union type constructed from PVC Type I Cell Classification 12454 conforming to ASTM D 1784.
 - 2. O-rings shall be EPDM.
 - 3. All valves shall have Safe-T-Shear stem and double stop polypropylene handle.

4. All valve union nuts shall have Butress threads.
5. All valve seal carriers shall be Certified for potable water use by NSF International.
6. All 1/2 inch through 2 inch valves shall be pressure rated at 235 psi and all 2-1/2 inch through 6 inch valves shall be pressure rated at 150 psi for water at 73 degrees F.

2.03 PVC BUTTERFLY VALVES

- A. Manufacturers:
 1. Specified Manufacturer: Spears Manufacturing Company; Style Wafer or Lug: www.spearsmfg.com.
 2. Acceptable Manufacturers:
 - a. ASAH/AMERICA: www.asahi-america.com.
 - b. Hayward Industries, Inc.: www.haywardflowcontrol.com.
 - c. Nibco, Inc: www.nibco.com.
- B. Construction:
 1. Valve body and disc shall be constructed from PVC Type I Cell Classification 12454 conforming to ASTM D 1784.
 2. Valve seats and O-rings shall be EPDM. Seat shall be a non-liner type interlocked to valve body.
 3. Lug Style: Bolt hole patterns shall conform to ANSI/ASME B16.5 CL 150.
 4. Wafer Style: Designed for mounting between two flanges having bolt hole pattern that conform to ANSI/ASME B16.5 CL 150.
 5. Disc shall be offset design with Type 316 stainless steel stem.
 6. Lever operated valves shall be equipped with high impact polypropylene handle having built-in lockout capability.
 7. Gear operated valves shall be equipped with position indicator and high impact polypropylene handwheel.
 8. All submerged valves shall have submersible gear operators.
 9. Valves shall be pressure rated at 150 psi for water at 73 degrees F.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. In all piping except air and gas piping, insulating fittings shall be provided to prevent contact of dissimilar metals, including but not limited to, contact of copper, brass, or bronze pipe, tubing, fittings, valves, or appurtenances, or stainless steel pipe, tubing, fittings, valves, or appurtenances with iron or steel pipe, fittings, valves, or appurtenances. Insulating fittings shall also be provided to prevent contact of copper, brass, or bronze pipe, tubing, fittings, valves or appurtenances with stainless steel pipe, tubing, fittings, valves, or appurtenances.
- C. To prevent thread galling, apply anti-galling lubricant to all stainless steel hardware.
- D. Route piping in orderly manner and maintain gradient. Install piping free of sags, bends, and kinks. Route parallel and perpendicular to walls.
- E. Install fittings in changes in direction and branch connections in hard drawn copper tube.
- F. All piping within structures shall be arranged, and facilities provided, for complete drainage.
- G. Tee fitting sizes shall match that of the largest connecting pipe size.
- H. Install piping to maintain headroom, conserve space, and not interfere with use of space.

- I. All piping serving metering equipment shall be uniformly graded so that air traps are eliminated and complete venting is provided.
- J. Taps for pressure gauge connections on the suction and discharge of pumping units shall be provided with a nipple and a ball type shutoff valve.
- K. Buried PVC piping shall be "snaked" in the trench and shall be kept as cool as possible during installation. PVC pipe shall be kept shaded and shall be covered with backfill immediately after installation.
- L. All chemical piping shall be installed so that lines are readily accessible for cleaning. Tees shall be provided at changes in direction in all chemical piping except chlorine piping, with extra openings plugged, to facilitate cleaning. Teflon thread tape or teflon thread sealer shall be applied to the threads of the plugs so that they can be easily removed. At each point where hose or reinforced plastic tubing is connected to rigid piping, a quick-disconnect coupling shall be provided.
- M. Group piping whenever practical at common elevations.
- N. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- O. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 22 07 19.
- P. Establish elevations of buried water supply piping outside the building to ensure not less than 3.5 ft of cover.
- Q. Provide support for utility meters in accordance with requirements of utility companies.
- R. Excavate in accordance with Section 31 23 16.
- S. Backfill in accordance with Section 31 23 23.
- T. Install bell and spigot pipe with bell end upstream.
- U. Install valves with stems upright or horizontal, not inverted, unless indicated on the plans.
- V. Install water piping to ASME B31.9.
- W. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- X. All pipes passing through structures shall be cast-in-place unless specifically noted otherwise on Drawings.
- Y. Inserts:
 - 1. Provide inserts for placement in concrete formwork.
 - 2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
 - 3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
 - 4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

3.04 APPLICATION

- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- C. Install gate or ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- D. Install ball or butterfly valves for throttling, bypass, or manual flow control services.
- E. Provide plug valves in natural gas systems for shut-off service.

3.05 TOLERANCES

- A. When pipe elevations are shown on the Drawings, the pipe shall uniformly slope between the given elevations. If Contractor believes additional change in direction fittings are required in order to achieve the slopes shown, then Contractor shall notify Engineer prior to installation.

- B. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope.
- C. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low points.

3.06 PRESSURE AND LEAKAGE TESTING

- A. All specified tests shall be made by and at the expense of the Contractor in the presence, and to the satisfaction of the Engineer.
- B. Each piping system shall be tested for at least 1 hour and with no loss of pressure.
- C. Piping shall be tested at the following pressures:
 - 1. Swimming Pool Recirculation Piping:
 - a. Test Pressure: 1-1/2 times working pressure but not less than 50 psi.
 - b. Test Medium: Water.
 - 2. Other Piping:
 - a. Test Pressure: 1-1/2 times working pressure but not less than 50 psi.
 - b. Test Medium: Suitable fluid or gas.
- D. Compressed air or pressurized gas shall not be used for testing plastic piping unless specifically recommended by the pipe manufacturer.
- E. Leakage may be determined by loss-of-pressure, soap solution, chemical indicator, or positive and accurate method acceptable to the Engineer. All fixtures, devices, or accessories which are to be connected to the lines and which would be damaged if subjected to the specified test pressure shall be disconnected and the ends of the branch lines plugged or capped as required during the testing.
- F. All necessary testing equipment and materials, including tools, appliances and devices, shall be furnished and all tests shall be made by and at the expense of the Contractor and at the time directed by the Engineer.
- G. All joints in piping shall be tight and free of leaks. All joints which are found to leak, by observation or during any specified test, shall be repaired, and the tests repeated.

3.07 CLEANING

- A. The interior of all pipe, valves, and fittings shall be smooth, clean, and free of blisters, loose mill scale, sand, dirt, and other foreign matter when installed. Before being placed in service, the interior of all lines shall be thoroughly cleaned, to the satisfaction of the Engineer.

END OF SECTION

SECTION 13 31 50 SHADE STRUCTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Commercial prefabricated shade structures.

1.02 RELATED SECTIONS

- A. Section 13 11 15 - Cast-In-Place Concrete: footings.

1.03 REFERENCES

- A. 16 CFR 260.13 - Guides for the Use of Environmental Marketing Claims; Federal Trade Commission; Recycled Content; Current Edition.
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.
- C. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International; 1999.
- D. ASTM A 135 - Standard Specification for Electric-Resistance-Welded Steel Pipe; 2001.
- E. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 1999.
- F. ASTM E 8 - Test Methods for Tension Testing of Metallic Materials; 2004.
- G. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute; 1997, 26th Edition.

1.04 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's descriptive literature for specified systems, including all components.
- C. Shop Drawings: Indicate layout heights, component connection details, and details of interface with adjacent construction.
- D. Complete engineering analysis shall be certified and sealed by a Professional Engineer registered in the State where the shade structure is being constructed.
- E. Selection Samples: Two sets of color chips representing manufacturer's full range of available colors.
- F. Certificates:
 - 1. Contractor's certification that manufacturer of products of this section meet specified qualifications.
 - 2. Manufacturer's certification that installer of this section is approved.
- G. Manufacturer's printed installation instructions for specified systems, including each component.
- H. Provide manufacturer's data verifying compliance of the knitted 100% HDPE membrane system with this specification.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five (10) years of documented experience producing systems of the types specified in this section.
- B. Installer Qualifications: Minimum three (3) years documented experience installing systems of the types specified in this section, and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store system components in accordance with manufacturer's instructions until installation.

1.07 WARRANTY

- A. Warrant that the equipment sold will conform in kind and quality to the specifications listed and will be free of defects in workmanship or materials. Shade manufacturer shall further warrant the following:
 - 1. LIMITED 10 YEAR WARRANTY on all upright posts, and support structure frames against failure due to rust-through corrosion.
 - 2. LIMITED 10 YEAR WARRANTY on all fabrics and stitching threads against degradation, cracking or material breakdown resulting from ultra-violet exposure.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Specified Manufacturer: Solar Shade USA, LLC: Tel: (417) 395-4500; Fax: (417) 395-4515.
- B. Acceptable Manufacturers: If the shade manufacturer meets all minimum requirements in this section and is approved by the design team, the following manufacturers may be approved.
 - 1. Shade Systems, Inc.: Tel: (800) 609-6066, Fax: (954) 971-1208; www.shadesystemsinc.com.
- C. Unless otherwise specified for an individual product or material, supply all products specified in this section from the same manufacturer.

2.02 GENERAL

- A. All materials shall be structurally sound and appropriate for safe use.
- B. Fabrics used shall include UV-stabilizers and fire retardants as required to meet performance and building code requirements.

2.03 DESIGN

- A. Styles: Square, Rectangle, and Single Post Umbrella.
- B. Size and Height: As indicated on the Drawings.
- C. Engineering Data: Structures are engineered to meet or exceed the requirements of the International Building Code (IBC), and the following standard specifications:
 - 1. Wind Speed - 3 Second Gust (Frame with Canopy): 90 miles per hour.
 - 2. Live Load: None.
 - 3. Snow Load: 20 pounds per square foot.

2.04 WELDMENTS

- A. All tubing members shall be factory-welded by Certified Welders to American Welding Society (AWS) specifications and to the highest standards of quality workmanship.
- B. After fabrication all welded areas shall be primed with zinc rich powder coat and oven cured in accordance with the powder coat manufacturer's specifications.
- C. Drilling or welding in the field shall not be permitted.

2.05 POSTS, STRUCTURAL FRAME TUBING, AND HARDWARE

- A. All tubing used shall be cold-formed and milled per ASTM A 135 and ASTM A 500.
- B. Material testing shall be in accordance with ASTM E 8.
- C. Minimum yield shall be 40,000 psi with a minimum tensile strength of 45,000 psi on all posts.
- D. All pipe and tubing up to 5" O.D. shall be manufactured with an in line Flo-coat galvanizing process as used by Allied Tube, or approved equivalent. Pipe sizes above 5" O.D. shall be hot-dipped galvanized or completely zinc powder coat primed after fabrication.
- E. All tubing shall be pre-cut to appropriate lengths, and all outside surfaces shall be galvanized, with an interior corrosion-resistant zinc-rich coating.
- F. All edges of tube, pipe, cleats, and plate, including all punched or drilled holes shall have a radius enough to allow powder coat to cover all exposed surfaces with a minimum of 2 mils fully

cured powder coat. Full assembly must be accomplished without drilling after the components are powder coated.

- G. Finish: All steel components, other than stainless steel and hot dipped galvanized hardware, shall receive specified zinc power coat primer and specified color finish powder coat.
- H. All fastening hardware shall be stainless steel or hot-dipped galvanized.
- I. Structure shall include an integrated dynamic tensioning system to tension and easily remove fabric.
 - 1. Hardware shall be non-corrosive.
 - 2. All connections shall be designed for assembly with standard hand tools.

2.06 POLYESTER POWDER-COATING PROCESS

- A. The surface preparation shall be in accordance with the powder coat manufacturer's recommendations for the material being coated. There shall be no more than four hours' time lapse between the surface preparation and the application of powder coat.
- B. Minimum dry film thickness for the zinc primer shall be 2 mils and for the finish color shall be 2 mils.
- C. The individual steel components shall be powder coated with the specified color and heat cured in a batch oven in accordance with the paint manufacturer's specifications.
- D. The powder coat finish shall be uniform and continuous with no voids or puddles and shall not be broken by scratches or nicks.
- E. Polyester powders shall meet or exceed ASTM standards for Adhesion, Hardness, Impact, Flexibility, Over Bake Resistance, and Salt Spray Resistance.
- F. Color shall be selected by Owner from manufacturer's standard colors.

2.07 FOOTINGS

- A. Footings shall be designed and constructed to local building codes and good construction practices and shall meet the requirements of Section 03 30 05.
- B. Columns shall be provided as direct embedment unless shown otherwise on the Drawings.
- C. Concrete shall meet the requirements of Section 03 30 05.
- D. Reinforcing:
 - 1. Reinforcing shall meet the requirements of Section 03 30 05.
 - 2. All reinforcing steel shall be designed, detailed, fabricated, and placed in accordance with ACI 301, ACI 318, and CRSI Manual of Standard Practice.

2.08 SHADE FABRIC

- A. Knitted from 100% virgin HDPE monofilament with slit film fill with Ultraviolet (U.V.) stabilizers and flame retardant as required by the applicable building codes. Fabric with both weft and warp slit film construction is not permitted.
- B. Physical Characteristics: The following indicates minimum physical properties of 100% HDPE membranes.
 - 1. Weight: 10 ounces/sq. yd.
 - 2. Breaking Force (ASTM D5034): 268 lbs. warp; 340 lbs weft.
 - 3. Elongation at Break (ASTM D5034): 110% warp; 75% weft.
 - 4. Tearing Strength (ASTM D2261): 31 lbs warp; 34 lbs weft.
 - 5. Mullen Burst (ASTM D3786): face warp; 548 lbs/in weft.
 - 6. Ball Burst (ASTM D3787): face warp; 418 lbf weft.
 - 7. UV stability: 10 years.
 - 8. Shade Effect: Angle of Incidence 90% to 97%.
 - 9. Ultraviolet Block: Angle of Incidence 90% to 96%.
- C. Colors: Selected from manufacturer's full range of available colors.
- D. Fabric cantenary shall include a low stretch, braided premium Dyneema HDPE yachting rope. Steel cables in an edge pocket will not be permitted.

- E. Fabric must be designed to be tensioned off the structural steel frame.
- F. Each structure will be provided with a storage bag for the fabric when it is removed by the Owner.

2.09 SHADE FABRIC

- A. Knitted from 100% virgin HDPE monofilament with Ultraviolet (U.V.) stabilizers and flame retardant as required by the applicable building codes. Slit film (non monofilament) HDPE will not be allowed.
- B. Physical Characteristics: The following indicates minimum physical properties of 100% HDPE membranes.
 - 1. Weight: 12 ounces/sq. yd.
 - 2. Breaking Force (ASTM D5034): 342 lbs warp; 270 lbs weft.
 - 3. Elongation at Break (ASTM D5034): 87% warp; 96% weft.
 - 4. Tearing Strength (ASTM D2261): 41 lbs warp; 38 lbs weft.
 - 5. Mullen Burst (ASTM D3786): face warp; 593 lbs/in weft.
 - 6. Ball Burst (ASTM D3787): face warp; 450 lbf weft.
 - 7. UV stability: 10 years.
 - 8. Shade Factor: Angle of Incidence 90% to 95%.
 - 9. Ultraviolet Block: Angle of Incidence 90% to 95%.
- C. Colors: Selected from manufacturer's full range of available colors.
- D. Fabric cantenary shall include a low stretch, braided premium Dyneema HDPE yachting rope. Steel cables in an edge pocket will not be permitted.
- E. Fabric must be designed to be tensioned off the structural steel frame.
- F. Each structure will be provided with a storage bag for the fabric when it is removed by the Owner.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are as indicated on shop drawings.
- B. Installer's Examination:
 - 1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
 - 2. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
 - 3. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.02 PREPARATION

- A. Ensure that adjacent surfaces, structures, and finishes are protected from damage by construction activities of this section.

3.03 INSTALLATION

- A. Install systems specified in accordance with shop drawings and manufacturer's installation instructions.
- B. Placing of concrete for post bases as specified in Section 03 30 05.

3.04 CLEANING

- A. Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions.

3.05 PROTECTION OF INSTALLED PRODUCTS

- A. Ensure that finishes and structure of installed systems are not damaged by subsequent construction activities.

- B. If minor damage to finishes occurs, repair damage in accordance with manufacturer's recommendations; provide replacement components if repaired finishes are unacceptable to Engineer.

END OF SECTION

SECTION 31 23 23 POOL FILL AND BACKFILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Filling, backfilling, and compacting for pool volumes below grade, slabs-on-grade and site structures.

1.02 REFERENCE STANDARDS

- A. ASTM C 33 - Standard Specification for Concrete Aggregates; 1999a.
- B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012.
- C. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
- D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)); 2012.
- E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.
- F. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.
- G. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.
- H. ASTM D 4253 - Standard Test Methods for Maximum Index Density and Unit Weight Soils Using a Vibratory Table; 2000.
- I. ASTM D 4254 - Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density; 2000.

1.03 SUBMITTALS

- A. See Administrative Requirements, for submittal procedures.
- B. Soil Samples: 10 pounds sample of each type of fill; submit in air-tight containers to testing laboratory.
- C. Materials Sources: Submit name of imported materials source.
- D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.
- E. Compaction Density Test Reports.
- F. Testing shall be completed by an independent testing agency and shall be less than 12 months old. The costs for material tests shall be paid for by the Contractor.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Provide sufficient quantities of fill to meet project schedule and project requirements. When necessary, store materials on site in advance of need.
- B. When fill materials are stored on site:
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.
- C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Imported borrow meeting all of the following requirements:
 - 1. Free of lumps larger than 3 inches, rocks larger than 2 inches, organics and debris.

2. Conforming to ASTM D 2487 Group Symbol SC, CL, ML, SM, or GC.
- B. Granular Fill: Granular fill for compacted backfill shall be free-draining, poorly graded, clean, angular crushed stone; free of shale, clay, friable material and debris.
 1. Gradation: Comply with ASTM C 33, Table 2 Grading Requirements for Coarse Aggregate, size No. 57 or 67 aggregate.
 2. The fraction passing the No. 200 sieve shall not exceed 5 percent.
- C. Topsoil: See Section 31 22 00.

2.02 SOURCE QUALITY CONTROL

- A. All fill materials shall be approved by Engineer.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance. The costs for material tests shall be paid for by the Contractor.
- C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Verify subdrainage, piping, dampproofing, or waterproofing installation has been inspected.
- C. Verify structural ability of unsupported walls to support imposed loads by the fill.
- D. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural fill.
- B. In areas to accept fill, the top 10 inches of the ground surface shall be scarified, moisture conditioned to -1 to 3 percent of the material's optimum moisture content. The scarified soils should then be recompacted to at least 95 percent of the material's standard Proctor dry density (ASTM D 698).
- C. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

- A. Fill to contours and elevations indicated using unfrozen materials.
- B. Fill up to subgrade elevations unless otherwise indicated.
- C. Employ a placement method that does not disturb or damage other work.
- D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- E. In areas where a finer material is placed over or beside a coarser material and migration of one into the other can occur, such as when structural fill, general fill, or topsoil is placed over or beside granular fill, geotextile fabric shall be placed over or beside the granular fill or coarser material to separate the fill materials and prevent migration.
- F. Fill at Pool Walls: Carefully place and compact fill materials along pool walls in order to protect piping and conduit from damage due to material and equipment loading.
- G. Upon completion of excavation and filling operations, care shall be taken to prevent subgrade disturbance and maintain the subgrade moisture content prior to construction of foundations and slabs. If the subgrade becomes saturated, desiccated, or disturbed, the affected material shall be removed and replaced, or these materials shall be scarified, moisture-conditioned as necessary, and recompacted prior to construction of foundations or slabs. If two (2) days elapses or a significant weather event occurs between subgrade preparation and further construction, subgrades shall be retested prior to placement of structures.
- H. Compaction Method:
 1. The method of compaction and the equipment used shall be appropriate for the material to be compacted and the work location.

2. Sheep's foot roller, smooth drum rollers, pneumatic tired rollers, jumping jacks, vibratory equipment, small rollers, tampers, or other appropriate equipment shall be used for compaction.
 3. Compaction using loaded trucks, bulldozer tracks, backhoe buckets, or similar construction equipment shall not be allowed.
- I. Moisture content, at the time of compaction, shall be controlled to between 1 percent below and 3 percent above the optimum moisture content.
 - J. For cohesionless fill materials, where the percent passing the No. 200 sieve is less than 10 percent and the moisture-density curve indicates only slight sensitivity to changing moisture content, compaction requirements should be changed to 75 percent relative density as determined by ASTM D 4253 and ASTM D 4254.
 - K. General Fill:
 1. Deposit in uniform layers not exceeding 8 inches in uncompacted thickness.
 2. Compact to 95 percent of maximum density at 1 percent below and 3 percent above the optimum moisture content, as determined by ASTM D 698 when that test is appropriate.
 - L. Granular Fill:
 1. Granular material shall be deposited in uniform layers not exceeding 8 inches in uncompacted thickness.
 2. The granular backfill shall be compacted with a suitable vibratory roller or platform vibrator to at least 98 percent of the materials standard Proctor dry density (ASTM D 698).
 - M. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
 - N. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Engineer. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 FILL AT SPECIFIC LOCATIONS, UNLESS NOTED OTHERWISE ON DRAWINGS

- A. General Fill: Use in landscape areas only.
- B. Granular Fill: Use under all structures and at all other locations where indicated on the Drawings.

3.05 TOLERANCES

- A. Top Surface of General Filling: Plus or minus 1 inch from required elevations, unless noted otherwise on the drawings.

3.06 FIELD QUALITY CONTROL

- A. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D2922, or ASTM D3017.
- B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D698 ("standard Proctor") or ASTM D1557 ("modified Proctor").
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- D. Frequency of Tests: As noted below unless requested otherwise by Engineer.
 1. All Areas Except Under Pavements:
 - a. Fill Materials: At least one (1) test per fill type per 1,000 cubic yards of fill placed. Each test shall include sieve, P.I., and moisture density relationship when appropriate for the fill type. Provide other testing required to determine conformance.
 - b. Compaction: At least one (1) field density test for each 2,000 square feet of fill lift, but no less than three (3) tests per lift.
 2. Under Pavements:
 - a. Fill Materials: At least one (1) test per fill type per 2,500 cubic yards of fill placed. Each test shall include sieve, P.I., and moisture density relationship when appropriate for the fill type. Provide other testing required to determine conformance.

- b. At least one (1) field density test per 5,000 square feet of fill lift, but no less than three (3) tests per lift.
- E. Backfill operations shall be monitored full time by the testing and inspection agency.
- F. Proof roll compacted fill at surfaces that will be under slabs-on-grade and paving.

3.07 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION



Quotation

7606 North 14th Street
 Rich Hill, MO 64779
 Phone (417) 395-4500 Fax (417) 395-4515

DATE February 2, 2021
Quotation # 02.02.21.5Q
Customer ID Water's Edge

Quoted To:

Water's Edge
 Harrisonville, MO Pool Renovatiuon

Quotation valid until: March 4, 2021
Prepared by: Brian Richardson

Comments or special instructions: Price does not include anchoring hardware or installation
 50% Deposit Required to begin

Description	AMOUNT
(X2) H20 20' Hex Standard Umbrella 90 MPH / NO SNOW (\$4780 each)	\$ 9,560.00
- Engineering if required	1,250.00
- special mount to sleeve or standard baseplate	
Derlivery	350.00
Tax not included	
All credit card payments are subject to 5% service charge	
TOTAL	

sales tax, if applicable: 5.225%

If you have any questions concerning this quotation, contact:

Brian Richardson
 (417) 395-4500
brianr@solarshadeusa.com

THANK YOU FOR YOUR BUSINESS!

Attachment: Shade Structures Replacement-BudgetaryPricing (Outdoor Pool Update)



Quotation

Equip:	\$6,249.00
Freight / Crating:	\$453.68
Total:	\$6,702.68

Project No: W23391
Harrisonville

Version: 1 A

Tuesday, February 02, 2021
Valid For 90 Days

Qty	Part Number	Part Description	Price	Price Extended
(1)	W043	Dandelion Dome™	\$750.00	\$750.00
(1)	W070	Water Crown™	\$1,938.00	\$1,938.00
(1)	W093	Water Weave™	\$1,875.00	\$1,875.00
(3)	W125	Simple Spray™	\$562.00	\$1,686.00

To accept this quotation, please sign here and return.

Type/Print _____

Signature _____

Date _____

Attachment: Wet Deck FlushMountSprays BudgetaryPricing (Outdoor Pool Update)



Warranty Statement

Warranty

Fountain People shall warrant all properly installed and maintained Water Odyssey™ equipment (excluding consumables) for a period of one year from date of shipment, unless otherwise qualified, below. For systems with a factory start-up, the warranty shall extend for 18 months from date of shipment or one year from date of start-up, whichever comes first. Fountain People, at its option, shall replace or repair any materials, components, or workmanship found to be defective, within the warranty period when returned to the factory, freight prepaid. No equipment or parts may be returned to Fountain People for repair or replacement without a factory issued RMA (Return Material Authorization).

Special Provisions

The following equipment shall be warranted for the terms noted when properly installed and maintained:

Structural Pipe: Stainless steel pipe and anchor bases used in the fabrication of Water Odyssey™ play equipment shall be warranted against structural failure for a period of 25 years.

Finish Coating: Shall be warranted for a period of 2 years against peeling or fading under normal environmental conditions.

ColorCast™ Accents: Shall be warranted for a period of 2 years against fading or cracking under normal environmental conditions.

Nozzles: Brass or stainless steel, 5 Years. PVC nozzles, 2 years.

Polyurethane Components (including Fun Forms™) shall be warranted for a period of 2 Years.

Water Odyssey™ Dynamic Sequencing Control Module 02-6210, Valve Boxes and Fiberglass Components shall be warranted against defects for a period of 3 years. All DSC Controller components, other than the 02-6210 module, are warranted for 1 year.

UV Disinfection Units Manufactured by ETS/ATG UV (excluding consumables) shall be warranted for a period of five (5) years after commencement of operation providing that the owner has entered into a service agreement with a factory trained and certified representative to annually (during the warranty period) service the unit as outlined in the Basic Operator's Guide using original manufacturers parts.

Exclusions

This warranty does not include damage resulting from lightning, vandalism, improper maintenance, operator error, Acts of God, failure to comply with codes of the jurisdiction having authority, or other conditions beyond the control of Fountain People. Nor does this warranty cover labor, freight charges, or incidental materials required to implement repairs. Fountain People shall not be held liable for damage to other equipment or materials, or loss of time, profits, or any inconvenience, directly or indirectly, resulting from the failure of equipment or materials furnished by Fountain People. Fountain People will not accept liability for any costs associated with the removal or replacement of equipment in difficult-to-access locations. These extraordinary costs shall be the responsibility of the customer, regardless of the reason necessitating removal of the product from service. This warranty may exclude damage to metals resulting from chemical control devices that use electrolysis as a means for generating chlorine or other chemicals to treat water. No other warranty, expressed or implied, exists beyond that included in this statement.



Terms & Conditions

1. TERMS AND CONDITIONS, which follow, shall constitute the entire sales agreement between the parties. Any contrary or additional terms and conditions submitted by the purchaser shall be null and void unless specifically acknowledged in writing by Fountain People, Inc. (FPI) at the time of order acceptance.
2. PURCHASE ORDERS must be submitted in writing and be signed by an authorized representative of the purchaser. Purchase orders must be made out to "Fountain People, Inc." – not to our agent or any other party. All purchase orders must reference a specific "Equipment List" or equipment by catalog number. No purchase order will be accepted which references equipment "per Plans and Specifications".
3. ACCEPTANCE OF ORDERS takes place only when the order is acknowledged in writing by Fountain People, Inc. FPI reserves the right to reject any order.
4. PRICES are firm for 90 days from date quoted unless otherwise stated in writing. Prices on accepted purchase orders will be firm for six months from date of order. Orders not released within six months will be billed at price in effect at time of shipment.
5. SALES TAXES: (Customer) is solely responsible for prompt payment of any and all Taxes to the appropriate tax authority. Fountain People, Inc. shall not be liable for any of (Customer) income taxes, franchise tax or similar tax measured by (Customer) gross income or any business and operating licenses, fees and permits imposed upon (Customer) business operations. FPI shall not be liable to (Customer) for any employment related tax, fee, or charge. FPI will collect Sales and Use Taxes in the following states as applicable: Alabama, Arizona, Arkansas, California, Florida, Kansas, North Carolina, Pennsylvania, and Texas. Quoted prices do not include sales tax amount, which will be added at time of invoicing.
6. TERMS OF PAYMENT FOR DOMESTIC SHIPMENTS may vary depending on the degree of custom fabrication in the purchased equipment and the credit history of the purchaser. Standard payment terms are 50% deposit, with balance due upon shipment.
7. TERMS OF PAYMENT FOR INTERNATIONAL SHIPMENTS: Fountain People, Inc. will accept 50% cash deposit, with the balance due prior to shipment. In the event the customer cannot take delivery on the requested date, delivery shall be deemed completed at the FPI manufacturing facility for the purpose of payment.
8. A service charge of 1.5% per month will be added to all invoices not paid within terms. Delinquent accounts will be subject to credit hold, stop notices, lien filings, or litigation, as necessary.
9. RETENTIONS: Fountain People, Inc. is a material supplier, not a contractor and, as such, will not accept retention of payment in any form. As a corporation, FPI is required by law to report income directly to the IRS, are not bound by IRS Code 6109, and therefore should not receive 1099s, nor should payments be withheld on this premise.
10. MATERIAL LIENS: As a vendor, supplier, and material manufacturer, Fountain People, Inc. does not waive any right to lien or other security interest. Purchaser shall agree to furnish upon request all information required to complete such lien or security interest. Conditional and unconditional waivers shall be furnished to purchaser upon request and when appropriate.
11. DELIVERY will be made via common carrier. Fountain People, Inc. assumes no liability associated with shipping delays resulting from causes beyond its control. All shipments will be made FOB, San Marcos, Texas. Requests by the purchaser for air freight shipments or other special handling will be billed to the purchaser.
12. RETURNS will not be accepted unless accompanied by a Return Material Authorization (RMA). Requests to return material must contain the original invoice number and the reason for return. Returned material will be inspected upon receipt to determine condition. Approved warranty returns will be credited to purchase within 30 days of receipt. Materials returned new and unused will be subject to a minimum 40% restocking charge. No credit will be issued for any modified, custom, or discontinued items. All freight for return items will be at purchaser's expense. No freight collect shipments will be accepted.
13. CANCELLATIONS made after orders are released for fabrication and shipment will be subject to a cancellation charge. Custom fabricated items may not be canceled and must be paid in full even if refused.
14. FOUNTAIN SYSTEMS AND COMPONENT WARRANTY: Fountain People, Inc. shall warrant all properly installed and maintained equipment (except lamps) for a period of one year from date of shipment. For systems with a factory start-up, the warranty shall extend for 18 months from date of shipment or one year from date of start-up, whichever comes first. FPI, at its option, shall replace or repair any materials, components, or workmanship found to be defective within the warranty period when returned to

the factory freight prepaid. No component may be returned to FPI for repair or replacement without an approved return material authorization.

15. This warranty does not include damage resulting from lightning, vandalism, improper maintenance, operator error, or other conditions beyond the control of Fountain People, Inc. Nor does this warranty cover labor, freight charges, or incidental materials required to facilitate fountain repairs. FPI shall not be held liable for damage to other equipment or materials, or loss of time, profits, or any inconvenience, directly or indirectly, resulting from the failure of equipment or materials furnished by FPI. Fountain People, Inc. will not accept liability for consequential loss or liquidated damages in connection with this order.
16. No other warranty, expressed or implied, including the warranties of merchantability exists beyond that included in this statement. In the event of any conflict between the terms and conditions contained herein and any terms and/or conditions contained within the agreement or purchase order, these terms and conditions contained shall supersede and prevail.



STAFF REPORT

TO: Park Board
FROM: Grant Purkey,
DATE: February 4, 2021
SUBJECT: Fitness Equipment Upgrade

Type of Item: *Approval*

GENERAL INFORMATION

Applicant:

Requested Actions:

Date of Application:

PROPOSAL

PREVIOUS ACTIONS

KEY ISSUES

STAFF COMMENTS AND SUGGESTIONS

STAFF RECOMMENDATION

ATTACHMENTS

STAFF CONTACT:

3. Action Item (ID # 3794)

Fitness Equipment Upgrade

Attachments:

Fitness Equipment Staff Report (PDF)

Fitness Equipment Report (PDF)



300 E. Pearl Street, P.O. Box 367 • Tel: 816-380-8900 • Fax: 816-380-8906 • Harrisonville, MO 64701

To: Park Board

From: Grant Purkey

Date: 2-5-21

Re: Fitness Equipment Upgrade

GENERAL INFORMATION

Applicant:

Requested Actions: Park Board approval for RFP to upgrade Community Center Fitness Equipment

Date of Application:

PROPOSAL

Create a Request for Proposal for Matrix Cardio and Weight Equipment. Have the RFP completed and purchase prior to March 1st.

PREVIOUS ACTIONS

Received cost estimate for cardio and weight equipment upgrades in October 2020.

KEY ISSUES

Weight equipment is over 15 years old and Prostar is no longer in business. We are not able to purchase replacement parts if there is a machine break. Lifetime Fitness 95 series cardio machines are discontinued and are costly to repair if a machine breaks down.

The cost of the Matrix equipment will be increasing on March 1st.

STAFF COMMENTS AND SUGGESTIONS

Send out RFP as soon as possible to purchase equipment prior to prices increasing in March.

STAFF RECOMMENDATION

Park Board approval to send out a RFP to upgrade the cardio and weight equipment at the Community Center.

ATTACHMENTS

Fitness Equipment Report

Attachment: Fitness Equipment Staff Report (Fitness Equipment Upgrade)

Fitness Equipment Report

BUDGET:

Parks and Recreation Short Term Note Total – 2,394,097

Fitness/Weight Equipment Estimated Amount – 200,000

Cardio Equipment Estimated Amount – 170,000 3-year lease (Zion Bank)

Matrix Fitness equipment increase 5% on March 1st, 2021

CARDIO EQUIPMENT PROPOSAL:

Acquire Asset Management technology to collect data on all fitness equipment at HCC.

Asset Management

Asset Management platform offers a 360-degree view of facility equipment status on virtually any internet-connected device, plus insightful reporting capabilities, streamlined service, marketing tools and much more. Specs include:

- Robust slate of third-party integration types with more than 50 partners, allowing connectivity to the software platforms already in use
- Ability to customize touch screen consoles remotely with a facility calendar, custom branding, custom marketing and custom, automated messaging to engage members
- Trackability to every machine with a connected console in the Matrix product portfolio, including cardio, strength or group exercise
- Ability to receive automated notifications for online service requests and machine errors when they happen, along with root causes and potential solutions
- In select markets, capability to request service quickly via Asset Management
- Ability to gain insight into machine usage patterns to learn optimal product mix, member traffic patterns, planned maintenance and more.
- Ability to integrate with popular asset tracking or service systems.
- Easy-to-read color-coding indicates whether a product is functioning properly, detects errors and sends alerts.
- Capability to monitor usage patterns to maximize product life

Matrix Cardio Equipment comes equipped with Asset Management software.

Replace all the Lifetime Fitness Cardio Equipment with Matrix Cardio Equipment.

Add Asset Management software to the existing Matrix Cardio Equipment at HCC.

Fitness Equipment Report

Cardio Equipment

Add 6 – Matrix Performance Series Treadmill w/Touch XL consoles

Remove 6 – Lifetime Fitness Treadmills

Add 3 - Matrix Performance Series Ascent Trainers w/Touch consoles

Add 1 – Matrix Performance Series Climbmill w/Touch XL console

Remove 1 – Lifetime Fitness Summit Trainer

Remove 2 – Lifetime Fitness Steppers

Add 3 – Matrix Performance Series Suspension Ellipticals w/Touch consoles

Remove 6 – Lifetime Fitness Ellipticals

Add 2 - Matrix Performance Series Recumbent Bikes w/Touch consoles

Add 2 - Matrix Performance Series Hybrid Bikes w/Touch consoles

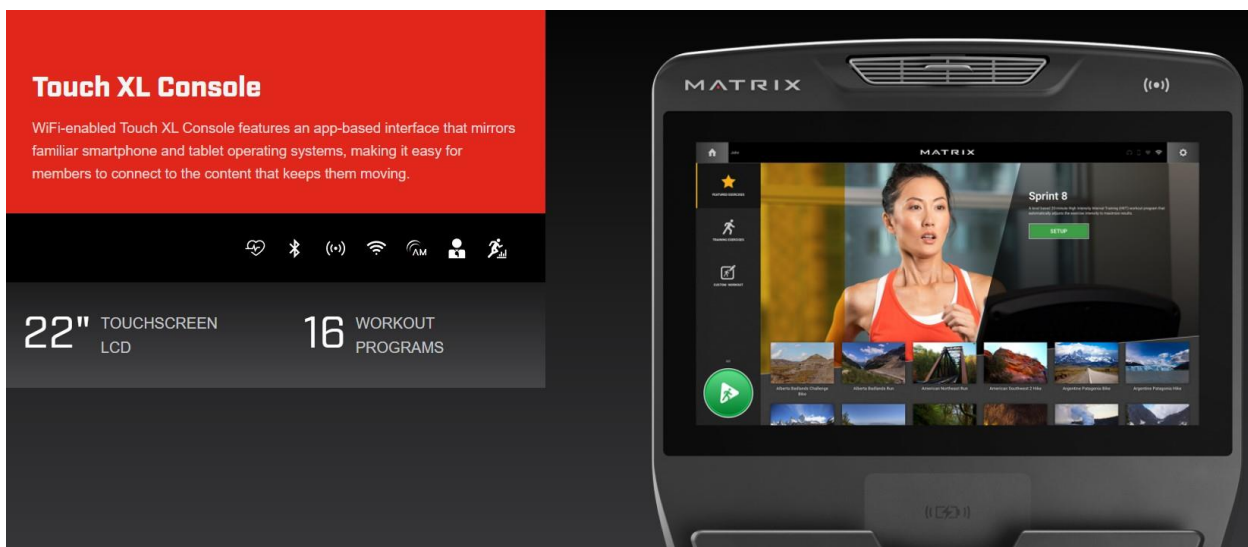
Add 2 - Matrix Performance Series Upright Bikes w/Touch consoles

Remove 3 – Lifetime Fitness Recumbent Bikes

Remove 3 – Lifetime Fitness Upright Bikes

Add 2 – Matrix Krankcycles w/seats

Add 1 – Matrix S Drive Performance Trainer



Harrisonville Parks and Rec.

Fitness Equipment Report



Intuitive App Interface

An app-based interface mirrors familiar smartphone and tablet operating systems to make navigating Touch Consoles easy and smooth for your members.

WiFi

Included WiFi compatibility lets you connect in the way that works best for your facility, supports automatic software updates at no charge to your facility, helps members track workouts and makes it easy for you to monitor equipment status.



Wireless Charging

Wireless charging allows members to charge their personal devices while keeping their screens in view.



Virtual Active

Virtual Active transports users to 60 exotic locales with footage that matches their pace and resistance or incline that varies to match terrain.

[Learn More /](#)

Fitness Equipment Report



Performance Treadmill

WITH TOUCH XL CONSOLE

T-PS-TOUCHXL

For runners who demand intense performance and comfort in one, our Performance Treadmill exceeds expectations. Precision engineered and powerful, our durable components stand up to heavy use, high-intensity workouts and performance training for years, and smart maintenance features make it easy to keep it ready for a steady stream of true enthusiasts.

AVAILABLE CONSOLES

CONSOLE QUICK COMPARE



*Product availability may vary by market or by color.



Performance Ascent Trainer

WITH TOUCH CONSOLE

A-PS-TOUCH

Offer full-body, low-impact intensity with an Ascent Trainer that withstands heavy use for years. Patented suspension design, variable stride length and refined ergonomics keep workouts quiet, smooth and natural, even when incline is increased to target and tone different muscles. Includes water bottle holder and removable disk to streamline maintenance.

AVAILABLE CONSOLES

CONSOLE QUICK COMPARE



*Product availability may vary by market or by color.



Performance Elliptical

WITH TOUCH CONSOLE

EP-PS-TOUCH

The premium design of our durable Performance Elliptical offers a dynamic exercise experience. Patented suspension design minimizes noise and friction to extend product life, while constant rate of acceleration and refined ergonomics make workouts ultra-smooth and comfortable. A removable disk streamlines service and maintenance, minimizing downtime.

AVAILABLE CONSOLES

CONSOLE QUICK COMPARE



*Product availability may vary by market or by color.

Fitness Equipment Report



Performance ClimbMill

WITH TOUCH XL CONSOLE

CM-PS-TOUCHXL

Give members an exceptional climb with a premium ClimbMill engineered for unmatched security and durability. Control Zone stops the stairs instantly if anything pushes against rotation, and robust components withstand hard use. A range of refined design features makes every workout more comfortable and service quicker and easier than ever.

AVAILABLE CONSOLES

CONSOLE QUICK COMPARE



*Product availability may vary by market or by color.



Performance Recumbent Cycle

WITH TOUCH CONSOLE

R-PS-TOUCH

Our ultra-durable, ergonomically refined Performance Recumbent Cycle distributes weight and maximizes support for low-impact cardio. Designed for easy placement and accessibility for members of all kinds, the adjustable, ergonomically sculpted seat and back pad enhance comfort while a smart design minimizes service so it's always ready to ride.

AVAILABLE CONSOLES

CONSOLE QUICK COMPARE



Performance Hybrid Cycle

WITH TOUCH CONSOLE

H-PS-TOUCH

Offer members an intense experience with our ultra-durable, one-of-a-kind Performance Hybrid Cycle. Our innovative command seating position optimizes ergonomics for maximum comfort and workout efficiency during hard rides. Ergonomically sculpted, easily adjustable touchpoints enhance comfort even further, and advanced design features streamline service and maintenance while simplifying cardio floor placement.

AVAILABLE CONSOLES

CONSOLE QUICK COMPARE



Fitness Equipment Report

Performance Upright Cycle

WITH TOUCH CONSOLE

U-PS-TOUCH

Give members the feel of a real outdoor ride with the unmatched performance and durability of our Performance Upright Cycle. Race-inspired design makes intense workouts more comfortable and accessible, giving true cycling enthusiasts a ride to remember. Additionally, a range of advanced design features minimize service time and maximize product placement options.

AVAILABLE CONSOLES
CONSOLE QUICK COMPARE

Krankcycle

KrankCycle-G4-KrankCycle-G4

The Krankcycle® is an upper-body stationary cycle with independent crank arms, enabling forward and reverse movements. Comfortable and easy to use, it allows users to train with a single arm or to integrate their entire upper body to build aerobic capacity, FUNCTIONAL-STRENGTH and endurance at higher RPMs.

*Product availability may vary by market or by color.

REQUEST A QUOTE

S-Drive Performance Trainer

S-DRIVE-S-DRIVE

Add our S-Drive Performance Trainer to existing circuit training programs to offer members power walking, running, HIIT, sled-pushing, resistance sprinting and agility training options in one space-saving footprint. Magnetic resistance is easily adjusted to a wide range of ability levels. Includes training protocols for large and small circuit training programs.

*Product availability may vary by market or by color.

REQUEST A QUOTE

Fitness Equipment Report**WEIGHT EQUIPMENT PROPOSAL:**

Replace all Prostar weight equipment with Matrix equipment

Purchase Used Hoist Roc-It Circuit, if available

Upstairs Weight Equipment

Add 1 – Aura Multi-Station

Remove 1 – Prostar Multi-station

Add 1 – Magnum Double Mega Rack

Add 1 – Magnum Smith Machine

Remove 1 – Prostar Smith Machine

Add 1 – Magnum 45 Degree Leg Press

Remove 1 – Prostar Leg Press

Add 1 – Magnum Hack Squat

Remove 1 – Prostar Hack Squat

Add 1 – Magnum Glute Trainer

Add 1 – Magnum Standing Calf

Remove 1 – Prostar Seated Calf

Add 1 – Magnum 10 pair Dumbbell Rack

Add 1 – Magnum 2 tier Flat Tray Dumbbell Rack

Remove 2 – Prostar Dumbbell Racks

Add 1 – Magnum Barbell Rack

Remove 1 – Prostar Barbell Rack

Add 1 – Magnum Back Extension

Remove 1 – Prostar Back Extension

Add 1 – Magnum Olympic Flat Bench

Fitness Equipment Report

Remove 2 – Prostar Flat Bench

Add 1 – Magnum Olympic Incline Bench

Remove 1 – Prostar Incline Bench

Add 1 – Magnum Adjustable Decline Bench

Remove 1 – Prostar Decline Bench

Add 1 – Magnum 3-way Olympic Bench

Remove 1 – Prostar Shoulder Bench

Add 1 – Magnum Seated Row

Remove 1 – Prostar bent over row

Add 1 – Magnum Preacher Curl

Remove 1 – Prostar Preacher Curl

Add 1 – Adjustable Ab Bench

Remove 1 – Prostar Ab Bench

Add 4 – Magnum Multi-Adjustable Benches

Remove 3 – Prostar Adjustable Benches

Add 1 – Magnum Utility Bench

Remove 1 – Prostar Utility Bench

Add 1 – Magnum Power Rack

Remove 1 – Magnum Power Rack

Harrisonville Parks and Rec.

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Aura 8-Stack Multi-Station

G3-MS80



*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Double MEGA Rack

MG-MR47 x 2



*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Glute Trainer

MG-PL7B



*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Olympic Flat Bench

MG-A7B



*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

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**Magnum 3-Way
Olympic Bench**

MG-C895

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

**Magnum Olympic
Incline Bench**

MG-A79

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Power Rack

MG-A47

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

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Magnum Smith Machine

MG-PL62

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Standing Calf

MG-PL76

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum 45 Degree Leg Press

MG-PL70

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

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Magnum Hack Squat

MG-PL71

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Seated Row

MG-PL34

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Barbell Rack

MG-ABB

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

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**Magnum Back
Extension Bench**

MG-A93

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Preacher Curl

MG-A62

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

**Magnum Adjustable Ab
Bench**

MG-A77

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

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Magnum Multi-Adjustable Bench

MG-AB5

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Adjustable Decline Bench

MG-AB1

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Magnum Utility Bench

MG-AB7

*Product availability may vary by market or by color.

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Fitness Equipment Report

Downstairs Weight Equipment (if Hoist Roc-It Circuit not available)

Add 1 – Ultra Abdominal Crunch

Remove 1 – Prostar Ab Crunch

Add 1 – Ultra Back Extension

Remove 1 – Prostar Back Extension

Add 1 – Ultra Calf Extension

Remove 1 – Prostar Squat

Add 1 – Ultra Converging Chest Press

Remove 1 – Prostar Chest Press

Add 1 – Ultra Converging Shoulder Press

Remove 1 – Prostar Shoulder Press

Add 1 – Ultra Diverging Lat Pulldown

Remove 1 – Prostar Lat Pull Down / Seated Row

Add 1 – Ultra Diverging Seated Row

Add 1 – Ultra Flute

Remove 1 – Prostar Reverse Hyper

Add 1 – Ultra Hip Abductor

Add 1 – Ultra Hip Adductor

Remove 1 – Prostar Hip Abductor

Remove 1 – Prostar Hip Adductor

Add 1 - Ultra Independent Bicep Curl

Remove 1 – Prostar Bicep Curl

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Add 1 – Ultra Lateral Raise
Remove 1 – Prostar Lat Raise
Add 1 – Ultra Leg Extension
Remove 1 – Prostar Leg Extension
Add 1 – Ultra Leg Press
Remove 1 – Prostar Leg Press
Add 1 – Ultra Pec Fly / Rear Delt
Remove 1 – Prostar Pec/ Delt
Add 1 – Ultra Prone Leg Curl
Remove 1 – Prostar Leg Curl
Add 1 – Ultra Rotary Torso
Add 1 – Ultra Seated Leg Curl
Remove 1 – Prostar Leg Curl
Add 1 – Ultra Triceps Press
Remove 1 – Prostar Triceps Press
Add 1 – Versa Functional Trainer
Remove 1 – Prostar Functional Trainer

Fitness Equipment Report

Ultra Abdominal Crunch

G7-S51

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim** option G7-S51B.

*Product availability may vary by market or by color.


Ultra Back Extension

G7-S52

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim** option G7-S52B.

*Product availability may vary by market or by color.


**Ultra Independent
Biceps Curl**

G7-S40

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim** option G7-S40B.

*Product availability may vary by market or by color.

Fitness Equipment Report

Ultra Calf Extension

G7-S77

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S77B**.

*Product availability may vary by market or by color.


Ultra Converging Chest Press

G7-S13

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S13B**.

*Product availability may vary by market or by color.


Ultra Pec Fly / Rear Delt

G7-S22

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S22B**.

*Product availability may vary by market or by color.

Fitness Equipment Report

**Versa Functional
Trainer W/30\"/>**

VS-VFT + VS-FTS30

*Product availability may vary by market or by color.

[REQUEST A QUOTE](#)

Ultra Glute

G7-S78

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in [Ultra Base Trim option G7-S78B](#).

*Product availability may vary by market or by color.


Ultra Hip Abductor

G7-S75

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in [Ultra Base Trim option G7-S75B](#).

*Product availability may vary by market or by color.

Fitness Equipment Report

Ultra Hip Adductor

G7-S74

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S74B.**

*Product availability may vary by market or by color.


Ultra Diverging Lat Pulldown

G7-S33

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S33B.**

*Product availability may vary by market or by color.


Ultra Lateral Raise

G7-S21

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S21B.**

*Product availability may vary by market or by color.

Fitness Equipment Report

Ultra Prone Leg Curl

G7-S73

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S73B.**

*Product availability may vary by market or by color.


Ultra Leg Extension

G7-S71

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S71B.**

*Product availability may vary by market or by color.


Ultra Leg Press

G7-S70

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S70B.**

*Product availability may vary by market or by color.

Fitness Equipment Report

Ultra Seated Leg Curl

G7-S72

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S72B**.

*Product availability may vary by market or by color.


Ultra Diverging Seated Row

G7-S34

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S34B**.

*Product availability may vary by market or by color.


Ultra Converging Shoulder Press

G7-S23

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim option G7-S23B**.

*Product availability may vary by market or by color.

Fitness Equipment Report

Ultra Rotary Torso

G7-S55

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim** option G7-S55B.

*Product availability may vary by market or by color.


Ultra Triceps Press

G7-S42

The powerful and comfortable Ultra Series gives you the most advanced functionality with an intuitive design that couldn't be easier to operate. Both durable and beautiful, the Ultra Series will exceed your expectations when it comes to earning and retaining members.

Also available in **Ultra Base Trim** option G7-S42B.

*Product availability may vary by market or by color.